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JUNE, 1895.



HORTICULTURIST.

EDITED BY L. WOOLVERTON, M.A.
 PUBLISHED BY
 THE FRUIT GROWERS ASSOCIATION OF ONTARIO

Published at Toronto. + Office Address: Grimsby, Ont.

\$1.00 per ann. (including Membership, Annual Report and Share in Plant Distribution). Single Copy, 10c.
 Price, posted to Europe (with Annual Report), 5s., payable to J. Nugent Johnston, 21 Victoria St., Liverpool, Eng

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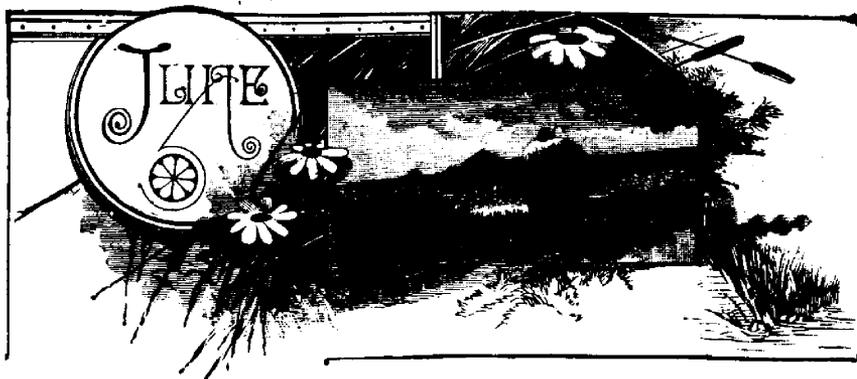
MADAME DE WATTEVILLE

THE
Canadian Horticulturist

Vol. XVIII.

1895.

No. 6.



THE ROSE.



THE most coveted and most highly prized of all the flowers! The rose is as easily cultivated, under the proper conditions, as the most ordinary house plant. What the amateur wishes to know is, what these conditions are. The first to claim our attention is the soil: this should be three parts of heavy clay loam, mixed with one part well-rotted cow manure. Each pot should have in the bottom a layer of bits of broken pot or charcoal, preferably the latter, to ensure perfect drainage, without which success is impossible. Care must be taken to press the earth firmly around the roots of the plant, yet not so solidly as to prevent growth. The next essential conditions are light, air, warmth, and judicious watering. A sunny south-easterly situation insures the full rays of the sun, and with the temperature never below 60 degrees, and above that point most of the time, the amateur should be able to grow roses with the professional.

A shaded and cold situation will always induce mildew, one of the rose's blighting enemies. When this enemy appears on the foliage, a little sulphur sprinkled on some coals in its vicinity will aid in checking it. Another pest is the red spider. This can be driven away by ample spraying with water, both underneath and above the foliage, or the plants may be dipped in water, which insures their being thoroughly wetted. The aphid or green fly also needs constant attention. This is more difficult for an amateur to combat than the others, but with care one may easily fumigate with tobacco, by placing the plants in a small shed and burning near them some *wet* tobacco on red-hot coals. The commonest tobacco is the best, and I emphasize the word *wet*, for if it flames,

or burns red, the foliage will be ruined. Now this all sounds very difficult, but in practical experience the trouble will be found to be slight.

A few of the best varieties for pot culture are : Catherine Mermét, a shell pink ; Madame de Watteville, a creamy white shaded pink, shading to deep rose at the edge of petals ; Sunset, and Perle des Jardines, too well known to need describing ; Bride, the most perfect large white known ; the old-fashioned polyantha roses, Agrippina and the newer Clothilde Soupert, which cannot be excelled for house culture.

Now, a word about out-door roses : What I have said about soil, light and sunny position inside, applies equally to roses grown outside. Bordeaux mixture applied to foliage when buds are beginning to form, is a preventive of the usual out-door pests, the chief of which are mildew, and the well-known little white fly which works under the leaves.

Do not be afraid of cutting your blossoms. Take off with your bloom a stem of three or four leaf joints. If the blossoms are left to fade on the bush the strength which would produce more flowers is absorbed by them.

The roses should have a general pruning in fall or early spring ; all weak shoots being cut back close, and long canes being shortened to make a symmetrical plant.

As to varieties, a few which have been tested in Ontario are : Baroness Rothschild, a soft carnation ; Coquette des Blanches, pure white, sometimes pink tinted ; Gen. Jacqueminot, a rich crimson ; La France, a silvery rose ; Plus the Ninth, robust pink ; Dinsmore, a splendid red ; Paul Neyron, brilliant pink ; Perle Blanche, pure white, free blooming.

More anon as to how to get early and beautiful roses without fire or artificial heat.

MARY BASSETT HODGES.

Commercial Greenhouses, Orillia.

Pruning. — Experience has taught me that it would be very unwise to leave a stub in cutting a branch from a tree. If it were left on in pruning, it would eventually have to be cut off at the base, unless left to rot off. Any one who has cut and split cordwood, or handled knotty lumber, knows how these dead stubs injure the tree. If a branch must be removed, let it be done as soon as possible, and like any other surgical operation, with neatness and despatch. Just at the junction of the branch with the main stem, is the spot to make the cut. Then paint the wound, if larger than will be grown over the first year. In Fig. 772 the cut at 1 is too close to the body, and the wound too large ; at 2 it is too far from it, but at 3 it is just right.—H. E. VANDEMAN, in R. N. Y.

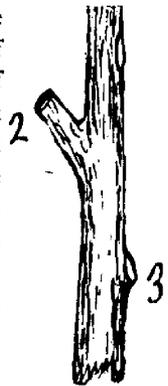


FIG. 772.

PLANTING AND CARING FOR YOUNG TREES IN AN APPLE ORCHARD.

(Concluded from *May Number.*)

Mulching.—When the tree is planted, spread around it as far as the roots extend, or a little beyond, a five or six inch covering of coarse stable manure, or other loose material which will act as a mulch. This is particularly necessary in dry soil or in a dry season. It prevents baking and cracking of surface soil and consequent escape of soil moisture from below, and at the same time maintains a uniformity of heat and moisture which is highly favorable to the formation of new roots.

Cultivation and Cropping.—One of the most important factors in determining the profits from an orchard is good cultivation. Sod should never be allowed around young trees. For the first five or six years, some hoed crop, such as roots, potatoes, beans or corn, may be grown in the orchard. The cultivation required to grow these profitably will keep the ground in good condition for the trees, while such crops will yield a return from the land until the trees themselves begin to bear. Never sow a grain crop in a young orchard unless a strip, at least as wide as the height of the trees, is left on each side of the rows and kept well cultivated.

The roots of a tree generally extend as far below the ground laterally as the top spreads above it, and they should be the sole occupants of the ground so far as they extend. Cropping between the rows, therefore, must gradually decrease as the trees increase in size, and should be discontinued altogether as soon as the trees fully occupy the ground.

Cultivation about the trees should never be so deep as to interfere with the roots. Shallow, level cultivation is much safer than plowing. By using the spring tooth cultivator to loosen the ground, and the broad share cultivator to keep the weeds down, plowing may profitably be dispensed with altogether.

Cultivation should commence in the spring as soon as the ground is fit to work, and be continued as often as is necessary until about the middle of August. If cultivation is stopped at that time the trees are more likely to cease growing and ripen up their wood so that it will not be injured by severe freezing. The frequency of cultivation necessary will depend much upon the soil and season. The aim of the cultivator should be to keep the surface soil loose and open, thus providing as a natural mulch and enabling the trees to withstand the injurious effects of drouth at any time.

Manuring.—Manuring an orchard in order to obtain good crops of fruit is often just as necessary as manuring a field to get a good crop of corn or roots. In a young orchard, where hoed crops are grown, the manure applied to grow these profitably will be all that is required by the young trees, as they will get their share of it. The vigor of the hoed crop will be a good indicator of the

quantity of manure necessary for the trees. In older orchards where there is no cropping, the annual growth of the new wood is the best guide in applying manure.

As a general fertilizer, nothing is better than barnyard manure, but it should be withheld where the new growth is excessive, or where the wood growth is at the expense of fruit.

Unleached wood ashes are a specific fertilizer for fruit trees, as they contain all the inorganic elements necessary in producing both tree and fruit. Unlike barnyard manure, they tend to promote fruitfulness rather than excessive wood growth, and may safely be applied at any time.

In applying fertilizers of any kind, never bank them about the trunk of a tree, but spread them evenly all over the ground as far as the roots extend.

Pruning.—One of the first things to be considered in pruning a young orchard is the height at which the heads should be started. Some prefer low heads and others high heads. Either extreme should be avoided. From four to four and a-half feet is a convenient height for apple trees. To have them all alike, cut them back when young to the desired height. Three branches are enough to leave to start the head. Space these evenly, and direct new growth whenever necessary by cutting back to a bud pointing in the direction you wish the new branch to take. The ideal pruning consists rather in directing growth than in cutting out what is grown. Thin out the new shoots as may be required to keep the head from becoming too crowded. Cut out any branches that cross or rub each other, and keep the top symmetrical by cutting back branches growing too fast in any particular direction, as they are often inclined to do on the leeward side.

If an orchard is pruned regularly every year, as it should be, there need be no necessity for cutting out large limbs, and the pruning at any time will be very light. Light pruning may be done at any time during the summer, but for the general, annual pruning, this had better be done early in spring before the growth starts.

Protecting the Trunks from Borers.—One of the most destructive insects to newly transplanted trees is the flat-headed apple tree borer. The mature insect is an active little beetle, nearly half an inch long, which lays its eggs on the bark of the trees, generally on the south-west side. When the egg hatches, the larva eats its way through the bark where it feeds upon the sapwood, sometimes entirely girdling the tree. When full grown it is a pale, yellow, footless grub, over half an inch long, with a large flattened head. The presence of these pests in infested trees may readily be detected by the blackened and deadened appearance of the bark over the parts where the borers are at work.

When borers get into a tree there is no other remedy than cutting them out with a sharp knife, or killing them in their burrows with a stout wire. But prevention is better than remedy, and the injury from borers can easily be prevented. To do so, wash the trunks and larger branches with a mixture of soft

soap reduced to the consistency of thick paint with a solution of washing soda. If just enough carbolic acid is added to give it a strong smell it will be all the more repulsive to the beetles. This should be applied during the early part of June and again early in July when the beetles are most active in laying their eggs.

Spraying.—The whole host of leaf-eating insects which feed on the apple tree, such as the Tent caterpillar, Red-humped apple tree caterpillar, Yellow-necked apple tree caterpillar, Fall web worm, Tussock moth, canker worms, etc., must be fought with Paris green, used at the rate of 1 lb. to 250 gallons of water.

Other insects which suck the juices from the leaves and young wood, such as the aphis, tree cricket and bark louse, must be destroyed by the kerosene emulsion. This is made according to the following formula:—Hard soap $\frac{1}{2}$ lb. (or soft soap about $\frac{1}{2}$ gallon), hot water 1 gallon, coal oil 2 gallons.

Dissolve the soap in the hot water, add the coal oil, then agitate by means of a force pump or syringe for five or ten minutes until thoroughly mixed. If properly made, this, on cooling, will form a jelly-like substance, which, before being used, should be diluted with about fifteen parts of water.

The apple scab fungus, which affects the foliage as well as the fruit, must not be allowed to weaken the young trees before they come to a bearing age. To hold this in check, spray before the buds open with a solution made of 1 lb. of copper sulphate to 25 gallons of water; after the foliage appears, spray three or four times at intervals of ten days or two weeks with the Bordeaux mixture. This, as now used, is made according to the following formula: Copper sulphate (blue vitriol) 4 lbs., lime (fresh) 4 lbs., water 50 gallons or one coal oil barrel.

Dissolve the copper sulphate in a wooden vessel, or in the barrel on which the force pump is mounted. To do this quickly hang it in a little cotton bag so that it will be just below the surface of the water in the barrel. In another vessel slake the lime, using plenty of water, then strain it through a bit of coarse sacking into the barrel containing the copper sulphate. Fill the barrel with water.

If the lime is fresh and pure, it should neutralize all the acid in the copper sulphate solution. To test if this be the case, add to a small sample of the mixture a drop or two of ferrocyanide of potassium. If the lime is insufficient, this drop, when added, will turn brown. In that case lime-water must be added until the test gives no brown coloration.

The Bordeaux mixture and the Paris green may with advantage be applied together, thus forming a combined fungicide and insecticide. To do so add 4 ozs of Paris green to a barrel of the mixture.

All of these mixtures should be applied in the form of a very fine spray. The "Vermorel" and "McGowen" nozzles have so far been found to be the most effective and economical for this work. These may be attached to any good, strong force pump, of which a number of Canadian makes may be found advertised in the agricultural and horticultural journals.

O. A. C., *Guelph.*

H. L. HUTT.

SUCCESSFUL RESULTS OF SPRAYING APPLE TREES.



FAILURES in spraying are complained of by several subscribers to this journal, whose letters have been forwarded to me for reply. The parties were not thorough enough in their spraying in any of these cases. The paper I read before the Western New York Horticultural Society (which was briefly summarized in this journal), emphasizes the practical results of using the Bordeaux mixture for apple-scab fungus, and it was a grand success; but the mixture must be applied in vapor form, and must not leave the plant or tree until it drips. Remember that any excess of lime or milk-of-lime does no harm, but has a tendency to make the mixture adhere to the trees and foliage.

In my own case the first application was made as soon as the buds began to swell last spring, when I sprayed with 20 lbs. sulphate of copper and four ten-quart pails of milk-of-lime, dissolved in 150 gals of water, thoroughly mixed and kept mixed. The second treatment was commenced just before the nests of buds opened; in fact some of them were showing the flowers. The third spraying was made when the apples were about half an inch in diameter. The last two treatments were with the same formula as the first, except that a pound of Paris green was added for the bud moth and codlin moth (cankerworm), the arsenic being sure destruction to the latter. On all varieties of fruit trees thus treated the fruit spurs were loaded with perfect fruit, both within and outside the tree heads, while trees not treated bore no fruit at all on the inside branches, and what fruit was on the exterior was scabby and far from good.

Another point in favor of spraying is that it makes the foliage dark and luxuriant, while on the untreated trees the foliage was rusty and brown, and fell early. I also claim that trees not in blossom should be treated with Bordeaux mixture, to insure a healthy crop another year.

I use a tank about 11 feet long, set up high on a wagon, with bottom projecting behind, so a man can stand and work the pump, and two men stand on top of the tank. I have a good, strong pump that will carry two lines of half-inch hose, each about 20 feet long, with a Y attachment, so as to allow two nozzles at the end of each hose. The hose is put on a bamboo pole 16 to 18 feet long, so as to enable one to reach all parts of the trees, for the spray or vapor is so fine that it can only be thrown a short distance. It is right here that many fail in thorough work. I use a brass pump, made at Benton Harbor, Mich., that will carry two lines of hose and four nozzles, and the McGowan nozzle.

I have had as good results in spraying plums and pears as with apples. I don't want to be misunderstood to claim that the Bordeaux mixture will raise

apples every year without other help. The trees must be properly fertilized and moderately trimmed every year. If the orchard is so thick as to interlock, cut out every other row diagonally, which will give the tree sun and air. Then if the rains and cold storms don't wash out the pollen of the flowers at the time of fertilization, there will be no reason why we should not raise as good fruit as in olden times.—ALBERT WOOD, in *American Agriculturist*.

A HANDY FIELD MARKER.

Regularity is one of the chief features that make a garden attractive. It is not enough that the rows of vegetables be straight, but such plants as lettuce, cabbage, cauliflower, etc., should also have a uniform distance in the row, and with the wider planted ones, if possible, also be in line crosswise.

A convenient little device to mark not only the rows but also the exact places for each plant in the row, we find illustrated in *Rawson's Market Gardener's and Vegetable Grower's Manual*. Our illustration makes construction

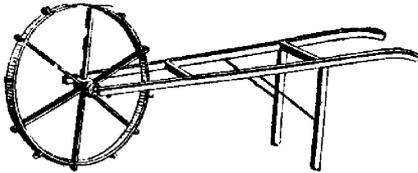


FIG. 773.

much plainer than a wordy description could do. The pins which serve to mark the places for plants in the row are put in with a nut, and may be changed to mark intervals of ten, twelve, twenty and twenty-four inches, if the wheel is made plump 38 inches in diameter. A field can be marked with this implement in a short time, and with little effort. For the purposes of marking the rows for sowing seeds of radishes, carrots, table beets, lettuce, etc., in the house garden, any of the simple home-made garden markers, consisting of a piece of scantling with the necessary number of teeth, and a convenient handle, will answer well enough.

Pruning when Transplanting. — The stem should now be put in condition for the formation of the top, by removing all the limbs to the point where it is desired to have the top; then cut back each remaining limb, leaving from four to six buds of last season's growth. In the absence of any limbs suitable to form a top, cut the tree down to the requisite height, leaving the dormant buds to make the top. The business of pruning vigorously at time of setting is generally an ungrateful one to the planter, as it injures for a time the appearance of the tree to an unpracticed eye. It should, however, be unhesitatingly performed, all the branches to the extent of at least one half the length of the previous year's growth being removed. Care should also be used to give the proper form to the tree. The head may be left high or low, as the taste of the planter may prefer, or as the nature of the tree in some cases may require. No stock planted in the fall should be pruned till the hard frost has left in the spring, but before the sap starts.—W. E. Wellington.

COMPLETE MANURES.



THE term "complete manure" is used to name such combination of fertilizing materials as will supply all the elements necessary to normal plant growth. As the principal ingredients needed to support fertility in ordinary farming operations are practically limited to nitrogen, potash and phosphoric acid, a manure containing these three may be understood to be in fact a complete manure. The simple fact that a manure contains these elements is not enough; it must contain them in certain definite proportions. A manure may contain sufficient nitrogen, for example, to produce a yield of 30 bushels of wheat per acre; sufficient phosphoric acid for 25 bushels, and potash for 20 bushels only. Such manure will have an agricultural efficiency of 20 bushels, and the excess of nitrogen and phosphoric acid will, so far as that particular crop is concerned, be wholly useless. Not only useless, but largely lost, as unless the catch crop method is practised, the fertilizing elements not assimilated either take unavailable forms, or are dissipated by drainage and other causes. Even catch crops are but slightly efficacious; the soil, already exhausted of available potash by the wheat, is unable to supply materials needed, and though the catch crop may require relatively less potash than the wheat, this difference between crops is so small that little economy is possible.

The lesson indicated is: The crop producing value of a manure is measured by its lowest fertilizing ingredient. It is true that some soils contain naturally varying stores of plant food in an available form. It is also true that these stores are rarely or never balanced economically. If such supplies were easily measurable, a fertilizer could well be compounded to profit from same; but such stores of plant food are subject to constant change and dissipation; a method of culture giving fair results one season, may prove disastrous the season next following.

It must be understood that these remarks apply more particularly to the farms of the North and East, which have been so systematically exhausted by diversified cropping, that the elements of plant food in any available form are almost uniformly deficient. In the West and parts of the South, cropping has been as yet less searching, either through a lessened period under cultivation, or absence of a wide diversification of crops grown. In this latter territory, instances are frequent in which incomplete manures have been used for many years with some success, but the principle remains the same; the plant must have the chief elements of fertility in certain proportions, in a particular time, and in an available form. By trusting to chance in these proportions, the average of agricultural production has been brought to a very low ebb indeed.

The farms of the East and North have been practically exhausted of their

natural supplies of plant food in such form as to have a specific crop producing value. The constant use of farm-made manures has contributed no little to this exhaustion. The nitrogen of manures is always supplemented by nitrifying organisms in the soil, nitrates in rain water, and other sources; farm-made manures usually contain an excess of nitrogen as compared with the other elements, the formula (under actual growing conditions) in fertilizing language is practically as follows:—

Ammonia,	10
Potash,	6
Phosphoric acid,	3

With many staple crops, this is not a properly balanced manure. The proportions for wheat are: Ammonia, 10; potash, 4, and phosphoric acid, 3. The minerals are deficient as compared with the manure, but the discrepancy is not on the wrong side. With corn, however, the conditions are very different; the proportions become: ammonia, 10; potash, 10; phosphoric acid, 4. Taking into consideration the quantity of ammonia obtainable from other sources than the manure itself, this crop seems fairly well adapted for home made manures. But how is it with potatoes? The proportion in this case is: Ammonia, 10; potash, 14; phosphoric acid, 5—the potash is deficient. Clover is one of the most important crops to the farm; rather, the *most* important one. The proportions for clover are: Potash, 17; phosphoric acid, 5. Clover being a leguminous plant, accumulates a larger part of its nitrogen from the atmosphere. By the continued use of farm manures, the natural supplies of soil minerals have been exhausted. It is well understood that farm-manures contain an excess of nitrogen, relatively. Grain lodges badly by its continued use, without added potash and phosphate. Potatoes produce a diminished crop, or go to vines and produce little or nothing; on every hand are evidences of deficient minerals, particularly in the case of potash.

It follows, that the farmers of the North and East should pay especial attention to the minerals in their manures. Potash is the weak point almost invariably, and measures the crop possibilities, fixes the limit of production, so to speak. Incorporate potash with the home made manures, and also a small portion of phosphate, and the full value of the manure may be obtained; otherwise, the greater portion of the expensive ammonia must surely suffer loss.

New York.

P.

The Legend of the Rose.—There is a most sensational story attached to the Gen. Jacqueminot rose. Finding his daughter in the garden in the embrace of a lover he had forbidden her to meet, the General killed him on the spot, his blood flowing where a pale rose bush stood. The daughter soon died of despair, and asked to be buried in the garden where her lover died. Out of the grave grew the blood-red rose that is now called the Jacqueminot.

NEW YORK CITY AS A FRUIT MARKET.



WE have received a very interesting and ably written article from Mr. Francis Wayland Glen, of Brooklyn, on the above subject, which, however, we cannot publish in full, because it advocates political union between Canada and the United States. At the present time we believe that the majority of Canadians, of whichever party, are truly loyal to the British flag, and have no desire either for independence or for a closer union with our neighboring republic. This, however, will not prevent our shipping our fruit to New York or Chicago markets, if the prices are better than those in Great Britain. We quote a portion of Mr. Glen's able article, referring to New York City as a fruit market:—

"A few days since, I walked from Broad Street through Exchange Place and at the corner of William Street an old apple woman had just opened a barrel of *prime* Northern Spy apples. She was selling them at the rate of 6 cts. each, or five for 25 cts. They were from Vermont. From there I passed up William Street to Wall, and at that corner a man was selling some *very fine* Easter Beurre pears at the rate of two for 25 cts. He is an old fruit dealer, and told me that he could sell a *great many* of them at 5 cts. each.

I then crossed from Wall to Fulton, and there purchased 25 *prime* Florida lemons for 25 cts. and 20 very fine bananas for 15 cts. On the same stand, fine oranges were selling at 16 for 25 cts.

Near my home in Brooklyn, a grocer had just opened a barrel of *very fine* Baldwins. I asked the price and he said \$1 per peck. I remarked that the price was very high. He replied that he could sell ten times as many of the same quality at that price as he could get.

There is not less than 300 good Easter Beurres in a barrel, at 5 cts. each—\$15 per barrel; 300 Northern Spy, of prime quality, at 2½ cts. each—\$7.50 per barrel; 300 Baldwins, at 2 cts. each, is \$6 per barrel. This certainly is far better than raising wheat at even \$1 per bushel. It will be a long time before the average price of wheat in Ontario will be \$1 per bushel.

Our farmers must study and learn the cost of distribution, as well as the cost of production, not only on this continent, but in all competing countries.

The reduced prices of farm produce are compelling the consideration of cheaper modes of distribution. Deep-sea canals are to play an important part in reducing the cost of transportation, in the near future. We probably will never see the cost of moving a ton of merchandise 100 miles by railway reduced below 50 cents, whereas it can be moved by water for 10 cents, or less.

If we take into consideration human power in distribution, as well as animal power and steam power, distribution costs as much as production. In this

Republic we paid to railways and vessels of all kinds employed in *domestic commerce*, in 1894, not less than \$2,000,000,000 for distribution. Animal power cost as much more.

A barrel of Easter Beurres at \$15 is equal to an average acre of wheat at \$1 per bushel. The wheat weighs 900 lbs. and the pears 200. To carry the wheat in flour 1,000 miles, means four barrels at 25 cents each, and freight at 50 cents per ton per 100 miles—\$2.25; total, \$3.25. Freight and package for pears, 75 cents. The pears should be produced, with care, on one-eighth of an acre of land.

Farmers must study how to produce the most valuable product, and at the same time the least bulk and weight.

In the balance of the article, Mr. Glen pictures out Greater New York in 1950:—a ship canal from Oswego to the Hudson river, bringing apples and pears at low rates from Burlington Bay to New York City, all under the auspices of a united flag.

BUILDING A FRUIT HOUSE.

The foundation of my fruit house is of boulders and "slush lime," two feet in the ground all around; then a wall of hard burned brick 18 inches high and 12 inches thick on the boulders; Then sills 12 inches wide on the brick wall. Then with close ceiling and weather boarding and brick floor it will be rat and mouse proof. I have sawdust about 18 inches deep on the ceiling overhead. An eight inch square opening in the centre of the building through the overhead ceiling, with an eight inch box over it, long enough to keep the sawdust from falling in, gives sufficient ventilation. This ventilator should not extend through the roof, as a strong draft is not desired. The foul air will pass out at openings between the shingles, etc. Tack a bit of screen well over the top of the ventilator to keep out insects or mice, should any find their way up there. Put a slide on the under side of the ventilator, so that all draft may be shut off in extreme cold weather. I think a brick or cement floor preferable to a plank one. Wood would soon rot, and a "dead air" space below the floor is not desirable, as the warmth from the ground would be somewhat held back by it, which is needed in cold weather. A tightly fitting door opening inside and one opening outside, with a wire screen door between them are necessary. One small window with sash and glass inside and out, is sufficient. When fruit is put in, and the weather is warm, a quite low temperature may be maintained by giving all ventilation possible at night and closing up tightly during the day. If extreme cold should continue several days, I used to put a two gallon iron pot nearly full of live coals, inside at night to prevent things freezing. Screen wire over the pot made it safe. I now use a small natural gas jet. I think if the sawdust wall was 18 inches thick, both heat and cold could be the better kept out, though mine is very satisfactory.—Ex.

NOTES ON SMALL FRUITS.



THE progress made in the culture of small fruits during the past twenty years has been rapid and substantial, but even at the present time the importance of this branch of horticultural work is not fully recognized by the people of the State. From the very nature of the soil and climate of Maine we must look to intensive rather than to extensive operations for the most profitable returns. At the present time there is no line of work which seems more promising than that of the culture of small fruits. With the increasing importance of our summer resorts, new and extensive markets are opened; while the operatives in the factories are always large consumers of fruit.

The purpose of this Bulletin and of the succeeding ones is to give brief, concise hints on the culture of small fruits, and information concerning some of the more important varieties.

The essential elements of success in small fruit growing are: suitable location; thorough preparation; the best varieties; careful planting; thorough culture; the application of business principles in marketing.

The Strawberry.

A warm, rather moist, sandy loam is usually preferred in growing this fruit, but in general any soil that will raise a good crop of corn will raise good strawberries. I would not be understood as encouraging neglect in any way, but the minute directions sometimes given for preparing the soil and for planting, are misleading, and are enough to discourage any novice from attempting to grow fruit.

Thorough drainage, either natural or artificial, is absolutely essential, and thoroughness in the preparation of the soil is of prime importance, but the excessive application of manure and the hand labor frequently advised are unnecessary. It is well to grow some hoed crop, as corn or potatoes, on the land for one or two years before setting the plants, as in this way there is less danger from attacks of the "white grub."

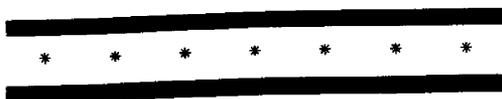
The month of May is, perhaps, the best time for setting strawberry plants in this latitude, though good results often follow fall setting. Two very important considerations in setting the plants are, that the crowns be just even with the surface of the earth, and that the soil be pressed firmly about the roots. These points cannot be too strongly emphasized, for to their disregard may be traced more than half the failures in starting new plantings.

For general field culture the "matted row" system is probably best. The

rows should be as long as convenient, that most of the labor of cultivation may be performed with a horse. The plants should be set eighteen inches apart in rows which are about four feet apart. Thus placed, a little more than seven thousand plants will be required for an acre. During the first season thorough culture should be practiced. It is also well to keep the runners cut back till the parent plants are strong and well developed.

Winter protection of the plants is always advisable. The value of such treatment is two-fold: Not only are the plants protected from injury, but the fruit is kept clean and bright. The best material for the purpose is coarse meadow hay cut before the seeds have ripened. We have sometimes used "shingle edgings" with very satisfactory results. In the vicinity of large mills this material may often be obtained much more cheaply than the hay.

On light gravelly soils we have sometimes resorted to the use of boards on each side of the row of plants as illustrated below:



This device is found a very satisfactory means of conserving moisture and will permit the growth of plants in locations which would otherwise be unsuitable. Naturally this device is recommended only for the home garden.

The question of varieties, although of great importance, is one which must be settled largely by individual growers; for the success of any variety will frequently depend on local conditions. It is always a good plan to have a trial ground for the newer sorts, as varieties of much promise at the Experiment Station may prove worthless in some localities.

In selecting varieties for planting it is well to bear in mind the distinction between the perfect flowering and the pistillate sorts. Many of our most valuable sorts are pistillate and must have some perfect flowering variety interspersed in order to secure the best results.

The best of the older varieties are: Bubach, Crescent, Haverland, Sharpless and Warfield, with possibly Beder Wood or Michel's as very early perfect-flowering sorts.

Of the newer varieties the following deserve special mention: Beverly, Dayton, Epping, Gillespie, Greenville, Parker Earle, Princess, Smeltzer.—W. M. MUNSON, in Bulletin 21, Me. Experimental Station.

Smilax does not require direct sunlight, and may be employed to decorate a shaded window, and may also be used to run over picture frames, etc. The tuberous roots may be obtained from florists, or the plants may be raised from seeds. Sometimes three or more weeks elapse before the seedlings are seen. Pot these off as soon as they can be handled, and when the vines begin to run, supply them with strings that they may cling.—Floral Instructor.

COMPLETE FERTILIZERS FOR FRUIT.



IN the composition of the commercial fertilizers now in the market, the fact is recognized that nitrogen, phosphoric acid and potash are the chief constituents of plant food. But in combining them the manufacturers, in most instances, fail to embody any distinct principle or rule of practice. Order will come out of this chaos, through the efforts of those who use the various preparations of plant food.

The time is coming when the general farmer, or the market gardener, will order of the dealer so many pounds each of nitrogen, phosphoric acid and potash, just as now he purchases seeds and foods.

As a suggestion to those who are inclined to mix their own fertilizers, or ask for a definite mixture from the dealer, I offer the following combinations, which may be varied *ad libitum* :

No. 1

Nitrate of soda	15%	nitrogen	350 lbs.
Dried blood	{ 10 "	"	} 700 "
	{ 2 "	phosphoric acid	
Acid Phosphate	15 "	"	700 "
Sulphate of potash	50 "	potash	250 "

This combination would contain the following :

Nitrogen	122 lbs., or 6 1%
Phosphoric Acid	119 " or 5 9 "
Potash	125 " or 6.2 "

No. 2.

Sulphate of Ammonia	20%	nitrogen	250 lbs.	
Cotton Seed Meal	} 6.75 "	" phosphoric acid	} 1000 "	
				} 2.75 "
Acid phosphate	15 "	"	550 "	
Muriate of potash	50 "	"	200 "	

This combination would contain the following :

Nitrogen	117 lbs., or 5 85%
Phosphoric acid	110 " or 5 5 "
Potash	117 " or 5.85 "

No. 3.

Nitrate of soda	15 %	nitrogen	300 lbs.
Dried blood	} 10 "	" phosphoric acid	} 600 "
Dissolved bone	} 14 "	" nitrogen	} 800 "
Sulphate of potash	50 "	"	300 "

This combination would contain the following :

Nitrogen	125 lbs., or 6.25%
Phosphoric acid	124 " or 6. 2 "
Potash	150 " or 7. 5 "

No. 2 would furnish plant food more cheaply than either of the others at this time, owing to the low price of cotton seed meal.

How shall I know what combination to use? Only by observation and study, and this is possible only when knowing of what any combination is composed. Having that knowledge, and carefully observing the effect produced, it is possible to trace cause and effect. If, in connection with this practice, the farmer or horticulturist carefully studies the results of the Experiment Station investigations, much will be learned of the general principles of such experiments; and, knowing the conditions and needs of his own locality, he can intelligently, and, therefore, more successfully, apply those principles to his own business.—Rept. Mass. Hort. Society.

A TWO-WHEELED BOAT.

Every time you see the old mowing machine beside the road useless and a detriment to the scenery, remember that it may be transformed very easily into a great labor-saver. Draw it on to the barn floor some wet day and take it apart by using wrenches. Remove the wheels and have your nearest blacksmith lengthen the main axle enough to accommodate your biggest stone-boat between the wheels when they have been returned to their places. Then have him make a couple of clamps to fit over the axle and bolt down on the reves. In attaching the boat see that it does not balance, but has a tendency to ride on its nose. Then when loaded and under motion the entire weight will come upon the wheels. This work should not cost more than 60c. to 75c., and will greatly facilitate the drawing of heavy loads for which a boat is commonly used. A most excellent dray has been made by putting the axle within one foot from the rear end, and suspending the forward end to a stick of oak timber 4 x 4 inches and swinging this end under the centre of axle No. 2 belonging to still another old mower. These arrangements greatly lessen the draft. This second axle need not be lengthened. It is easy to fasten sideboards to this low-down contrivance by bolting sticks to them which run through staples fastened to the sides of the boat. For moving sand, earth, stones, for picking up stones, etc., it has no equal.—Farm and Home.

Strawberries.—The varieties mostly grown for market are Bubach No. 5, Haverland, Warfield, Crescent, Sharpless, Beder Wood, Parker Earle, Gandy's Prize, Cumberland and Lovett's Early. Pickers are supplied with stands that hold six baskets, and are made with legs like a stool, about six to eight inches long, nailed on each corner and fitted with a handle made from an old hoop. The pickers are required to bring the berries to the packing shed when the stand is full, and the packer enters the number of baskets opposite each picker's name on a book kept for that purpose. At the close of the day's picking, the packer reads out the number of baskets each one has picked during the day. Some growers use the card, and punch out the number of baskets each time, the picker keeping the card. Our plan has always been satisfactory to us.—R. N. Y.

TOMATO CULTURE.

CHAPTER X.

TRAINING THE PLANTS.

When the plants have made a vigorous and bushy growth and are about eighteen inches high it is time to train them. This work should be done just at the right time. If delayed too long the wind may blow them all down in one direction and then it will take double the work to train them, and the work cannot be done as it should be. The way to train the plants is to separate the branches carefully from each other and train them out close to the ground in every direction. Just as the spokes of a wheel point in every direction from the hub, so the aim should be to lay down every limb evenly and regularly from the centre of the plant outward. If in separating the limbs some of them are split down, no harm will be done unless the limbs are split more than two-thirds off. Each limb should be pressed down as near the ground as they will go without injury. I do this work with a three-tined pitch-fork, but a new beginner will have to use his hands considerably until he gets practice.

I am aware that the above method of training is directly the reverse of the methods practised by others. I will, therefore, briefly give my reasons for it.

1. The limbs of the plants, being spread out singly close to the hot ground, receive, when the sun shines, nearly or quite double the amount of heat they otherwise would.
2. The extra heat directly on the stems will check the flow of sap and harden the wood. The result will be to cause the plant to fruit heavily at once.
3. The vines being loaded promptly, the fruit will ripen early, and all the strength of the plant will be thrown into the fruit, instead of producing an overgrowth of vine.
4. The fruit can be gathered in half the time required when there are very heavy vines in tangled bunches.
5. The plants and fruit when laid down close to the ground escape the early fall frosts much better than when they are tied to stakes or have boards or brush under them. When the fruit lies close to the ground it is kept during cold nights fully five degrees warmer than when it is kept ten or twelve inches above the ground.

The truth of this statement is easily tested as follows: On a cold night when a light frost is imminent, take two thermometers that register alike, lay one close and flat on the ground, put the other one on a board elevated a foot above the ground; look at them at daylight next morning and you will find the one on the ground five to six degrees higher than the one on the board. The variation is caused by heat arising out of the ground. If the day previous has been

warm and sunny, the earth will have absorbed more heat, and consequently the difference in favor of the thermometer on the ground will be more than if the previous day had been cloudy. The difference of the five degrees of heat on the fruit during cold nights, just when the fruit requires it most, is a great advantage, causing the fruit to ripen much faster, and the quality to be far better.

CHAPTER XI.

HOW TO MAKE A WHEELBARROW AND LARGE BOX FOR THE BARROW.

When the fruit is ready to gather, the first thing wanted is a light, first-class wheelbarrow. The ordinary make is about as heavy again as required. They will weigh from 60 to 75 pounds. It will be found that a light wheelbarrow adapted to the work will be a saving of at least one hour each day, which will be equivalent to at least one dollar every ten days. Viewed in this light it will be seen that it is a matter of no small economy to have a barrow adapted to the work. The barrow I am about to describe when finished will only weigh 30 pounds. If made as described it will carry three bushels and will last longer than the heavy-made one. The wheelbarrow and tomatoes will weigh 200 pounds. If put on the heavy wheelbarrow the man or boy would have to push a load of 40 pounds extra each way, every trip to the field and back. Now if a man could wheel in 60 bushels a day with a 70-pound wheelbarrow, with less expenditure of strength he could wheel on the light wheelbarrow 80 bushels.

DIMENSIONS OF THIRTY-POUND WHEELBARROW.

Height of wheel	20 inches
Width of tire	1 $\frac{1}{4}$ inches
Length of axle, inside measurement	12 inches
Length of handles	4 ft., 9 inches
Size of handles	1 $\frac{1}{2}$ by 1 $\frac{1}{4}$ inches
Width between handles inside at ends	20 inches

Bolt a block of hickory wood on lower edge of handle 2 $\frac{1}{2}$ inches deep and set the axle of the wheel in it, 1 $\frac{3}{4}$ inches below the handles. Three cross bars 1 $\frac{1}{2}$ by 1 $\frac{1}{8}$ inches; the first bar one inch behind wheel; the second 21 inches behind the first bar, outside measurement; the other bar in centre. Fill in the bottom between the handles with the best pine lumber slack $\frac{1}{2}$ inch thick and 21 inches long. Set on dashboard on a square with the bottom, made of half-inch pine and 10 inches high. Legs 1 $\frac{1}{2}$ inches square and 15 inches long from top of the handles. Make frame of very best second growth hickory or white

ash and put tennons together with white lead. Iron off with light braces of best Swede iron, and give two coats of good paint. If wheel is made light and edges neatly dressed the weight should not exceed 30 pounds.

BOX FOR USING ON BARROW.

End pieces $\frac{3}{4}$ inch thick, 6 inches wide and 2 feet 5 inches long. Make a hand hole in the centre. Nail on for sides two pieces $\frac{1}{2}$ inch thick, 5 inches wide and 3 feet 7 inches long. Nail flush with the bottom. Cover the bottom with good half-inch lumber, and chamfer off the ends even with the sides 5 inches back. Make as many of these boxes as required. They will hold about three bushels when filled level with the sides. When wheeled in, two hands can set them off. They can be piled up over each other as high as desired. These boxes are made just the right size to hold six half-bushel picking-boxes. And if enough picking-boxes are on hand, it is much the best to set them, when full, directly into the barrow box, and when wheeled in, set them off and fill up with empty ones. Then the tomatoes can be wiped directly out of the picking-boxes into the market boxes.

(To be continued.)

St. Mary's, Ont.

S. H. MITCHELL.

Numbo and Paragon Chestnuts.—Among the twenty or more varieties of foreign parentage which are now being propagated under varietal names, the Numbo and Paragon are probably the best known, and have been the most widely disseminated. They are both of what is usually termed the Spanish type, having large leaves, coarse sturdy twigs covered with smooth, dark yellowish brown bark. Buds, and especially the terminal ones, large and prominent. Burrs large, uniformly thick and fleshy. Spines long, over half to an inch, branching strong and sharp. The Numbo was raised from imported nuts at Morrisville, Pa., about forty years ago, and has been very thoroughly tested. The burrs are moderately large and distinctly pointed; nuts large, smooth, of a light brown color, and like the burrs decidedly pointed; of fair quality for a nut of foreign parentage. Tree hardy and prolific even when young.

Paragon: origin uncertain but said to have been raised from a foreign nut in the garden of a gentleman residing in Philadelphia. Burrs of extra large size, from four to nearly six inches in diameter, but the spines are enormously long, or about an inch, and are very strong and abundant. The burrs are broad, flat or slightly depressed on the top; nuts large, broader than deep, smooth, with several very prominent ridges extending from base to apex. Color dark mahogany as soon as mature. In quality much sweeter and of finer grain than the usual run of varieties of European parentage. In growth of tree and productiveness it is one of the very best of its class. The trees appear to be perfectly hardy here in northern New Jersey, where a few years since they were subjected to a temperature of 20° below zero.—American Gardening.

VARIETIES OF RASPBERRIES.



ALTHOUGH liable to damage in winter or spring the Cuthbert still leads as a red raspberry. Marlboro' is a dwarf grower and produces a fair crop of firm good sized berries ; it is earlier than the Cuthbert. Golden Queen, which is a beautiful yellow Cuthbert, is gaining in popularity ; it is equal to the Cuthbert in every way, but most consumers adhere to the red berry.

Shaffer's Colossal is somewhat tender and its dark color makes it almost useless as a market berry. By cooking a few with Golden Queen, the shrewd cook can secure cheap rich colored fruit. I have discarded all except the above ; the older varieties are out of the race now.

Black Caps.—There is a demand for a brighter colored better berry than the Gregg, with canes that are hardier ; an early and a late berry meeting the above requirements is needed, and no one has found it so far as I can learn, by actual test I have tried Ada Palmer and Johnston's Sweet beside Gregg's. The Greggs are there yet, but what was left of the others were ploughed under a year ago. Of the above, the Palmer might succeed in some localities. Hilborn answers better than the older varieties as a mid-season berry. There is room for better Black Caps.

When to Receive Plants.

When spring planting is contemplated, red raspberries, currants and gooseberries, as well as trees, can be received in the fall and bedded in until spring and then planted just so soon as the ground is ready. Mice must in this case be guarded against. If the planter waits till spring and receives stock through agents, the date is apt to be rather late and stock is often in bad condition. In a season like this when a few days separates snow and ice from summer heat, the chances of receiving stock in proper order are not good. If stock is to be received in spring, procure it just as early as you can find some mellow soil to cover the roots.

The plants and trees in your hand and safely bedded in, are just where they ought to be. If it takes you two or three weeks to prepare the ground, you can remove them a short distance and plant safely—even if they have large buds. If the roots get dry or the buds are well started at the nursery or elsewhere, and then subjected to removal, death is quite apt to follow. One of the amusing and annoying answers that we receive when proposing to deliver stock, is to wait, because the ground is not prepared for them. This is no part of the question. If you can find convenient room, any place to bed in stock, the sooner you get it the better. Strawberries may be an exception to this rule, as they (if in large lots) cannot be bedded in to advantage. Evergreens, if obtained near by, may be left until wanted.

Nurserymen are often blamed because trees or plants die. In most cases the planters are much more worthy of blame. Nine-tenths of the planters when exhorted to keep the roots moist and cover them immediately with moist mellow soil when they reach home, will answer: "Oh, no need of that, I am going to plant them at once." They jog home with roots exposed, by which they receive more harm in one mile of travel than in 1000 miles of travel when properly packed.

In conclusion, let me exhort all planters to keep the roots moist and covered while on the road, and to at once cover them with moist soil so soon as they reach home. When ready to plant, take out one or two at a time, prune the roots and tops and plant immediately and carefully. Those who do this will have better fruit plantations and a better opinion of fruit growing, and nurserymen.

Niagara Falls South.

E. MORDEN.

WEIGHT OR MEASURE.

On page 147, is a proposal for regulating the size of fruit baskets. In the Pennsylvania Legislature a bill has been introduced to provide for the sale of green and dried fruits, cereals and green and dried vegetables by weight. The bill is supported by the Retail Grocers' Association of Philadelphia, and is as follows:

Sec. 1.—Be it enacted, that it shall be unlawful for any person or persons to sell or offer for sale within this Commonwealth any green and dried fruits, cereals, green and dried vegetables, except by United States standard avoirdupois pound or multiple or fraction thereof.

Sec. 2.—Every person, company, firm or corporate body who shall violate the provisions of the first section of this Act shall for every such offence forfeit and pay the sum of \$25, which shall be recoverable with costs by any person suing in the name of the Commonwealth as debts of like amount are by law recoverable; and shall be paid to the proper county treasurer for the use of the county in which the suit is brought.

Sec. 3.—Every person who violates the provisions of the first section of this Act shall be deemed guilty of a misdemeanor, and upon conviction shall be punished for the first offence by a fine of not more than \$10, or by imprisonment in the county jail for not more than ten days, or both. Each subsequent offence upon conviction shall be punished by a fine of \$25, or imprisonment for one month, or both.

Sec. 4.—This Act shall take effect on the first day of July, A.D. 1895.

Sec. 5.—Provided that nothing in this Act shall apply to any articles that are now sold by count or to the product of any foreign country.

Sec. 6.—All Acts or parts of Acts inconsistent with the provisions of this Act are hereby repealed.

THE YELLOW WARBLER.



Of all the different groups into which our native birds are divided, there is none more interesting than the one called the warbler family. Of these there are many species, all small, and most of them brilliant in color and shy wood birds, seldom or never seen by the ordinary observer. They live among the trees, feeding on the insects, their comparatively slender bills distinguishing them from the seed-eaters or finches, to which family many of our common small birds belong.

One of these species has seen fit to change its habits since the settlement of the country to the extent of leaving the woodland haunts of its ancestors, and finding a congenial home near the habitations of mankind, where it finds food in plenty in the myriads of insects that infest the leaves of the orchard and shade trees, and a place to build its nest and rear its young in comparative security in a lilac or honeysuckle bush, or, maybe, in an apple tree. This bird has been called the Summer Yellow bird, but its proper name is the Yellow Warbler. The confusion of names between this and the other "yellow bird"—the one with the crown, wings and tail black—now called the American goldfinch, is not likely to obtain in Ontario, because the latter is generally known here as the canary, being supposed to be the wild form of our well-known cage bird.

The Yellow Warbler is yellow all over, greenish-yellow on the back and golden-yellow on the crown and underparts. The wings and tail are not entirely yellow, being dusky, with only the edges of the feathers yellow. The bill is dark, and the male is distinguished from the female by light streaks of reddish brown on the breast.

That this bird should be able to see and take advantage of new conditions in its surroundings argues a high degree of intelligence, and it gives us a further proof in its methods of getting rid of the eggs of the cowbird. The cowbird, as we know, builds no nest, but imposes the hatching of its eggs and the care of its offspring on other birds by surreptitiously dropping its eggs in their nests, in the manner of the European cuckoo. Most birds either do not understand the deception, or else are unable to meet the difficulty. The Yellow Warbler proves itself master of the situation by extending the nest upward, with a new floor just over the obnoxious egg, thus walling it in below. All individuals, however, are not equally gifted in this respect. A pair known to the writer built two nests in the same season, to each of which the cowbird contributed an egg. In one case human intervention saved them from a family disgrace, and in the other the only offspring reared was an interesting cow-blackbird.

These nests were made almost entirely of white strings, ravellings and cotton wool, and lined with horsehair. The bird invariably chose the white materials among those of various colors that had been laid out for her. The eggs were four in number, of a greenish-white color, speckled with brown and lilac, the spots being mostly round the large end. In another nest, at the same place, were laid a set of albino, or pure white, eggs. This was an unusual occurrence, though there are many cases on record of albino eggs being found in robins' and bluebirds' nests. During the period of incubation the mother bird kept to her sitting very closely, seldom leaving the nest, and all the while her mate was very assiduous in waiting on her, gleaning among the leaves, his cheery note at intervals proclaiming his whereabouts.

The Yellow Warbler is widely distributed, and probably abounds in all parts of Ontario, though in some places, it seems, he has not yet learned the advantages of associating with human kind, as have most of his species. In this neighborhood, which is near Toronto, he is one of the most familiar birds of summer, while in a locality fifty miles north I found him only in the swamp.

He is oftener heard than seen, and, though his song is nothing to boast of, being short and rather shrill, it is given with such good cheer, combined with an utter lack of self-consciousness that it is always pleasing to the ear. He comes in May, when the trees are dressed in their newest leaves, and leaves us in September, having endeared himself by his sweet, domestic habits, and cheerful, industrious ways, to every lover of birds who has made his acquaintance.—H. G. L., in *Globe*.

An Example of Border Planting.—A border three feet wide in front of a house was planted with *Eulalia gracillina*, *erianthus*, *Funkia Sieboldiana* and *F. subcordata*; the last two in front of the first two. As these were selected for form and foliage they were effective throughout the season, and as a contrast, a group of tuberous begonias was introduced, and these have to be planted every spring. The porch of this house was shaded by *Halliana* and golden honeysuckles, *Clematis Jackmannii*, *C. Henryii* and *C. panicula*. A border at one side of the house was much shaded, and was planted with shade-loving plants, such as native ferns, native cypripediums, trilliums, lily of the valley and tiarellas, and a group of *Lilium lancifolium* at the point of most light. Another border, in front of a hedge of California privet, has first a line of hardy roses; among these gladioli are planted each season. In front of this line is one of narcissi, of sorts. The rest of the border is filled with hardy herbaceous plants, including columbines, Japanese anemones, iris and lilies, pæonies, German iris *Helianthus lætiflorus*, *Coreopsis lanceolata*, gallardias, *rudbeckia hirta*, hardy asters, campanulas, phloxes, delphiniums and *Heuchera sanguinea*. These are grouped in selections to secure a constant succession of bloom. In front of these is a line of tulips, narcissi, etc.: sweet peas, phlox *drummondii* and nasturtiums are added where space is found. The brick walls of the house are covered by *Ampelopsis Veitchii*.—*American Florist*.

✧ The Garden and Lawn. ✧

CACTUS NOTES.

Epiphyllums.



THE next best known are the "Epiphyllums," or Crab or Lobster Cacti, with flat stems notched as one leaf or stem growing out from another; the flowers are formed at the joints. These are rapid-growing satisfactory plants, and their cultivation, soil, watering, etc., similar to the "Phyllocactus."

As their long slender branches are of a drooping habit they are often grafted on the "Pereskia," or Barbadoes gooseberry (a woody shrub though a cactus and the only species that has true leaves) or on some of the varieties of "Cereus." When grafted on stems a foot high they make beautiful umbrella-like plants, and when covered with blossoms in winter, as they generally are, there are few plants to compare with them. Besides making handsomer plants grafting prevents damping off at the neck, a danger with young plants if injudiciously watered. The original plants of this class were only two, with scarlet or crimson flowers, but they have been so successfully hybridized that there are now many different colors, and even the shape of the flowers has been changed. The original form was two or more tubes growing out of each other, but there are now flowers like a "Cereus," or "Phyllocactus." Every one should have a Crab cactus.

Cereus.

The "Cereus" next claim attention, a large and beautiful class of about 200 varieties with strongly dissimilar forms from "Cereus giganteus," the giant of Mexico, a straight column sixty feet high, to the creeping rat-tail "Flagelliformus," common in dwellings. To attempt to give a description of the numerous varieties would be more lengthy than profitable, as these notes are only by an amateur for beginners in cactus culture.

A large number are of a semi-climbing habit requiring support. Of these the best known are "grandiflorus," "coccineus," "Macdonaldsii," "Nyclicalus," and others, and a description of the first named may serve for this class. "Cereus grandiflorus," "The night-blooming Cereus," "The grandest flower that blooms," are the names variously applied to this plant. The stems are almost cylindrical, nearly an inch in diameter, with four to seven slight ridges or angles, which bear numerous small tufts of wool and short spines. The flowers appear on the sides of the stems, principally the younger shorter ones. The first sign is a little wooly tuft, and you will be unable to know for a few days whether it will be a flower or a branch, but keep in the sun, and if a flower the stem will increase to about six inches in length; watch then for its opening about

8 p.m., to close again forever at daylight. A flower a foot in diameter, bright yellow inside, reddish-brown outside, filled with so many yellow stamens they can scarcely be counted, and exhaling the most delicious perfume, is an object worth striving for and a sight never to be forgotten. People rush in crowds and go almost wild over this grandest of all flowers. The plant is readily propagated by slips of the young growth as described for "Phyllocactus," page 4, May number, and are frequently used as stock to graft other cacti on, but the truth must be told, old plants of this variety are rare, and flowers very much rarer. Those who have a conservatory are more likely to succeed, as by training the stems along the rafters they get the necessary sunlight and heat, and by encouraging them with manure water once a week in summer, their growth is rapid. In winter they should have full sunlight and be kept cooler and dryer, but must not be allowed to dry out entirely. Now, as slips and cuttings are cheap and easily started, every one should try them. Supply these requirements as near as you can, and if you only get one flower you will be amply repaid.



FIG. 774 —EPIPHYLLUM CACTUS.

This class is not all night bloomers. "Coccineus" is a profuse bloomer, flowers six inches in diameter, of intense scarlet lasting several days. The cultivation of "flagelliformus," or rat-tail, is similar to the "Epiphyllums." They are easily grown in any sunny window, and grafted plants especially make handsome specimens. Of the columnar kinds, "Baumanni," "Colubrinus," "Dumorteri," "Peruvianus," and others are good growers, increasing in size, beauty, and value every year. All bloom well and make handsome specimens (see cut of Colubrinus, which is true to life). "Baumanni" is similar in habit, a grand bloomer and the flowers, of a bright vermilion and orange yellow, are dazzling in their brilliancy. Give all the sun heat possible; this class is never injured but always benefited by exposure to the sun, only keep the pots covered or shaded



FIG. 775.—NIGHT-BLOOMING CEREUS.

to prevent the roots from being scorched. Have the soil open and porous and give plenty of water while growing, and weak manure water once a week. Sheep manure is the best, as it seems to be mild as well as rich; cow manure the next. In winter large specimens of the columnar kinds will not require any water unless the place is warm, but the less the better; the semi-climbing varieties must have a little occasionally. The sub-genus "Pilocereus" are a peculiar class, with only a few varieties. "Pilocereus Senilis," "The Old Man Cactus," is the only one of this class generally grown, and is one of the strangest of plants, a wonderful, weird-looking thing, covered with long white hair "like the hoary

head of an old man." Cultivation, same as for other cereus, only lime in the soil in the shape of old mortar is beneficial. When the hair gets dusty or dirty it can be washed in tepid soap suds ; tie a cloth over the pot to keep the soil from falling out, turn the plant upside down and souse until clean, then rinse in clean water and his hair will be white as snow. Do not fail to get an "Old Man," it will be a constant source of wonder and delight to you and all your friends. A new variety has lately been discovered in the rocky islands of the Pacific, "Sargentianus," with hair of a reddish-brown color inclined to be curly. Unlike the Old Man, whose hair is most plentiful and long when young, decreasing with age, this new one does not have hair until it has obtained some age and from two to three feet tall. It is said to be a strong grower, making a heavy fine plant, but is at present very high priced and rare.

CACTUS CRANK.

Gladiolus.—The first planting can be made as soon as the soil is in condition to work, and the smallest bulbs should be put in first, leaving the largest and strongest for the last planting, which should not be made before the middle of July, then they will come into bloom after the excessive heat of summer is over, and the spikes of bloom will be more than double the length and strength of those that appear in July and August. The bulbs for this purpose must be kept cool, and in a dark, dry room. Cold storage would suit them admirably, if the temperature does not fall below 34°. Put some bulbs in as early as you do sweet peas, and plant at intervals of two weeks up to July. Seedlings will bloom the second year from the seed, and 25 per cent of Lemoine's strain will bloom the first year ; they are also the earliest. Cut the bulbs as you would potatoes if you would increase your stock quickly. Light colors are the most desirable. Plant deeply—four to six inches—this saves the trouble of staking ; but do not cultivate deeply.

Staking and Mulching of Sweet Peas.—As soon as the plants are above ground they should at once be staked. This is a most important operation. Nice twiggy new sticks (if possible) should be secured. I prefer the sticks undressed. The delight and beauty of the sweet pea is to ramble and hang from the points of the twigs, and therefore should be allowed to ramble at will ; and what is of the last importance is a mulch of some light material. Should the weather be dry and hot, any refuse, such as well-decomposed leaf-mould, spent hops, or horse-droppings well broken, will answer this purpose, or all these mixed together would form an excellent dressing, and this to the sweet pea, and, indeed, to everything else, is of infinitely more importance than watering, beneficial as this is in some cases. The stakes should be put in with the crowbar, and made thoroughly firm.

RUSTIC SEATS FOR THE LAWN.



THE garden and lawn are incompletely furnished if they are not supplied with some kind of seats whereon one may recline at ease. Fortunately, these seats need not be costly; it would, indeed, show bad taste to have them so. Something easy, graceful, fantastic, rustic—something that the sunshine or the wind will not harm, or have its beauty destroyed by the rain. The materials for such seats are nearly always at hand—at least on every farmer's premises. All that is required is a little skill and patience to construct them. The branches of the red cedar tree and wild grape vine furnish the best of material for this style of rustic seat. Our illustration, Fig. 776, shows a very pretty chair made in this manner. A few pine boards cut and nailed together, as represented in the engraving, Fig. 777, will form a cheap and convenient rustic seat, which will be admired for its very simplicity and quaintness.

A favorite shade tree on the lawn may be surrounded with seats so attached that one in sitting may lean against the trunk. Our illustration, Fig. 778, will give a good idea of how seats of this kind may be constructed.

The position of such seats is worthy of consideration. As they are mainly intended for use in warm weather, they should be amply shaded.

A position must be chosen that commands a good prospect—if not a distant landscape, then of the beauties of the lawn and the flower garden. Some at least, should be screened from observation by shrubbery—fragrant, if possible, where one may read or work. It is

during the warmer months that the garden and lawn offer their greatest attractions, and everything that tends to make them more enjoyable should be provided.

Javelle Water, used to remove tea and coffee, grass and fruit stains from linen, is made thus:—Mix well in an earthen vessel one pound of sal soda, 5 cents worth of chloride of lime and two quarts of soft water.



FIG. 776.

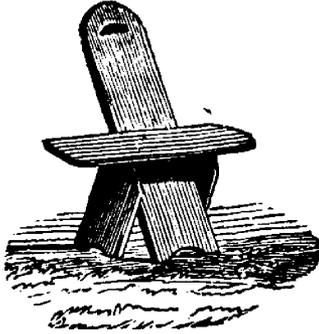


FIG. 777.



FIG. 778.

TUBEROUS BEGONIAS.



COMPARATIVELY few persons who cultivate flowers are acquainted with tuberous begonias ; a still smaller number know their merits and the ease with which they may be grown. If they were better known they would be sure to grace the borders of many more gardens than they do now, for they never fail to elicit praise from every beholder. As the name implies, their roots are tuberous, and may be dried off during their season of rest, which is in the winter. They may be gradually dried off after flowering. When the stems have nearly dried, they may be cut to within half an inch of the bulb ; the soil should then be shaken out, the bulbs spread in a warm, shady place until the roots are dry, when they may be removed and the bulbs packed, right side up, in dry soil.

In March or April they may be planted in pots in the greenhouse, in May in cold frames, or in the open ground in May or June. If grown in the greenhouse, the pots should be one-half inch larger than the bulbs. Keep the pots in a warm and rather dark place until they make some root-growth before the top grows. Keep the soil moist, but not water-soaked. Gradually inure them to the light, in a temperature of 60°. As the plants grow and the pots fill with roots, they may be shifted into larger pots as often as needed until they commence flowering, when they should remain undisturbed. Begonias do not thrive if kept too dry, neither will they bear too much wet. Too much moisture—particularly in cloudy weather—will cause them to damp off at the surface of the ground, which destroys the bulbs. If to be grown in frames, a rich soil is requisite to success. That made from sods and manure composted a year is most suitable, and in it they will thrive and well repay the outlay. Plant the bulbs eight inches apart, just covering the crowns. Cover the frames with sashes, tilting them up on one side from two to three inches, giving them a thin coat of whitewash to keep off the direct rays of the sun. Water when needed, which will be about once a week. For growing outside, a soil like that recommended for frames is best, but in the absence of this, good border soil will answer if a heavy coat of well-rotted manure is spaded in. Plant in the same manner as in frames. Begonias grown in the greenhouse are more liable to be attacked by insects, and, from a lack of good ventilation, are apt to damp off. Grown outside, the plants are more sturdy, with short petioles and peduncles. The flowers are smaller, but of good substance. From being exposed, they are often injured by excessive rains, while, on the contrary, continued dry weather and hot sun will burn them. In frames they grow more luxuriantly, producing larger flowers, with longer petioles and peduncles, and more flowers are produced, which last longer than those grown outside, or in the greenhouse. A frame of begonias, when well grown and full of bloom, is a grand sight.

These beautiful plants are also easily grown from seed, and any one having

the inclination may derive much pleasure from growing a few seedlings. The seed is extremely small and requires fine soil, and should be barely covered, in shallow boxes about two inches deep. Keep under shaded glass, giving air, and never allow the soil to become dry. The seed will germinate in about two weeks. When the plants get large enough to handle they should be pricked out in similar shallow boxes, where they may remain until they have grown to about one inch in diameter, when they may be potted singly in two-inch pots, and shifted into larger pots as they require until fall, when a tuber will have formed, which may be dried off and kept in the same manner as old tubers.

Flowers grow from three to five inches in diameter, and of various shades of white, yellow, red, scarlet, and crimson. Some of the single kinds are marvels for size and gorgeous colors. The double flowers are more regular than the single ones, and in appearance are much like a camellia, but they do not grow to as large a size as the single ones. The stems are usually too weak to support the weight of the flowers, and they drop in among the leaves, so that double-flowering varieties are not as showy as single ones, though they are very popular at present. Those who love beautiful flowers should not fail to try a few tuberous begonias, if they have never grown any before.—American Agriculturist.

To Preserve Scarlet Geraniums Through the Winter.—Take them out of the borders in autumn, before they have received any injury from frost, and let this be done on a dry day. Shake off all the earth from their roots, and suspend them with their heads downward, in a cellar or dark room, where they will be free from frost. The leaves and shoots will become yellow and sickly; but when potted about the end of May, and exposed to a gentle heat, they will recover and vegetate luxuriantly. The old plants, stripped of their leaves, may also be packed closely in sand; and in this way if kept free from frost, they will shoot out from the roots, and may be re-potted in the spring.

The Cyclamen.—Although strictly speaking, not a bulb, we include it in our talks on bulbs, because it is popularly known as such. These are giving us great satisfaction at the present time. Some of our plants in four-inch pots are, and have been for six weeks, carrying from ten to fifteen flowers each, and these from seed sown fourteen months ago. The cyclamen is exacting on two points, full, free sunshine and an abundance of water. They sulk if given a back place in the window, and refuse to flower, and their leaves droop quickly if the soil approaches dryness. Our best specimens are in a pan ten inches across, into which we put six plants in all colors from three-inch pots. For more than two months there has been at all times from thirty to fifty flowers open, which makes it the most showy and cheerful object in our window. We find that a particular soil is not so essential as was formerly supposed. We use common soil from the potting bench, the same as we would for a geranium, and with the best success.—American Gardening.

THE GLADIOLUS.*



HAD but little idea of the value of gladiolus when I began to prepare this paper, and I think we have been most fortunate in choosing it for our initial effort. It belongs to the order Iridaceæ. The roots are bulbous; the leaves linear or sword-shaped, from which it derives its name Gladiolus (Latin for a little sword). The Cape of Good Hope produces the greater number of known species. A few, however, are natives of other countries, and two or three are found in Central Europe; none are British. The original species have since been superseded by the very numerous and beautiful hybrids that are in cultivation, though many of the originals are retained, and are useful in the mixed border. The Hottentots eat the bulbs of some species which contain a considerable quantity of starch.

The bulbs should be planted in a rich, light, mellow soil, about the 20th of May, if the ground is warm, and, for a succession of bloom, every two weeks till the 1st of July. A sunny situation with ground well spaded and thoroughly pulverized, is the most suitable. If the soil is heavy, plant from one to two inches deep; if light, three to six inches. If bulbs are planted deep they attain a greater size, and are better able to stand a season of drought. They are moisture-loving plants, and, for that reason, they succeed well in England. I think the finest flowers and largest spikes are obtained by late planting as they come into bloom about the 1st of October. If planted early, they should have a light mulching of newly-cut grass. It is one of the richest of our summer-flowering bulbs, and so refined and delicate in quality of color that it is never anything other than satisfactory. If you care for a soft, pale shade, you have it; if you prefer the brilliant scarlet, crimson or violet, they are before you in every shade. No garden should be without them, or their gorgeous display of bloom. As cut flowers, they are most satisfactory; and if cut when the first four flowers are in bloom, and placed in water, they will open bud after bud till the whole spike is in bloom. The bulbs should be taken from the ground before danger of frost, put in paper bags and kept in a dry cool place free from frost.

I am sure we will derive a great deal of pleasure from the cultivation of our gladioli. Horace Smith says, "The purest happiness our hearts can enjoy is that which is wafted to us from the hearts we have made happy, even as the flowers which we ourselves have planted ever seem to breathe around us a sweeter and more acceptable fragrance."

NEXT YEAR every fruit grower will either want to spray with Bordeaux mixture, or no one will want anything to do with it. Mr. A. H. Pettit is experimenting in apple orchards in thirty different places, with three gangs of men. Upon the results of such extensive tests will the future of spraying in this Province stand or fall.

* A paper read before the Grimsby Horticultural Society, by Mrs. E. J. Palmer, Grimsby



The Canadian Horticulturist

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

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

✦ Notes and Comments. ✦

PROF. CRAIG is conducting special experiments in spraying for peach curl, at our South-western Fruit Experiment Station.

ERRATA—SACCHAROMETER.—On page 171, an unfortunate misuse of words occur, which escaped the notice of the proof reader. The word "lactometer," meaning (an instrument for measuring the richness of milk), is used; when saccharometer, or sugar meter is the word intended by the writer.

PEACH BLOSSOMS are coming out quite abundantly (May 7), after all our fears of the consequences of that cold weather in January, when the glass showed -15° . The Crawford, the most tender variety, is killed, but most other kinds are blooming abundantly. The proportion that is killed by the winter's cold will simply save the trouble of thinning out the fruit.

THE SEASON which opened out rather late has proved to be after all a remarkably early one, owing to the exceeding heat of the second week of May. The bloom of all kinds of fruit trees and plants was rapidly hurried forward, and on the evening of the 12th met with a severe frost, which we fear has largely damaged the prospect for cherries, peaches and grapes, even in the more favored sections of Southern Ontario. (See reports farther on.)

THE EXPERIMENT STATION EXTENSION BILL of the New York State provides for the appropriation of \$16,000 to be expended for horticultural purposes in sixteen counties of Western New York. The fund is to be expended in conducting investigations and experiments in horticulture, in discovering and remedying diseases of plants, vines and trees, in ascertaining the best means of

fertilizing vineyards, fruit and garden plantations, and making orchards, vineyards and gardens prolific, in disseminating horticultural knowledge by means of lectures and otherwise, and in printing for free distribution the results of such investigations or experiments. The whole of this work is placed in charge of Cornell University.

THE RUSSIAN BALDWIN.—We have received from Dr. Hoskins, Newport, Vt., the samples of a fine winter apple, believed by him to be a Russian, but not yet introduced among American nurserymen. At this date, May 17th, one of these samples is still in good condition, and that under unfavorable storage. The size is above medium, the color yellowish ground almost covered with dark red, sometimes in stripes and splashes; quality very good, better than the Baldwin.

THE FIRST REPORT of the Ontario Fruit Experiment Stations has been bound in with ours, as well as that of the Entomological Society. A bound volume, containing these two reports, is now being mailed, by the authority of the Minister of Agriculture, to all paid-up members of our Association, a book which we believe will give much satisfaction. Our readers will be surprised to find how much progress has been made during the very first season of our operations.

MR. J. R. ANDERSON, of the Department of Agriculture, Victoria, British Columbia, has issued a bulletin in which he reports a meeting of the North-West Fruit Growers' Association. In the report of the Committee on Transportation we find the following resolution concerning fruit packages :—" *Third*, That estimated weights of standard size fruit packages shall be estimated as follows :—Apples, 50 pounds; pears, 40 pounds; peaches, plums, prunes and grapes, 18 pounds; cherries, 10 pounds; or such actual weight as may be hereafter determined."

WINTER APPLES appear to be a failure again, just when we wanted to try some special shipments to Great Britain. No Spys, no Baldwins, no Russetts; all our standard sorts barren again! Is it the same in all parts? There is just one variety of winter apple at Maplehurst which is bearing a heavy crop this year, and that is the Cranberry Pippin. This is just a superb variety for the south shore of Lake Ontario, for there it grows to perfection. It is like the Gravenstein among Fall sorts, an attractive apple for all purposes.

THE CHANGING of the bearing year of our apples and pears by gathering the young fruit has often been advocated, but it would appear that the theory is a mistaken one. It would seem that it is the bloom that exhausts the tree rather than the maturing of the fruit. That this is the case, instances in proof were very numerous during 1894. For example, in our King orchard a large

number of trees blossomed very heavily, but, owing to the scab and other unfavorable conditions, entirely dropped their fruit as soon as it was set. These trees do not show a single blossom this year, while two trees in the same orchard which did not bloom in 1894 are this year completely covered with it. The same is also true of other varieties throughout our orchards.

THE GOVERNOR-GENERAL, being himself interested in fruit growing at the far West, sends us an appreciative letter in response to a bound volume of the year 1894, which we forwarded him. His secretary, Mr. William Campbell, writes :

I am desired by His Excellency the Governor-General to convey to you his sincere thanks for the copy of THE CANADIAN HORTICULTURIST for 1894 which you have been so good as to send to him.

His Excellency desires me also to say that he appreciates the compliment of the portrait and courteous notice of himself which have been inserted in the volume.

His Excellency is glad to possess such a compendium of useful information.

THE FIRST ANNUAL REPORT of the Fruit Experiment Stations of Ontario has been published. It contains 64 pages of matter which will be of especial interest to fruit growers. For example, Mr. Dempsey, of the Bay of Quinte Experiment Station, describes in a very exact table about two dozen varieties of apples, and a dozen of pears; he gives, also, outlines of many varieties, drawn from nature by himself. Every year additional varieties will be described and illustrated until this report becomes an invaluable encyclopædia of Canadian fruits of every variety. Full accounts are also to be included of the various experiments conducted at each station under the direction of the Executive.

SPRAY PUMPS are numerous in the market, and each claims to be the best. We have been using the Ideal, made at Brantford, so far this season, and it has given us great satisfaction. The company have made a number of improvements in the working parts at our suggestion, and have recently lengthened the handle and attached an agitator to keep the liquid stirred up. They have also, at our request, attached a half inch hose, which is much lighter to elevate on the end of the bamboo pole than the clumsy inch hose, which has been used hitherto. The pump works easily and has very little about it to get out of order. What is now wanted is that all the working parts possible should be made of brass, so that they would not be corroded by the sulphate of copper.

IT PAYS to use a fine nozzle, like the Vermorel, in spraying. With the old Boss nozzle we would run out four or five barrels in a morning; with the Mason, a much better one, we ran out about two or three barrels; with the McGowan, about one and a half; but with the Vermorel we find we can spray

nearly a whole morning with a single barrel of Bordeaux mixture. Besides, we can do better work with a fine vapory spray, because this covers the foliage much more completely than a coarse spray. For large apple trees the McGowan nozzle is best, because it throws the spray farther.

Most people use too heavy hose also in spraying. A half or three quarter inch is quite large enough, and it should be twelve or fifteen feet in length, so that it can be elevated near the branches of the higher trees.

WINTER APPLES will be a light crop in 1895, if the indications in Southern Ontario prevail throughout the province. The failure of the Baldwin to set fruit appears to be chronic. Again this year Baldwins show no bloom, though the orchards are cultivated in the very best manner and the trees appear to be healthy and vigorous. Why is it that this apple, which was once the most productive of all, has of late years become the least satisfactory? The Cranberry Pippin in our orchard is loaded, as it also was two years ago when others failed. This variety appears to be one of the most satisfactory of winter apples, and may yet take the place among apples of its season that the Gravenstein does among fall varieties. It is much inferior to the Gravenstein as a dessert apple, but for cooking purposes it is excellent, and its fine appearance commands for it a ready sale.

THE EFFECT OF THE LATE FROSTS.

Up to the 12th of May the prospect for an excellent crop of fruit was never better in most parts of Ontario, with the exception, perhaps, of winter apples. The bloom was unusually early on account of the exceptionally warm weather, and as a result, the early and severe frost, like that on the night of May 12th, was most injurious. A few favored sections seem to have escaped without much injury, as, for instance, portions of the Niagara district, Prince Edward County, and some parts of Essex County, but, for the most part, the injury to the grape, cherry, peach and plum crop seem to have been universal, and in some parts apples and pears also are totally destroyed. It is possible that the result may be a largely increased value for the fruits which remain, but, owing to the low rates of transportation, fruits are now shipped in from California and other distant points, glutting our markets whether we have a crop in Ontario, or not.

The following reports from our directors will be interesting to our readers ;

MR. T. H. RACE, of Mitchell, writes :—The repeated frosts since the night of the 12th of May have been the most damaging known in this section for thirty-five years. Throughout the County of Perth cherries and plums are totally destroyed, currants and gooseberries nearly so, and raspberries are cut so badly that scarcely a quarter of an average crop can be looked for. All the first blossoms on the strawberry vines have been destroyed, but there may yet be a fair crop. Pear trees blossomed very heavily, and they are still showing signs of vitality. In the southern parts of the county, about St. Marys and on toward London, this sign is even more promising than about here, Stratford and northward to Listowel. It is too soon yet to tell what the effect is going to be on the apple crop. The fruit stem of the Duchess and other early varieties seems quite firm yet—even into the faded blossoms, and the later blossoming varieties are expected to be fairly safe for an average crop.

MR. L. CHAPIN, of Brantford, writes:—We have had very severe freezing for several nights in succession, and it would seem impossible for any fruit to survive. Plums and grapes are entirely gone; strawberries and pears nearly all gone; very few apples, although blaws look fairly healthy yet; a few currants still remain.

MR. A. M. SMITH, of St. Catharines, writes:—I do not think that along the lake shore here the fruit is very much injured, excepting early strawberries, which are nearly all destroyed. The continuous frosts we are having may yet blight the prospects. J. Broderick, in Louth, thinks he will have from one-third to one-half a crop of grapes, and Z. Bayley, of Niagara, thinks he will have a third of a crop on a fifteen acre vineyard of Niagaras. In the vicinity of the lake, most of the growers think peaches and late apples and pears are safe.

MR. W. M. ORR, of Fruitland, writes:—The frost has been the most severe that we have ever experienced in this section so late in the season. Tree, vine and bush fruits have suffered very little along the border of the mountain, and, if no further misfortune befalls the crop, we will have hundreds of tons of grapes and a good crop of plums, pears and small fruits. However, nearer the lake very serious damage has been done, many vineyards and plum and pear orchards, together with small fruits have been ruined for this year. I have heard very discouraging reports from North Wentworth and Halton.

MR. M. PETTIT, of Winona, writes:—From what I can learn, all fruits are very badly damaged in this division, with the exception of that small portion along the south shore of Lake Ontario lying between the mountain and lake, and in this some vineyards are badly injured; also pears, plums, peaches and cherries to some extent. There was never a better prospect for a full crop than we had before the frost.

MR. W. BOUTLER, of Picton, writes:—We had no frost on Monday the 13th of May, which appears to have been quite severe in Western Ontario; but on Wednesday and Thursday nights, the 15th and 16th, we had quite a severe frost, which we fear has hurt the strawberry crop some, but it is yet too early to tell the result on apples, pears and plums, which bid fair to be a good crop. The raspberries suffered considerably, through the continued cold winter, and the tops of canes are damaged seriously. Hastings and Prince Edward counties being adjacent to the Bay of Quinte and Lake Ontario, the fruit crop is not so early in blooming as in Ontario West, and consequently we still hope apples, pears and plums are not as seriously injured as was first supposed. (Later).—Up to yesterday (May 21st), reports received from Belleville, Napanee and here, show that the frost did very little damage; but we had a severe frost last night, which I fear did considerable damage—froze tomato plants through a covering of cotton. The grapes are cut down and it is cold again to-day, with prospects of another frost.

MR. GEORGE NICOL, of Catarqui writes:—Judging from the appearance of the blossoms, we may expect an average crop of apples and pears. Small fruits, from present appearances, will be an extra crop.

MR. G. C. CASTON, of Craighurst, writes:—It is impossible to give an estimate of the damage to fruit by the late frosts. Until we see what falls from the trees, we can tell nothing about tree fruits. All new shoots of grapes are frozen off, and strawberries are badly damaged.

MR. THOMAS BEALL, of Lindsay, writes:—Judging by personal observations in my own and neighboring orchards, I am of the opinion that, notwithstanding the several frosty nights we have had during the two past weeks of cold and unseasonable weather, there is at present every reasonable prospect of our having at least a good average crop of apples and pears. It is too soon to be positive in this matter, as our orchards are yet in full bloom. A much better estimate may be made a week hence. The grape crop is very materially injured. The early blossoming varieties of strawberries are injured to some extent, but only a small percentage on the whole crop. Other small fruits—gooseberries, currants, raspberries, etc., are looking fairly well.

MR. R. B. WHYTE, of Ottawa, writes:—Apples promise a good crop. Damage from frost very light, confined to a few localities and to early blooming varieties, such as Peach, Tetofsky and Duchess. Native plums promise a good crop. Cherries, where grown, are a good deal hurt by frost. Grapes in many places are a total loss, and everywhere very much injured. English varieties of gooseberries have been badly winter-killed and will be a small crop; native varieties will be less than an average crop. Currants in some localities are injured by frost, but generally promise a full crop. Strawberries very much injured by frost in some localities and do not promise over two-thirds of a crop. Raspberries look well, no injury from frost.

In addition to these reports, MR. M. BURRILL, of St. Catharines, President of the Louth Fruit Growers' Association, writes:—On my own place, things at present look as follows:—Quinces all gone, plums 90% destroyed, pears 75% destroyed, peaches (early) 60% destroyed, peaches (late) 80% destroyed, cherries (sweet) 90% destroyed, cherries (sour) 20% destroyed, strawberries 40% destroyed, grapes 50% destroyed. On the lake shore the prospects are brighter; south of me, worse. I am a half mile from the lake.

MR. J. M. FISK, of Abbotsford, Que., writes:—We had a heavy frost on the 13th of May and a lighter one on the 16th—doing considerable damage, killing back our grape vines and discoloring the bloom on our fruit trees and causing many a grower to feel that the bottom had suddenly dropped out of his calculations. Although the weather still continues cool, the pear and apple crop does not seem to be so seriously injured as at first supposed, and we can but hope that the reports from the different parts of the country will prove somewhat exaggerated and the fruit crop of 1895 will not be a total failure.

➔ Question Drawer. ➔

The Pearl Gooseberry.

740. SIR.—Please give me a short history of the Pearl gooseberry in your June number. Where did it originate, and what superior qualities has it?

F. C. BULMAN, *Toronto.*

This gooseberry is a seedling, raised at London, Ont., by Mr. William Saunders, now director of the Experimental Farms of the Dominion. It was a cross between the Downing and an English variety, called Ashton's Seedling. It has all the vigor of the Downing, as resistant of mildew, and a trifle larger and more productive.

Chrysanthemums from Cuttings.

741. SIR.—Will you give a few hints on raising chrysanthemums from cuttings. Do they require pinching off?

SUBSCRIBER.

Chrysanthemums after blooming in the fall, should be cut down, and the pots containing the roots should be stored in the cellar, where they will require little or no watering. About the first of March they should be brought up to the light and watered, and in a short time there will be an abundance of healthy green sprouts from which cuttings may be taken. These sprouts may generally be taken up with a few roots attached, and if planted singly in small pots go on growing as if nothing had happened. If cuttings only are taken, they may be rooted in a pan of clear, sharp sand, which should be kept in a warm window and well watered. As soon as well rooted, the plants should be potted in rich soil in small pots, and should be re-potted into larger ones as soon as the soil becomes well filled with roots. They may require three or four shifts during the season, and by September should be in eight or nine-inch pots.

If it is desired to grow the plants in bush form, they should be pinched back when four or five inches high. Branches will then start at every leaf, and these again may be pinched back when they have grown six or eight inches. If a tree form is desired, one straight stem should be trained to a stake, and when a couple of feet high, the tops should be nipped off and a few branches allowed to start to form the head. These may be pinched back when they have grown a few inches, and all branches starting on the stem below these should be rubbed off. Large blooms may be obtained by leaving but few branches.

Trees for Live Posts.

742. SIR,—Please say whether black walnut would answer for fence posts for supporting wire fences. If so, where could I get the trees, and when would be the best time to plant the same? Is there any other tree that you would consider better for the purpose?

J. NEIL, *Centralia, Ont.*

The black walnut is a very durable tree, but grows to a considerable size and is very exhaustive upon the soil. We are inclined to think the Lombardy poplar a better tree for this purpose. It is a quick grower, and, being very upright, will afford very little shade.

Propagating Blackberry Plants.

743. SIR,—In dividing up blackberry roots in the spring for propagation, how short can you cut them to make healthy plants? Can black raspberries be done in the same way?

MRS. A. FRASER, *Weston.*

The roots should be cut in the fall, and kept stored in sand till spring, in order that the cut may callus over, but a certain proportion may grow if cut in spring. The roots may be cut in pieces from one to two inches in length. In planting they should be laid horizontally, about an inch deep in good soil. If started in a hotbed they will stool better and make excellent plants the first season.

Whale-Oil Soap Wash.

744. SIR,—In your last issue you give the advice of Prof. Howard as to the use of whale-oil soap. Please give directions for the use of that substance. I have used kerosene emulsion, diluted in nine parts of water, and have caused severe loss of young nursery stock.

J. E. HARDY, *Oka, Que.*

Probably the injury was the result of imperfect emulsifying, leaving some pure kerosene in the liquid. Kerosene itself is fatal to vegetable growth, but when properly emulsified so that it will mix with water, it is safe. The kerosene should not form more than 1-15th part of the whole mixture. Whale-oil soap wash is made with 1 pound whale-oil soap to five gallons of water.

Propagating Raspberries.

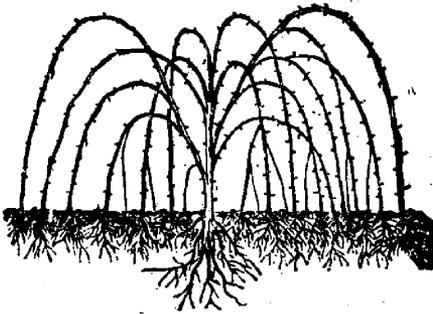


FIG. 779.

745. SIR,—How do you grow raspberries from tips?

D. N. ANDERSON, *Wyoming.*

Propagation of Black Cap raspberries is very easily done. The tip of each young shoot, if pegged down, as soon as it reaches the ground will take root. A simpler plan is, bend over the branches, as soon as long enough, say, in August, and throw on each a shovelful of earth, firming down with the foot. These will strike root,

and, in the spring, may be lifted and planted for fruit bearing. (See Fig. 779.) If rapid propagation is wanted, a foot or so of the cane may be covered, and several buds will root, and each make a plant, though inferior to the terminal one.

Cabbage Maggot.

746. SIR,—My cabbages are infested with white maggots, which are eating the roots. Is there any remedy?

W. H. TAYLOR, *Hamilton.*

This maggot is the larva of a small fly which eats into the ground and roots of turnip and cabbage plants. The usual advice given to overcome this enemy is to set the plants each year in the new piece of ground, as far away as convenient from the plantation of the previous year. Professor Bailey advises inserting bisulphide of carbon into the soil when the plants are in the hotbed. Then puddle the plants, when transplanting, in a puddle to which sulphur has been added, and sprinkle sulphur about the plants after they are set.

Stock Mixtures.

(See question 733.)

It is important to observe two things in order to keep stock solution from deteriorating. First, to keep both the copper and the lime solution from the air; it is recommended to cover each securely and bury the casks in the ground. Second, to keep each solution separate; if mixed, they act chemically upon each other, so that the fungicidal power is injured, and in a short time, say, inside a month, wholly lost.

303 *Crawford St., Toronto.*

D. W. BEADLE.

* Open Letters. *

A Curious Plant.

SIR,—I have a curious and interesting plant, popularly called Musquito plant (*Lopezia rosea*), which I think is worthy of being more generally grown. It flowers from December till May, constantly covered with its small rose-colored flowers borne on long slender branches, often a yard long on well grown plants. A plant suspended from the ceiling of a room, or rafter of greenhouse, has the appearance of a swarm of colored flies clustering about the plant, the flowers are borne on such slender branches and pedicles. Along with *Cyperus Alternifolius*, it makes a fine plant for table and mantle decoration.

E. W. BOWSLAUGH, *Kingsville, Ont.*

List of Secretaries.

SIR,—I suggest that you publish a permanent List of Secretaries of Horticultural Societies. This will enable Societies to interchange their Lists of Awards, commonly called Prize Lists. We hope to see members of Societies from all over Ontario at our Exhibition on September 10th. In fixing on this date we wish it distinctly understood that we do not wish to supersede the Toronto Industrial. If each Society would furnish its members with badges, it would be a great convenience. We propose to wear them on our excursion to Guelph on June 20th.

E. MORDEN, *Sec., Niagara Falls Hort'l. Soc.*

Books for Subscribers.

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Bulletin 23, Central Experimental Farm, is devoted to (1) Spraying, (2) Injurious Insects, (3) Potato Blights, (4) Black Knot.

Brampton Horticultural Society.

SIR,—We are supplying each member of our Society with twelve gladiolus bulbs—two each of six varieties, and two ounces of sweet pea seed. We propose to hold an exhibition in the fall, at which honorary awards will be given.

A. MORTON, *Secretary.*

Niagara Falls Horticultural Society.

Secretary E. Morden writes that the Niagara Falls Horticultural Society has divided 2,700 gladiolus bulbs from three sources into 100 lots. They have about 90 members and expect to make up the 100 very soon.

Their List awards for their great Exhibition of September 10th is being printed, and will be sent to the secretaries of other societies whose addresses may be known. Doubtless other societies will arrange excursions to the Falls and take in the Exhibition. Admission 10 cents during the afternoon and 15 cents during the evening.

St. Lambert Horticultural Society.

SIR,—A new Horticultural Society has just been started at St. Lambert, near Montreal, which is a thriving suburban village, and with many zealous amateur gardeners. It is to be called the "St. Lambert Horticultural Society," and its object will be to encourage, not only the cultivation of flowers, but also of fruits and vegetables, and to increase the planting of trees. The Hon. L. O. Taillon, Premier of the Province, has been invited to become the Hon. President, as St. Lambert is in the County of Chambly, of which he is member. And it is expected that the Society will speedily develop into a county one. The other officers are:—President, Rev. W. J. Dart, M.A., Rector; Vice-President, Mr. A. Cameron; Secretary-Treasurer, Mr. H. Bragg. Committee:—Mrs. Dawson, Mrs. G. Brown, Mrs. Grant, and Messrs. P. M. Wickham, P. Locke, J. Brown, and J. F. Raphael. An exhibition will be held in the fall, for which arrangements are now being made.

MR. H. BRAGG, Room 405½ Board of Trade, Montreal, *Secretary*.

Mulberries.

SIR,—Having read with much interest the latest report of the Fruit Growers' Association, I would like to know why mulberries have not been considered sufficiently important for discussion. Men who are travelling through the country selling trees have been booming mulberries. What is wrong with them that the leading fruit men will not even mention them? They certainly have their faults, yet they are delightful in many respects.

M. C. BROWN, *Dunboync, Ont.*

Question Budget.

Replies to these questions are solicited from our readers.

SIR,—Could you, or some of the readers of the HORTICULTURIST, who have grown the Stark apple, give their experience as to the hardiness of the tree, bearing and keeping qualities, etc.?

A. C. PARKS, *Hay Bay, Ont.*

✎ Our Book Table. ✎

Sketches of Wonderland. Tourist book of Northern Pacific R. R. The wonderful attractions of Yellowstone Park, the Great National Park of the United States, are well described. . . . Wholesale price list of Florists' stock. Wm. Bacon, Orillia, Ont.

TWENTY-FIFTH ANNUAL REPORT of the Entomological Society of Ontario. 1894.

FOURTH BIENNIAL REPORT of the State Board of Horticulture of the State of California, 1893-'94.

ADDITIONAL FRUIT REPORTS.

Since the Journal has been printed, the following reports concerning the damage to our fruits has been received :—

MR. W. M. ORR, of Fruitland, Director for the Counties of Wentworth, Wellington, Waterloo, Halton, Dufferin and City of Hamilton, writes :—The prospect for fruit in the district lying immediately under the mountain at Winona is good. The vineyards and plum and pear orchards promise a full crop. He encloses, however, from Mr. A. W. Peart, Secretary of the Burlington Fruit Growers' Association, the following approximate estimate of the damage done in the Burlington district by the frost of May 13th :—“ Apples damaged 15 to 25 %, pears 25 to 30 %, plums 20 to 25 %, peaches no bloom at all, grapes 25 to 30 %, strawberries 30 to 40 %, raspberries not much damaged, blackberries 15 to 25 %, currants and gooseberries very little if any injury. As the bloom is very profuse here, the indications on the whole are that we will have a full average crop of fruit.”

MR. W. E. WELLINGTON, Toronto, representing the Counties of York, Ontario, Peel, Cardwell, and City of Toronto, says :—The fruit prospects in South Ontario seem to be very good, notwithstanding the severe frosts. Reports of the 21st of May state the prospects for a crop of apples, pears, plums and cherries as good. Plums and cherries have set well and at that date the frost had not injured them. It is too early for apples and pears to set, but the stems look all right. Grapes and strawberries are injured slightly, raspberries and blackberries all right. Letters from the central portions of York, on the 20th of May, report that the prospects for fruit were never so bright until the frost. The frost injured all kinds of small fruits, cherries, plums and also early apples, so there will probably be hardly half a crop. Late apples have a chance of getting through all right. From Orangeville, on the 27th of May, the report is that cherries, plums and early apples are all frozen, and that raspberries, currants, gooseberries and pears will be hardly half a crop. There will not be fruit enough to supply home demand.

MR. A. McNEILL, of Windsor, representing the Counties of Essex, Kent and Lambton, writes :—I have gathered a very full report of the crop prospects to date. Apples, plums and pears promise an average crop and were not injured by frost. Peaches on clay ground were winter-killed, but the peaches on sandy loam came through all right. The crops of raspberries, currants and gooseberries are all in good order; strawberries reduced to one-half by frost. The injury to the grape crop is so great that there will not remain more than 10 to 20 per cent. in Essex, while in Pelee Island, with a probable crop of 250 tons, was not affected by the frost.

MR. J. A. MORTON, of Wingham, Director for the Counties of Huron, Bruce and Grey, writes :—There will be a small fruit crop this year in this section of the country. Early apples will be a failure. Some of the late blooming trees escaped the frost, but the extent of injury to them is not yet apparent. Plums and cherries have suffered severely. The cold was especially severe, and many so-called hardy plants and trees were badly frozen.

MR. W. S. TURNER, of Cornwall, representing the Counties of Renfrew, Russell, Lanark and Carleton, writes :—The reports are varied. The effect of the frost seems to have been more severe in some places than in others. Apples are largely destroyed in some parts, and the plums are still more severely damaged. Grapes are about half destroyed.

The report from the vicinity of Fonthill is discouraging. MR. MORRIS writes :—The damage in this neighborhood, as near as can be ascertained, is about 95 per cent. on grapes, 75 per cent. on pears, plums, cherries and peaches, and 50 per cent. on apples and strawberries.



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Grimsby, March, 1895.

Signed, W. MCKINN N.

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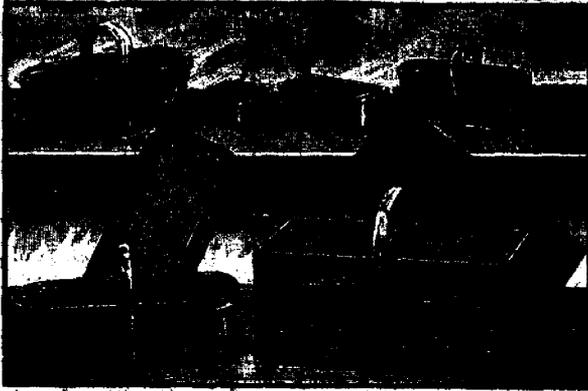
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