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THE

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VOLUME XXI.

Editor - - - - - LINUS WOOLVERTON, M.A.

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OF

THE CANADIAN HORTICULTURIST.

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CONTRIBUTORS TO VOL. XXI.

MARCHIONESS OF LONDONDERRY.

THE
CANADIAN HORTICULTURIST.

VOL. XI. 1898. NO. 1.

SEVERAL GOOD ROSES FOR OUR PROVINCE.

I WILL not have the mad clytie
Whose head is turned by the sun;
The tulip is a courtly queen,
Whom therefore I will shun;
The cowslip is a country wench,
The violet is a nun;
But I will woo the dainty rose
The queen of every one.

The pea is but a wanton witch
In too much haste to wed,
And clasps her rings on every hand;
The wolf's bane I should dread:
Nor will I dreary rose marye
That always mourns the dead;
But I will woo the dainty rose
With her cheeks of tender red.

—HOOD.

Some time ago reference was made to a trip to Fonthill, and the pleasure we took in comparing the roses there with some on our own grounds at Grimsby. We now proceed to redeem our promise that we would engrave some of our photographs of several satisfactory varieties.

Our frontispiece is a fine representation of a new rose, a fine white hybrid perpetual, recently sent out by Messrs. Dickson & Sons, the Irish rosarians, who have already become famous for originating that beautiful rose Margaret Dickson. The *Marchioness of Londonderry* is this described: Flowers of great size, perfectly formed, and carried on stout stems; color, ivory-white; petals of great substance, shell-shaped and reflexed: free flowering, highly perfumed; growth vigorous and foliage very fine, we may say mildew proof.

FIG. 1258.—MARGARET DICKSON. (*Reduced.*)

By favor of Messrs. Ellwanger & Barry we give a cut of *Margaret Dickson*, because there was no rose in the collection which seemed to give better satisfaction, both for health, free blooming, and beauty of flower. They say of it: "We have had this superb rose growing for several seasons, and there seems to be no doubt that it will be one of the best white hardy roses. Of magnificent form; white with pale flesh centre; petals very large, shell-shaped, and of great substance; fragrant; foliage very large, dark green; a very strong vigorous grower."

FIG. 1259.—CRIMSON RAMBLER. (*Reduced.*)

The rose which most interested us at the Fonthill Nurseries was a novelty from Japan, the *Crimson Rambler*, a cut of which has also been furnished us by the same firm. Of course the individual bloom was not large, nor striking, but its clusters are simply marvellous. Even in the nursery rows the young bushes were loaded heavily with numerous clusters, while the vigor of the shoots surpassed that of any other variety. It is thus described:

Plant vigorous, shoots of one season's growth often eight or ten feet long, and consequently suitable for a climber; pegged down and grown as a bush a marvellous head of bloom is the result; hardy, at least in Southern Ontario.

Bloom in clusters of bright crimson semi-double roses, which remain a long time. The Executive of the Fruit Growers' Association have placed this in the list of plants for distribution in 1898.

FIG. 1260. MARSHALL P. WILDER.

Of the *red roses* which bloomed at "Maplehurst" in 1897, we may mention several:

Marshall P. Wilder—A very satisfactory remontant rose, of fine form and color, and remaining long in bloom, called by some an improved Alfred Colomb.

Origin—Raised from seed of Jacqueminot by Ellwanger & Barry, Rochester, 1884.

Plant, vigorous, with healthy foliage and a fairly free bloomer.

Flower, large semi-globular, full, well formed: color cherry carmine and very fragrant.

FIG. 1261.—BARON DE BONSTETTEN.

Baron de Bonstetten—A variety that is almost indispensable in the amateur's garden, for it is one of the finest of the very dark red roses. For best results it needs the best of cultivation.

Origin — Raised by Jean Liabaud, of Lyons, France, in 1871.

Plant—Hybrid remontant, vigorous grower, a shy bloomer in autumn.

Bloom — Color rich velvety maroon, shaded with deep crimson, turns darker as it matures.

Of the red or pink roses, one of the finest is

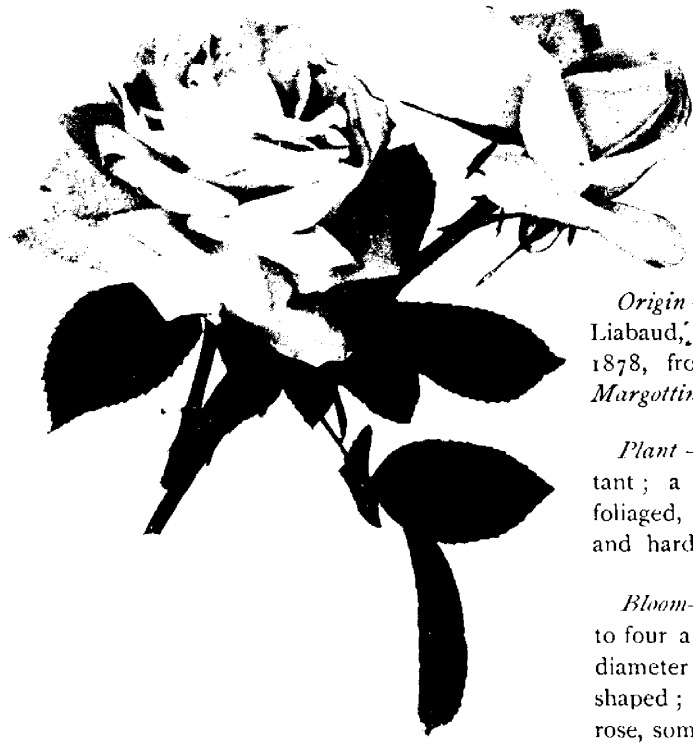

FIG. 1262. —GABRIEL LUIZET.

Gabriel Luizet, which was sent out by our Association three or four years ago, and has given great satisfaction every where.

Origin — Raised by Jean Liabaud, Lyons, France, in 1878, from seed of *Jules Margottin*.

Plant — Hybrid remontant; a free grower, long foliaged, a good bloomer, and hardy.

Bloom—Large, from four to four and a half inches in diameter in 1897, cup-shaped; color, pink or pale rose, somewhat fragrant.

Mrs. John Laing is another great favorite among the light colored roses. Its large delicate rose-colored blooms are most showy and beautiful, and we do not wonder that it is a general favorite wherever known. No doubt it is the most beautiful rose that has been brought before the public for some years

blooming some years at "Maplehurst," and has proved itself a most satisfactory bloomer. As a bush rose, to show off to fine purpose when in bloom in its place in the garden, we have none that has commended itself more than John Hopper.

Origin—A cross between *Jules Mar-*

FIG. 1263.—MRS. JOHN LAING.

Origin—Raised by Henry Bennett, England, in 1887, from seed of *Francois Michelon* of la Reine type.

Plant—Hybrid, remontant, a vigorour grower, hardy.

Bloom—Large and beautifully formed, on stout stems; color soft pink, very fragrant.

John Hopper.—This rose has been

gottin and *Madame Vidot* by Mr. Ward, Ipswich, England, in 1862.

Plant—Hybrid remontant, of stout and bushy habit, a fairly good grower, and a free bloomer.

Bloom—Large, from three and a half to four inches in diameter, finely formed, full; color, bright rosy crimson.

Wishing to compare notes with grow-

ers of roses in other parts of Ontario, we have written to Mr. T. H. Race, of Mitchell, to know how these varieties succeed with him, and his reply here appended, shows a different estimate of the value of some of these varieties arising no doubt from the difference in soil and climate. Mr. Race writes:

"Replying to your inquiries regarding roses, I grow the *Baron de Bonstettin* in a rich clay loam. It is not a great wood producer, but is a free bloomer and its blooming season continues from three to four weeks With me it is the finest of all the dark sorts though not quite so strong a grower as its seedling the *Jean Liabaud.*

John Hopper is not a great favorite with me. I find it quite as tender as *Jules Margottin*, not so strong a grower, nor so fine a bloomer and not so fine a rose. It does not stand the early spring season well with me—the sunny days and frosty nights after its winter covering has been removed.

Mrs. John Laing is a strong grower, needs good protection; starts out well as a bloomer but does not open all its buds. Many of them wither away before opening. I do not consider it at all equal to its parent *Francois Michelon.*

FIG. 1264.—JOHN HOPPER.

Marshall P. Wilder does not do well here. It is not very hardy, not a strong grower, and not a free bloomer. In fact with me, Marshall P. Wilder in the garden is a direct contradiction to Marshall P. Wilder in the catalogues.

Madame Gabriel Luizet has scarcely a

fault except that it will not produce enough wood. It does better with me on a lighter soil well enriched, than on heavy clay loam. It is a good bloomer, not profuse, and it does better on budded plants.

Pride of Waltham is a beautiful rose, not a strong grower, and not a profuse bloomer. It is so finely formed that it always attracts attention ; and it lasts well. With me it is quite hardy.

Marchioness of Londonderry is a new rose with me. It is a good grower with fine foliage and seems inclined to bud heavily ; but I did not allow it to mature any blooms. This is the twentieth of November. I have just put on my winter covering of leaves to day.

FIG. 1265.—HYDRANGEA OTAKSA.

HYDRANGEAS FOR PORCH DECORATION.

WE notice in a late issue of Gardening some questions and answers regarding the growing of *Hydrangea Otaksa* for porch decoration. So many in Ontario are growing one or the other of these in pots, that we give place to the article in our columns.

1. *How should they be treated after blooming? Ans.* All that is required after blooming is to cut off the flower heads but do not cut far back and take the flower heads only. Set away in some place where they can get full attention in regard to watering as they should never be allowed to get dry at the root.

2. *If cutting back is to be done, state where to cut, and whether the shoots that come from the base of plant and flowers are to be cut back the same as the older wood. Ans.* After the plants are well ripened in October they can be cut back a little, but the final pruning is better left till the spring when the plants should be well pruned, cut back to about two plump buds to each shoot; that is leave two joints; each joint has two buds, rub off one bud at each joint, one at each side of the shoot; the shoots that start from the base of the plant, if they flower and there is room for them without crowding the plant, retain them, but the plant is well furnished I would cut them out. All weak shoots should be cut out as they appear; this will throw all the strength into the other shoots and give better buds for another year.

3. *When flower buds are expanding are the weaker ones cut out? If so, how far back? Ans.* If your plants are well furnished with large flowers and a little crowded, cut them out altogether, but this is not necessary. Your own judgment will have to govern. One of the main points to watch is not to let your plants get too crowded in the center. Let the light get in; in this way you can always expect good buds, but if your plants are left to themselves and all shoots retained, all the buds in the center of the plant will be weak and not apt to flower.

4. *Is it advisable to change the soil each year? If so how is it done, and when? Ans* If your plants are in large tubs it is not necessary to change the soil each year; every second year will do. The best time to repot is in spring before the plants begin to start into growth. This is a job that has to be carefully done, as the buds are easily broken off. Our mode of doing this where very large tubs are used is this: A pulley is attached to the ceiling of the work room, a stout soft rope with a hook on the end is tied around the base of the plant, the rope run through the pulley and the plant is raised up. The tub is then removed by striking the top with a hammer. The ball of roots is then loosened and part of the old soil taken away. The new tub, well drained, is then put under the plant and it is lowered into it and the soil rammed in with a stick just as hard as it can be. Where many plants are to be handled this is a good way to do, and a great many can be done in a short time.

5. *Will a frost-proof cellar do to keep them over winter in? Ans.* Yes. Although a few degrees of frost won't hurt them it does them no good. A cellar with a temperature running from 35° to 40° is about right They should never get dust dry in their winter quarters, but no more water than is needed should be given.

ROSES.—The rose if it has been well cared for, is now holding a riotous festival of voluptuous beauty, roses, roses everywhere. The bushes are aflame, and the wind has rose-petaled the walks. Roses are long-lived shrubs, and we read of one rose tree that leans against the old chapel of St. Anne, in Hildsheim, Germany, whose root is eight hundred years old, and whose present height of thirty feet is one hundred and ten years old. Do not forget to cut the roses with liberal hand, and prune to a compact shapeliness this month after the buds cease to come. Then spade well and keep all weeds down, that new growth may be speeded; for the buds come best from the new wood. Keep the garden richly fertilized.—Keziah Shelton in New York Observer.

FIG. 1266.—A BACK GARDEN IN COLORADO.

THE BACK-YARD GARDEN.

THERE is a great deal to be learned about the possibilities of the little city back-yard, which is usually the most barren of places. Not a tree or plant, not even a decent lawn, bears evidence to any taste on the part of the occupant in numerous instances, especially if he is "only a tenant."

When one stops to consider how little the expenditure would be to get a few grape vines, or ornamental climbers to cover the barren walls, a few ornamental shrubs, or fruitful dwarf pears to hide the ugly fence, and a few narcissi, pæonies, or other hardy perennials to ornament the borders of the walk, surely no tenant need to live without the luxury of an attractive as well as profitable garden, a place to develop his taste, and at the same time develop his physical being. The illustration is from Gardening, and shows a back garden belonging to Dr. Gates, of Colorado Springs, Col.

No one can look at this picture without remembering Alfred Austin's charming expression, "The moment I enter a garden I know at once whether it is the owner's garden, or the gardener's garden. Nearly all large and costly gardens are gardeners' gardens, and on my part I would not take them as a gift." It is easily seen that this plot of ground receives the personal care of its owners, who tend to it with loving interest, and whose attentions are amply repaid by the wealth of bloom it produces.

Here in a climate where the hot dry sun burns the petals of gladioli and other flowers, so that it is necessary to fasten cheese-cloth over them at times, and where unusual care is required in watering, we find a spot that otherwise would be bare and unsightly, "blossoming like the rose." Why is this? It is because the owner possesses a love for the inmates of his garden, and attends to them personally. Anyone having a plot of ground at their command can have the same luxuriance of growth in it, the same healthful out-door pleasure that this gentleman evidently enjoys in the care and maintenance of his garden, if they so desire. A few seeds, a small outlay for perennials, a spade and weeding tools, a little patience and energy and a desire to do, all backed by a love for it, will soon produce a floral mine whose dividends can be depended upon.

The illustration shows about one-fifth of the entire garden. Here, *Rudbeckia Golden Glow*, a moisture-loving plant, that under ordinary care attains a height of about six feet, grows nearly ten feet, requiring the lady picking its flowers to use an eight-foot step-ladder. If every back-yard in this great country of ours were like this one, our nation would be a much happier one.

THE OX-EYE.—This introduced weed, against the spread of which an attempt was recently made to induce the Pennsylvania legislature to issue an "act," is getting so popular with florists, that they will soon have to be "protected," rather than legislated out of existence. The French are also fond of it. They call it the common Margaret.—Garden Magazine.

FIG. 1267.—SPRUCE HEDGE.

SPRUCE HEDGE AT LINDSAY.

SIR,—I am sending you a photograph of my Norway Spruce hedge, together with gooseberry pickers, man, myself and berries. There is but one expression regarding the hedge, from those who see it, viz.: that it is the finest they ever saw.

W. M. ROBSON, *Lindsay*.

MANURING ORCHARDS.

"A system of manuring for cultivated orchards, based upon the limited data at our disposal, may be outlined as follows: To provide vegetable matter and to improve the physical quality of poor soils, apply yard manure once in four years, in fall or winter, at the rate of five to ten tons per acre. To aid in the decomposition of vegetable matter and to insure a sufficiency of lime as plant-food, apply lime at the rate of twenty-five bushels per acre once in five years. To provide, in addition, an abundance of all forms of available plant-food at the time of need for the development of the tree and fruit, apply annually chemical fertilizers in the following proportions: Nitrate of soda, 100 pounds; rock superphosphate, 100 pounds; ground bone, 200 pounds; muriate of potash, 200 pounds. The amounts to be applied depend on the character of the soils, the kind of fruit, and the age and vigor of the trees; these given perhaps mark the minimum. By the introduction of crimson clover, we have a plant admirably adapted to cheaply supply nitrogenous vegetable matter for orchards, and its growth is to be recommended wherever the plant can be successfully grown, instead of the use of barnyard manure."—L. H. BAILEY, Ithaca.

CARNATIONS FOR SUMMER FLOWERING AND POT CULTURE.

FIG. 1268.—CARNATION BRIDE OF ERLESCOURT.

CARNATION blossoms, "the Divine Flower," find ready and steady sale everywhere that flowers are in demand. The charming flowers with their spicy fragrance have seemingly endeared themselves to the hearts of this American people, in the flower stores, in the greenhouse and as pot plants, the unassuming carnations are prime favorites. In 1891 the American Carnation Society was organized at Philadelphia for the purpose of fostering and propagating the interest in these flowers. The wonderful creations of new and of improved varieties and the keen appreciation with which the flower-buying public regard them, are, we have no doubt, largely due to the active work of this Society and the pleasing exhibitions they have given. Carnations for winter blooming in the house and summer flowering in the garden are the two branches of carnation culture that are of interest to the amateur. For the former purpose the preparation of the plants must begin at an early date. Procure the young plants as soon as the ground can be dug and the danger of severe frost is over, set them in the open ground not less than one foot apart; somewhat sandy soil produces decidedly the largest and most desirable carnation plants. As the leading shoots begin to run up to flower they should be cut well down, this adds vigor to the growth and encourages production of numerous side shoots that are necessary for good winter-blooming stock. Do not do any pruning after August 1st, or the first crop of flowers will be late. Potting may be attended to as late as the end of October and good results obtained, but early in September is much better. The best time for lifting the plants is a vexed question; some deeming it nonsense to lift them during a hot spell of weather, and others claiming that such weather is the only time this work

should be done. After a few weeks of dry weather the growth hardens somewhat and is semi-dormant. If carnations are potted at such a time they will be found to wilt but very little and this is a decided gain. Do not make the mistake of keeping pot carnations in too high a temperature ; 50 degrees to 55 degrees at night will be found best ; in day time 60 to 70 degrees may be permitted. Well grown, neatly staked, clean plants will reward you with a luxury of dainty, spicy blossoms. The only insects that may be called enemies are "Green Flies" and the "Red Spider" ; for the latter, spraying with water or a moister atmosphere is needed, tobacco smoke or some liquid extract of tobacco will quickly dispense with the Green Flies or Green Aphis. Some fungous diseases now attack the carnation though they are frequently fought with a degree of success where the flowers are grown commercially. It is we think the most satisfactory for the amateur to rely on clean healthy plants to begin with and proper culture during the flowering season.

Some of the newer largest flowered kinds are unsurpassed as pot plants, when well grown :—Mme. Diaz Albertina, pink ; Emily Pierson, scarlet ; Bride of Erlescourt, white ; Meteor, crimson ; are all fine. Flora Hill, one of the very newest and very largest whites, promises well for pots. For summer flowering it is not the strongest grower nor the largest flowering that should be chosen, free growers and free flowering habit are more necessary features :— Silver Spray, Portia, Wm. Scott, Thos. Cartledge, Eldorado, J. J. Harrison, Mrs. Fisher, Lizzie McGowan, and Pres. Garfield, are all suitable. Pres. De Graw, white, we have found one of the freest of varieties for summer flowering ; it is rather short-stemmed, however, and has been so seldom offered of late years, that we doubt if it is now in commerce at all.

Begin the propagation of plants in February, the larger you have them at planting time the earlier your flowers. Simply pinch the leading shoots twice while still in pots ; it is better to let all the shoots run to flower after planting. If the soil is suitable and well enriched, you will be rewarded with lots of good bloom from July 15th, on. The New Margaret strains which are raised from seed, are really effective summer bloomers. The most carefully saved seed will produce about 80 % of double flowers ; but as it cannot be said till they flower which are the single flowers, they are somewhat dioappointing at times. Some overcome this difficulty by setting the plants rather thickly, so that when the single ones are weeded out, the bed still presents a good appearance.

WEBSTER BROS.

Hamilton, Ont.

GRIMES' GOLDEN PIPPIN.

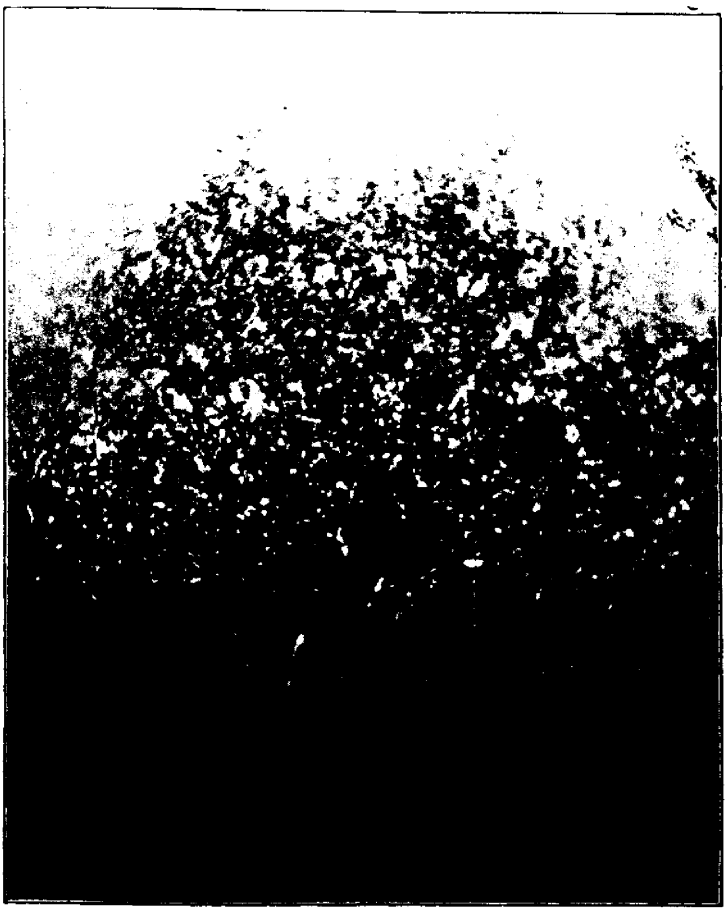

FIG. 1269.—GRIMES' GOLDEN PIPPIN.

THIS apple was sent out by our Association in 1873, and thought at that time to have great value as a market apple. The variety originated in Virginia on the farm of Thomas Grimes, and is referred to in our Journal for 1887 as "No Novelty." At that time it was still highly spoken of as "an apple that would bring the highest price in the Eng-

lish market on account of its delicious flavor, and its rich golden yellow, when fully ripe, renders it peculiarly attractive." Notwithstanding all these good things said in its favor, the apple has failed to gain upon the favor of our apple growers, and we doubt if any one would recommend it as a profitable variety. The tree is vigorous and productive, and we have engraved a photograph of a tree of this variety in J. Cooper's garden, Lindsay, which he received from our Association in 1873. Certainly it has made a fine tree in twenty-four years, and we thank Mr. Cooper for sending us the photograph.

OUR MEETING AT WATERLOO.

ON invitation of the Waterloo Horticultural Society our Association met at Waterloo on Wednesday, the 15th ult. at 10 o'clock in the morning. Much credit is due to the members of that society for their interest in our meeting, and for their success in bringing together a large local attendance.

The chief paper of the first morning was given by Mr. W. M. Orr, the Superintendent of Spraying for Ontario. He gave a detailed account of his work during the past season. Experimental spraying had been conducted in twenty-nine different localities, and the universal testimony from all quarters was in favor of the great benefits received from the persistent application of the Bordeaux mixture. The scab appeared later than usual in the season, owing to the excessive wet in the latter part of the summer. It is commonly supposed that the first three sprayings are the most important, but this year those who were satisfied with the yearly applications missed the mark. Mr. Orr noticed the danger that arose late in the season and gave a seventh application which was the most effective of all and produced the most interesting results. In one orchard, for example, trees sprayed gave 90 per cent clean fruit, while those unsprayed gave only 20 per cent. and it was reckoned that from twenty-five trees sprayed, there was a direct gain of at least $100. In another orchard, Spys that had been sprayed gave 90 per cent. clean fruit, while those unsprayed only 50 per cent. One instance was given of Maiden Blush apples sprayed that sold for $4 a bbl., while those unsprayed were so scabby and blemished that they brought only $1.75 a bbl. The cost of spraying was reckoned by Mr. Orr to be only about 2 cents per tree for each application.

This report by Mr. Orr is one of the best testimonies that has ever been given to the public regarding the value of spraying, and those apple growers in Ontario who are aiming at success in their work will surely follow out the instructions which have been given by the department. The failure in many cases on the part of those who have tried and been unsuccessful, arises from two or three causes. First, a poor pump has been used. Some of those that were first offered to the public might be called men-killers, such hard work was required to keep them in operation day after day. Some of those now placed upon the market work so easily that any boy can manage them. Another important consideration in the pump is the nozzle. This should be such as will furnish a fine mist-like spray which settles upon the foliage and fruit of the tree like fog and does not drop to the ground. This is

the only effective spray, and after the application is made the whole tree will be covered with the peculiar green of the Bordeaux mixture. Besides, such a method is the only economical method of applying it, compared with the old cyclone nozzle, for instance, by means of which the application was so wasteful that more than two-thirds fell to the ground, and two or three times the quantity was used that was necessary. Persistency in the work is a feature which is usually neglected. Many persons think that, when they have once sprayed their orchard the work is done for the season, while, on the other hand, several applications should be given, especially if the weather is favorable for the development of the scab.

In the afternoon of the first day, a detailed report was given of the experiments in the export of tender fruit in cold storage to Great Britain, and Mr. Geo. E Fisher reported upon the success which had attended some private shipments of pears, apples and tomatoes from Burlington. Mr. Fisher inquired if the Department would furnish cold storage accommodation for fruit growers in general the next season. Prof. Robertson, who was present representing the Department of Agriculture for the Dominion, replied that, if growers asked in advance for certain space, say sufficient for one carload per week, provision would be made for them, providing the growers asking for such space would not fail to occupy it. Mr Robertson gave a detailed account of the efforts which had been made by the Minister of Agriculture for the Dominion to assist fruit growers in placing their goods in the English market where he was confident they would bring remunerative prices He outlined the methods of packing which he thought best, and showed some diagrams for the construction of cold storage warehouses on a small scale for the use of fruit growers He also stated that no effort would be spared on the part of the Department to find out all the information possible in the way of facilitating the export of Canadian tender fruits With regard to the export of Canadian grapes, and the objection on the part of the English people to their flavor, Dr. Saunders said he did not believe that the best plan would be to attempt to force Concords down the throats of Englishmen against their will, but rather to first tempt their taste by forwarding the finest flavored Canadian varieties, and perhaps then they might take a fancy to well ripened Concords. Mr. Robertson said he believed a market might yet be opened for our Concords, although during the past season the shipment of them had been a failure. At one hotel in England an experiment was made with Canadian Concords for a whole week. The first day it was noticed that the guests would take one or two berries, taste them and then spit them out. After a day or two, it was observed that a little more attention was being paid to them, and toward the end of the week, the dishes of Concords were emptied completely Regarding the English methods of eating grapes, it was remarked that the English people have no idea of consuming grapes by the pound in the way that we Canadians do. Indeed, many varieties are so expensive that guests are not expected to take more than two or three berries at one time from the dish. Surely let us hope that Canadian grapes once introduced will create a new era in the consumption of grapes among the English people.

The report of the progress of our experimental work in exporting fruit in cold storage was listened to with deep interest, and a resolution unanimously passed as follows :

Moved by D. D. Smith, seconded by Joseph Tweedle, "That this association has listened with deep interest to the information furnished by Prof. Robertson and Secretary L. Woolverton regarding the result of the trial shipments of tender fruit to Britain in cold storage under the auspices of the Dominion Government, and desire to record our thanks for the same. We appreciate the fact that these shipments have been experimental in every sense, and consequently perfectly satisfactory results could not have been expected the first season, and while on the whole the results have been unsatisfactory from a present financial aspect we are glad to know that they lead us to believe that with further experience a permanent and lucrative market may be confidently looked for in Britain for at least pears, peaches, tomatoes and probably grapes. We would therefore respectfully urge upon the Government, in view of the vast interest at stake, to continue on an extensive scale the experimental shipments another season, putting large quantities of suitable varieties of Canadian grapes continously upon one or more of the British markets, to test fully whether or not the British palate will ultimately become accustomed to and like their flavor, and conducting at the same time further experiments with other fruits to overcome the difficulties found to exist in getting them landed in good condition.

"We also desire at the same time to record our gratitude to Mr. George Fisher of Burlington for the plucky experiments which he and his neighbors conducted this season on an extensive scale on the same line, exporting tender fruits to Britain, and for the report given here of the results of these experiments, which we are particularly glad to know turned out eminently satisfactory from a pecuniary point of view, confirming the results obtained through the Government experiments that at least a number of our tender fruits can be exported profitably under proper conditions and safeguards."

On Wednesday evening the meeting was a very interesting one. The Mayor of Waterloo welcomed us heartily to that city, and the Waterloo Horticultural Society provided an excellent orchestra which gave us some very high class selections during the evening. Prof. Robertson gave a most interesting address on "The value of fruit as food for man" which was illustrated by numerous charts. The President's address called attention to the success which had attended the efforts of the executive in extending the work and influence of our Association during the past year. The membership, he said, has now reached a higher number than it had ever done before in our history, the number being about 3500. This far exceeds the membership of any similar organization in the world.

Prof. Taft of the Agricultural College, Mich., gave a valuable address on "Orchard and Nursery Legislation," with reference particularly to the best methods of dealing with the San Jose scale. This subject was taken up on Thursday, when addresses were given. Dr. Fletcher stated in his address that the San Jose scale increases with wonderful rapidity, the descendants of one female in one season amounting to three thousand million. His address was almost entirely devoted to details regarding this insect, and in the course of it he mentioned that there is a parasite which might in time rid us of this scale, but before that time came, the fruit growers of Ontario might be ruined by the pest. It is most important, therefore, to wage a desperate battle with it at once. He advised spraying in the fall, after the leaves had fallen, with kerosene emulsion, and again in the spring with a strong solution of whale-oil soap and water, the trees to be first closely pruned back.

Mr W. M. Orr gave an outline of the work on inspection done under the direction of the Department of Agriculture for Ontario, resulting in the discovery of thirteen or fourteen orchards in different parts of the province which are badly infested, the result of the importation of stock from a New Jersey nursery some years ago. Mr. Orr also exhibited specimens of the limbs and fruit affected by the scale.

Deputy Minister C. C. James read before the Association Mr. Dryden's bill intended to bring about the destruction of affected trees found throughout the province, which was fully endorsed by

the Association, and a committee was appointed to confer with the Minister regarding some details.

Dr. Saunders of the Experimental Farm, Ottawa, gave an instructive address on "How to Maintain the Fertility of the Orchard." He ably reviewed the elements required, and pointed out the materials which are most beneficial for the various kinds of fruit. Dr. Saunders is a gentleman of manifold attainments, and every department of work of the five farms comes under his personal supervision, and, owing to the resignation of Prof. Craig, the work of the Horticultural Department at Ottawa, has been added temporarily to his already too heavy duties. Our Association is much indebted to him in the past for he has been a member since the early days of our history, and, though of late years loaded with honors and responsibilities which occupy his time very fully, he still takes the deepest interest in the work of our Association.

The meeting on Thursday evening was of a joint one with the Local Horticultural Society, and there was a large attendance of local members. Our thanks are due to that society for the excellent music provided, and we take pleasure in making special mention of the piano solo by Miss Conrad and the vocal solos by Mrs. Ruby and Miss Riener.

EXPERIMENTS WITH APPLES AND PEARS.

TOWARD the close of the season some apples were forwarded to Glasgow in boxes and barrels, from Grimsby, for the purpose of testing the relative condition of those carried in cold storage and in ordinary conditions. There being no great quantities going forward, the test was not quite as fair as in those seasons where the quantity is immense, and much has to be crowded in close holds heated by the engine.

The chief difference noticeable was that those carried in ordinary conditions were many of them slack, and the others remained firm and tight. Both brought fine prices. Cranberry Pippins brought $4 a barrel; Baldwins, $4 a barrel; Spys, 75c. to $2 a box; and some choice Ribstons and Cranberry Pippins from $2 to $2.50 per box. Some Baldwins and Spys, shipped by Messrs. A. H. Pettit & Son brought $5 a barrel. Mr. Thos. Russell, the consignee, writes: "I am pleased to state that these apples landed in very good condition, and made a good sale, considering that the market was practically glutted at the time with apples of all kinds. These apples were very good and very clean, and our best retail shops took on to them.

The Pears in this shipment did remarkably well, the sale being made on the 7th of December. Mr. Pettit's Anjou sold at high prices, one bushel case, containing 127 pears, brought 23 shillings or about $5.60. One case Lawrence brought $4.87. This is a small sized pear, and the case contained two hundred and seventy-six specimens. One case of Winter Nelis, containing 120 pears, sold for $3 35.

The Kieffer Pear, a variety much criticised as of inferior quality, appears to be a fine shipper. Mr. D. J. McKinnon shipped several cases, some of which sold for $3.65 a case of two hundred and fifty pears, and some half cases containing eighty pears at $2.50 each.

Mr. Russell writes: "The pears landed in good condition, and made a very good sale. Parties who have bought these were very well satisfied

with them, and have been making enquiries for more."

During the season the writer has forwarded several lots of Orange Quinces, and the results have been very satisfactory. Two cases in the last shipment, containing about 128 quinces each, sold for $1.25 each, but this is the lowest sale. Mr. Russell writes that the reason of the low price was that they landed in bad condition. No doubt it was past the season for shipping quinces, when these went forward.

We have just received a letter from Messrs. Wood, Omerod & Co., who say they were the largest purchasers of our last shipment. They say, "The Kieffer pear will not do here when known, but the Anjou will do well, especially if they could be grown with a softer or smaller core. We see no reason why this variety should not be shipped in quantity another season.

All this information we are giving our readers as quickly as possible, after it is received; because we want all our fellow fruit growers to have equal advantage with us from the experiments. Everywhere we find our growers eager to know the results, because our export trade is the hope of the future.

Regarding the Export Shipments from Grimsby, the writer wishes to acknowledge, on behalf of the shippers, the extreme kindness and courtesy shown them throughout the season by the Commissioner, Mr. J. W. Robertson. Not only has this gentleman acceded to all reasonable requests made, but has from first to last, both by personal visits and the fullest communications, kept the shippers posted concerning the English markets and the prices their fruit was bringing. The whole business has been closed to the satisfaction of all concerned, and with high hopes of success in 1898.

DOES IT PAY TO SPRAY?

AGRICULTURE was the first subject of legislative action at this Session. The bill introduced the other day by Hon. John Dryden, Minister of Agriculture, authorizing the Department of which he is head to deal promptly in fighting the San José Scale, the terrible insect pest now threatening the destruction, not only of the fruit industry of the Province, but of all wood growth as well, was the first measure of Government or private origin to be laid before the House.

It will be well indeed for the country if as great success attends this spirited attempt to check one of the most insidious enemies of vegetation that has ever come under the knowledge of science, as is attending the spraying experiments conducted by the Ontario Department of Agriculture during the past two seasons.

A publication of absorbing interest is the special bulletin that may be had by simply sending the address to the Ontario Department of Agriculture, Toronto, whence it has just issued with the title, "Does it Pay to Spray?"

To find out the answer to this question the department gave practical instruction in spraying in twenty-nine orchards in various parts of the Province that were suitable for the work and convenient for the surrounding community of farmers and fruit-growers to visit while the spraying was being done. Mr. Wm. Orr, of Fruitland, Ont., a

successful fruit-grower of wide experience, was appointed as superintendent of the work. Each orchard was provided with a cheap spraying outfit. Three men who knew how to spray were sent to visit these orchards, ten days for each man, and do the spraying at certain fixed dates, notice of which was sent through the mail to all persons interested, and by means of the local press proper announcement was made so that any who cared could come and see for themselves. Besides the actual work of spraying, these men were able to give every possible information about the different solutions and their applications. A bulletin full of accurate data, and carefully illustrated, was widely distributed by the Department.

The sprayers went round the twenty-nine orchards seven times, and literally the walls of Jericho fell, for the authentic statements contained in this special bulletin prove conclusively that spraying not only pays, but pays well, and is a highly successful agency in fighting the flies, grubs, worms and fungous growths that prey upon the orchards of Ontario.

As illustrations of this, where spraying was done, from 75 to 90 per cent. of the fruit was clean, while from trees in the same orchards, not sprayed, only 10 to 15 per cent. of the fruit was fit to pack. Spys and other red fruit from sprayed trees commanded $3.50 per bbl. The best fruit from unsprayed trees would bring but $2 per bbl.

In order to learn what is thought of these experiments in spraying, so as to decide upon continuing them next summer, a letter was sent to the owners of the sprayed orchards, asking for their opinions as to the value of the spraying, and, if possible, to make definite statements as to the actual results per tree. This letter has gathered a mass of information upon the subject of spraying that is contained in the bulletin.

For fear that the farmer with a small orchard, or in fact any owner of apple trees, even of only half a dozen, may think this spraying business does not concern him—an error of incalculable injury to the industry, for fruit-growers great and small are linked together in the success or failure of fighting these enemies—one man's experience is given.

Mr. George Adams, of Smithville, Ont., writes: "I have eleven Spy trees. Eight of them were sprayed, and the result was 24 barrels of the finest fruit I ever picked from them. I sold them at $2.50 per barrel, and four barrels of culls at $1 per barrel, $64 in all. These culls were not spotted, but were undersized and wormy. The three Spy trees not sprayed gave three barrels of badly spotted fruit which sold for $2 per barrel, and about ten barrels of culls, which I sold for $1.25 for the lot." That is to say, the sprayed trees brought $8 each, and the unsprayed less than $3, a difference of more than $5 per tree. The cost of the whole outfit for spraying would be more than made up by the increased profit from a couple of trees. Apart from the time of doing the work, the spraying material costs less than five cents a tree.

This special bulletin should be read by all who have at heart the welfare of an industry already of immense profit to the Province, and capable, if these enemies can be successfully combatted, of enormous expansion, for Ontario apples, pears and plums will find in Great Britain and other European markets illimitable fields for expansion.

ABOUT PLANT FOOD.

THE need of artificial manures in this country has already been demonstrated; unfortunately, the proper manner of applying them is not as yet as well understood as it should be. Ignorance in this respect frequently causes complaints to be made that commercial manures are unprofitable. Some even go so far as to say that they are simply "stimulants" and act upon the soil very much in the same way as alcohol acts upon the human body, "bracing" it up for a time, and after the effects begin to wear off leaving it in a worse state than before. Such a statement is easily made off-hand, but a little investigation will prove how inaccurate it is.

The commercial fertilizers on the market are compounded for the purpose of supplying three plant food ingredients; these are phosphoric acid, nitrogen and potash. The mixture contains a number of other ingredients like soda, magnesia, etc., but no attention is paid to them for the simple reason that they exist in sufficient quantities in any soil to meet the demands of the crop. The purchaser therefore has only to concern himself about the phosphoric acid, nitrogen and potash in his fertilizer, but often the entire success or failure of his crop is to a great extent dependent upon the proportions in which these three important constituents are applied.

Before deciding *how* to apply fertilizers, the farmer should learn which fertilizer to apply. The best way to gain this information is by practical field tests. Apply different fertilizer combinations to different parts of the field and then compare results. This is actually putting the question to the soil itself, and the answer is received in the shape of yields of varying proportions.

After having found the combination of fertilizers best suited to any particular soil, the next thing is to study the best manner of applying the same. The aim should be to give the food at such a time and in such a way that the plants can absorb and assimilate it to the best advantage possible. We all know that the plant food in the soil must first become dissolved before it can be taken up by the plants; hence we should see that the soil conditions are favorable for the transformation of the fertilizing materials from the solid to the liquid state. This means that the soil should be reduced to the finest possible physical condition, as free from lumps as possible, and so well cultivated that it will afford an easy passage for air and water. After having brought a soil to this state, the next important point is to put on the fertilizers in such a way as to ensure conditions that will be favorable for the change from the solid to the liquid state, and also to allow a sufficient time for the transformation to take place. The great mistake so many make is in applying their fertilizers just at the time of sowing their seed, and as the fertilizers do not then have sufficient time to become dissolved and disseminated, the results are apt to be disappointing, especially during a season of drouth when there is but little moisture in the soil.

If the fertilizing materials are put into the soil some weeks before planting, they have a better opportunity to get into proper condition. Some attention, however, must be given to the special action of certain fertilizer materials; for example, nitrogenous fertilizers like Nitrate of Soda and Sulphate of Ammonia are quite soluble, and if they were put into the soil too long before planting there would be a loss from leaching;

such materials therefore should be applied at planting time. Experience has demonstrated that Nitrate of Soda gives the best results when used in small doses as top dressing throughout the growing season; in other words, applied at times when just needed by the plant.

The mineral ingredients, on the other hand, that is, the materials like Acid Phosphate and Muriate of Potash, will not leach out of the soil; in fact, they form combinations in the soil which hold them there. It is best to put on the potash and phosphate at least some weeks before planting time, and then work them lightly into the soil,

In our opinion if more attention were paid to the proper application of fertilizers, they would become even more popular than they are at present on the Canadian farms.

GERMAN KALI WORKS.

COLD STORAGE FOR FRUIT GROWERS.

SIR,—I should be pleased to see in the columns of your valuable Journal an economical plan for the building of a small cold storage house suitable for the preservation of small fruits, such as plums, pears, grapes, etc.

H. LYNE, *Clarksburg.*

The experience of the past season in trying to export our tender fruits proves that the best results can only be obtained by cooling the fruit before it is wrapped in paper, because otherwise the hot fruit retains its heat when packed, and can afterward be cooled with great difficulty.

Besides the importance of a private cold storage house for every fruit grower who contemplates packing for export, such a house will be of the greatest value in holding fruits in the best condition for our home markets. Especially does this apply to the Crawford peach and the Bartlett pear, our most popular fruits, because by holding them back until the glut is over, and perhaps until Californian stock ceases to pour into our markets, an advanced price can be obtained. For a simple and economical plan for a small cold storage house, we would refer our reader to Mr. J. W. Robertson, Dairy Commissioner at Ottawa, who furnished us with the plans for the one erected at Grimsby, and which cost about $800, and will store about one car load of fruit at a time, and which requires about 75 tons of ice per annum.

A smaller size could be built for less money. For those who wish to build with the least expenditure of money, and have skill enough to do the work, a description given in Hoards' Dairyman may be of service. Though primarily intended for milk and butter, some slight modifications will adapt it for fruit storage.

"For a room of any size make bottom first of 4 or 6 inch flooring; to start, cut flooring enough for first course—the width the room is to be and length—take 2 x 2 strips, lay them down 18 inches apart, and on them lay two thicknesses of best odorless building paper, and on these strips nail the flooring; turn the floor over, so naked strips will be uppermost (the strips are three inches shorter all round than the flooring); now put on two more thicknesses of paper and lay on flooring flush with strips; cut another set of strips three inches shorter than the floor you now have; lay on these two more thicknesses of paper and put on a last course of flooring.

"You have now two perfect dead air spaces, which is a better non-conductor than any filling, and will always be sweet. Inside of room sides are put on the same as bottom, except at the corners, where, as a matter of precaution, I always put an extra thickness of paper as I add the flooring. In height of building leave enough room overhead for ice chamber (2 feet 6 inches is about right). Now comes the principal feature of the room, namely, the ice racks.

"Four inches below, where the 2 feet 6 inch line is from ceiling of cooler, nail securely a 2 x 4 scantling on long way of cooler, both sides alike; on these rest 2 x 4's two inches apart. These are the floor of ice chamber.

"The ice pans or drip catchers, are made of 2 x 6 pine of good quality, thus: Gouge out one side like a trough, full width of 2 x 6 over and take off corners and plane, so the 2 x 6 will be a gradual fall from centre to edge. These troughs run same way as ice rack. Before placing them have tinner make a strong zinc or galvanized trough two inches wide, one side strengthened by a wire turned in edge, other side straight; at one end have an outlet pipe soldered on, long enough to go through cooler and project an inch or more; if desired, an air trap is put on end. This trough runs long way of room below ice rack, one end nailed two or three inches lower than other to secure quick drainage. On opposite side of room from gutter secure a 2 x 4 to lay first course of drip boards, convex side up, and three inches apart; these drip boards rest just over drain, 4 inches is room enough. Directly under the 3 inch space, and two or three inches lower down, place concave 1 x 6 s, one end resting on drain and other end a little higher. You now have an open pan, can see ice every 6 inches, but no water can drop on the floor. The drip boards are not fastened, but can be taken down and washed readily. The rack for ice is not fastened, but can be removed at any time. Make doors on same plan as sides and bottom. This room, built as above, will hold the same degree of temperature at all times and is very inexpensive.

"Outside can be finished with cornice and panel work, if one so desires; put on two or three coats of paint anyway.

"The temperature should be kept at about 34 to 38 degrees Fahr. for fruits and vegetables, although a temperature considerably below the freezing point is beneficial to fruits until the natural heat has subsided. For eggs the temperature should be about 40 above zero, and for poultry about 30 degrees."

For a Co-operative Cold Storage, built and used by a Company of growers, the following plan was furnished to Popular Gardening by E. H. Cushman, of Euclid, Ohio, and, since the principles are the same, a small one for private use might be built after the same style, in accordance with one's means This plan was built at an expense of $7,000, which sum includes the making of two ice ponds, one seven feet deep, both located within forty feet of the building.

A ground plan of the building and its surroundings is shown in the engraving below.

Of the apartments in the building the cold storage room is the main one, size 80 x 30 x 12 feet, and having a capacity of 200 tons of grapes when packed in baskets. Off from the storage room, and connecting with the packing room, is a small room 10 x 10 for gradually tempering the fruit in its passage to and from the cold room. The packing room is in the north end of the building, and this is neatly fitted up with scales, tables, desks, and everything convenient for packing fruit for market. Underneath is a cellar, and above is a storage room for boxes, baskets, etc., both of the same size as the packing place and connected by stairs. A load-

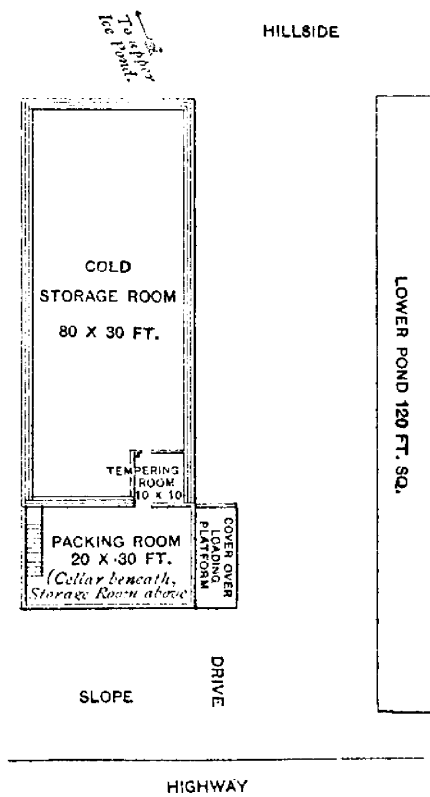

FIG. 1270.—GROUND PLAN OF HOUSE, WITH SURROUNDINGS.

ing platform opens out from the ground room.

The upper figure given is a cross section of the cold storage part of the building. The foundation is of stone and five feet in the ground. The piers for the posts that support the ice floor, of which there are thirty, are four feet square at the base, tapering to twelve inches at the top. On these are heavy cast-iron plates (B), upon which the posts set; the posts are of pine, 10 x 12 inches.

The outside wall of the storage room consists of two chambers for sawdust with an intervening one of air. Of the different features that go to make up this wall, the outside section (C), consists of heavy paper sheathing against the studs, and then siding on the exterior. The inside sections or partitions consist of ceiling stuff against studding. The outside space filled with sawdust is ten inches wide, the inner one eight inches. The central air space is six inches in the clear. The width of the inner sawdust jacket is increased three inches from the floor of the ice chamber upwards. II, are the joists of the ice floor. HH, the small gutters which empty into the trough G attached to the centre beam. J is the ventilator, K the winter door for taking in ice. The floor of this chamber is a patented one, Mr. H. C. Cain, of Cleveland, being the patentee. The floor of the room below is cement, made of lake gravel and Portland cement. Shelves for fruit are shown in the cross section.

The ice chamber is of the same area as the storage room and eight feet deep, having a capacity of 500 tons. At the time of refilling last winter there was about 100 tons of old ice remaining over. The cost of filling is seven cents when ice is eleven inches thick, when three or four inches thick it costs twenty cents per ton. The ice is cut and run in the same as in filling a large ice house.

The temperature of the cold room is 35° when fifty or sixty tons of grapes are in store, and a little higher when the fruit is first put in, but does not vary more than four degrees the year round. The fruit to keep well must be fair and sound; this is insisted upon, or else there will be much loss. Especially is this true with grapes.

I am informed by Mr. Hunt that the storage of grapes is very successful and when taken out during cold weather they keep well. Catawbas have been tested most and retain their flavor until midsummer. Concords do not retain their flavor so well. Apples have their season prolonged about two months, and keep well after being taken from the storage room. It is the same with pears, with this exception, Bartletts when kept over a month spoil very quickly on being taken into the open

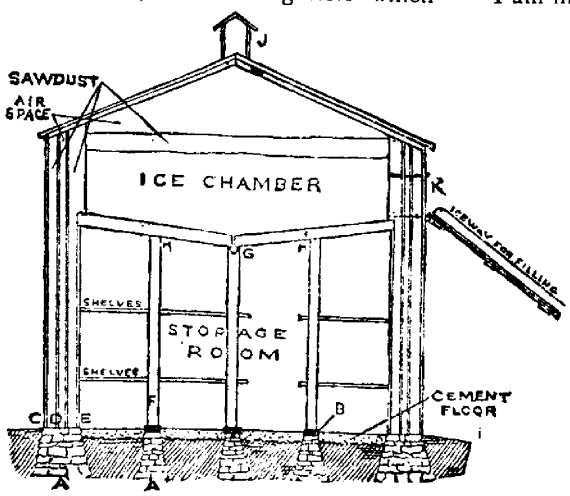

Fig. 1271.

air. Apples and grapes should be ripe, pears a little green when put in the storage room. Plums were kept over and exhibited at the Fruit and Flower show held the 14th and 15th of June, in Cleveland. Sweet cherries have been kept in good condition six weeks, Black Cap raspberries three weeks. Potatoes of last year taken out and eaten August 10 were declared to be better than ripe potatoes of this season.

As the house has only been in operation one season, further experience is desirable before its merits can be fully estimated. The amount of profit in such a storage of fruit is governed so much by the demand and supply of produce, that no general rules can be given on that point. It should be observed that cold storage will not make imperfect fruit fair, or bad eggs good, but will very profitably carry many kinds of perishable produce beyond glutted markets into times of scarcity and good prices.

STARTING COMMERCIAL PEACH ORCHARDS.

THE selection of varieties is a very important matter. Some of the finest peaches do not bear enough to be profitable. The fruit of some of the best varieties is too tender for shipment. Others ripen at a time when larger and better varieties are in the market. The list of profitable market sorts is small. In my locality the Smock, Salway and Late Crawford exceed all others in the amount of fruit harvested. The phenomenal success of the Elberta has created a large demand for trees of that variety. So far it is the best all around peach grown. A list suitable for one locality might not be the one which should be selected for another. Varieties do not behave alike in all localities. Markets are not alike in their demands; and no list can be given which is adapted to all localities.

Pruning should begin before the tree is planted and continue during its productive years, but it is most important that it be well done for the first three or four years. The roots may be pruned before planting. Much of the taproot and most of the laterals may safely be cut away. If all root pruning is done in the fall, before heeling in the trees, the wounded surfaces will granulate during the winter, and root growth begin much earlier in the spring. At planting time the top should be pruned to a straight whip not more than 24 or 30 inches high. The pruning the first year should consist in shortening the leading branches of the last year's growth, leaving them distributed along the stem left at planting time. Avoid having the branches radiate from a common center If properly distributed along the trunk, a branch broken by wind or an overload of fruit works no permanent injury to the tree. Pruning after the first year should consist in shortening the main branches so as to form a short jointed, compact head. Continue this shortening process each year, doing the work when the wood is dormant If vigorous growth is allowed each year without shortening, in a few years the weight of the fruit is borne at the end of long branches, which are sure to break with the first load of fruit, when it ought to be in its prime. An old bearing orchard, which has not been properly trained, should be headed back severely. Should a crop failure follow,

it will give the trees a chance to make ready for better crops. Such severe pruning should never be done after the flow of sap has started in the spring, but always when the wood is dormant.

In cultivating peach orchards, it is the common practice to plow away from the trees in the spring, then harrow the ground, and by the middle of June plow again, this time throwing the earth toward the trees, leveling the ground and doing all after-cultivation with the harrow. Some successful peach growers do not plow at all, but loosen the ground in the spring with the disc or cut-away harrow, doing all after-cultivation with the same tool or a common harrow, aiming at all times to have a mulch of mellow earth upon the surface. As soon after every rain as the ground is dry enough to work, the harrow is started to break the crust and renew the mulch at once. Continue cultivation until the fruit is about to ripen. If kept growing all summer the wood will ripen and fruit buds develop in good quantity for next year's crop.—American Agriculturist.

ELBERTA PEACH.

I HAVE been growing the Elberta both in Georgia and here in Connecticut for some years, and there is no question in my mind but what it is the best yellow peach now known, far superior to the Crawfords in every particular. As to its coloring, it is very bright indeed in the south; but the Elberta, as grown in Delaware and New Jersey and in some sections of New England, the last few years, has been somewhat lacking in color, and if there is any one fault that may be found with this variety, I think it will be that in northern sections of the country it may lack the red blush on the sunny side, which makes it so attractive and desirable. Of course we shall know more about this after a few years more of fruiting; but I am of the opinion now that in northern sections of the country we shall have to feed our lands liberally with potash to give the Elberta its best color.

As to its hardiness of fruit bud. Monday morning, December 28th last, the temperature in this vicinity ranged from 15 to 20 degrees below zero. Since then we have had a week of quite warm weather, thawing out things pretty thoroughly. An examination of our Elberta orchards show that very few of the fruit buds have been injured—practically all alive after this severe freeze; and it was one of the varieties that gave us some little fruit here last year when the peach crop was a practical failure. It is more hardy than Mountain Rose, Oldmixon and Stump, which are quite desirable and hardy varieties here.—J. H. Hale, in Meehan's Monthly.

WICKSON PLUM.

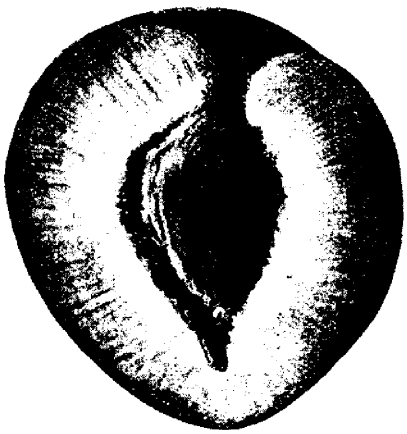

FIG. 1272.—WICKSON PLUM

MANY favorable comments on this new Japan plum were made at our meeting the other day in Waterloo, and since we are sending out this variety to our members next spring we are glad to give place to the following remarks by Prof. Beach, in American Agriculturist:

"Wickson the new Japanese cross-bred plum, which was originated by Luther Burbank, California, and first fruited by him about 1893, has been successfully fruited in New York, and is attracting the favorable attention of nurserymen and fruit growers. Some of the features which recommend it for testing by those who are interested in plum culture are its extremely large size, fine flavor, good quality and attractive color. Even when picked rather green it colors and ripens well. The skin is thick and uniformly colored with red shaded with reddish purple. It was produced by crossing Kelsey with Burbank. Like Burbank, it is a cling, with amber yellow flesh, juicy, yet so firm that it keeps and ships well. This fruit was borne the past season on grafts which were set three years ago and reached a diameter of 2¼ inches. It bears the largest fruit of any Japanese plum which has yet been introduced that is hardy in New York. At the Geneva, N. Y., experiment station, grafts which were set in 1895 survived the exceptionally trying winter of 1895-6 and fruited in 1897.

The Wickson makes a good nursery tree, being a vigorous upright grower, with rather narrow leaves, the edges of which have a tendency to turn inward, so that the tree reminds one of Prunus Simoni. Taking all things into consideration, it is not surprising that nurserymen are increasing their stock of this variety."

WATERING.

IN watering plants in rooms, discretion must be used. Cactuses, Cereuses and, in fact, all the so-called succulents, need but little water in winter, simply enough to keep them growing. Callas, and all that class of aquatic and semi-aquatic plants will bear watering to saturation. As a rule, smooth-leaved and hard plants require less watering than pubescent, and soft-leaved plants. Many small pots require water every day, sometimes twice; they dry out so fast unless plunged in some moist material. The dfficulty with amateurs is they generally give small pots too little water, and large pots too much. Until the true habit and necessities of a plant are learned, it is better that it dry sufficiently to droop a little, rather than the soil be kept saturated. Over-saturation kills more plants than too much moisture.—Floral Instructor.

PROPAGATION AND PRUNING OF CURRANTS.

FIG. 1273.—BRANCH OF CURRANTS.

THE rules for the propagation of the gooseberry may be applied to the currant. For the purpose of making well-formed bushes the cuttings should be fifteen inches long, and all buds carefully taken out, excepting the three at the upper end. The cuttings should be inserted into the soil six inches; there will then be left from four to five inches of clean

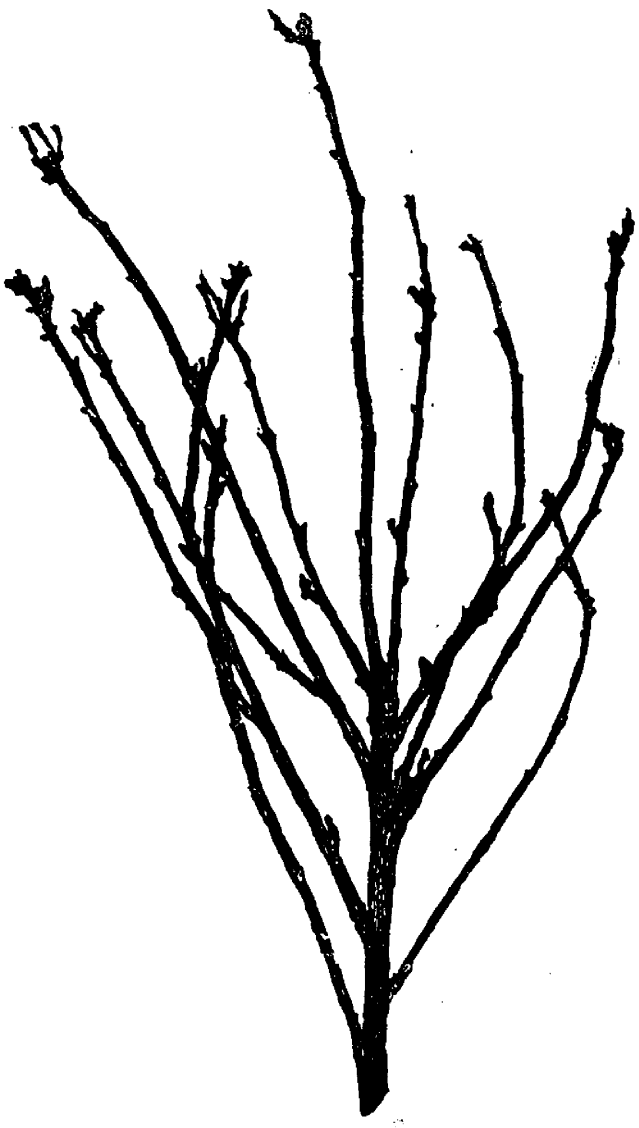

FIG. 1274.—NATURAL GROWTH OF CURRANT.

stem between the surface of the soil and the first branches. If the cuttings are planted in the fall, the three buds that are left will each make a growth of at least eight or ten inches during the following summer. At the fall pruning these shoots should be cut back to two buds each; from these, two more shoots will be formed the next season, thus forming a bush of six branches. These branches should all be cut back at the winter pruning, so as to leave them from four to six inches long, being always careful to cut back to an outward bud. Each terminal shoot should be cut back, at the winter-pruning, until

the required height is attained, which need not exceed three feet. If the soil is rich and the bushes make strong growth they may be permitted to grow to a height of four feet. All laterals that are thrown out from each main branch should be cut back to two buds, at the winter pruning. It will be found when the laterals are treated in this way, that fruit spurs will be formed throughout the whole length of the main branch. The object in cutting to a bud pointing outward, is to encourage the bush to form an outward growth. Under this treatment, work among the bushes will be found much more convenient, and better fruit will be produced. There will be an abundance of leaves and laterals formed each year, to shade the fruit from the direct rays of the sun; thus the gathering of the fruit will be made much easier, and a better appearance given to the plants.

The accompanying cut Fig. 1275, shows the manner of pruning and the position of the fruit buds on the main branch.

Fig. 1274 represents a branch of the currant in its natural state, with but few fruit spurs. It will be readily seen that the plant has to produce a great amount of wood which should go to the production of fruit, if pruned as in Fig. 1275.

This system of cultivation has been used at this Station, and has proved very successful. It will be understood that the system referred to above does not apply to the treatment of the black currant. It is practiced only with the white and the red varieties. The fruit of the black currant is produced on the one year old wood, and consequently it must not be spur-pruned. Simply thin out all wood that has already fruited and leave the young wood for the production of fruit the following season. This treatment encourages it to produce a strong growth of young wood each year.

FIG. 1275.—The above Plate shows the fruiting of the Currant when treated as in Fig. 1273.

CHRYSANTHEMUM SHOW AT GRIMSBY.

THE Members and Directors of the Grimsby Horticultural Society are to be congratulated upon the great success of the first Chrysanthemum Show which was held in the Town Hall on November the 11th. In May, each member received a basket containing five choice named varieties of Chrysanthemums in five inch pots. Seventy-five baskets were distributed by the Society, and the care given the plants was most gratifying to all interested in the exhibition. The morning of the show fruit lorries were sent out in care of experienced men, to convey the flowers to the Hall. They were all labeled on coming in, and safely returned to the owners. The plants of members were arranged on long tables two feet in height, on the north side of the hall. Honorary prizes were given for the best collection of fine plants and best specimen plant. There was keen competition among the members, and a difficult task for the judges, Mrs. Osborne, and Mrs. Gibson wife of the member for Lincoln, to decide. The centre of the Hall was filled with Chrysanthemums of rare and exquisite beauty, while on the north side, Mr. Cole, the Florist, filled the tables, the length of the Hall, with decorative plants and Chrysanthemums from his greenhouses, which added greatly to the beauty of the exhibition. He had in his collection some magnificent specimens.

The stage was very prettily decorated with yellow and white Chrysanthemums, and the bronze and red burrs of the Ricinus, some of the branhes two feet in length, and these were thought by some to be huge bundles of grapes; the whole very beautifully set off by a background of palms, some magnificent specimens belonging to Mr. William Gibson. The Hall was crowded by lovers of plant culture, and never before was an exhibition of such excellence presented to lovers of flowers in Grimsby.

E. PALMER, *Grimsby.*

WINTER CARE OF GERANIUMS.

First, give the plants all the light you can command, and turn them every day or two, so that all parts may feel the influence of the sun.

Second, be careful about overwatering. It is better that the soil should become a little dry and then be fully saturated with water, than that it should be kept quite moist all the time.

Third, keep the temperature down to about 60°, a little less at night, and a little more in full daylight.

Fourth, see that the atmosphere is not made over-dry by furnace or stove heat. Water should be kept on the heating apparatus, so that it may evaporate and pass into the air of the room.

Fifth, occasionally wash or sprinkle the leaves of the plants, in order to remove dust. By taking them to the kitchen sink once a week this work may be quickly and neatly done.

Sixth, keep the plants free from insects, especially green-fly.—Vicks' Magazine for February.

The Canadian Horticulturist

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Notes and Comments.

CASES FOR EXPORT of pears should be made of basswood, not of pine, which affects the flavor of the fruit.

A COLD STORAGE ought to be built by every fruit grower, Mr. Robertson says, so that growers can ship their goods to home markets, in better condition and more evenly graded.

THE PACKAGE used by the Burlington growers for export of pears during 1897 contained about four-fifths of a bushel; four of them containing about the same as one barrel.

THE COST per case of exporting fruit from Grimsby to London was about 70c., and to Glasgow about 60c.

GRAPES did not pay last season, but, no doubt, the money lost was well invested in introducing to British consumers Canadian grapes. If this fruit can be put on the English market in quantity for a year or two, no doubt a good demand will be created.

COLD STORAGE HOUSES cost about 10 cents per cubic foot of space, counting both the ice room and the storage room.

SMALL PEARS, apples and peaches and large tomatoes are not suitable for the British market.

APPLES should be packed cold for the best results.

THE VERGENNES GRAPE is a grand keeping variety. Two plates of this variety was shown at our Waterloo Meeting by Mr. W. M. Orr, of Fruitland, in excellent condition, kept in an ordinary cellar.

CHRYSANTHEMUM CULTURE, by Jas. Morton, was the book recommended by Prof. Hutt, in his address, as a guide to amateur growers.

THE HOLIDAY NUMBER of the *New York Fruit Trade Journal* is a very fine issue, and full of illustrations. Of course it deals with matters connected with the fruit trade rather than with the interests of the fruit grower, but it keeps one thoroughly posted on the outlook for the sale of fruits. It is accompanied by a pretty calendar, with beautiful colored illustrations.

THE SPRAYMOTOR pump was exhibited at our Waterloo meeting, by Mr. Heard. He exhibited a new plunger of the greatest value in lessening the work of pumping, and at the same time making the pump do better work than ever.

THE HUNN STRAWBERRY is being offered for the coming spring. It originated with C. E. Hunn, of the New York Experiment Station at Geneva, N. Y., a seedling of Johnson's late fertilized by Sharpless. In 1894, Prof. Beach spoke of it as giving a large yield, and described it thus: "It is very vigorous, of good dark color, large size and borne on long strong stems. Four rows of this variety in blossom are shown in Plate I, which shows the strong up-right fruit-stems and large, vigorous leaves."

The following tabulated statement, made by a grower at Middlehope, N. Y., will show the various points of comparison of the different varieties. The appearance and shipping qualities of the Bubach, Sharpless and No. 208 being so similar, all were packed together and no separate account was kept. This will extend the apparent length of season of the Bubach, and also lower its showing for productiveness. For it commenced and ended fruiting earlier than either of the others and was more prolific. In computing each column of the following table, the sum of the length of all the rows and the total product of each variety was taken, and from these the product and net returns of 100 feet of row was reckoned. The average net price was found by taking the total sales of each variety, less cost of freight, cartage and commission and dividing it by the total number of quarts marketed of each variety. As we had no regular rows of Beder Wood we merely give the dates of the first and last shipments, and the average price per quart in a local market.

	BEDER WOOD.	BUBACH.	LADY THOMPSON.	CUMBERLAND.	HUNN.
Date first shipment	May 31	June 4	June 7	June 8	June 21
Date last shipment	June 15	June 29	June 26	June 25	July 2
Number quarts in 100 ft. of row	.....	69.62	86	44	51.6
Net returns from 100 ft. of row	.....	$4.47	$5.37	$2.73 6 10	$5.57½
Average price per quart	7 36/100 cts.	6 4/100 cts.	6 25/100 cts.	6 18/100 cts.	10 8 cts.
Per cent. of cup before Hunn	100	64.25	92.7	71.85	10 .....

We do not speak of this berry from experience; indeed, we do not know that any one in Canada has fully tested the berry.