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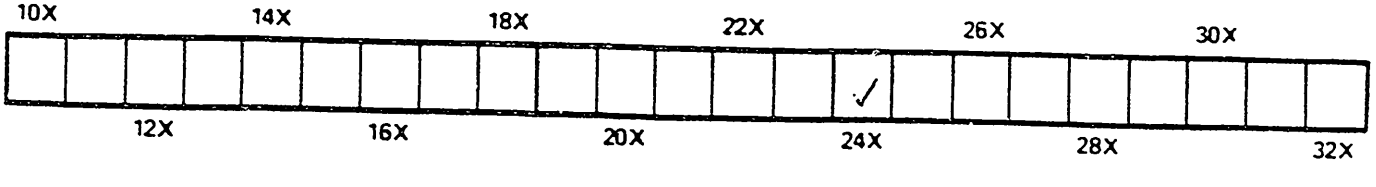

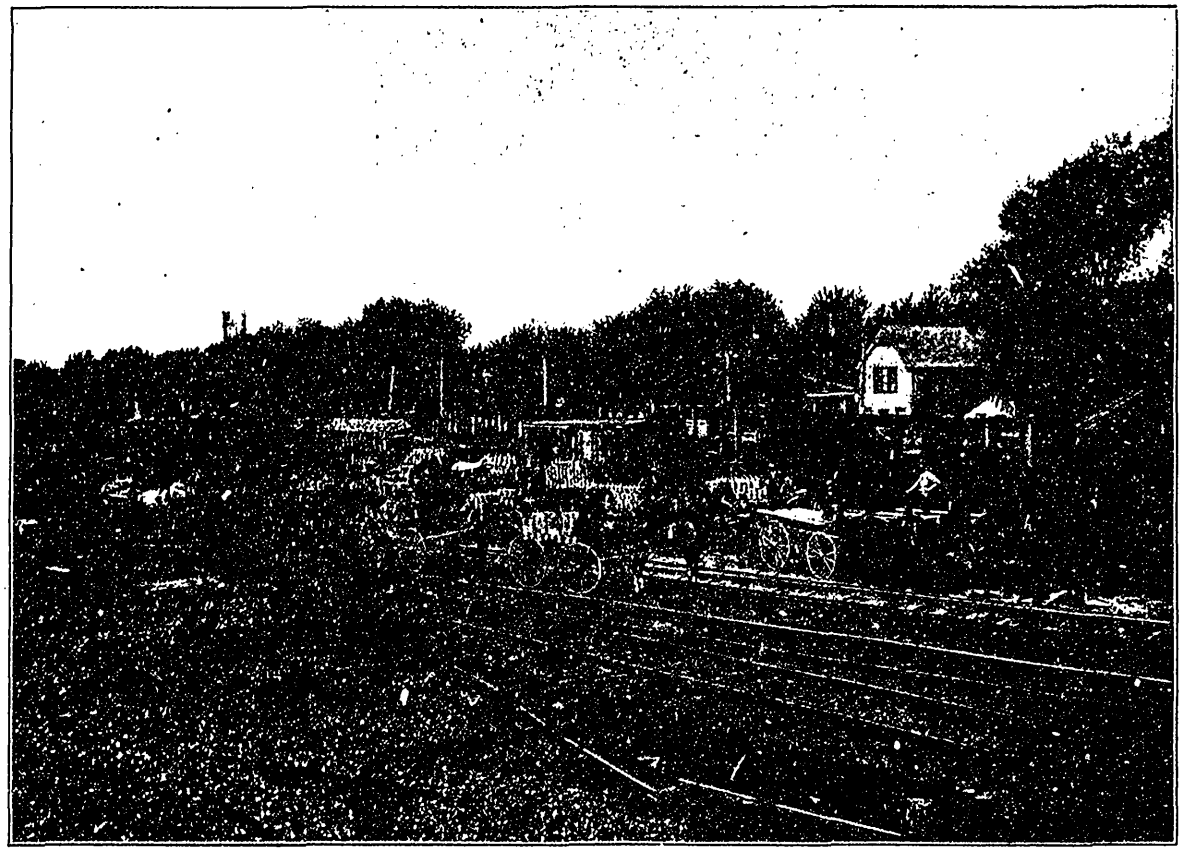

Co-operative Fruit Shipping at St. Catharines, Ont.

THE
CANADIAN HORTICULTURIST.

VOL. XXII. 1899. No. 6

CO-OPERATIVE TRANSPORTATION OF FRUITS.

DURING the early years, in which the fruit industry had its beginnings in these portions of Ontario which seemed from their favorable circumstances and surroundir_ to be peculiarly adapted for the production of the various fruits of all the temperate zone, the energies of those, whose bent or inclination led them into this particular line, were chiefly devoted to a study of the varieties of the different fruits which seemed to give promise of best results ; and also to endeavor to become familiar with the best and most approved methods of cultivation and propagation. That these efforts have been crowned with a fair degree of success, the extensive orchards and vineyards which stretch away for miles in various directions in many localities, give ample evidence.

In this laudable and praiseworthy pursuit, the Ontario Fruit Growers' Association has taken an active part, and much credit is due the various officers of the Association in past years for the success which has attended their efforts.

The time has come however, when the average grower of fruit is not looking so much for new varieties and new approved means of culture, although we have by no means reached the limit in either of these lines ; but rather, that he may be able to place the fruits which he is now producing in abundance and of a good quality into the hands of an ever increasing number of consumers in our towns and cities, as well as across the sea in the Home Land, in good order with fair despatch and at reasonable cost for transportation. These are burning questions with the commercial fruit growers to-day, and are engaging the best thought of some of the largest shippers in the various fruit sections.

The illustration accompanying this

article gives a view of an effort made a short time ago on the part of a number of large shippers at St. Catharines to avail themselves of the facilities which presented themselves, whereby shippers might co-operate together and take advantage of the freight service, shipping their fruits in car lots under one management, and thus secure better and more careful handling and satisfactory despatch. Up to the season of 1895 all fruit had been transported either by express or boat, or else by the ordinary local freight in small lots; the objections to these methods seemed to be high rates in the one case, infrequency of boats in another, and slow service and poor handling in the third instance. It was thought by a number of shippers that by loading a full car load from time to time when the circumstances of the case would admit of of it, that it would be an object for the railroads to give rapid transit, and being loaded by the shippers themselves, the fruit would have careful handling, and should arrive at destination in good order; and with carload rates the cost would be somewhat reduced. The frontispiece shows a scene at the N. C. R. Depot, St. Catharines, which was of almost daily occurrence during the early fall of 1895, some thirty-five or forty cars being thus loaded during that year with very satisfactory results.

Since that time the carload shipments have increased very rapidly, until in 1897 some 350 or more cars were shipped via G. T. R., N. C. R. and C. P. R., to the various large centres of Canada and the United States. During 1898 owing to the failure in some lines of fruit the business was not so extensive.

The result of these efforts has been to show the shippers the necessity of some organization among themselves, whereby this work can be carried on in a systematic, business-like manner.

Consequently, a Stock Company was formed in the spring of 1888, for this particular object, called "The St Catharines Cold Storage and Forwarding Co., Ltd.," with a capital stock of $10,000, in shares of ten dollars each. This company has been in existence but little over a year and bids fair to be a very great success. The company contemplates erecting in time for this season's business a modern cold storage warehouse, operated by mechanical refrigeration, they have also a large ice house of their own from which to ice refrigerator cars during the hot weather, and will be prepared to receive, store, and forward all kinds of fruits to any point according to the wish of the shipper.

We congratulate our St. Catharines friends on the efforts that they are putting forth to solve the problem of cheaper and more satisfactory transportation.

W. H. BUNTING.

St Catharines.

ONE of the neatest shrubs for forming a hedge is the California privet; it makes a very neat, dense-foliage plant, and bears any amount of clipping into shape. Another beautiful shrub for the same purpose is the Japanese barberry, *Berberis Thunbergii.* This is handsome at all seasons, bearing a number of coral red berries, which hang on well into the winter, if the birds do not devour them all. In the autumn the foliage turns a bright, deep red. It is broad and compact in its growth.

THE FRUIT GROWING BUSINESS.

THE uncertainty which attends the business of the fruit grower is sometimes very trying to his patience, the results are sometimes so disappointing that he is almost discouraged. If sometimes the returns for a fruit crop are higher than for ordinary crops, it is only a just compensation for the frequent failures to which the crop is subject. Sometimes we meet a summer frost, sometimes a winter of unusual severity; one year the apple crop fails completely, another year it is too small or too scabby for shipment; now the peach, now the pear is a total failure, and a whole year's income is gone.

And when to these misfortunes we add two years of depressed prices such as we have just experienced, it is no wonder that many have turned their attention to other lines, and have offered for sale fruit farms that formerly it was almost impossible to buy. All these considerations however make for the ultimate good of the fruit grower who has made the business his life work, and is not possessed by a fickle mind. The second-class will be weeded out. the poor orchards rooted out, and when the good times and higher prices come, the deserving and persevering will have the reward they so well deserve.

As an example of the disappointments which have fallen the lot of many of our fruit growers this spring, we give a letter just received from Mr. W. W. Hillborn, Leamington, an experimenter in peaches, he says:

"I find the damage done to our fruit trees by frost was much greater than we first thought. All nursery trees in this district were killed, about 100,000, and I think I am safe in saying that not less than 95% of all the peach trees planted in orchard are killed. It is hard to believe such to be true when we look at the tops and see they are bursting out nicely in leaf, and most of them very full of blossom buds just beginning to open. When we examine the roots we find nearly all are killed. Many plums, some cherries, pears and apples are injured. I expect to have to clear off the whole farm and start over again. A week ago I thought there were many that would pull through, but at present I fear it will be a clean sweep. Mr. Carpenter, of Winona, has just been here, he says he thinks much damage has been done there also. Mr. W. H. Lee, of Virgil, writes me that his nursery trees (Peach) are all killed. Cannot send out any this season. It is only within the last few days that it was apparent what damage had been done."

This is indeed a deplorable story, and our friend Hillborn, and others in the same boat, have our sincere sympathy; at the same time we admire his pluck, for he writes that he intends replanting as soon as possible. Time will show that he is doing the wise thing.

The result will not be all loss, for the wreck is so wide spread, especially in the Western States, that large prices must result, and the persistent grower must eventually receive his reward.

FIG. 1599.—J. H. HALE.

J. H. Hale, the Connecticut peach grower, seems never discouraged with reverses, and his success is phenomenal. He is an enthusiast, and a quotation from a recent address of his before the

Massachusetts Horticultural Society, will be an inspiration. He says:

The whole theory of successful soil culture consists in selling water, because it is the cheapest gift to man. The grain farmer cu's great chunks off the plant food in the soil and sends it away, so does the potato grower, the market gardener, the hay farmer, and, so to a less extent, the dairyman. The fruit grower keeps most of his plant food at home and sells water just as truly as though he tapped the spring and piped its water down into the market, only the the fruit basket takes the place of pipes.

Fruit culture is one thing that enables us to sell watered stock and satisfy our customers. Disguised in the luscious strawberry, blooming raspberry, ebony blackberry, or beneath the rosy skin of some one of our delicious tree fruits, water finds a ready market at prices that leave "millions in it" for the one who most skillfully assists Nature in "turning water into wine" (fruits). Every season occurs the apparent miracle of turning water, often impure and unwholesome, into rich and healthful fruits, which are "absolutely pure," and free from germs or microbes.

How best and most economically to assist Nature in the work, and reap the greatest rewards, is the question. How shall the watercourses be turned into the channels of tree, plant, and vine, and help to turn the wheels of fruit culture in such a way as to give the best final results?

A deep ploughing and a thorough pulverization of the soil will make it capable of holding much more water than before. A cubic foot of soil will hold, after being pulverized, a hundred times as much water as the soil would before. This water will be taken up by the roots of your fruit trees and so will swell up your fruit. If you cannot keep enough moisture in the soil by pulverizing you will have to try to do it by mulching and if you cannot do it by mulching, then by irrigation, but let me say that you cannot irrigate a large tract with windmills and tanks.

Just at present a bushel of apples, wheat, or potatoes sells for about the same price, $1 for 60 pounds. In the apples we sell 1 ounce nitrogeon, 1¼ ounces potash, and ½ ounce phosphoric acid, which costs 1½ cents, leaving 98½ cents for the water. Potatoes take from the farm 4 ounces nitrogen, 2 ounces phosphoric acid, and nearly 5 ounces potash, valued at 6¼ cents, leaving 93¾ cents for the water. The bushel of wheat has 1½ pounds nitrogen, 10 ounces phosphoric acid, and 5 of potash, worth 30¼ cents, leaving only 69¾ cents for the water Fifteen bushels of apples take no more plant food from the soil than one bushel of wheat, yet bottled up under their bright skin you can sell 765 pounds of water for $14.77! To sell the same amount of water in wheat would take 84 bushels, or the product of five average acres, while the apples would come from one well grown and well nurtured tree. Eighteen pounds water, ¼ ounce nitrogen, ⅓ ounce potash, and so little phosphoric acid that you cannot see it with a microscope, all costing less than ½ a cent, make 10 quarts of strawberries, that sell for $1, the same as the bushel of wheat, which takes sixty times as much plant food from the soil. Selling water in a strawberry basket enriches both the farm and the farmer.

My trial bed and test plot of strawberries is on medium sandy loam soil, well pulverized to the depth of 15 inches, then subirrigated by ¾-inch perforated iron pipes, lying 6 feet apart, 1 foot below the surface. Every condition is as favorable as I know how to make it

for pumping water into strawberries, and so securing the greatest size and yield. It contains 12 plants each of all leading varieties. Each plant is allowed 2¼ square feet of land. Six of the largest and most productive varieties yielded an average of a little more than one quart to the plant, 18,360 quarts per acre. The average for the whole bed, including many shy fruiting varieties, was ⅝ of a quart per plant, or 13,115 quarts per acre, 400 per cent. increase over 3,200 quarts, the average yield in the State. These berries were so puffed up in size and beauty by extra conditions that their selling price was 50 per cent. about average market prices.

If with water you can float 400 per cent. increased yield into market and soak the price up 50 per cent. more, does that not show profit enough to keep all soil pumps well oiled and leave a good margin for outside fun? Three hundred and forty of my big Japan plums, 82 per cent. water and 18 parts solid, made a bushel that sold at $4.80, while 720 of same varieties 26 parts solid and only 74 of water. made a bushel that sold the same day in the same market at $2.56, or over $1.00 per barrel for the extra percentage of water in the larger plums. Open up the watercourses of the soil, and be ready for the flood tide of prosperity; it is of no use to dam it with "I can't!"

My big peaches—100 to the bushel—92 parts water to 8 parts solid, solid at $5; the same variety, 400 to the bushel, were 84 parts water, 16 of solids, and sold at 70 cents per bushel—$4.60 for the water and 40 cents for the solids in the large fruit, and 58.7 cents for the water and 11.3 cents for the solids in the small ones, or $5.64 per gallon for *extra* water.

UNDERDRAINING THE ORCHARD.

LOCATE drains midway between the rows of trees. The depth of the drains should be from four to five feet, not less than four and as much deeper as the outlet and convenience will allow. The tile should be two or three sizes larger than would be necessary to use in ordinary land draining, to give aeration to the soil, and not be liable to obstructions from small roots. If the drains midway between the rows and as much as four feet and laid with five or six-inch tile, the roots of the trees will not likely reach the drains in sufficient numbers to seriously affect the drainage. The deeper the drains the deeper the roots will penetrate the subsoil. If the drains were eight feet deep the earth midway between the drains and directly under the rows of trees would be affected as deep as seven feet in a few years' time, and the roots of the trees will penetrate as deep as the subsoil is drained within a reasonable limit, say ten feet, possibly more. Trees so deeply rooted are the better secured against injury from the extremes of the weather. With the sufficient under drainage of a fertile, retentive clay soil, the intelligent orchardist with persistent energy is master of the business.—Orange Judd Farmer.

HOW RINGING AFFECTS GRAPES.

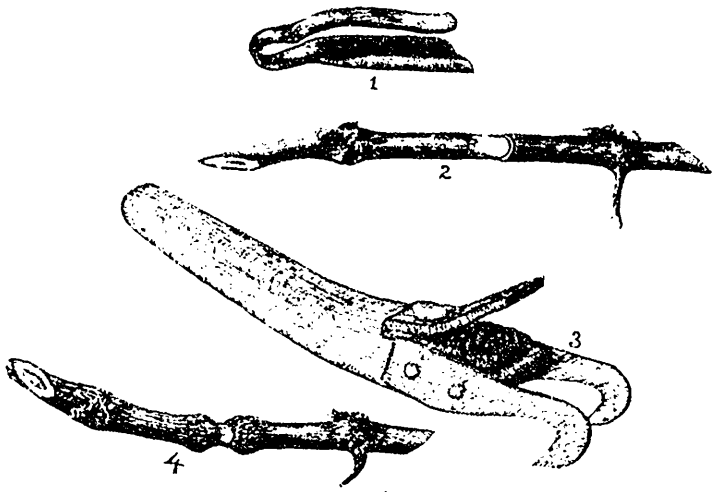

FIG. 1600 (1) and (3).—Tools used in ringing grape vines; (2) vine showing ring of bark just removed; (4) same at the close of the season.

RINGING grape vines is practiced by many growers to secure earlier maturity and larger bunches of grapes. A ring of bark is removed from the bearing arm between the main vine and the buds which are to produce the fruit of the season. This does not interfere with the ascent of the sap, which passes through the outer ring of undisturbed wood; but it does prevent the return of the food which has been formed from the sap in the leaves. Thus parts of the branch above the ring can draw upon all the food formed in the leaves of that branch, none of it passing on to build up the parent vine. Consequently the overfed bunches grow faster and become larger than their less favored mates; but the vine itself may suffer, and size may be added and early maturity produced at the expense of quality.

Ringing is performed either with knife or with tools like those shown in Fig. 1600, a band of bark about an inch wide being removed. Since the ringing robs the plant, it must be done with care to prevent permanent injury to the vine by the continued drain. However, by keeping the vines well fed, maintaining a good supply of vigorous foliage kept free from diseases and insects and by modifying the method to suit the system of training, vineyards which have been ringed for ten or fifteen years have been kept growing and still yield heavily. In the two arm Kiffin system of training the ring is removed from each arm beyond the fifth bud thus leaving ten buds to furnish leaf surface to support the vine; in the four-arm system only the two upper arms are ringed, leaving the lower ones for foliage and fruit; and in the renewal system the ring is removed just beyond the renewal bud, so that several shoots in the centre of the vine supply it with necessary food. In any system all fruit below the ring should be removed as it will not ripen well, but will uselessly draw food from the already cheated vine.

To test the process and its modifica-

tions tests have been carried on for two seasons in two localities. At Poughkeepsie the vines were trained on the two-arm Kiffin system and both arms of most of the vines tested were ringed beyond the fifth bud, four vines only being ringed beyond the renewal bud. No difference was noticed between these two methods; but great difference, particularly with some varieties, between ringed and unringed vines. Delaware ripened 9 days earlier, Niagara 14 days, Concord 17 days and Empire State 21 days; and there was a slight gain in size with Moore's Early and Niagara; but Delaware and Moore's Early showed a decided loss in quality, and Worden's tendency to crack was decidedly increased. Two vines of Niagara ringed beyond the renewal bud, succumbed to the treatment, dying before the second season was over. The results of the second season, which was dry and hot toward its close, were not so marked Empire State was the only variety to show gain in size and hasten maturity.

At Lodi the renewal system is used and vines were ringed just beyond the renewal bud. All varieties tested showed a gain in size, compactness of bunches or earliness; this being quite marked with Concord, Geneva and Niagara; but the quality of the finer-flavored sorts, as Delaware and Niagara, was inferior on the ringed vines. In the second season no new growth was allowed to form beyond the fruit on some of the ringed vines, the ends of the vines being trimmed off; and the quality of fruit was improved on such vines. As at Poughkeepsie, the differences in size and earliness were not so striking as in the preceding season.

These experiments tend to show that ringing will mature grapes of some varieties earlier, and will make larger and more compact bunches; but the amount of difference will vary with the variety, season, condition of foliage, cultural care, and quantity of fruit allowed to mature on the vine The quality of finely flavored grapes is liable to be lowered; but this may be remedied to some extent by trimming ringed vines so but little new growth forms. With careful management the vitality of the vines need not be seriously impaired.

The question of desirability of ringing and profit therefrom is one which each grower must decide for himself.—Geneva Bul. 151.

WHALE-OIL soap should cost about four cents per pound when bought in quantity. It requires no preparation other than dissolving in water, and ordinarily is easily applied. Care should be observed to get an article that will not turn to jelly when dissolved at this rate, for jellied soap is very difficult to spray. The above strength, two pounds to a gallon, should never be applied except in the winter when the trees are entirely dormant, for an application when the buds are swelling or when the leaves are on the tree is sure to do great injury to the tree.

PROPAGATING STRAWBERRIES.—If one has a variety of strawberry desirable for propagation, it is a good practice to peg down the earliest runners close to the ground. If small stones are at hand, one placed at the end of the runner will do as well. Pegs are easily made, cutting twigs into lengths of eight or ten inches, and splitting them. They will then bend like hair-pins; or tooth-picks may be utalized. If small pots of rich earth be placed under the runner's bud, so much the better for an early and strong plant.

THE REFRIGERATOR CAR.

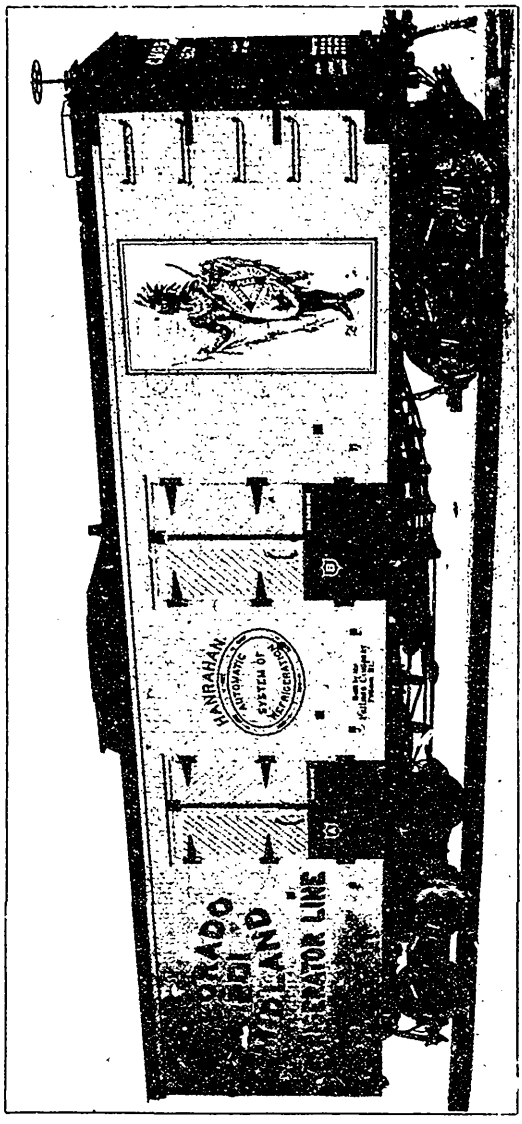

FIG. 1601.—REFRIGERATOR CAR.

THE refrigerator car depicted above is built by the Pullman Co. for the fruit trade, between the southwest and the central and eastern states. It is constructed according to the system invented by Mr. J. F. Hanrahan, formerly of Ottawa, but now of Chicago, and is especially adapted to the carriage of tender fruits and vegetables. Ice alone is used. It is placed in a chamber in the centre of the car in large blocks, just as it comes from the ice house. The consumption of ice is much less than where ice is mixed with salt. In fact Hanrahan cars run between Chicago and New York or Boston without re-icing, while the ordinary refrigerator car has to be twice replenished between these points with a mixture of broken ice and salt. A great saving is made by dispensing with the cost of salt, icing stations, and labor and machinery for smashing, mixing and charging. The cost of the car is moderate while its life is much greater than that of the ordinary refrigerator car. Hanrahan cars that have been running for eight years are as sound to-day as when they were first put in use. The lining of the ordinary refrigerator car, especially in the vicinity of the tanks, is usually wet and slimy and rots away in a few years. On the other hand every part of a Hanrahan car, even the inner sides of the ice chamber is at all times perfectly dry.

As might be expected, the temperature of the car is not as low as where a

mixture of ice and salt is used. In fact Mr. Hanrahan has found a low temperaunnecessary for the preservation of perishable goods. Cold is not of the the first importance, though the ordinary experimenter thinks of nothing else. What is essential is that the air in the chamber should be kept at all times active, dry, inodorous and otherwise pure. The moisture and odors given off by the goods carried, the heat which they exhale or that which they absorb from the warmer air surrounding the car body, must all be abstracted from the chamber. Decay may be retarded for a time by a low temperature alone, but the products carried or stored, fruit especially, will "go down," or otherwise decay as soon as exposed to ordinary air.

Experiments have demonstrated to Mr. Hanrahan that the elimination of moisture and the products of decay from the refrigerator chamber is of far greater importance than the maintenance of a very low temperature. Such temperatures have been maintained in the shipments that have recently been made to England. The cold was produced by the most approved chemical processes. The temperature of the storage chambers was all that could be desired, but no application was made of the cold produced to rid the storage chamber of the moisture, gases, odors or heat produced by the goods carried. The result was necessarily failure. On the other hand, as Professor Saunders testified a few years ago in his address before the Fruit Growers' Association, large quantities of tender fruits were carried by the Hanrahan process to the Indian and Colonial Exhibition at London, and exhibited in perfect condition. The success of that shipment has never since been duplicated, and it never will be until shippers adopt a rational system of cold storage and transportation. Though Mr. Hanrahan is a Canadian his cars are not running between Canadian points. They however, pass through Ontario every day successfully carrying the products of the United States.

F R. LATCHFORD.

Ottawa.

DEVICE FOR PICKING GOOSEBERRIES.

IT is the habit of all our sorts of gooseberries to grow in a tangled mass of branches close to the ground, says Orange Judd Farmer,

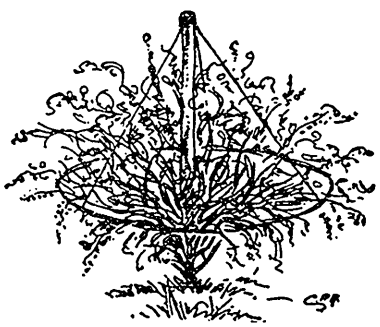

FIG. 1602.—GOOSEBERRY PICKING MADE EASY.

The result is most difficult picking and scratched hands. Fig. 1602 shows a simple plan to obviate the difficulty. If one has many bushes this plan will prove especially advantageous. The stout wire ring, Fig. 1603 is put about under the low lying branches and hooked. Then the three wires are hooked into it,

FIG. 1603.—WIRE RING.

the wires drawn up and hooked over the stake that is stuck down in the middle of the bush. One can then reach under the bushes very easily.

THE TENT CATERPILLAR

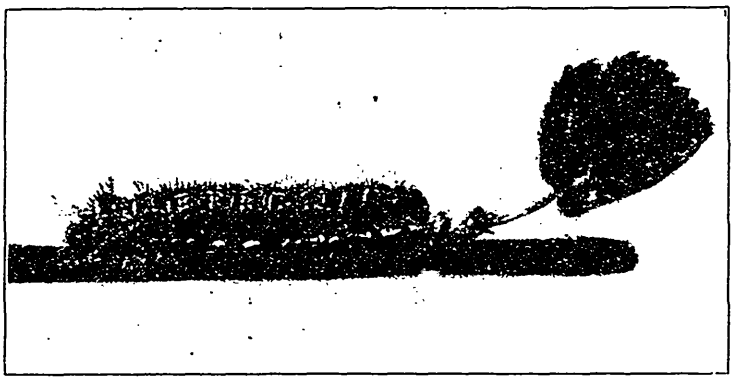

FIG. 1604.—THE TENT-CATERPILLAR.

THE orchardist who suffers severely from the apple-tree tent-caterpillar (*Clisiocampa americana*) must, without a hearing, be condemned as careless. Many did so suffer last year and the unsightly nests of the caterpillars were all too common in otherwise well-kept orchards; yet this pest is almost the easiest to combat of all the fruit-grower's enemies. It may be quite readily located and destroyed while in the egg, the tents are conspicuous and quickly burned, the young caterpillars yield speedily to arsenicals and the white cocoons plainly show themselves for destruction on the sides of buildings, on fences and on rubbish, where they are usually placed.

The effect of the nests in marring the beauty of the orchard should be sufficient reason for proceeding vigorously against this enemy; but a more influential motive lies in the voracious feeding habits of the larvæ. The caterpillars in a nest of ordinary size will consume 2,500 apple leaves in a week; and as they feed for five or six weeks, those from two or three nests may almost completely strip a tree of its foliage and greatly lower its vitality. They seem to prefer the taste of the wild cherry, and this tree was probably their original food plant. All such trees should be carefully watched as they are liable to be starting points for the invasion of nearby orchards. Next to the wild cherry the caterpillars seek the apple; but they also do considerable damage upon cherry, plum and peach; and are known to feed upon the rose and other members of the rose family, and upon witch hazel, beech, birch, oaks, willows and poplars.

During most of the year, from late July until the following spring, the insect will be found in the egg. These eggs are laid in peculiar rings or bands, "thimbles" or "caterpillar belts" some call them, about the smaller twigs as shown in Fig. 1605. From 150 to 250 of these eggs are crowded together in this band, which may reach nearly, or quite round the twig. It is covered with a thick layer of glue which makes a glistening protection from the weather. These bands are large enough to be plainly seen and can easily be removed and burned when pruning the trees. In

many places it may pay to offer a small price per hundred to encourage the children to collect them. This was tried in New Hampshire and one case is recorded where 8,250 egg masses, equivalent to 1,237,500 eggs, were collected for $8.25. The little caterpillars form in the eggs in the summer but do not hatch until the middle or last of the following April. If food is not yet plenty they live for a few days upon the glue which has been their winter bed-blanket, but soon begin the construction of the well-known nests. These are usually placed in some crotch of twigs near the abandoned little honeycomb-like egg-band and are formed by the threads of silk which the caterpillars spin As the larvæ grow and the nest becomes too small another sheet of threads is spun, so that the tent is really a succession of nests one outside the other. These white or yellowish masses of silk are easily destroyed by burning on the tree or by cutting off the twig and crushing the nest. This should be done in the evening or just before a storm when the caterpillars have sought shelter.

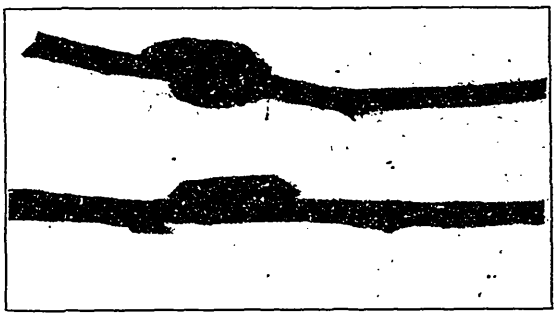

FIG. 1605.—EGG MASSES OF APPLE-TREE TENT-CATERPILLAR.

The caterpillars feed until late in May, when, after four or five molts, they are of the size and appearance shown in Fig. 1604. The body color is black, but a prominent white stripe extends the full length of the back. There are also numerous shorter irregular white lines and a row of oval, pale blue spots upon each side; while the entire body is thinly covered with long yellowish hairs. The caterpillars, especially when young, can easily be killed by two or three sprayings with some arsenical poison. Several natural agencies serve to keep the caterpillars within limits: Some of the ground beetles and the spiny soldier bugs catch and eat the larvæ; several species lay their eggs within the bodies of the caterpillars and the little grubs which hatch from them live upon the caterpillars' life blood; and a bacterial disease frequently destroys large numbers. These friendly agencies are but slightly under man's control; but the birds which prey upon the pest would respond quickly and beneficently to efforts to protect and encourage them. The principal birds feeding upon the tent-caterpillar are the yellow-billed and black-billed cuckoos and the black-capped chickadee, but others known to do some service in this line are the Baltimore oriole, red-eyed and warbling vireos, wren, chipping-sparrow, yellow warbler and crow.

The larvæ crawl down the trunks of the trees in late May, when they are mature and are nearly two inches long, and spin their cocoons on the trunks of the trees where partially protected by the rough bark, in the grass under the trees, on and about the fences, and very often about the eaves and window casings and along the sides of out buildings. These cocoons are quite conspicuous even when placed singly; but

when in succession as shown in Fig. 1606, there is no excuse for not discovering and destroying them.

From these cocoons the reddish-brown moths emerge in late June and early July and soon lay the eggs which complete the life cycle. These moths are quite large, as shown in Fig. 1607, and are easily distinguishable from all but a few closely related species, by the two oblique, nearly parallel bands of white crossing the fore wings.

quite similar to the apple tree tent-caterpillar in appearance or habits and which may do damage in the orchards, though not usually so abundant as these species. The forest tent-caterpillar (*Clisiocampa disstria*) ordinarily feeds in the woods upon the maple; but frequently mingles with its relatives in the orchards and is distinguishable from them only by a few minor characteristics. The egg-masses, are similarly placed but are cut off squarely at the ends instead of

FIG. 1606.—COCOONS OF THE APPLE-TREE TENT-CATERPILLAR. Natural size (Original.)

Most of the measures to be taken against this pest have already been indicated but may be concisely summarized as follows: Protect and encourage birds; destroy the egg-bands and cocoons and reward the children for collecting them; burn out or crush the nests while the caterpillars are in them; spray the trees with Paris green, and last, but not least, see that wild cherry trees, crabapple trees and neglected apple trees along the roadsides are kept free from the pests or cut down.

There are two other insects which are

being somewhat sloping as are those of the apple-tree caterpillar. This is caused by the eggs in the end rows of the bunch, as well as those in the center, being placed upright; while the end rows of the first described masses are inclined. The tents are more delicate and less conspicuous and are frequently lacking; the caterpillars have a row of diamond-shaped white spots along the back instead of a single white line; and the parallel bands across the wings of the moths are dark rather than white and the space between the lines is darker.

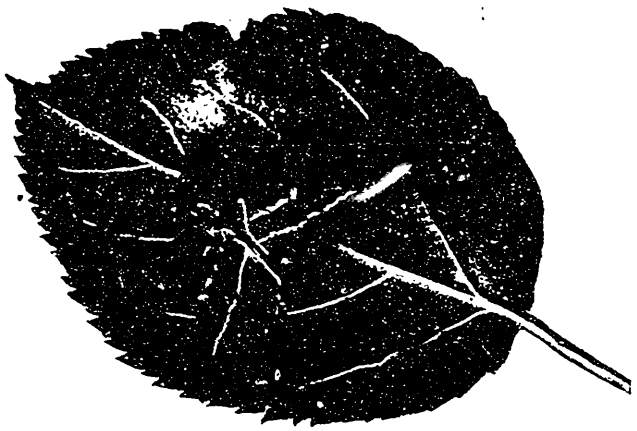

FIG. 1607.—FEMALE MOTH OF THE APPLE-TREE TENT-CATERPILLAR.

The fall-web worm (*Hyphantria cunea*. makes a tent in the fall—not in the spring—which includes the leaves upon which the caterpillars feed; these latter pupate in the fall and pass the winter in the cocoons. The moths, which are white or slightly flecked with color, emerge in the spring.

The methods of repression for these insects are similar to those given for the apple tree tent-caterpillar.—Geneva Experiment Station.

THINNING FRUIT.

We will next consider the thinning of fruit. I wonder how many of you practice the thinning of fruit on your apple trees. Now, apple trees will do a good deal if you do nothing for them. But the man who wants good apples—apples that will pay—in the future will practice thinning his fruit. I should take a young tree which attempted to produce one hundred apples, and remove at least fifty of them, leaving not more than fifty to ripen. The next year, if it attempted to produce two hundred, I should leave one hundred or less, and the next, if it had one thousand apples, I should leave three or four hundred only. By this method I should get that tree into the habit of annual bearing. The man who will make fruit growing a profitable business will thin all his fruit. A peach tree that will set one thousand peaches needs to have six or seven hundred thinned off. The commercial side of fruit growing demands thinning of nearly all your fruits. You will get more bushels to the tree within reasonable bounds; the more you throw away the more pounds or bushels you will have left, increased size more than making up loss in number. In thinning Japanese plums I should leave the fruit four inches apart, and peaches from five to six inches. If you will make a practice of thinning your fruit from the trees, you will usually get four dollars for one. I have often had it increase the crop fifty per cent, and the selling prices five hundred per cent.—J. H. HALE, before Mass. Hort. Society.

THE SECRET OF PROFITABLE STRAWBERRY GROWING.

I HAVE long ago come to the conclusion that the great secret of growing strawberries profitably, and the one most difficult to solve, is to find out the varieties which are most suited to the particular soil and climate in which they have to be raised. Not only has this been my own personal experience, but I have noticed in studying the numerous reports of the various experiment stations, that while one variety may be most productive at one place, it will be utterly worthless in another. The varieties not only differ in vigor and prolificacy, but they seem to vary sometimes in firmness and I often note that one variety is reported as firm at one station, and soft at another. Varieties, however, that are large or small, late or early, have good fruit stems or poor ones, seem to have these characteristics nearly everywhere It is mainly in the quantity and not the quality that the strawberry varies, and out of 80 varieties you may often notice whereas the 5 or 6 best varieties yielded at the rate of 5,000 or 6,000 quarts per acre, the remaining 75 will not average 2,000 quarts.

These variations occur not only in the newer and untried varieties, but even in the old standard sorts, although to a less extent. Frequently one sees a certain variety at the very top of the list at some one station, and always doing well there, while I fail to find it favorably mentioned any where else.

In the selection of varieties it is almost useless to go by the description given in the nursery catalogues, as a variety may do exceedingly well on the particular spot where it originated and yet be utterly worthless nearly everywhere else. Furthermore, the descriptions given are seldom impartial. The only safe plan is to select those varieties which will give the best results in the greatest number of neighborhoods, as the chances are in favor of some of them giving the best results on your own farm. Get 100 of each variety and note the results, and then grow only those which have turned out well.

The above is, as I say, the safest plan, but it is not the best way of getting the very best varieties, because your selection will only be made from old standard sorts, whereas my own experience is that the very best results are from the newer varieties, that have only been propagated some 5 or 6 years. This is partly due to the fact that varieties are apt to degenerate or run out after many years of careless propagation, and partly due to the fact that some other newer varieties are undoubtedly an improvement upon the older ones, especially in size and number of quarts to the acre. Some three years ago I made a selection from about 60 of the most popular varieties and only Enhance, Greenville, Beder Wood, Warfield, Captain Jack and Gandy gave good results, and the latter was by no means prolific, although the quality was the very best. These were, however, altogether beaten by the Bismarck and two or three new varieties, not now in general cultivation.

This has led me to make a still further trial of some of the newer varieties, which have given the best results in some particular sections, and it may interest your readers to go over my selection, bearing in mind that the qualities which I aim at are vigor and productiveness, combined with a large

berry, for I find that buyers *will* have large strawberries. Then the fruit must be firm enough to stand shipment of 300 or 400 miles and keep in good condition for 48 hours after gathering. I want some early varieties, but not unless the quality is A No. 1, for if my first shipments are small and inferior, my customers fail to repeat their orders, thinking that the late ones will be equally poor. It usually pays me quite as well to be able to prolong my shipments, as to begin extra early. I also look for varieties with good fruit stems that will hold the berries out of the mud when we irrigate. Now I do not mean to say that all the varieties I have selected for fruit come up to my standard, nor are they all of recent introduction, but I am led to believe that some few of them may beat any I have hitherto tried. They are Magoon, Pride of Cumberland, Edward's Favorite, Kentucky, Splendid, Jessie, Glen Mary, Jerry Rusk, Eureka, Gertrude, Sunnyside, Hunn, Laxton's Noble, Nick Ohmer, Robinson, Holland, Carrie, Enormous, Ruby, Hall's Favorite, Ohio Centennial, Beverly, Iowa Beauty, Martha, Muskingum, Princess, Aroma, Giant, Crawford, Equinox, Princeton Chief, Georgia Triumph, Fountain, Ridgeway, Ponderosa, Clyde.

It will be noticed that a great number of well-known and equally good new varieties are missing from this list, but this is because myself or some one else has tried them and found them deficient in some necessary quality. Other growers may have better results with such strawberries as Brandywine, Wm. Belt, Mary, Parker Earle, Lady Thompson, Woolverton, etc.

From my own experience I believe that the man who tries 100 and selects 5 or 6 of those that give him the best results, will raise double, if not thrible, the quantity of fruit per acre, and better fruit too, than if he follows the advice of some book or plant catalogue, or even the advice of a friend.—F. C. BARKER, *in Strawberry Culture.*

A DREADED PEST OF THE APPLE.

THE apple maggot, or railroad worm, is a serious pest that is rapidly spreading from the east to the west. The mature insect is a fly, which cannot readily be poisoned, and it is supposed that the eggs which produce the maggots are deposited by the flies in the pulp of the apple beneath the skin, so that the young maggots are secure within the fruit, from the time the eggs are laid until they are mature and emerge from the apple to go into the ground. The maggot is very small, and honeycombs the fruit doing little material injury to the skin or exterior appearance, but causes streaks of rot in the flesh of the fruit, that are very repugnant to the consumer. The soil beneath infected trees was examined at the Rhode Island experiment station last fall (bulletin 37, L. F. Kinney), and the number of maggots that were secreted under different trees was estimated to be

FIG. 1608.—MATURE FLY OF APPLE MAGGOT.

FIG. 1609.—APPLE MAGGOT

from 1600 to over 12,000. When hens were penned under the trees, they worked faithfully and seemed to get enough food from the ground to sustain them during three or four days. It appeared as if few of the maggots were likely to be overlooked by the hens. It is probable that the apple maggots remain in the pupa state in the soil beneath the trees in that latitude from the time they leave the apple in the fall until the following spring, so that confining poultry in the orchard in the fall is the most practical treatment for this pest that can now be suggested. It is important to ascertain the distribution of the pest, and all who observe it will please report to us. Carefully feeding all windfalls or refuse apples to hogs or the stock is advised. Sheep, hogs and poultry should be kept in the orchard after haying, if not before. Clean culture is also advised. Spraying is no protection against this pest, because it does not affect the fly that lays the egg. —Am. Agri.

FAMEUSE APPLE.

AT a recent meeting of the Montreal Horticultural Society, of which Mr. W. W. Dunlop has been for many years the esteemed Secretary, the following tribute was given to this *famous* apple.

I once heard a remark by that veteran pomologist, Dr. T. H. Hoskins, of Vermont, which struck me forcibly at the time. He said: 'I believe there are about three hundred kinds of Fameuse.' This, of course, was said in joke, but expressed the fact that numerous apples of Fameuse type were known to exist on the island and vicinity. We know of the Red Fameuse, the Fameuse, there is also the Striped Fameuse (Fameuse barre), of which no doubt the Snow apple of Ontario is a degenerate offspring There are the Fameuse Sucre, and many seedlings which closely resemble the parent.

The Canada Baldwin, Decarie and McIntosh Red are very near relations of La Fameuse. The Red Fameuse is, no doubt, the handsomest, the most productive, successful and profitable apple of this province. It excels all other varieties for quality, and since the advent of spraying with Bordeaux mixture we can grow as fine specimens as in years gone by.

The Fameuse has been known probably over two hundred years. Trees were sent to England, and the fruit exhibited there at the Horticultural Society exhibitions as early as 1818. It is a common fallacy to suppose that Fameuse is dying out. Let me tell you that as long as a variety is profitable it will not die out. For example, the Ribston Pippin of England, produced from seed brought from Normandy, it is said, about 1689. is yet one of the most popular apples of England, and to day is very largely grown in Nova Scotia and Ontario.

The American Baldwin was introduced about 1750, the Rhode Island Greening about 1765. The Roxbury Russet originated about 1649. All of the above mentioned are favorite market varieties of the present day.

The Fameuse has within the last three

or four seasons become a great favorite, famous in England. Since the means of ocean transportation are improving year by year, the successful exportation of this favorite apple to England is assured. Cold storage in transit, is, thanks to our honorable Minister of Agriculture, an accomplished fact. By means of cold storage we can not only put our fruit on the London market in prime condition in the autumn, but in years of plenty, by placing our crop in cold storage here, and sending forward shipments during winter as prices on the other side improve, prevent a glut in the English market which often obtains during heavy fall shipments. My advice to the orchardists of this province is, keep on planting Fameuse, as well, of course, as other varieties that are profitable.

FRUIT INSPECTION NECESSARY.

STRONG resolutions have been forwarded the Canadian Department of Agriculture by our Association asking that ventilation of holds in vessels intended to carry our apples and other fruits, be insisted upon; that government agents be placed at the principal shipping parts to see after the proper loading and storage of our fruits; and that some steps be taken toward inspection of fruit in closed packages intended for export.

In these requests, the Fruit Growers' Association's and Horticultural societies of the Dominion have united with us in pressing upon the Minister of Agriculture, and we are glad to report that some immediate action will be taken in our behalf, especially in the two first mentioned points, The latter one, and in our opinion the most important of the three, seems likely to be shelved, because no definite and practical plan has yet been placed before the Minister.

A special despatch to the Globe, dated Ottawa, May 16th, says:—

Prof. Robertson tells the Agricultural Committee this morning that the Canadian apple trade in Great Britian is not in a good way owing to lack of care, lack of skill and lack of honesty in packing the fruit and to damage sustained by the fruit in its carriage across the Atlantic. Representations have been made to steamship agents for proper ventilation of holds in which apples were carried, but up to the present few ships have been so equipped.

In proof of the deception practised in packing, Prof. Robertson read a letter from ex-Mayor Warne of Yarmouth, N. S., where the salvaged cargo of the Castilian was sold. Mr. Warne expressed disgust at the way in which the barrels were packed, with windfalls in the centre. He sent on two samples of top rows and fillings, which Prof. Robertson showed the committee. The latter was a miserable specimen, not one-sixth the size of the apple which was used at the two ends of the barrel. Prof. Robertson stated that he had considerable evidence of the form of dishonesty which was going to injure the Canadian apple trade if it was not stopped.

Several members suggested that inspectors should be placed at the different ports in order to prevent badly packed or dishonest shipments, but Prof. Robertson pointed out that this was a difficult question to settle. If the fruit-growers would only realize the injury they were doing themselves they would give up the practice.

Mr. Grindley, the special agent of the department in Britian, pointed out how the Nova Scotia and California apples had made a place for themselves by being of uniform quality and size, and of one or two varieties, although the so-called Canadian apples were of far better quality. But these latter were of so many varieties and so badly packed that they were not wanted on the London market and were sent down into the provinces. A model packer was Mr. R. W. Shepherd, of Como, who shipped Fameuse apples to the Prince of Wales and the Army and Navy stores in boxes with a pasteboard compartment for each apple and these arrrived in excellent condition. Mr. Grindley spoke strongly on the necessity for proper packing and grading, and packing fruit in a cool state. He was glad to know that the steamship companies were going to provide ventilated compartments for apples.

Hon. Mr. Fisher stated that thousands of Ontario apples like those shown by Prof. Robertson had been sent to England last year, to the great disgrace of Canada.

Mr. Grindley gave much good advice regarding growing, grading and packing.

Hon. Mr. Fisher went over some points of interest to shippers and growers. He had for a year past received so many letters that he felt it was necessary to investigate statements. The committee had taken exception last year to the spreading abroad of statements regarding dishonest packing, but the reports were such that he was satisfied that the matter must be faced. Hundreds of barrels had been sent of such a sort that the trade would be ruined if something was not done. The English people wanted an honest apple, and if they did not get it from Canada this country's trade would be gone. The question of inspection had been brought to his notice, but there was great difficulty in the way. The only way to thoroughly inspect apples was to empty a whole barrel out, and the fruit could not be repacked without loss. Besides, when it was remembered that in a few weeks in autumn over 100,000 barrels were shipped from Montreal, it would be seen how impossible it would be to inspect all the shipments.

But something could be done to obtain good conditions on the steamer and the department would continue its efforts to have the companies provide properly ventilated holds. This season, if he got the vote he asked for, he would have officers at Montreal, St. John and Halifax to specially look after the shipping and loading of apples. The difficulties in the way of Government inspection were numerous, and he preferred to bring all the facts of the matter before the public. As to the quality and grading of the fruit, the growers and shippers had the remedy in their own hands.

Now of what avail will it be to have first-class conveniences on ship board, and proper storage, if no steps are taken to stop the rascally practices of certain large buyers and shippers who buy whole orchard crops and pack them in the manner that was exposed by the wreck of the steamer *Castilian?* It is not our Canadian apple growers that are guilty of this dishonesty. It is certain sharpers who are making a big speculation for their own pockets at the expense of the reputation of our honest fruit growers.

These men do an enormous trade; they buy our apples at 75 cents or $1 per barrel, send their gangs of packers through the country, with definite instructions to put all the small, poor apples in the centres of the barrel, to save out all the big fine apples to face up the ends.

Are our authorities powerless to stop this roguery? It is all very well to bring the facts before the public and depend upon moral suasion and patriotism to correct the evil; but the rogues will still practice their deceit, and laugh at us while they fill their pockets at our expense.

But how could an inspector go through the 100,000 barrels of apples, or more, shipped from Montreal in a single season?

Why, there is no need of such a thing. The very fact of an inspector being appointed would frighten these thieves, even if he never did a thing more than pace the wharves at Montreal with his hands in his pockets But let him keep his eyes open, and his hands a little busy with a barrel opener, and he would very soon get track of the brands that were unreliable. We can give him the names of a few who shipped such stuff on the *Castiltan*, and our English friends can name others.

Give the inspector the privilege of inspecting any lot he chooses—no one but a rogue will object—and if he finds one fraudulent package, then let him detain that whole lot for careful examination. If he finds ten barrels out of a hundred fradulent let him forbid the shipment of the whole lot, or confiscate them. We venture to say that after the first season the inspector would have very little work to do; for the very fact of his being at the port and the possibility of his opening some barrels for examination would have a most salutary effect upon the whole apple shipping fraternity.

ABOUT THINNING FRUIT.

A SMALL, insipid, worthless peach is sure to be the result when this system is not practised, in instances where the trees are overloaded. The product is wanted by no one, and rarely will sell for sufficient to pay the cost of marketing. From an economic stand-point it does not pay.

The rule I have adopted is to thin the fruit so as to leave that remaining about six inches apart on the limbs. I have found the same rule to work equally well when applied to apples and pears, particularly if the former are to find their way on to the city fruitstands. Four dollars per barrel was received for apples in October last thus treated, that would not have turned the scales at two dollars, if left untouched. Mr. John Craig and Prof. Waugh, of Vermont, saw this fruit when being packed for shipment, and could scarcely recognize the variety, as they had seen it grown in other sections.

One-half of the crop of an extremely heavy setting of Kieffer pears was removed and allowed to go to waste on the ground. The portion that matured was fine and sold at high prices, and in my opinion gave a larger yield than if all had remained on the trees.

Many canning factories in purchasing the apples and pears consumed, demand that no fruit delivered them shall run under a specified diameter. They are important factors in the consumption of our surplus fruits; hence their requirement is an additional argument in favor of the work suggested that deserves more general consideration at the hands of all growers of fruit.—Correspondence Country Gentleman.

NOTES FOR STRAWBERRY CULTURE.

STRAWBERRY plants require an abundance of moisture in all stages of growth, but this is most easily secured during the first season by attending to the proper details in preparation of the soil, and in cultivation.

Early and continuous cultivation saves the moisture to a greater extent than is commonly supposed. It has been found that the loss of moisture from unplowed ground may be in excess of that from cultivated soil to an amount equal to an inch and three-fourths of rainfall in a week. A man with a team and a sprinkling cart could not replace the water on an acre of land as fast as it escapes by evaporation from the soil, when it goes off at that rate, if he had to haul the water one fourth of a mile. The importance of stirring the soil soon after a shower is generally known; but in practice, cultivation after slight showers is often neglected. This is because the soil does not become compact and no crust forms after slight showers, hence the necessity of stirring the soil at once is not apparent.

A slight wetting of dry soil, however, increases the upward flow of water, hence there is more water added to the surface soil at such times than comes in the form of rain.

The sun and wind soon dissipate the slight rainfall and along with it much of the water which came from the lower layers of the soil, leaving the soil dryer than before.

As the two are commonly used, a cultivator is a better machine for irrigating than a sprinkling cart. The cultivator, if rightly used, saves moisture, while the sprinkling cart is more likely than not to be the means of wasting it.—Ohio Bul. 85.

THE CELERY CROP.

THE culture of celery, either for the family garden or more extensively for market, has been so simplified that every home should have its supply the season through and well along into winter. From extensive and careful tests the past season with different varieties and the new and old methods of culture, we conclude that while the so-called self-blanching sorts are more easily grown and more profitable for the market gardens, they have not the crisp, nutty flavor, nor the long keeping qualities that will recommend them for the home garden. For this the "one" variety is Giant Pascal; it is the king of celeries. Paris, golden self-blanching, is the best of its class, and New Rose the best red variety.

Regarding culture, the old trench system is done away with, and the celery plants are set on the level surface, about 6 in apart in rows, from 3 to 4 ft. apart. After the celery has attained to a growth of 10 or 12 in it. should be "handled;" that is, the earth should be drawn up firmly for a few inches around the base of the plants to cause the erect or upright growth necessary for celery. According to the most approved method now in use, this handling is all the celery gets; all the subsequent bleaching is done with boards 10 to 14 in. wide, and of any desired length, placed close up to the plants on each side and held together by stakes. These blanch the celery perfectly, keep the plants free from dirt, and after the first cost are the cheapest of any method of culture.

The old theory that contact with the ground was necessary to blanch celery is exploded. For the benefit of novices it may be best to state briefly that for early celery, the plants may be grown in spent hotbeds, about April, and transplanted about June, will furnish celery for the table all the fall. Early celery hardly ever escapes blight or rust. For winter use sow seed in open ground and you get stocky plants to set during July and on into August. Celery needs cool weather to grow its best, and the later it can be left out before being winter packed the better it will save. Mind, however, when preparing celery for winter not to handle or pack when wet with dew or rain.—[E. V. Albany Co., N. Y.]

NOTES FROM SIMCOE COUNTY.

THOUGH the past winter was a pretty severe one, and we read of extensive damage to tender fruits in southern Ontario, yet everything in the fruit line has come through fairly well here. I quite expected to find a number of the more tender varieties killed or badly injured. But very little damage has resulted. All the tree fruits with the exception of a few Dwarf Duchess pears, have come through all right. The Purple apricots had a close shave, but seem to be coming all right now.

Of the small fruits, strawberries have been badly winter killed where not protected. Early King and Erie blackberries are killed down to the snow line, while Agawam and Eldorado are alive and healthy down to the ends of the tips. Raspberries have come through well. Even the Cuthbert better than usual. I have had this year a very interesting example of the wonderful

recuperative powers of nature. I had top-grafted a number of Flemish Beauty and Russian pears with several of the more tender varieties. They made a rapid growth, and on that account I thought they would surely succumb to the severity of the winter.

I examined them in March and they were to all appearance dead. The bark and tissues were dark and discolored like dead wood. I thought they were gone for sure. But I was agreeably surprised to see them budding out. The bark has again become green and the tissues assumed the normal healthy condition, and they are now nearly out in leaf. Prof. Bailey writing on this subject, says that trees store up nutriment in their tissues sufficient to bring the tree into full leaf, yet if badly injured from severe cold they may die later on owing to the frozen wood being unable to draw nourishment from the soil. For the same reason a tree will blossom, the petals will open although the pistil, the vital part of the blossom, may be killed during the winter. He says there are exceptional cases, as in the case of a vigorous healthy tree which may entirely recover though apparently winter killed; and if these grafts entirely recover it will be one of the most remarkable cases of recuperation that has yet come under my notice. I believe that good care and cultivation has much to do with the hardiness of a tree, and that a tree is much like a man in this respect. The more vigorous and healthy he is, the better will he be able to withstand extremes of temperature. Proper fertilizing has no doubt much to do with it. Furnishing the tree with a well balanced ration will be conducive to the building up of good healthy hardy wood and a vigorous constitution.

This will be an off year for plums and early apples here, apparently. They bore such a large crop last year, that they failed to form fruit buds. But winter apples, judging from present appearances will be the largest crop since 1896.

The tent caterpillar is very much in evidence, and promises to repeat the devastation of last year in some orchards. But where people spray their trees and do it properly, there is no trouble. For the destruction of the codling moth, a valuable adjunct to the spraying of the trees, is the placing of pieces of canvas or woollen rags in the crotches of the trees, and examining them occasionally after the apples begin to drop. I tried it last year on a small scale and found it a great success.

When an orchard is cleanly cultivated and the trees scraped to remove the rough bark, the larva of the moth readily take advantage of the rags, as a suitable place to pupate in, here they spin around them their cocoon from which they emerge a perfect insect. From the time the early apples begin to drop these traps should be examined occasionally until late fall. When a number have collected, the rags may be plunged in boiling water and replaced. They should be examined late in the fall and again in spring before the blossoms come out.

Keeping hogs in the orchard to eat up the fallen apples is, where practicable, also a valuable aid.

I believe if these methods were used together with a faithful and proper use of the spray pump, he codlin moth would soon be almost entirely exterminated.

PUFF BALL—*Lycoperdon Gemmatum*. MUSHROOM FAMILY.

AS we stroll through the dry pastures after a rain we are likely to spy balls of grayish white here and there along the path, some half-hidden beneath the fallen leaves, some large enough to stand out boldly among the surrounding grasses and small plants.

Let us pick up one and break it open. Within we shall find, if the fungus is young, a mass of firm white substance which, as we examine it, looks rather pretty. Perhaps we shall find one a little older; the inside of that will be of a gray color with a spongy texture.

As the puff-ball grows still older, its outer skin turns brown and becomes papery, and the substance within, really a great number of spores, become ripe and separate into loose particles that seem almost like fine dust. When fully ripe the ball bursts at the top and the little spores go flying all about, lodging in many a little crack and crevice.

The puff-ball is edible only when the spores contained within the skin form a fine-grained, firm white mass. Then the skin may be removed and the "meaty" substance fried in butter as a dish for the table.

Of this dish, one versed in the art of cooking and eating mushrooms, says: "Slice and seasoned in butter and salt, and fried in the pan, no omelette is half as good in richness and delicacy of flavor."

One variety of puff ball grows quite large, one ball often weighing several pounds, so that it is sufficient to make a good meal for a large family. When mature, the spores of this species are sometimes used to stanch wounds; the smoke coming from the burning spores will stupefy bees and may also be employed as an anæsthetic.

In England puff balls are often called Puck-fist and Puck's stool. Another name, referring to the discharge of the spores from the ball, is Devil's snuffbox. The Scotch call this fungus "blind men's een," and it is thought that the dust, if a bit of it should blow into one's eyes, would cause blindness. The Welsh term it "bag of smoke."—American Florist.

THE CROTON has long been regarded as one of the handsomest conservatory plants, and it is now coming into use for house and garden. It is a stout shrubby tropical plant, grown solely for for its handsome foliage; the flower is insignificant. The leaves are usually very richly colored, green, bronze, red and yellow, and the shape varies greatly in different varieties. Some crotons have narrow, ribbon-like leaves; others are strap-like, twisted like a cork-screw, rolled up like shavings, or fluted into waves along the edge. It is only of recent years that the crotons have been used in bedding; in a favorable situtation they make a piece of gorgeous color, but they will not stand an exposed place, where rhey will suffer from sweeping wind. They must not be planted out before the middle of June, and must be taken up before the nights become cold in Autumn. Indoors a croton makes a fine centre for the fern pan, though it does not last very long under these circumstances; small plants are also very suitable for the Wardian case, and luxuriate its close, moist atmosphere.

THE FREESIA.

(Part III. of a paper read before the Hamilton Horticultural Society, by Mr. Wm. Hunt.)

FIG. 1610.—THE FREESIA.

AND now we come to the last of my three subjects, the Freesia, that beautiful little bulb which produces those deliciously scented, tube like flowers, so popular with every one for button-holes, sprays, or table decoration, and which are to be seen in every florist's window in early spring. We are also indebted to the Cape of Good Hope for this little gem in the bulb line. It is of recent introduction, not having been brought prominently into notice until about twenty-five years ago. There are two varieties of the Freesia, they both belong to the natural order of Irids, which include several numerous classes of plants. The *Freesia refracta alba* is as its name implies, nearly white in color; the other variety, *Freesia leitchlinii* being very similar to *refracta alba*, of a somewhat stronger growth than the latter, a creamy yellow tinge running through the flower with a deep blotch of orange color on one or more of the petals, giving it rather a pretty appearance.

With the Freesias, as with most other classes of plants increased from seed, we have already variations from the original; in some flowers a bluish tinge may be noticed, but not of sufficient importance to produce any material difference, either in growth, or color of flower. By sowing the seed early in the spring and growing on in pots or frames they can be flowered the same year. The best way to raise them from seed is to sow a few seeds in two and a half inch pots, thin the plants when about one and a half inches high to five or six, or more in a pot, and grow on into five or six inch pots. To flower in this method prevents any check when

transplanting, as they do not like to be disturbed at the roots when in a growing state. Or you may secure some good bulbs from any seed or florist's establishment when the bulbs are dormant; get them in July or August if possible, when they can be at once potted into four or five inch pots, filled with good loamy potting soil, very little if any drainage being required. Plant the bulbs so that the tip or point of the bulb is just under the soil; press the soil lightly around the bulbs, water thoroughly. If the soil settles, so that the bulbs show, cover with more soil, water, and either plunge or stand the pot out-of-doors on coal ashes, to prevent worms getting into the pots. Water only when appearing to be dry; sparingly at first, but sufficient to soak the soil, increase the supply of water as required when growth commences, which will be slow. The pots can remain out of doors until about September, when they can be taken in and placed in a cool temperature, ranging from 40° to 55°, as the freesia rebels at any attempt to force it, resenting such treatment by producing small and inferior spikes of flowers, and producing small bulbs which will give poor results the following season. A few pots may be put into a warmer position when flower spikes appear so as to secure a few early flowers; by judicious management a succession of bloom may be secured from Xmas until Easter, possibly later. The plants may be supported as required; I find the best plan is to put four or five small sticks around the edge of the pot, high enough to support the foliage, and wind around from one to the other of these fine twine or raffia. The after treatment of this bulb is very simple; keep them growing in a temperature as at first mentioned until the foliage shows signs of decay, then dry off gradually, until the foliage is nearly yellow, then withhold water altogether, stand the pots foliage and all away in a dry cool place, free from frost, until the following summer, when they can be shaken out and potted as above described. The freesia can be increased very easily, if the small bulbs found when repotting are picked out, and sown in boxes or pots similar to seeds of the same size, treating after as for larger bulbs, picking out any bulbs that are large enough to flower when repotting them and grow, ing the small ones on again until large enough for flowering purposes.

In conclusion, I may say that no plant that I know of, will give more pleasure and gratification than this pretty little Cape, as it is easy of culture, and of graceful habit, which with its prettily formed and sweetly perfumed flowers, make it so desirable an acquisition to the amateur's collection of plants. I may add in conclusion, that neither of the three plants, treated on in this paper, will give the amateur much trouble with insect pests, a point that strongly recommends them as window plants

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EARLY SEED SOWING.—Plant seeds of nearly all varieties to be started in doors as follows: Fill shallow boxes nearly full of good garden soil, sprinkle the seed over, then sift on enough fine soil to cover the seeds well from sight, press down fimly with a bit of board, sprinkle or set the box into a pan containing an inch or two of water until the moisture begins to show at the top of the soil, then cover loosely and set in a warm place near the stovepipe. Watch the box that the soil does not become dry and as soon as the first plant appears move to a sunny window.—[W. F. Heath.

PROPAGATING THE ROSE.

THE first matter for attention is the wood from which the cuttings are to be made. It must neither be too hard nor too soft. To be sure of getting it at about the right stage, make up the cuttings from the flower shoots or stalks at the terminus of which the flower is borne, just at the time the flower naturally wilts and the petals fall. It is not necessary at all in making the cuttings to have an eye, or joint, it might be called, at the end of the cuttings which enters the sand, as is often supposed.

Make the cuttings about two and one-half inches in length, using a sharp knife, and in cutting let the stroke be slightly slanting. The ends of the cutting should be cut clean and smooth, and not mashed or bruised in any way. Let several leaves remain on each cutting, but trim off the tips of the outer leaves. Now procure a saucer or pan of some sort deep enough to hold about two inches of sand. After putting in the sand to a depth of about two inches, water heavily until it is thoroughly soaked. With a knife make several cuts one and one-fourth inches deep across the sand, and in these incisions insert the cuttings, pinching the sand about the base of each cutting as it is put in. When the pan is filled with the cuttings about an inch apart, or perhaps a little more, set the pan in full sunlight, there to remain every day during the rooting process. The only operation necessary each day while rooting is to keep the sand thoroughly saturated with water. Neglect this one day and the chances are that the whole lot will be spoiled.—Woman's Home Companion.

PRUNUS PISSARDI.

IS *Prunus Pissardi* short lived? This is a question recently called to my attention, and while my experience leads me to answer the interrogation in the affirmative, I sincerely hope that I am mistaken. However, I have become quite skeptical as to the value of this much admired tree or shrub, but I hope that these remarks may elicit some facts from other parts of the country which may be of value to us here.

The trees with which I gained this experience were planted somewhat over ten years ago, and out of a group of a half dozen or more only one sickly specimen survives. The others died in the past two years. I do not think that the soil or situation can have anything to do with it, for in that respect I should consider them rather favorably located in comparison to the surrounding country. The trees are to be found in Mt. Olive Cemetery, situated on the eastern slope of a ridge which once constituted the beach of the lake.

The tree which has survived is bleeding considerably and cracks badly along the main trunk, the effect of which is noticeable in the dead top. From its appearance this specimen must have once enjoyed splendid health.

Is it our erratic western climate which is unfriendly? *Prunus Pissardi* is probably a variety of *Prunus cerasifera* and is also known under the name *Prunus cerasifera* var. *atro-purpurea*. It was, I believe, introduced by Mr. Pissard, head gardener to the Shah of Persia; its home is Ispahan, Persia.—Gardening.

FLORAL HINTS.

A SMALL GREENHOUSE.—A small greenhouse may be constructed sixteen or twenty feet long and eleven feet wide, with benches three and a half feet wide at each side, a walk through the centre. Let the house stand north-east and south-west, and cover with a comb roof, with hinged ventilators at either side, so that ventilation can be secured from the calm side of the house. If the walk is sunk in the ground the eaves need not be more than two and a half feet above the surface, requiring less heat. Use a coal oil heater, with pipe running aro und beneath the bench, to distribute the heat. A house of this kind requires but little care, and will accommodate many plants

FOR WINTER-BLOOMING.—Now is the time to get your plants for winter-blooming. Get small plants of Mrs. Hill Geranium, Lopesia rosea, Agathæa coelestis, Crassula cordata, Abutilon Mesopotamicum, Strobilanthes anisophyllus, Begonia semperflorens, Begonia Angel's Wing. Primula obconica, Drooping Lantana, Plumbago coccinea, Mesembryanthemum grandiflorum and Peristrophe angustifolia variegata. Start in three inch pots, and shift as the plants grow till they occupy five-inch or six-inch pots, encouraging growth rather than flowers. Then in the fall you will have fine large plants, all ready for doing good service in the window garden during winter. Most of the failures to have flowers in winter comes from not starting in time, or getting plants that are not adapted for winter-blooming. This note should therefore prove a timely hint to those who are anxious to succeed with winter flowers.

THE TUBEROUS BEGONIA.—One of the most satisfactory pot plants for summer culture that I know of is the Tuberous Begonia. It deserves every word of praise it has received or may yet receive. Besides its handsome, thrifty foliage it produces a brilliant display of gorgeously beautiful blossoms from June till November, thus making a truly charming plant, the delight, admiration and envy of all beholders. Some varieties have immense drooping blossoms, others more stiff and erect ones, but all are comparatively beautiful in their bright, glowing colors. The yellow variety will be a revelation to those who have never seen it

Plant the Tuberous Begonia any time from March till June, putting one bulb in a four-inch pot. For soil use a good, porous, compost, enriched with manure and leaf-mould, and see that the drainage is of the best. Do not cover the bulb entirely over, but leave the concave end in view. Set the plant in the coolest most even-temperatured place in the yard, on the north side of some building if possible, where it will not be injured by fierce rain and wind storms, and see that its supply of moisture is never low. Do not, however, keep it sopping wet, as the bulb might decay. Treated in this manner it will begin to bloom in a very short time, and bear blossoms until well into the fall, then it prepares for its annual rest. At this stage the foliage grows brown and withered, and no more buds appear. Then the plant should be gradually dried off in its dish, and put into some dark, frost-proof room to spend the winter. When growth starts in the spring repot, using fresh, new soil. The bulb will be good for several years if it receives good treatment.

The Tuberous Begonia may be bedded out in the open ground, and will make a striking display, provided it is

planted in a rather shady place and receives a proper supply of moisture. The single varieties do better in the border than the double ones, but either kind will prove unexcelled as a pot plant.

The *Gloxinia* is the Tuberous Begonia's only rival, but, inasmuch as it is not so free-flowering as the Begonia it has not so many admirers. However, a well grown specimen in full bloom is something to be proud of.—*Parks' Floral Guide.*

LICE ON PLANTS. — Lousy plants should be laid on their sides in a sink and the foliage wet with tea made by steeping tobacco stems in water. The decoction should not be very strong. Repeat when necessary. Whale oil soapsuds may be used for the same purpose. Dissolve a piece of soap as big as your thumb in a gallon of water thoroughly. If the plants are in a conservatory or greenhouse, by all means fumigate with the tobacco stems. A moderate amount of smoke every other day until the enemy is routed will not injure the plants; then fumigate regularly twice a week.

ORNITHOGALUM ARABICUM. - The Arabian Star of Bethlehem is without a rival for cultivation in the window garden or greenhouse, on account of the ease with which it can be grown, and the great length of time the flowers remain perfect when properly grown and cared for. The bulbs can be potted at any time from September to January, and should be given a compost of two-thirds turfy loam and one-third well-decayed manure, well mixed. Use pots proportionate to the size of the bulb (a four inch or five-inch pot), and in planting set the bulbs just below the surface of the soil, so that they will be entirely covered. Water thoroughly, and place in a dark, cool cellar to make root. Then they may be removed to a light, sunny situation, where a temperature of 50 to 60 degrees is maintained, watering freely, and giving as much fresh air as is possible.—*Parks' Floral Guide.*

SHIRLEY POPPIES.—We shall ever owe a debt of gratitude to the Rev. W. Wilks for the glowing beauty of Shirly Poppies with their lovely white borders and splashings without the black spots.

They are so fair and bright, laughing in the morning sunshine, bowing so sweetly to the storm, growing without care. I always carry the seed with me and scatter beside the way, any and everywhere I think they are needed. Thin them, if they come up too thickly, and the flowers will be of finer quality, but not so abundant.

We all owe a double duty to mankind now such varieties of flowers are so abundant and so cheap. I buy flower seeds for gifts for little ones instead of sweet meats, and they are all delighted with their posy-beds.—M. A. HOSKINS.

Our Affiliated Societies.

GRIMSBY.—On Friday evening the 12th of May, the Society at Grimsby had their annual meeting for the distribution or plants to the members.

Mr. A. Cole the Grimsby florist, made a fine display of plants in bloom, besides a fine collection of urns and hanging baskets, full of ornamental plants. The Grimsby Band occupied the platform and gave a fine programme of instrumental music. There was a full house and great interest was taken in the roll call of members, as each came forward for his collection of plants.

A beautiful May wedding took place here, on the 11th inst., at the house of the Secretary of the Ontario Association The house at Maplehurst was beautifully decorated for the occasion with evergreens, peach, crab apple, and double cherry blossoms, Japan quince, roses and carnations. The work was done by five young lady friends of the the bride and their work was well worthy of notice in connection with our Grimsby Society. Miss M. F. Woolverton, now Mrs. Mode, will make her home in Yarmouth, N S.

LINDSAY. -TREATMENT OF HOUSE PLANTS. The council chamber presented a charming and aesthetic appearance on Thursday night, April 20th., when about 100 people ranged themselves in front of a long bank of blooms to hear Messrs. Maxsom and Beall discuss matters pertaining to the care of fruit and flowers. The magnificent specimens with which Mr. Maxom illustrated his remarks were at once charming to see and helpful to a comprehension of the points discussed. Maxom's remarks ran somewhat as follows :

MISTAKES ABOUT WILD PLANTS.

Unless one is a close discerner he is apt to get mistaken ideas about the way to treat plants from watching them in their wild condition. For example : ferns grow in swamps, and one can easily imagine he should keep his tame ferns in very wet soil but that is not the case. No ferns want much water. The wild plant grows in the swamp but on soil that is covered with water perhaps for a short time but not for long and is of such a nature that it dries out very quickly. Even calla lilies cannot be grown in water at home. They do live in water out-doors but it is running water and pure. When in-doors in stagnant water they die for the water becomes foul. These are only two examples of how one may be misled by wild plants unless he is a close observer.

THE PROPER SOIL FOR POTS.

Black muck alone is not a good thing to pot plants in. In the first place you cannot get it sweet and clean unless you expose it to the light and air for two years. Taken directly into the house it soon smells very foul. The leaf-mold found in the hardwood bush is one of the very best things for lightening up the soil for plants. In England they have men go about the parks and collect all the leaves. These are thrown in between stone wall or some such place and left for a couple of years when they can be sifted. Half a bushel of soil, one peck of manure and a peck of the mould make a splendid mixture to put plants in.

ABOUT FLOWER POTS.

Do not put a young plant into a large pot. It is better to have the roots come out to the edge than have so much soil that it sours and kills the plant. A three inch pot is large enough to begin with for most plants. Then move them into one an inch larger and so on an inch at a time.

HOW TO PUT PLANTS INTO THE POTS.

When you have the proper soil and the proper pot put a little dry grass into the bottom and then put in the plant and punch the soil down firmly around it with a wooden paddle. Do this thoroughly for if any cavities remain the water will all run into them and sour there while the rest of the soil will be parched. And if the soil is loosely put in it will be too open and the water will run through it and do the plant little good.

HOW TO GET THEM OUT.

Many people run a knife around between the soil and the pot when they want to take the plant out. There is great danger of cutting the delicate roots that way. If the plant has been properly potted it will slip out freely if turned upside down over the fingers. The pot may be gently tapped if necessary.

FLOWERS NEED LIGHT.

MR. Maxsom spoke very pointedly about keeping plants in the dark. He said there was only one plant that will live in the dark. Its name was such that it is no wonder it had to stay in-doors. Many ladies were said to be so particular about the sun fading their carpets that they let the darkness fade the flowers instead. He had seen many languishing plants that needed only more light. Plants do not like to be put into prison.

ABOUT WATERING PLANTS.

Continuing Mr. Maxsom spoke on the following strains: One of the chief points in the care of plants is the watering. It should be done with great care, too much or too little will kill your plant. There are two way of telling when a plant needs water, by the weight of the pot and by the sound when it is tapped. When it feels light or rings when tapped the soil is dry. A damp soil is heavy, the pot has a dull sound when struck. Water should be poured on slowly until it runs down into the saucer. If a plant is real dry it may need to be watered two or three times in succession before it is well soaked The carpet is often an enemy to the plants in this matter as well as in that of the sunlight. Many a house-keeper fails to put enough water on their plants that are kept in doors for fear of the carpet being soiled. It is a question between having the carpet and your flowers injured. It is well to take the plants to a sink where you can water them freely. Some flowers are ruined for that season if allowed to get once thoroughly dry. The maidenhair ferns is an example. The rubber plant will stand a good deal of drought.

WASH THE PLANTS.

It is important to wash plants occasionally. Take them to the sink and with a fine sponge bathe the leaves. They are refreshed by a bath as well as a human being. Be careful, though, not to dry them in a draft or low temperature for they are very sensitive to chills. A little soap in the water will do no harm. Tobacco smoke is the best remedy for a green fly. Take a large paper bag; put the plant into it and close the top. Then make a small hole through which to insert the stem of a lighted pipe. Get a smoker to blow the smoke from the pipe into the bag. That avoids all heat, which is injurious to the plant. When the bag is full of smoke stick a bit of paper over the hole and the fly will be killed.

POTATOES FOR PROFIT.

AS the tendency of potatoes after a few years of cultivation is to deteriorate, it becomes necessary to have new varieties to take their places. Most of the kinds cultivated twenty years ago are now superseded by varieties of recent introduction. In the last half dozen years we have had a number of new varieties of superior excellence in all of the qualities of first-class table potatoes. As most desirable of late introductions may be named the New Queen, Early Essex, Carman No. 1, Carman No. 3, Banner, Somerset, and Enormous.

From the experience of the past few years it seems indispensable to have our crop of potatoes planted very early in the season, so as to have them well advanced in growth to escape the ravages of the potato beetle, and the blight which usually appears in the latter part of July or during August, and is apt to be followed by more or less rotting of the potatoes. Two important advantages in the early crop are that the price of potatoes is much higher than later in the season, and the land can be used for a second crop of celery or late cabbages with but little cost of cultivation, thus adding quite an amount to the yearly profits.

Another method I have practised very satisfactorily is to plant about the fifteenth of June every third row with squashes ten feet apart in the row. The potatoes being harvested early, the squashes will occupy the land later, and produce about as large a yield as if no other crop had preceded them.

The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

Notes and Comments.

WESTERN NEW YORK horticulturists have secured the right to ship car-load lots of pears and quinces in boxes and kegs as fourth-class, and in lesser quantities, second-class. This means a reduction over the old rates of 10 cents per 100 pounds in car-load lots, and five cents on smaller shipments.

SHIPPERS COUNT.—Mr. Britton complained at the Rochester meeting, of the unfairness on the part of railway companies in refusing to take the responsibility of the count of carloads of fruit packages. He says:

"We have, not one, but dozens of instances where we load, and take our certificates of weights from the weigher, or our account of barrels, and the bill of lading is marked "shippers count or tally," except where we ship from the larger cities.

When the car reaches its destination the purchaser, reports it to be so many hundred-weight short; they again furnish the city scale weights and we are obliged to pay for 2000 lbs and often 3000 lbs, or five and ten barrels of apples short at $3 per barrel, for which we are unable to collect. Is it asking too much, under the circumstances, that every railroad should pay what it receives and delivers."

THE MANCHESTER SHIP CANAL is likely to open up the interior of England to our fruit trade so that many fruit merchants who have been in the habit of buying from the great fruit brokers of Liverpool, may now receive consignments direct from Canadian growers at reasonable freight rates. Goods are being delivered at Manchester at about the former Liverpool rates. Mr. R. Dawson Harling, of Toronto, is the agent for this canal.

THE BISMARCK is a new and valuable apple from New Zealand. It is said to be remarkable for its early bearing, even grafts one or two years old carrying fruit.

The fruit is large, yellow and red, and considered very handsome; the flesh is tender and mild subacid.

APPLE CANKER. Mr. V. Paddock writes that the form of apple canker which effects the trees in England is distinct from that prevalent in America. The former is caused by a species of *Nectria*, the latter has been prevalent in America for years, but has only recently been identified. The data given on page 163 are not sufficient to decide finally upon the disease affecting our subscriber's trees.

A NEW WRINKLE IN SPRAYING is reported from California. Some old apple trees of Santa Barbara were badly scale infested; and were sprayed with pure kerosene, and immediately after with a weak solution of caustic soda. The oil routed the scale, and the caustic soda then neutralized its power to injure the tree.

This may be a useful hint for farther experiment. The usual solution of soda is 2 ounces to 40 gallons of water.

NEW SEEDLING APPLES. Mr. J. P. Williams of Bloomfield sends us 12 samples of a fine looking winter apple, which he says is a seedling of the old Wax apple or Belmont. He says it much resembles the parent only it is a better keeper, hardier and later coming to maturity, is thoroughly hardy and yields very few culls; the tree is an immense cropper, and begins bearing at a very early age. The apple is certainly remarkably fine in appearance, with a beautiful bright red cheek, and should sell wonderfully well in an old country market.

Mr. Williams sends us several other seedlings as (1) seedling of Ben Davis, (2) Seedling of Greening, quite hardy, (3) Seedlings of the Spitzenburg.

OUR PLANT DISTRIBUTION.—One of the most difficult undertakings in hand is to send out four or five thousand premiums and give each member satisfaction. During the last two or three years unusual care has been taken by the Nursery from whom they are purchased to give us the very finest stock and to send it out in prime condition; but who can control Jack Frost, and last winter the old ice King has gripped our temperate clime with an icy hand, and winter-killed many trees and shrubs always counted perfectly hardy. When dug and shipped the premium plants appeared perfectly sound, the young buds were even pushing out; but since mailing them we have word from some of our members that their rose and their elæagnus plants were apparently drying up. This must be the effects of the rigorous winter, and is something so beyond our control, that we do not see how we can replace them; we can only ask the indulgence of our subscribers and hope that such a misfortune will not again occur.

THE VALUE OF A MULCH of snow, or of some cover crop in winter time, is plainly evident since the severe winter just passed. The protracted cold weather in February without snow protection, reached down deeper than usual and destroyed many peach trees, even in the milder parts of Ontario. Wherever the ground was protected by a cover crop the trees have survived, and are coming out as healthy as usual.

Now that we are on the war path against fraudulent fruit packing, evidence of the gigantic extent of the evil constantly accumulates. Only to-day (May 22nd) we are in receipt of the following lines from Mr. George Maun, Leeds, England. He says: – "I bought 50 barrels Canadian apples last year

through a commission man, but a more disgraceful lot it would be hard to find. They professed to be xxx, but as a fact they had been sent from Canada I think without marks, and these were put on in lead pencil, I think in England; but such goods are enough to ruin any trade. Only one barrel seemed to have been properly marked, and had on one x. The apples were the veriest refuse of the orchard—particularly small—extremely covered with black spots, and positively *not worth the carriage paid for them.* This kind of dealing will keep the *Canadian apple trade* back, and I am sorry to say it is not a solitary instance in my own experience."

These examples are alarming, and from the positive necessity of having a detective at our wharves to watch such thieves and put a stop to their villainous practices.

SHALL WE CONTINUE THE PLANT DISTRIBUTION.—If our readers would be favorable to it, we would advocate giving up this plant distribution, and spending the money otherwise for the general good. It would mean a saving of $500 more or less, which would largely increase the size of the Journal, and thus give each member a volume of much increased value, more, we are sure, to his interest than the plant we now send him. Would our readers show their wishes on this point by voting pro or con on postcards, addressed to the Secretary? It would be a guide to the Executive Committee.

RASPBERRY PULP.—Mr. W. Boulter, chairman of our committee on the export of raspberry pulps has been over in Great Britian interviewing jam makers there and getting all the information he can for our benefit. He encloses a letter from Messrs Anderson and Coltman, London England. They say: "Last year, when the first fruit came in, it was generally expected that the crop would be a plentiful one, and prices ranged at first from £18 to £20 per ton (2,240 lbs), and it was not until something like a week that it was discovered that the quantities would be kept short, and prices immediately began rising by leaps and bounds, and very soon reached £40 and afterwards £50 per ton.

. . . . . .

With regard to the fruit itself, what you sent us last year we consider very satisfactory both in regard to color and in regard to substance, but we think that the berry might be picked when not quite so ripe, as it is a point to have the fruit as comparatively whole as possible, and with as little liquor as possible. Of course it is understood that no additional water should be added, and that the fruit must be pure unadulterated fruit, with the stalks taken out, and no sugar or any other substance in it; and nothing should be used in the way of a preservative, either salycilic or boracic acid, or anything else of this nature.

Question Drawer.

Growing Chrysanthemums.

1094. SIR,—Would you please give me some hints for growing chrysanthemums.

If our correspondent will turn up our report for 1897 he will find an excellent article by Prof. Hutt, on this subject. The following brief hints are given by a Canadian florist:—

During the past decade, the chrysanthemum has been and still is the most popular of all fall blooming plants, and is properly called "Queen of Autumn." Coming into bloom as soon as the dahlia is over, its flowers last throughout November and early December, if the plant is properly protected from freezing. The culture is very simple, as they grow freely in any rich, well-drained soil whether of a clayey or sandy nature. Young plants should be secured in May or June and planted if possible, on the east or south side of a fence or building, that they may easily be protected from cold, freezing winds in autumn. The plants should be cut back early in July, and again each two or three weeks afterward, until early in August, when the shoots should be allowed to grow. By this time each plant should present a well branched and stocky appearance. The plants must of course, receive thorough cultivation throughout the summer, and the surface of the ground never allowed to get hard or baked.

If these few directions are observed, a magnificent display of chrysanthemums will be had in the fall after all other flowers have ceased blooming.

The chrysanthemum is one of the finest fall blooming plants for the house. Young plants secured in May or June should be lifted into larger pots from time to time, until five to seven inch pots are reached, according as the grower desires. If cut back, as above instructed, large stocky plants can be had in the house in full bloom throughout the autumn months. Few realize that amateurs can grow large blooms of exhibition quality; yet this can be done by growing plants to a single stem and removing all but the terminal bud. In growing chrysanthemums in pots, they can be placed in frames or among other flowers, but the most satisfactory way is to plunge the pots to the rim in the soil, thus causing less danger of drying out, and requiring much less attention. They must, of course, be watered during dry times, and the plants should be turned immediaiely before watering, at least once in two weeks, to prevent rooting through the pots under the soil.

The principal enemy to chrysanthemum culture is the black fly, which is easily kept in check by frequent applications of tobacco dust or spraying with a solution made by boiling tobacco stems in water. This solution should be about the color of strong tea.

Even the tender varieties of chrysanthemums can be kept over with good results, by covering the plants outside with pine branches (or other materia that will not harbor mice) to the depth of one foot to prevent frequent freezing and thawing. Chrysanthemum plants grown in pots can be placed in the cellar after they are through bloomingl and by not watering, except when absolutely necessary to prevent shriveling, will be in excellent condition for planting the following spring.

Apples for Home Use and Market.

1095. SIR,—I see in the May number two questions asked and answered, but along

the line I would advise. The first is *No. 1081 what variety of apples to set*; your advice would surely mislead a great many as 42 summer and fall apples are altogether too great a percentage in 100 trees. The Wealthy that you advise setting 20 trees of has not proved to be a winter apple in this country but early fall, contrary to what we bought and sold trees for. It is a Minnesota production and keeps fairly well there but all that have them bearing here will bear me out in this and in many cases with much regret that it is a poor keeper. In place of these, if you want a red apple, set Baldwins, if not too far north as the trees are not as hardy as some others and don't be afraid to set the R. I. Greening as it is hardy, a fair annual bearer, and has good quality, and that always tells when you get strong competition. Then again unless E. J. P. is close to a good market ten Duchess Oldenburg is far in excess of what any family could use; two trees of these would keep E. J. P. and grandchildren agoing as long as they will last, as they ripen before the fall apples, and right here I might say don't miss setting two yellow Transparent in place of a Early Harvest as it is one of the best bearers and beats everything for pie and sauce.

Question 1082—Spy on Talman Sweet.

In answer to E. J. P., I have had sixteen years experience and observation in grafting Spy on Tolman Sweet trees and can recommend it. There is no hardier stock than the Tolman among our old varieties which is a very important point, and the growth is similar to the Spy and it certainly makes the Spy more inclined to annual bearing and much younger. It makes the fruit somewhat lighter in color as it takes some of the sweetness and color from the original tree. Greening and Baldwin do well on Talman but I think Kings are too fast a grower for top-grafting on them.

G. H. CAUGHILL, *Nurseryman, Alymer.*

We appreciate all that our friend Mr. Caughell writes, and ten years ago we would have replied in a similar strain; indeed, now, we would do so, for an inquirer who is not conveniently situated for an export business.

But for the up-to-date fruit grower, who can ship to the seaport in a cold storage car, our advice is all right. The summer and fall apples, such as Astracan, Duchess, Gravenstein, Alexander, Blenheim and Wealthy, have proved for two years past most profitable varieties for export. Of course, they were in cold storage almost from the time they were harvested until the time they appeared on the consumer's table in Great Britain. From Mr. Pearson's letter we did not take it that he wanted winter varieties *only* for shipping, if earlier varieties were desirable.

Mr. Caughell recommends the Baldwin and the Greening. These are the varieties we always recommended, as the best commercial varieties, until the experience of the last few years has shaken our confidence in them. In the Niagara district, at least, the Baldwin has been unproductive for ten or twelve years past, with the exception of 1896, when we had a surplus, and a glut in the apple market

If the Baldwin would yield such crops as it did of old, it would still be the very best variety to plant for profit.

The Greening is another fine apple and probably should have a prominent place in our list. It is usually a prodigious bearer each alternate year, but it has a poor color, and has recently become subject to apple scab. No doubt Bordeaux will control this fungus and we may wisely plant Greening again for profit.

For farmers who cannot take time to harvest and pack fancy summer and fall apples for shipping, we would give quite a different list for market, perhaps the following: Blenheim, Wealthy, Greening, Baldwin, Cranberry and Ontario. The two first are late fall varieties, but can be shipped away about October 1st, along with the winter varieties.

A Fine Seedling Dessert Apple.

1096. SIR,—I send you to-day (May 4th) by sample post, a seedling apple. I have fruited it for years, and sold it in Owen Sound the middle of June in as good condition as they are to-day. They are by all odds the best keeper of any variety I have.

JAS. W. GRADY, *Anna, Ont.*

This is a very nice apple, of medium size, oblong, of a beautiful golden yellow color, and of excellent quality as a table apple. Probably a little on the small side for a profitable commercial apple.