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HALL'S CLIMBING JAPAN HONEYSUCKLE.

THE
Canadian Horticulturist.

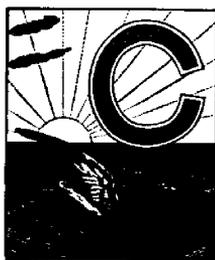
VOL. XIV.

1891.

No. 12.



HALL'S JAPAN HONEYSUCKLE.



CLIMBING plants about the house and lawn are only appreciated by a few. The naked pillars of porches of many houses contrast very unfavorably with the beautifully draped verandahs and walls of those few which have been clothed with nature's own costume. Not so great is the contrast between a drawing room hung with beautiful curtains and one entirely bare of drapery. Even the trunks of old trees may be festooned with elegant creepers, and old posts may be transformed into superb pillars. We have in mind a telephone post which gave offence to the near residents when first set, but which could not now be removed with their consent. Nature has robed it from pedestal to capital with the Virginia creeper, which is beautiful at all seasons, and, in the autumn, takes on gorgeous hues, which are the admiration of all passers-by. This creeper is a native of Ontario and may easily be transplanted to the garden. Besides, we have many others growing wild, which, without expense, might be made to adorn our homes, as, the climbing bitter-sweet, the wild frost grape and two species of climbing honeysuckles. These are *Lonicera parviflora*, or Small Honeysuckle, which has a yellowish purple corolla, and is found on mossy banks; and *L. Hirsuta*, or Hairy Honeysuckle, which has a greenish yellow corolla and is found in damp thickets.

In a paper read before the Massachusetts Horticultural Society by John G. Barker, we find the following interesting reference to this class of plants :

“Whether trained to festoon the parlor window, or the conservatory, the side of the piazza, or running over and covering some old decayed tree, or some unsightly stone wall or rock; whether adjoining the grounds of the rich merchant, or the laborer's humble cottage, or whether their aid is sought in screening an arbor from the rays of the hot summer sun—in any and every one of these cases, what class of plants is there whose beauty affords more satisfaction?”

Not a single wall or fence, especially if visible from the house, not a trunk of any old tree, or, in fact, any object that can be made capable of supporting a vine, should be left uncovered. The free use of climbing plants always imparts, wherever you meet them, on some lofty tree in the woods, or at the cemetery entrance, an air of friendship and freedom, and if they receive a larger share of skill and attention than has heretofore been given them, they repay in beautiful flowers and foliage and grateful shade the time spent in their cultivation.”

On page 147 of Vol. 12, we introduced to our readers a plate of three of the most popular of the cultivated varieties of climbing honeysuckles, viz., *Lonicera Flava*, or Yellow Trumpet; *L. Periclymenium Belgica*, or Monthly Fragrant; *L. Sempervirens*, or Scarlet Honeysuckle.

We then promised that, in some future number, we would give a colored plate of *Lonicera Halleana*, a promise which we now redeem; and, more than that, we have arranged for a supply of plants from a Canadian florist for those of our readers who desire to have one.

In the opinion of Mr. Henry Ross, of the Massachusetts Horticultural Society, this honeysuckle is one of the very best of its class. Of all varieties it is the best bloomer, and its leaves are so persistent that it is almost evergreen. Its flowers, which appear in great profusion from July to December, are very fragrant. In color they are pure white, changing to yellow.

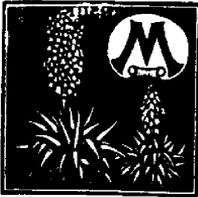
THE LAWRENCE PEAR.

Until the last few years the Lawrence pear was generally considered the best early winter pear; the tree is vigorous and healthy, being almost exempt from blight, and it bears regularly and abundantly. The fruit is of medium size, nearly always fair, and the quality is fine, though it does not rank as best, the flesh being only partially melting. For these reasons this variety has been grown extensively for market for a number of years, and we believe that in many localities it is still regarded as one of the most valuable early winter varieties. It is also justly esteemed as a dessert fruit, the size and quality being entirely satisfactory to the amateur.

In some sections, however, where the Anjou (of which the late President Wilder said if he could have but one pear it would be that variety,) has become known, it has superseded the Lawrence, on account of its large size, handsome appearance, and superior quality. The Lawrence matures the latter part of November or early in December, and is ready for market and can be disposed of before the Anjou. There is room for both and both are valuable.

W. C. BARRY.

AMERICAN POMOLOGICAL SOCIETY—II.



MOST of the important points brought out at the meeting have now been so widely quoted, that only a brief *resume* will be given, emphasizing the facts elicited likely to be of greatest interest to the readers of the HORTICULTURIST. Mr. J. H. Hale, in an interesting talk on small fruit culture, spoke of the necessity of thorough preparation of the soil before planting, and the very slight danger there was of enriching it too highly. Wood ashes for their potash, bone meal for its phosphoric acid were useful and practical commercial fertilizers, and used extensively in Connecticut. For weakly growing plants use nitrogenous manures. As a rule, too many plants were grown to the acre. His preference was to grow them in hills six feet apart each way, giving thorough cultivation with heavy manuring. It paid him, in marketing small fruits, to grade them as we do apples and pears, and to use every possible means to place them upon the market in as attractive a condition as possible. Little attentions to the appearance of the fruit, when shipping, often counted heavily in the receipts. Mr. Lovett, of New Jersey, read a paper on "New and Promising Small Fruits." Among strawberries, Cloud, Osceola, Lady Rusk, Shuster Gem, Edgar Queen, Eureka, Mrs. Cleveland, Parker Earle and Gandy were favorably mentioned. Of black cap raspberries, Michigan, Palmer and Older were recommended, and North Star among the new currants.

An interesting paper was presented by Prof. B. T. Galloway, Chief of the Pathological Division of the Department of Agriculture, giving the latest and best information in the treatment of plant diseases. Showing by statistical proof that the damage to the fruit interests of the United States in 1890 amounted to over ninety millions of dollars, he went on to give the various remedies which are now becoming common practice in the economy of the wide-awake fruit growers. The pear leaf blight, so injurious to fruit stocks, can be almost entirely controlled by six or seven applications of Bordeaux mixture. Nurseries containing not more than 50,000 stocks can be managed with a knapsack pump, where they are grown in larger quantities a horse and force pump are necessary, and this pump can be so rigged as to spray four rows at a time.

For powdery leaf blight of apple and cherry, the ammoniacal solution has given satisfactory results when applied early. In treating apple scab, the professor found the ammoniacal solution and modified *eau celeste* equally satisfactory, but experiments had demonstrated that three sprayings, commenced early in the season, gave as good results as five or six later sprayings, and concluded that with even moderate care the disease could be prevented at a cost of from ten to twenty cents per tree.

The results of an exhaustive study, covering several years of the disease known as peach yellows, were given by Dr. Smith. His efforts in finding a remedy so far have been entirely futile. The whole amount of our knowledge may be summed up thus: 1st. Direct cause unknown. 2nd. Disease is transmissible. 3rd. No remedy yet discovered. His experiments prove very conclusively that no method of soil treatment will give immunity.

Dr. Riley, in contrasting the efficacy of the arsenites as against the old jarring method in combatting the curculio, stated that the number killed was about equal with the difference in labor, much in favor of the arsenites. Then in cases of trees with foliage sensitive to injury, as the peach and plum, the danger could be entirely averted by the addition of lime to the insecticide, though it might, in a slight measure, lessen its effectiveness. In the case of apple maggot, no available remedy had been devised except the destruction of the fallen fruit. The application of all fungus and insect remedies in as fine a spray as possible was urged. The best nozzle for this purpose is the Cyclone or Vermorel Improved.

A bright and interesting paper, by Chas. W. Garfield, of Michigan, on "Local Problems in Pomology," impressed the thought that although a few fruits were almost universal in their climatic range of adaptation, yet the greatest successes were attained where orchardists studied closely their local conditions, and after testing carefully a number of varieties planted largely of those which succeeded best on their own soil; "If you are unable to test or cannot afford the time, then observe closely the work of your nearest neighbor in similar lines."

In a paper on "Commercial Peach Growing," Mr. Taylor, of Michigan, recommended a sod turned under the previous year as good preparation of the soil for a peach orchard, this, of course, being brought into a fine state of mellowness by cultivation before planting. Trees must not always be chosen for the fine quality of fruit, as these are often most unproductive. Plant with a view to a succession in time of ripening. Trim tree to a whip and cut back in spring to form a head. Cultivate up to August 1st. Corn is a good orchard crop the first and second years. Thorough cultivation will lessen the amount of fertilizers needed. A long list of fruits was given by Mr. Vandeman, under "Novelties in Pomology." The following are a few which would seem to be of greatest value to Canadian planters: Apples—North Western Greening and Windsor, both of Wisconsin; season, winter. Lacon and Garfield, winter apples from Illinois; also Hennepin, grown by A. H. Gaston, of Lacon, Illinois—a winter fruit, promising for market. Whinney, originating with Geo. J. Streator, Garrettsville, Ohio, spoken of as an exceedingly attractive dessert apple of fine quality.

Among the Japanese plums, Mr. Vandeman recommended Botan, Kelsey and Burbank as being decided acquisitions to the peach growing belt. Burbank was spoken of as taking the lead of the seedlings and sports of *Prunus Americana*—specially valuable in the North—nearly all originating in the Mississippi Valley. Chas. Downing, Hawkeye, Cheney, Hudloff, Gaylord, Hopp and Rock-

ford were recommended to planters. These have been on trial at Ottawa for a year, and came through last winter without injury. As attention has been directed already to the small fruits likely to be useful in Canada, further mention to varieties of probable value to the South is omitted.

JOHN CRAIG.

Experimental Farm, Ottawa.

FRUIT AS FOOD.—Mr. L. Pasche, of Bryson, Que., sends us the following on this subject, from *Cassell's Magazine*: Now, I will tell you what I claim for fruit as food; that is, for fruit as a complement of one's daily diet. First, that it is exceedingly palatable; secondly, that it causes, owing to this very palatableness, an increased flow of saliva; thirdly, that it thus assists us in digesting other, both bread and meat; fourthly, that fruit is itself easily assimilated by the system; fifthly, that it keeps the system free and in good working condition; sixthly, that from its acids, salts and essential oils the blood is purified and disease germs destroyed; and, seventhly, that from its saccharine matter the body is nourished and the animal heat kept up. It would seem like a paradox to say that fruit both warms and cools the body, but such is the case, in summer its acids temper and equalize the heat, in winter its sugars warm. Sugar and acid, in fact, are so equally balanced in this food, formed in the great laboratory of nature, that neither preponderates unduly or to the detriment of the other. We may take the testimony of birds as to the healthfulness of fruit. And who so bright, cheerful and happy as they? The blackbird knows well what to treat himself to in the sweet summer time, and flutes all day in the groves and the greater part of the night as well; yet in winter, cowering for shelter under the dwarf pine trees, he does not let down his heart. On the contrary, he is content if he can scrape up a few grub worms from among the withered leaves and obtain a hip or a haw to assist in digesting that worm. The Arabs form a good example of a nation that to a large extent lives on fruit. We are apt to claim courage as characteristic only of the British soldier. This is simply our insular ignorance and arrogance. Who can be more brave than the Arab, or who possess more *eclat* or dash?

GROWING CELERY.—There has been many ways suggested for blanching. It is said that in the old world, where first-class celery is desired, instead of burying up the plant in the earth, they simply tie up the leaves, and then wrap them in coarse brown paper. It is said that much better celery can be obtained this way than by any other method of blanching.—*Meehans' Monthly for November.*

SOME time before winter sets in, dig up and pot for winter forcing some of the early flowering shrubs. The golden bell, *deutzia*, *spiræa*, yellow jessamine, Persian lilac and Japan snowball, are among those that force well. The earlier they are dug up after September, the better rooted they become by the time forcing is commenced.

OUR BELOVED CANADA.

NOTES FROM A FRUIT-GROWER'S STANDPOINT.

My country, of thee I sing,
 Land of the golden fruit,
 Of herb and grain and root,
 Of thee I sing.

Land of the crystal spring ;
 Of furrowed field, of lake expanse ;
 Could I thy fame enhance,
 Of thee I'd sing.



THE Canadian has a rich inheritance in the land that he possesses. In primitive days he sang of his inheritance as the land of forest and river and lake ; and with this theme was inseparably associated the woodsman's axe. In patriotic sentiment it has been the land of the beaver and the maple leaf. And it has held a place in fame as the land of the toboggan and the ice palace. But, comparatively speaking, all that had a reality in these bygone conceptions of this land of ours has passed away and little, save the sentimental, remains of them. The forest has been transformed into the cultivated field ; the rivers and lakes have lost their romance and become the highways of commerce ; the beaver has vanished before the heavy draught-horse and the dairy cow ; the maple leaf, except as an ornament, has been replaced by the plum, the pear and the apple bough ; the toboggan has migrated to the north-land and the ice palace has melted away, and so likewise has the false fame that it provoked. The reality that remains with us is the fairest and most favored land that man possesses. The enthusiast in horticulture has come to view the prospect, in this part of the Dominion at least, as one of incomparable possibilities ; and the practical fruit-grower does not look without encouraging promise into the future, as he contemplates the profitable results of the past two years, and the reputation the apple of Ontario has made for itself abroad.

Thirty years ago, I was a boy living in the vicinity of Port Hope. It was to me an enchanting spot, and memories ever recur to me of the days when I used to ramble through its deep ravines in search of wild strawberries ; or into the breaks and woodlands for the wild plum and gooseberry ; or invade sylvan glades where rippled the trout-brooks ; or climbed the pine-wooded ridges to look—as Byron used to do the ocean—upon the lake, which, to my boyish fancy, was a majestic sea.

Ontario, how sweet thy memory brings
 My careless boyhood back to me ;
 When ardent hope on fancy's wings
 Beheld life's future gleam like thee.

At that time the old Spitzenburg was in high favor, in quality the king among apples. The yellow Belleflower, the Genetting and a few other named varieties had their place, and the rest of the orchard was made up largely of a come-by-chance collection. Among the choicer fruits, the cherry was the queen. Occasionally one would come across a farmer with an Yellow egg or a Green Gage plum tree on his premises, and the existence of a pear tree was famed for miles about.

After an absence of twenty-five years, I returned, during the summer just past, to spend a few weeks in that loved, and, in some senses, hallowed home of my boyhood. But what a change! Looking from one of my old haunts, out upon the lake, a soft and silent voice spoke from within, "changed in all save thee." The neighborhood, however, had lost nothing in beauty, and certainly none of its interest and attractiveness for me. Although the woodlands, which used to stretch away to the northward, had nearly all disappeared, the apple orchard on every hand had taken up a considerable portion of the landscape they had left bare. Not the apple alone, for the plum and the pear held a prominent and considerable place. It struck me, indeed, that the section from Whitby to Cobourg and northward, about ten miles, was peculiarly adapted to pear culture, for nowhere in the province did I see trees looking more thrifty, or anything like as heavily laden with fruit. I saw nothing to compare with them at St. Catharines or Hamilton, on my way round about, returning home. The apple orchards in that same tract referred to were likewise uncommonly thrifty; the Baldwin, the Greening and the Spy surpassing anything that I had seen west, except perhaps in the neighborhood of Clinton. The plum does well down there; and why should it not? for there the wild plum seems to be in its nursery home.

Driving northward toward Peterborough and Lindsay, through our good friend Mr. Beal's district, and making closer observations by the way, I was persuaded that Mr. Beal has a good deal of educating to do among the farmers of his vicinity and southward. I never saw a country so full of wild plums, many of them comparing favorably with that humbug, the Weaver, and also wild or chance apples. The roadside and inland fences seemed to be in some localities overgrown with both of them. But I found a great falling off in the better varieties of apples after leaving Port Hope, about fifteen miles, and on to within a few miles of Peterborough and Lindsay. On speaking to some of the farmers of the defect, as I termed it, I found them in a skeptical frame of mind as to the suitability of their soil and locality for pears, cultivated plums and the better varieties of apples. I was convinced of their mistaken idea, the farmer at the front thought that way but twenty years ago. It is true, where I did come across a more progressive farmer and found an excellent orchard upon his place, that his trees were not as thrifty in appearance as further south; but they were sufficiently thrifty and well enough loaded with almost perfect fruit, to convince me that the prevailing belief among the farmers was a mistake. At an altitude of

nearly one thousand feet above Lake Ontario, a few miles south and west of Peterborough, I saw some gorgeous plums, some very excellent pears, and an apple orchard that a Grimsby fruit grower would envy. I will just say in concluding this letter, that I discovered, as I believe, the native home of the Saunders plum. The spot is a few miles from the town of Cobourg; I saw the plum growing in this vicinity and got its history. But I will speak of that in a future letter.

Mitchell, Ont.

T. H. RACE.

STRAWBERRIES AND GRAPES IN NORTH SIMCOE.



NOT having contributed anything to your columns for a long time, I now send you a few particulars of the past season's results. Notwithstanding the terrible drought of last spring, strawberries did fairly well. My best berry this year was *Manchester*. I find it a large berry, bearing immense clusters, and holding out well through the season. *Crescent* came about next in productiveness. *May King* is a fine flavored berry, attractive looking, and does well in a shady place, but does not hold out well, is soon over. In grapes, I grow *Worden*, *Lindley* and *Massasoit*; all did well, with a good sale, but prices were low. I think this would be a good grape growing section. Mine were very much admired, both for size and flavor. One gentleman told me of a relative of his growing 40 acres of grapes near Lake Erie, but declared that my grapes were much larger than those.

My *Russian Yellow Transparent* apple, received from the Association a few years ago, had about seven apples on this year. I was under the impression it was a summer apple, but at this date (November 9th) is quite hard and sound. Perhaps I got the wrong apple. Hoping the circulation of the HORTICULTURIST will continue to increase, as it deserves it,

I remain, Sir, yours truly,

Penetanguishene.

G. J. R.

NOTE BY EDITOR.—Our friend, G. J. R., must have received some other Russian apple by mistake, in place of the Yellow Transparent.

VALUE OF MUCK.—Every owner of a swamp should realize the fact that a ton of the air-dried muck may be worth from three to five dollars for its fertilizing value, as estimated for its nitrogen alone and as compared with the same element in artificial fertilizers. Those who have used it as a litter in stables have found each ton of it to double the value of the manure. Thus, it becomes to the owner worth precisely as much as the manure.—*Southern Floral Magazine.*

THE MASON EVAPORATOR.

IN compliance with your request, I herewith submit a description of the Mason evaporator, made from memory. Size, 4x7x7 feet to eaves; frame made in three sections of 2x2 lumber, one at each end and one in the middle. I enclose the whole of one end with matched stuff, allowing the centre piece or board to extend one foot above the peak; cover the other end same way or within thirty to thirty-two inches of ground, that is the width of a piece of sheet iron. On the side, board to within four inches of the ground; this space is left on both sides for ventilation

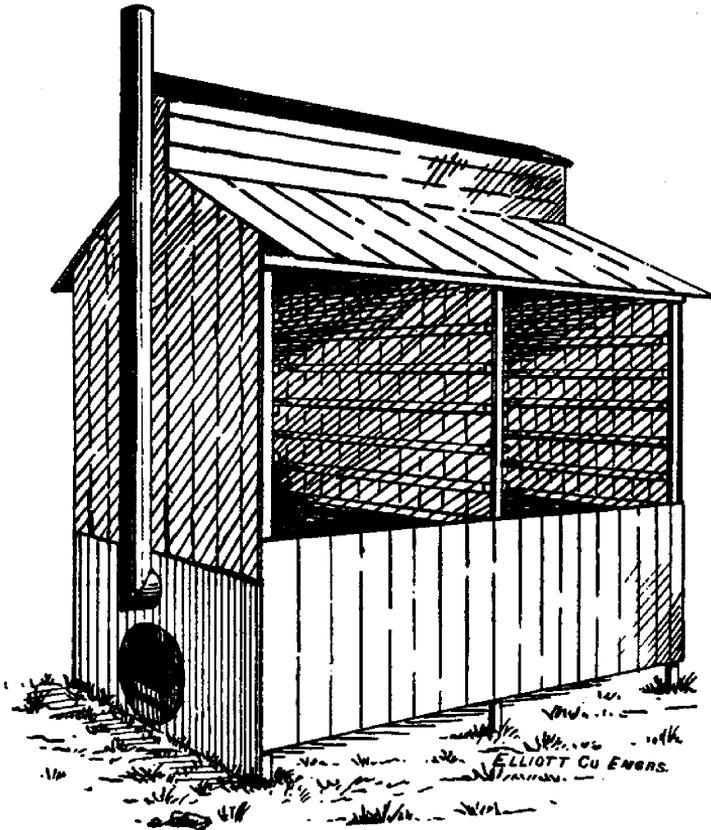


FIG. 60.—THE MASON EVAPORATOR.

and draft of outside air. Slides for two single trays are made in this space under the heater. If draft of cold air is too strong, a strip of board is set against the opening on the windward side. The other side has first a six or

eight inch strip, lengthwise under the eaves, to allow them to extend over without interfering with trays or door. Next, a wide board, say twenty or twenty-four inches wide, hung with strap hinges at lower edge. Here, trays are slipped in four inches apart, on slides nailed on the frames, and on both sides of the middle frame, care being taken to fill up the spaces behind the slats, so that the hot air cannot pass through without going over the apples.

The trays should be only three feet eight inches long, leaving a space for the heat to pass around the ends. Then the first is pushed back, leaving a space four inches in front. The next, leave the space at the back, and so on; this will give a strong current of hot air between the trays, besides what passes over. Trays should have half inch play, so that they will go in and out easily. And the green fruit should be kept on those nearest to the heater, to prevent scorching with



FIG. 61.—CYLINDER.

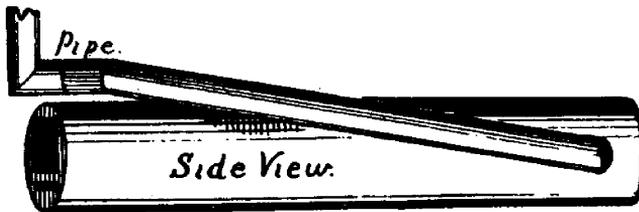


FIG. 62.—SIDE VIEW AND PIPE.

a very hot fire. Trays have to be drawn out to be cleaned. For roof, use matched stuff, leaving four inches open whole length of peak for ventilation. Put wide board on the top of the two centre end boards that extended above peak, and strips on side, so as to leave four inch space on each side. This completes the building.

For drying apples, have strips of pine cut, quarter inch square, and nail on the trays so that one corner is up. For berries, use wine cloth. There should be as many trays as you have space for, then you can have several spread at once.

For heater, obtain two round cast-iron heads, with flange for sheet iron. One has a door for wood and below it a draft hole. Sheet-iron is often used for one head. For this size have them fifteen inches in diameter. Take these

to any tin shop and have a sheet-iron cylinder made, six feet long. Near the back end, have a stovepipe hole made on each side. Put on pipe with elbow running towards the front, and with elevation enough so that they may come together in a 'T' on the top of cylinder; and coming to the outside on the end just above door for wood. Here is an another elbow, and the pipe goes up the end on the outside to a little above the ventilator. This is the best heater known, and you can use any wood, even to pieces of rails six feet long; it will dry ten bushels of apples, or same of Black Cap raspberries, in a day. The lower part of the end where the heater enters and pipe comes out, should be of sheet iron. No grate is needed in cylinder.

Some use eighteen or twenty inch cylinder, and add three feet more to length and have space for three sets of trays. This gives longer return pipe, too, and saves more heat in proportion. When completed this whole thing can be tumbled on a wagon or stone boat and handled anywhere. Whole cost, with wood slats or trays, about \$20.

Port Huron, Mich.

L. B. RICE.

JACK FROST is the best friend we have. He kills off myriads and myriads of germs which otherwise would produce epidemics of disease, and the alternate freezing and thawing of spring and fall, have the same effect upon disease germs, typhoid fever germs for instance, as it would have upon a field of corn after it had sprouted. Germs that will stand either a great deal of cold or a great deal of heat, are killed by a sudden cold snap, after they have been started into life by a few days of warm weather, just in the same way that a field of corn a few inches high would be cut down, whereas, the seed corn itself before the germination would stand a great deal of cold without injury, and also a high degree of heat. The alternations then, of heat and cold in the spring time and fall, are peculiarly beneficent in their influence upon life and health. If people were not so careful to preserve typhoid fever germs in cesspools and wells this disease would be entirely exterminated by the action of changes of the weather upon its germs. Considering these things then, we ought not to find so much fault with the weather, nor be so much discontented with its changes.—*Dr. Kellog, in Fruit Growers' Journal.*

PROPER TREE WASH.—Whitewash on trees is unsightly and less effective for repelling borers than common soft soap. Washed with the soap three or four weeks after blossoming they will show the treatment speedily in greater thrift and vigor. I have often used the following, which I think even better for trunks and larger branches of fruit trees than soft soap: Heat to the boiling point two gallons water and one gallon soft soap. When the soap is all dissolved add one-half gallon good, strong, crude carbolic acid and stir until all is thoroughly and permanently mixed. This, applied with cloth or brush, kills bark lice, keeps off borers, and invigorates the trees.—*Colman's Rural World.*

AMATEUR GARDENING NEAR TORONTO.

LESSONS FROM EXPERIENCE.



IT is some years since I have troubled the regular subscribers of the *HORTICULTURIST* with what I call my experiences. I have been working away in a quiet manner, meeting with disappointments and reaping some experience, but I find that it occupies valuable time for getting that experience, and some more to avail oneself of it. I do not know whether it is fancy on my part, but it does appear to me that the insect pests are upon the increase, yet one always determines to give the shrub, plant or the article attacked one more trial, and, if no change, then to put the mental threat into execution.

My chief amateur gardening consists in the growth of grapes, and it is concerning these I desire to give my experience. During the last four years I have found it difficult to ripen mine thoroughly, though I have them in a good situation.

The months of July and August (the real time for grapes) have invariably been cool, and, although we may have had mild, warm days in September, yet the shortness of the days and the heavy dews are a deterrent. I have about twenty-four varieties. This year I have fruited for the first time the *Early Victor*, *Niagara*, *Empire State*, and *Bacchus*. I find the *Early Victor* the first to ripen, earlier even than the *Jessica*. It is not a first-class grape, and I should only grow it for its earliness. Some of Rogers' blacks are far superior. The *Empire State* is too late to be depended upon here. It is not, in my opinion, so good as represented.

From a report of this grape which I have, I quote, "Flavor sweet, rich and sprightly, without foxiness and among the best." However, I think we have, and have had, many grapes which are far superior in flavor and sprightliness. Personally, I would not recommend it.

The *Bacchus* is only good for wine, and with me the bunches are disappointingly small. The *Niagara* has ripened, but I have not an exalted opinion of its flavor; it is a fine-looking, showy variety, but, when ripe, has a somewhat mawkish flavor. Its appearance, however, is attractive. The *Jessica* is sure to ripen, but is not such a favorite with me as formerly. I find the pulp somewhat difficult to separate from the seed, and the grape lacks richness, and the color is against it, yet I should always recommend it because it is early and of fair medium quality. The bunch and berry are small, which are not in its favor with the general public. The *Delaware* grows well with me, the bunches and berries are large. To my taste it is one of the best cultivated, and I find it productive. If I could only ripen the *Iona*, I should grow more of that variety than any other,

or there is no out-door grape superior to it, either for table or for wine, and I find it to yield more juice than any other variety. I got twenty gallons pure juice from ten vines. Of the Rogers' red varieties, I find the Lindley (No. 9) to be the best. I have Nos. 3, 9, 15, and Salem. No. 3 always bears well with me, and the bunches are fairly compact. No. 9, which is reported as straggling in its bunches as a rule, forms large compact bunches. The Agawam has a large berry, but I find it to be a poor bearer. Salem is late and very apt to mildew and has done so this year, though I like its flavor. I only grow the Herbert among Rogers' black varieties. It is late, but is a handsome, good flavored grape. The Brighton's bear well and is an excellent grape, productive, and, when ripe, is difficult to surpass. The Vergennes succeeds well with me, and this year I had some very large, handsome bunches. One vine had at least fifty bunches on it, more than half of which were very large; it is a good keeper and I like its somewhat unusual flavor. I have had them in March or April. I merely put them in the ordinary grape baskets, with newspapers between each layer, and hang them up in a cool cellar. My good opinion of this grape grows the longer I have it. The Creveling, I find to be a first-class table and wine grape, and difficult to be beaten. I know the books to say that it very seldom sets its bunches, and for that reason is an unreliable variety. My first experience agreed with this. I had two rows of them, each vine ten feet apart each way. Each had two arms, each arm ten feet. Being dissatisfied, I took out every alternate vine and planted with other varieties. To fill up the vacant spaces in the mean time, I extended the Crevelings so that each had forty feet of bearing wood. Since this was done my Crevelings have had the largest and handsomest bunches in the garden. The crop has been enormous, probably fifty or sixty pounds to a vine, and scarcely a bunch not well and closely filled. One of my Lindleys is forty feet long and bears, the whole length, well-formed, large, handsome bunches and bears better than one (ten feet from it) which is only twenty feet long. I have come to the conclusion that some of our varieties require long pruning, and to get them in perfection you require to give them ample space. If so, there is no reason why a Rogers should not bear one hundred good sized bunches. The above is my experience, perhaps another might not find it to be so. A friend told me the handsomest Isabella grape he ever saw was one which had been allowed to cover a large space and bear heavily.

At page 303 of the October HORTICULTURIST the Elvira is recommended for the amateur's garden. I have grown this variety for years, but, if I had only room for a few, would never dream of growing it. I have it for covering sheds. It is hardy, has large leaves, is of rapid growth, a heavy cropper but very late, and not at all a table grape; when ripe it drops fearfully.

I have not been successful with the Concord blood; have had to throw away Moore's Early, Lady Pocklington, etc., and have a poor opinion of them all, but, in other localities, they may be better. I suppose what one seeks is

first, flavor and then, appearance—earliness of ripening being a great advantage. The Delaware, Rogers 3, 9 and 44, Brighton, Vergennes, are all delicious, vary in their flavor and are all showy. I should recommend the Creveling were it not that other experiences are against it, and my good fortune may be unusual I find my grapes to ripen in the following order : Early Victor, Jessica, Rogers 3 and 9, Delaware, Agawam, Brighton, Creveling, Rogers 44 and Vergennes.

My soil is sandy and I use barn-yard manure. I expect the Concord varieties succeed better on clay soil, and, probably, some of the varieties I grow would not succeed so well in heavier soils.

I wish nurserymen would be more careful (to use a mild term), for I have twice ordered a Damson tree, and on each occasion it turned out some other variety. I have a white grape on a vine which was sent to me as a black variety. I have a Mount Vernon pear which ripens early in September, and a Petite Marguerite, which ripens late in October, and a Seckel much larger than a Bartlett. Often I think nurserymen, not having the variety asked for, send what they think suitable, and thereby cause a good deal of annoyance and improper language. It is annoying to wait four or five years and find you have what you did not want. I have a seedling grape three years from seed, which has grown this year two shoots, one twenty feet the other seventeen feet long, and will, I expect, bear next year. The Mills grape you sent me made a short growth, but the wood has not ripened fully. I summer prune my grapes at least four times during July and August, and I think the labor repays me, for I do not suffer much from mildew. About the middle of last August, the leaves of the Delaware were severely attacked with mildew, but the fruit was untouched ; the cause, I expect, was the rain following the spring drought.

Among raspberries, I find the Caroline a heavy bearer—its flavor is not first-class, but it mixes in well with others. The Golden Queen is good and hardy. I summer prune mine freely and have them like currant bushes. Smith's Improved and Downing gooseberries always mildew heavily with me ; they did not bear at all this year. Among plums, I like the German prune, it is not highly flavored, but is a heavy cropper, remains long and late on the trees and has no equal for stewing. The Cory sweet corn smuts so much that it is not worth cultivating. I find apples disappointing ; if you get a good show of blossoms, the greater quantity of the fruit drops off. This is my experience.

Among flowers, I have gone in for the Columbine lately, and this year had twelve or more varieties. Some are very handsome ; one just like the purple passion-flower. Another, like the large, single fuchsia, a new yellow variety, flowered from early June till late in September. Some of the perennial poppies are very handsome ; they flower early, but one advantage is that they come up every year. The Iceland poppies are very pretty and free bloomers. The Canterbury Bell is too much neglected. It is a handsome, showy flower, a free bloomer and easily raised ; it comes up, as a rule, self sown. The Fox-Glove is

also a hardy, showy flower ; the Golden Wave Coreopsis is, I think, the finest ; is a constant bearer and sows itself. Sweet peas, I find, succeed better by sowing very thickly and fairly deep. Some single Dahlias I sowed in the hot bed early in April, and left there ; flowered in July, and in September and October were blooming freely.

I hope you will not think that I have expressed myself too strongly on some things, but what I understand you seek is the experience of your readers.

Deer Park, October 30th, 1891.

ALFRED HOSKINS.

MOORE'S DIAMOND GRAPE.—The *Rural New-Yorker* is favorably impressed with this new white grape which it has had on trial since the spring of 1887. We regard it as, to say the least, among the best of the many white varieties of recent introduction, such, for examples, as Hayes, Empire State, Colerain and Niagara. The berry is of medium size, nearly as large as Concord, the skin is thin, but as firm as that of either of the above mentioned grapes. The pulp is without *any* toughness. It is so tender and juicy, in fact, that seeds (from two to three of small size) separate so readily that their rejection requires little, if any, effort. It is sprightly and sweet *throughout*. Diamond is one of Jacob Moore's seedlings, a pure native from Concord and Iona. The vines, though not so rank-growing as many others, are yet healthy and prolific. The bunches are of good size, the berries set as closely together as desirable and clinging well to the stem. They are rarely shouldered at the Rural Grounds, or, rather, the shoulders are not decided, the bunch being symmetrically broad at the base, tapering downwards. The *R. N. Y.* desires to commend a trial of the Diamond to all its grape-growing readers.

IN pruning gooseberry bushes, keep the branches moderately thinned out, so that light may be admitted to the interior, and do not shorten leading shoots if of strength equal to carrying the weight of the fruits without bending to the earth ; and some of the lower branches should be cut out, and the heads kept in good form, the laterals being shortened back to a few eyes at the base, and all root-suckers removed with the sucker-iron. Scrape the soil from under the bushes, if the gooseberry saw-fly has been troublesome, replacing it with mould from some other part of the garden not likely to contain the larvæ of the fly. When pruning, make a selection of shoots to serve as cuttings to be heeled in without delay, or made at once into cuttings and put into beds.

FEEDING OUR FRUIT AND VEGETABLE CROPS.



OMPLAINTS about the ineffectiveness of applications of bone meal or other plain phosphates or superphosphates to orchards, vineyards, small fruit patches and vegetable gardens are nothing at all uncommon. Yet such negative results are just the ones that should have been expected. Why? Because the substances named have little or nothing

of value, besides phosphoric acid, of which fruit and garden crops require very small quantities.

The following table will show, approximately, what great demands for potash fruit and vegetable crops are making on the soil. This table gives the number of pounds of the principal plant foods removed in a full crop.

FULL CROP, PER ACRE.	NITROGEN, LBS.	POTASH, LBS.	PHOS. ACID. LBS.
Apples, 15 tons	30	45	3
Pears, 10 tons	12	36	10
Plums, 2 tons	16	8	2
Grapes, 4 tons	13	40	12
Berries, 1½ tons	7	7	2½
Sugar Beets, 20 tons	110	72	12
Carrrots, 20 tons	70	150	24
Mangolds, 20 tons	90	160	18
Turnips, 20 tons	75	110	25
Onions	32	26	23

In all this we have not yet taken any account of the plant foods that have gone into the foliage and the wood of the trees and bushes. Here again potash is just the substance needed in considerable quantity. The leaves dropping in autumn may remain on the ground under the trees and bushes, and thus return their constituents to the soil; or they may be blown away by the autumn gales into fence corners, road sides and ditches, and thus be lost to the soil. The prunings also may be burned up in the orchard or fruit patch, giving their mineral constituents back to the soil; or they may be carted off and burned in some back field, where the ashes will do no good to the orchard. Usually there is from these sources at least some loss, chiefly in potash, that, together with what the fruit crop has taken off, will have to be made good again by application of manure.

The table here given may not be more than approximately correct, yet it shows that in fruit crops we remove from the soil an amount of potash, ten, fifteen, and often more times as large as that of phosphoric acid. Many farmers imagine that orchards need no manuring. Perhaps a crop of grass, with all its

large amount of potash, is taken off besides. With such great and incessant drain on the potash supply, it will not be long before that supply is getting too short to allow healthy growth of tree, vine or bush, and a full crop of fruit.

Phosphoric acid is used in only small quantities. For these reasons bone meal, phosphates, etc., alone, are not what is wanted for a fruit tree manure. Potash is needed more than any other substances, and unleached wood ashes is one of the best forms, if not the very best, in which this can be applied. Where good ashes can be bought at ten to fifteen cents a bushel, we will not often be able to get a better or cheaper fertilizer.

Prof. C. C. James, of Ontario, Canada, recommended at a recent fruit growers' meeting the following formula for compounding a cheap and effective orchard fertilizer :

- 40 bushels of unleached ashes.
- 100 pounds of crushed or ground bone.
- 100 pounds of sulphate of ammonia, or nitrate of soda.

This quantity is to be applied at least once in two or three years. It supplies about 120 pounds of potash, 23 pounds of phosphoric acid, and 20 pounds of nitrogen.

Nitrogen, if such be needed in greater quantities, can be obtained in a much cheaper way by the help of crops that are nitrogen gatherers (such as clovers and peas, which should be left on the ground to decay), than by outside applications.

In a majority of cases, perhaps, yard manure is the only form in which plant food is ever given back to the orchard or fruit garden. Twelve tons of it will furnish the 120 pounds of potash needed, but also two or three times as much phosphoric acid and nitrogen, as required for the crops. It will hardly be good economy, therefore, to use yard manure exclusively, especially if we should have to purchase it at anything like full value. The cheaper way would be to apply a smaller quantity of yard manure, say one-half of the named quantity, or six tons, every second or third year, and add to it the missing 60 pounds of potash in the form of unleached wood ashes, corn-cob ashes, cotton seed hull ashes, muriate of potash, sulphate of potash, kainit, etc. Tobacco refuse may also come handy as a source of potash in this emergency. Tobacco dust can be applied directly to the soil ; stems may be either used as mulch, or composted with the yard manure. My ration for the yard manure and potash salts combine would be six tons of the former, and 120 pounds of muriate or sulphate of potash, or 500 pounds of kainit ; and would prefer to apply this every second year at least.

We should fully understand, however, that simple phosphates alone are no manure for fruit crops. Potash, on the other hand, is the chief substance needed, and we cannot easily apply it in too large doses for fruits. A sufficiency of potash makes bush and tree fruits finer, sweeter, better in flavor, and renders the wood more resistant to severe cold.

Vegetable crops usually make still heavier draughts on the potash stores of the soil than fruit crops. In carrots, mangolds or turnips, for instance, we remove over 100 pounds of potash per acre, if the crop be simply a fair one, and perhaps over 200 pounds, if it be a heavy one. This loss, of course, is usually made up by heavy dressings of yard manure, every ton of which returns to the soil about ten pounds of potash. This calls for applications of at least from fifteen to twenty tons of such manure per acre for every crop, and for larger ones, where very large yields are obtained or aimed at. In every event, yard manure will be found a most excellent fertilizer for these crops, and one of the best means to maintain the balance of soil fertility.

The query now comes up, what to do in case that yard manure is not available? Perhaps the grower, following the advice given by expert gardeners, has used bone flour, or other phosphates, for some time as a substitute for yard manure. He may have been very liberal in his applications, using a ton or more per acre; yet in all this dressing he has not furnished a single pound of the potash so urgently needed, only a large quantity of phosphoric acid, for which his crops have little use. Consequently the crops must soon suffer for the want of potash, and perhaps of nitrogen.

Having made the correct soil diagnosis again, the proper treatment is easily prescribed. Apply potash, and perhaps some quickly available nitrogen. My rations, in such case, would be about as follows, per acre, viz.:

1. 50 to 100 bushels of unleached ashes.
200 to 400 pounds of nitrate of soda.

The phosphoric acid, contained in the ashes, would do no harm, and in some cases may be needed.

2. 200 to 300 pounds of sulphate or muriate of potash.
200 to 400 pounds of nitrate of soda.

Cotton seed hull ashes, corn-cob ashes, composts of tobacco refuse, with other substances, can also be used to good advantage for the purpose of furnishing the needed potash.—*From Practical Farm Chemistry, by T. GREINER, La Salle, N.Y.*

THE *Forsythia* is not generally planted where it may be seen to the best advantage. Some years ago we saw one planted on a rather steep hillside or slope, and was strongly impressed with the suitableness of the position. Whether looked at from the little valley below or from the bridge above, the effect was charming. Here was a position for a full development of the natural habit of the plant, and the graceful curves of the long, slender branches that swept the green turf as they were gently swayed by the wind, produced a delightful impression that has yet lost none of its freshness. It is not often that a position of this kind presents itself, but when it does it should be utilized.

HORTICULTURAL EDUCATION.



AT several meetings of our Association, the subject of the study of horticulture in our schools has been more or less touched upon and advocated. Now, while we do not all believe in adding to the number of text books in our public school, or burdening the young with a multiplicity of studies, we believe that something might be done in this direction, which has not yet been attempted in Ontario. A book knowledge of horticulture is not the way to inspire any fondness for gardening or for the tasteful decoration of the house grounds. This mode of teaching has been altogether too much followed out in the pursuit of the study of nature; and the result is that, while many people can speak of the various rock formations which make up the earths, or of the many classes of flowers which decorate our woods, they cannot recognize any of them when they meet them. The only way to teach gardening is by actual work in the garden.

If we had in Ontario a school of horticulture, the sessions which were held during the summer months, and which could give certificates to those who had completed the course in any one department, it would be an opportunity for those teachers, who were so inclined, to spend their summer vacations agreeably in such a place. They would thus become desirable candidates for the mastership of those public or high schools in which these subjects were required to be practically taught. This line of study in the schools could then be carried out by the head master, in the same practical way that he had learned it at the college, and might be a means of recreation to those pupils who were interested in horticulture.

Such a college as the one mentioned might have a series of courses, each to be completed in two months, and a diploma might be given to those who had completed the whole course.

The British Fruit Grower's Association are in advance of us in Ontario in this line. They have prepared a scheme of horticultural education, for use in public schools, which has been favorably received by the Department of Education there. It embraces a three year's course; the first, taking up the principles of plant life; the second, the elementary operations of gardening; the third, the details with regard to those operations in the cultivation of fruits, vegetables, and flowers, etc., which are of primary importance to the cultivator.

In addition to this, the county councils in England send out competent lecturers to lecture in rural districts upon these subjects. This latter work we are accomplishing quite as successfully as our English friends, through the farmer's institutes. The idea of establishing colleges for the training of teachers and for the education of a higher class of pupils, is nothing new. Such colleges are quite common in Belgium, France, Germany and the United States. In connection with the botanical garden of St. Louis, there is an excellent insti-

tution under the management of Professor Trelease. In addition to a library and laboratory, this institution has an extensive garden, in connection with which scholarships have been founded, and to which pupils have access on special terms. Here the principles taught in the lecture are carried out in practice, for six years; the garden pupils, in the earlier part of their work, having to work nine hours daily in the garden.

Our Association has, from time to time, taken up and pressed upon our Government, various matters of importance, and it will soon be time for us to discuss carefully a practical scheme for carrying out our wishes with regard to some system of horticultural education.

GARDENING AND FRUIT GROWING.

While I do not believe in mixing up things too much, yet, from experience, I find it best for the vegetable grower to adopt fruit growing with his business. These seem to go together, for the man who is a good gardener will make a good fruit grower; but would advise the farmer not to undertake to farm for profit and try to grow small fruits and vegetables for market. Of course the farmer should raise his own small fruits and vegetables, but without he has a good deal of get-up about him, he will neglect one or the other, and make a failure at both. The farmer should not neglect his farm work to make a few dollars from garden vegetables or a small-sized patch of strawberries. There is not much money in common truck to the gardener now, except for very early and late, and occasionally when a good market is struck.

The gardener's greatest money crop is the very early one. Then to add small fruits to his business at the close of early crops, the strawberry would come in, then the raspberry, then the blackberry; then summer vegetables would come into market. In running the two together, the gardener stands two chances; if his early crops fail, perhaps his small fruits will not.

But, besides these reasons, there are other reasons why gardening and fruit growing should go together, among which are the tools required; they are about the same, the tillage is about the same, and both require rich soil to make them fairly profitable.

In starting the raspberries, the ground can be used to good advantage in gardening, and not lose the use of the ground until the raspberries come in. Between the rows can be raised early cabbages, radishes or onions, or anything else that is gone before the plants get very high. It is the early crops that pay the gardener, for by planting early a second crop can be grown on the same ground. This is only practicable where plenty of manure is used.

The strawberry bed can be broken up after it is done fruiting, and planted in late cabbage, late cucumbers, or late corn, and the ground is in much nicer condition in the spring by working some late crop in the fall. We lose a great deal by not thinking of such things until too late, and then we plant and work our crop for no good, but for the late frost to take. The tiller of the soil should put more brains in his business, and it will be more successful.—B. in *Agricultural Epitomist*.

DANGER OF COPPER.



CORRESPONDENT has directed my attention to an article in your October issue on the probable danger to the fertility of the soil from the copper present in the solutions used as fungicides.

I am of the opinion that Professor G. McCarthy is greatly mistaken in considering so seriously whatever element of danger there may be from this source, and that, in this article, he is unnecessarily sounding a note of alarm, which, though intended as a warning, may nevertheless prove to be a stumbling-block to many fruit growers.

Properly applied, *i. e.*, at the right time and in correct proportions, the copper fungicides have proved and are proving themselves to be of inestimable benefit in the orchard and in the vineyard. The increased value of the fruit has more than repaid, by a large margin, the outlay for spraying apparatus and materials and cost of application, and I believe the time has come when no fruit grower can afford to ignore this useful means of preventing fungus diseases. That the least important element in successful fruit growing, now-a-days, is keeping in check fungus growths and destructive insects, and, for this purpose, our present hope lies in the application of arsenical and copper solutions. By the more extended use of them the hope is confidently entertained that the loss occasioned by injurious insects and fungi will be greatly lessened year by year throughout the Dominion. I therefore crave somewhat of your valuable space, in order to place before your readers my reasons for thinking that the danger to the fertility of the soil, by the use of fungicides, has been unduly magnified, in the article referred to in your October number.

In the first place, the arithmetic is somewhat astray. Prof. McCarthy, if correctly reported, says that six treatments of sixteen gallons each are required per acre, making a total of 400 gallons, containing 108 pounds of copper sulphate. Should it not read 96 gallons per acre, containing about 26 pounds of copper sulphate?

Secondly, many of the best authorities are now advocating three or four sprayings instead of six, holding that the former are equally efficacious with the latter, if the operation is begun early enough in the season. Granting that each application requires per acre about 30 gallons, the total quantity of Bordeaux mixture per acre for the season would be between 90 and 120 gallons, containing from $24\frac{1}{2}$ to $32\frac{1}{2}$ pounds of copper sulphate.

Thirdly, Bordeaux mixture has to a very large extent been replaced by copper carbonate, either dissolved in ammonia—known as ammoniacal copper carbonate—or applied simply in suspension. When applied in suspension or dissolved, the amount of copper carbonate per 25 gallons of water is two ounces—a quantity containing the same amount of copper as four ounces of copper

sulphate. (Directions for preparing these solutions are to be found in Bulletin 10 of the Experimental Farm series.) Spraying with the fungicides, each acre of vines would receive during the season the equivalent of 1 pound to $1\frac{1}{4}$ pounds copper sulphate. It is thus made manifest that by this treatment—one highly recommended by those who have had experience with it—no such quantity as 108 pounds of copper sulphate is required per acre.

By far the greater amount of the copper that reaches the ground is in a condition insoluble in water, or becomes so after a short time. In the case of Bordeaux mixture, I would point out that copper sulphate, as such, ceases to exist immediately after the addition of the lime. Sulphate of lime (land plaster) and an insoluble compound of copper resulting. The argument, therefore, that the sulphuric acid of the copper sulphate combines with the potash of the soil, which is subsequently lost, does not hold good. The sulphate of lime does, to a limited extent, set free potash in the soil, in a condition assimilable by plants, and on account of this beneficial function, land plaster is often used as a fertilizer. The presence of minute quantities of an insoluble copper compound cannot, in my opinion, affect disastrously the fertility of the soil, nor act as a poison to plants. The acid fluids secreted by rootlets may have the power of rendering such soluble and thus capable of absorption, but unless the soil were heavily charged with copper compounds, no evil effects from this cause need be anticipated. Plants can only absorb into their tissues fluids and gases, and although they have the power to a limited extent of rendering soluble certain substances, insoluble compounds as oxide and carbonate of copper are for the most part harmless and inert.

For many years the application of Paris green (arsenite of copper, insoluble) has been in use for the destruction of the Colorado potato beetle. If the copper of such became and remained easily soluble, thousands of acres would long ere this have been rendered barren.

To sum up, my contention is that the copper which reaches the ground from properly conducted spraying is so minute in quantity and so insoluble in nature, that no fear need be entertained of injury to growing vegetation. It certainly seems to me that it would be very foolish to relinquish so potent a means of preserving our orchards and vineyards and their fruit, before science or practice proclaimed the true nature of such to be a curse rather than a blessing.

Ottawa, Nov. 10th, 1891.

FRANK T. SHUTT,

Chemist of the Dominion Experimental Farms.

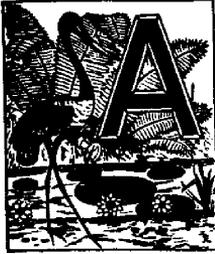
↔ Our Markets. ↔

APPLE MARKET IN BRITAIN.

A cable from Wood, Ormerod & Co., Edinburgh, Scotland, gives the following quotations, Baldwins, 13s. to 15s.; Greenings, 12s. 6d. to 13s. 6d.; Epies 12s. to 14s.; Various colored, 12s. to 15s. Expect an advance.

The Garden and Lawn.

THE OXALIS.



AMONG the most popular window plants is the Oxalis, commonly called Shamrock. This latter name is one which was first given to one of the varieties of oxalis in Ireland, when adopted as the national emblem. The legend is that St. Patrick once plucked one of its tripartite leaves to use in illustrating the doctrine of the Trinity. The term shamrock has also been given to the white clover and black medic; but when we speak of the shamrock, as a house plant, we usually refer to some variety of the oxalis. This plant belongs, botanically speaking, to the Wood Sorrel family, and is very closely allied to the geraniums. The name is derived from the Greek *oxys*, acid, which refers to the taste of the leaves, a characteristic that is very familiar to all Canadian boys and girls, who so often gather it to eat, and, improperly, call it "sheep's sorrel."

Our readers may perhaps be surprised to know how large a family the Oxalidaceæ is, there being some two hundred and twenty species known. Most of them, however, are inhabitants of the tropics; of these, about one hundred are in cultivation in greenhouses, and are much valued for their constancy of bloom. Only two or three, out of all this number of varieties, are hardy enough to be grown out-doors in our climate. Two are natives of Ontario, namely, *O. Acetosella*,



FIG. 63.—COLLECTION OF OXALIS.

or White Wood sorrel, of which the scape is one-flowered, and the petals white, with reddish veins. It inhabits cold woods, and blooms in the spring. It is very interesting.

The other is *O. Stricta*, or Yellow Wood sorrel, and has yellow petals and from two to six flowers on elongated peduncles. This is often found in meadows and cultivated grounds, and is the one most familiar to our readers. It has been naturalized in Great Britain.

These flowers are easy of culture, and, by choosing out of the many varieties those of different colors, a beautiful collection may be made for a hanging basket, such as is shown in the accompanying engraving, for which we are indebted to Mr. A. Blanc, of Philadelphia. So cultivated, they are very effective for a pleasing addition to the flower window.



FIG. 64.—BOWIE'S WOOD-SORREL.

They are propagated by seeds, by cuttings, or by the division of the roots.

Among the many beautiful species which may be commended to the notice of our readers, is one called *O. Bowie*, or Bowie's Wood-sorrel. It is an elegant species, and was discovered in the Cape of Good Hope in the year 1824 and imported to English greenhouses, from whence it has been widely distributed. The flowers are rose red, and, though naturally blooming in August, it is quite constant in its display of flowers. The accompanying illustration, Fig. 64, shows the habit of growth of this desirable variety.

WINTER PRUNING.—The *American Garden* says there are times when practice and theory do not apparently agree, and winter pruning is a case in point. The older gardeners have been taught that fresh wounds do not heal; that disease would certainly set in, causing death or permanent injury to a portion of the tree, at least. Theory certainly teaches that when the inner organism of the wood is exposed, the air at a low temperature will freeze the delicate parts, and death must result; yet we find nurserymen of later years pruning their trees during very cold weather, on account of the personal comfort to themselves, arising from the dry, firm ground to walk on, and no ill effects arise therefrom. The old adage of "pruning whenever your knife is sharp," is not far from the truth after all, although prejudice, at least, will incline us to defer the operation until the mild days of early spring. There can be no injury to trees in winter pruning, if done at times when the wood is not frozen.

✧ New or Little Known Fruits. ✧

SIR,—There appears to have been an unfortunate misunderstanding of my remarks in *Orchard and Garden*, about the Bessemianka and other Russian pears. In saying that I had found no one who had been able to bite into one, I mean because they had not been able to get hold of one to bite. But the CANADIAN HORTICULTURIST seems to understand me as meaning that they were *unbiteable*. From all I can learn, there are a considerable number of them of dessert quality, besides Bessemianka. In a few years we shall know more on this point.

Yours sincerely,

Newport, Vt.

T. H. HOSKINS.

THE MARGIL is an old English dessert apple, of slender growth. Mr. Downing describes it thus:—Fruit small, roundish oblate, yellow, striped with red. Flesh yellowish, firm, aromatic. Good, October and November.

A correspondent sends us three samples of this apple, and it impresses us favorably for dessert, especially for those who delight in the Spitzenburg flavor.

THE black currants are cultivated the least of almost any good fruits in this country, and it seems strange that such a fruit is so generally neglected. The black currants were at one time very popular in England, and troches made from them were universally used by singers and speakers. There is no fruit grown that will make a richer jelly and prove of more medicinal value in cases of colds and sore-throats. The black currants sell for about half as much per pound as the red, but then the bushes yield a much greater weight. If their culture was more extended the demand for them would become more universal, and the time will come when they will be more appreciated by the public. There is certainly profit in currants even though little attention is given to their cultivation. They will pay their way even when planted on poor soil, and not cultivated, but under intelligent culture they bring in a handsome return for all labor bestowed upon them. In respect to the currants many of the new varieties introduced within the past few years are great improvements upon the old sorts, which were rather small in size and less agreeably flavored. Fancy currants put up in tiny packages always command good prices, and the first pickings of either the white or the red varieties cannot fail to bring in returns almost double those which can be secured later.—*Farm Life*.

* Forestry. *

FORESTRY IN BRITISH COLUMBIA.

QUESTIONS.

British Columbia is destitute of such woods as hickory, walnut, ash, rock maple, etc., and it is wanted to know :

1. How long do they take to attain a marketable value ?
2. Value at different ages ?
3. Cultivation ?
4. Soils best suited ?
5. How many to the acre ?

Answers by J. C. Chapais, Author "Canadian Foresters' Guide," St. Denis, P.Q.

HICKORY.

1. Hickory will be 6 inches in diameter on the ground and 20 feet high at 15 years, and has a marketable value long before that.
2. The small trees thinned out when about $1\frac{1}{2}$ inches in diameter are used for hoops, hop poles, etc. The ripe wood is worth about \$16 per thousand feet, board measure.
3. Sow the seed in autumn, as soon as ripe. It is safer to sow where the tree is to stand, on account of the danger of breaking the tap-root in transplanting. However, it can be sown in beds. Then, at one year old, cut the tap-root about eight inches below the surface, by thrusting in a sharp spade very obliquely under the plant, in spring or autumn, where the sap is quit. The hickory is late in putting out its leaves, and requires to be shaded ; so, it is advisable to plant between the rows some quick growing trees, such as ash-leaved maple, red maple, etc. Transplant, when two years old, in rows 10 feet apart, 23 feet in the row. Thin every two years in the row till the trees are 10 feet apart each way.
4. Hickory requires cool, deep and rich soil.
5. When half grown you may keep from 300 to 350 trees per acre, but later they will require more thinning.

WALNUT.

1. Walnut will be 16 inches in diameter on the ground and 30 feet high at 25 years, and will then begin to have a marketable value.
2. The wood of black walnut is worth \$70 per thousand feet, board measure.
3. The cultivation is about the same as for hickory, as to sowing and transplanting.
4. It requires also the same soil as hickory.

5. When about 25 years old, they may be kept at the rate of 300 per acre, but when old the walnut covers so much ground that an acre would be shaded all over by about 20 trees.

ASH.

1. Ash trees will be 16 inches in diameter on the ground and 30 feet high at 25 years, and will begin to have a marketable value long before that for hoops, poles, etc.
2. The wood is as valuable as pine, and is worth \$20 per thousand feet, board measure.
3. The seed must be kept in damp sand during winter, and be sown in spring. It takes sometimes as much as 18 months to germinate. It thrives much better when sown where the trees are to stand. If sown in bed, transplant from the nursery at two years. Plant in rows four feet apart and four feet in the row. Then thin every two or three years, till the trees are sixteen feet apart each way. Sow corn between the rows during the first years, to shade the young trees.
4. Ash requires rather damp, and deep, rich soil. It will never thrive on dry, hard and poor soil.
5. Keep 150 to 200 trees per acre.

MAPLES.

1. Maple is a slow grower. It will be 24 inches in diameter on the ground and 50 feet high at 45 years, but it has a marketable value sooner than that.
2. At about 15 years the rock, or sugar, maple will be 8 inches in diameter, and can be tapped for the sake of getting its sap to make sugar. From that age, the maple bush will yield a good crop of sugar every year, the sap containing about 5 per cent. of sugar. It may, at the same time, be thinned for fire-wood. When older, it is employed for wood-work, and is worth \$15 per thousand feet, board measure. As fire-wood, it is worth \$2.50 per cord.
3. The seed ripens in autumn, and should be sown at once. Transplant at two years and treat as the ash for transplantation. The plant soon shades the ground with its luxuriant foliage, so that the soil does not need to be cultivated very long.
4. Hilly, dry, stony or gravelly soil is what the maple requires.
5. On the average, maples may stand at the rate of about 200 trees per acre. Of course, the measures and prices given in these answers are only approximate and may vary pretty much in different districts and according to the conditions of climate, soil, market, etc.

BONE MEAL AND NITRATE OF SODA.—In reply to our correspondent on page 357, we may add to Mr. Carpenter's reply, that these articles may be purchased from either W. A. Freeman, Hamilton, or from Alfred Boyd, 1 Wellington Street E., Toronto.



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.

SEVERAL hundred tons of grapes were lately seized by the New York health authorities, and ordered to be thrown into the bay. This was done because they claimed that the grapes were poisoned with copper, that spraying with Bordeaux mixture, which had been so widely practiced for the destruction of the mildew, had left a sufficient amount of poison upon the grapes to make them injurious, if not dangerous, to the health of the consumers. Of course, this must be a great loss to the shippers, and a serious consideration to all growers, who, under such circumstances, must either suffer the loss of their whole crop through mildew, or else risk its seizure after being shipped to the town. Naturally enough, the whole matter was referred to the Department of Agriculture, which had advised the growers to use the Bordeaux mixture for mildew, and which would, therefore, be in a measure responsible for any consequent misfortune to those who had followed its advice. Samples of the affected grapes, which had been seized by the New York authorities, were subjected to an official analysis, and the result set the whole matter at rest, so far as any danger resultant from spraying with copper is concerned, and shows how over-fastidious the health officers of New York City were in the execution of their duties. It was found that so weak was the solution of copper, and so little was the percentage which remained upon the skins of the grapes after spraying, that a person would require to eat at one time a ton of grapes, eight times sprayed with the mixture, before he would take into his system enough to constitute a single poisonous dose!

JOHN M. SAMUELS, who has been appointed Chief of the Bureau of Horticulture of the World's Columbian Exposition, is a Kentuckian, and was born in 1848. His father was a nurseryman, and when the son became of age, he set up

for himself in the same line, establishing the Louisiana nurseries in the year 1869. In 1874 he returned to Kentucky and secured a half interest in the Mississippi Valley nurseries, with his father, which he still retains. In addition to this, he has established extensive orchards of fruit in Mississippi, Tennessee, and Florida. At one time he cultivated a total of 160 acres of strawberries alone. All his life, therefore, he has been engaged in horticultural pursuits, both in fruit growing and nursery lines. In addition to this, he has visited the horticultural centres of Europe for the purpose of extending his knowledge of his particular branch of the business. At the New Orleans World's Exposition, he was awarded thirty-five premiums and five gold and silver medals for his displays of fruit. From all this, it would appear that Mr. Samuels is well adapted for the position to which he has been appointed.

RITSON PEAR.—On page 156, a subscriber inquires concerning the merits of the Ritson pear. At that time we had not seen any of the fruit, but to-day (Oct. 31st) a correspondent sends us three samples in prime condition for eating.

The pear is medium in size, pyriform, skin greenish yellow, sprinkled with very small russet dots and a red cheek on the sunny side; flesh white, rich, juicy, buttery and fine-grained; calyx open, in a very shallow basin; stem three-quarters of an inch long, attached to a flattened end, which can hardly be called a cavity; a fine dessert pear; season probably October and November.

The tree is a seedling, planted by the late John Ritson, of Oshawa, one of the first settlers in that vicinity and a prominent farmer and fruit grower. The tree is about seventy years old and has never been attacked by blight, and is a regular and abundant bearer.

The samples before us are from a tree which was planted twenty-five years ago, a sucker from the original tree, and which now measures twenty inches in diameter and thirty feet in height. This year it produced nearly thirteen bushels of first-class fruit. For canning and pickling it is counted as the very best by the owner of the tree.

KEEPING CABBAGES.—The *Rural Canadian* advises the following method for keeping cabbages in a cellar for winter use: Trim off all broken leaves. Set two parallel boards, six inches wide, on the cellar floor next the wall, and on these place two rows of cabbages with their stems towards the wall—but not crowded. Cover with garden soil or dry sand. These should be looked over through the winter in order to take out any which show signs of decay.

NOTICE TO ALL SUBSCRIBERS FOR 1891.—The index for volume XIV of the CANADIAN HORTICULTURIST will be sent out in January number. Volumes bound in beautiful cloth binding, handsome design, ink and gold, for 50 cents.

✦ Question Drawer. ✦

MYROBALAN STOCK FOR PLUM TREES.

SIR,—I value your magazine for the timely hints and accurate statements, some of which I have verified in my own experience. Please inform me what value growers in Ontario place upon the Myrobalan stock for budding, and name localities where planted. I believe they have a tropical origin and may not be sufficiently hardy enough for the plum sections of Ontario. Some years ago, I purchased 150 plum trees from the United States, but in a year or two the bark near the ground separated from the wood and all are now gone. What do you think is the trouble?

W. C. ARCHIBALD, *Wolfville, N. S.*

Reply by S. D. Willard, Geneva, N. Y.

The Myrobalan is now almost the only stock used for growing plum trees, for the reason that other stock cannot be obtained. The time was when in Western New York we used almost entirely what is known as the "Horse Plum" seedlings, but the difficulty in growing seedlings of that kind has so increased of late years, that it has been almost impossible to obtain them. The plum is worked with great success on the Myrobalan and grows a fine, strong tree in the nursery. We have had a good deal of experience in the use of this stock of late years. At the same time I very much doubt whether the tree has as much value for orchard purposes as when grown upon the Horse Plum stock.

In addition to the above, Mr. W. Holton, of Hamilton, says: "I suppose that three-quarters of all the plum trees now offered for sale are worked on the Myrobalan stock. We have used it more or less for several years, and find that it takes the bud readily and makes a good merchantable tree in two three years.

SUCKERS AS STOCK FOR PROPAGATING PLUM TREES.

SIR,—What is the objection, if any, to setting out young plum trees that have sprung up from old roots? During the present season there are dozens of these which have sprung up in my garden and are now 2½ and 3 feet high, and about as large as one's little finger. I thought of putting out these strong, handsome, little shoots, and grafting them.

J. HOWE BENT, *Chilliwack, B. C.*

Reply by W. Holton, Hamilton.

The chief objections to using suckers as stock for propagating plum trees, are the increased tendency to sucker again and the habit of throwing out roots on one side only. Healthy seedlings can be obtained at such reasonable rates, that there seems to be no reason for using suckers.

THE CANNA.

SIR,—I received two bulbs of the Canna from the Fruit Growers' Association. One of them is growing vigorously in a pot in the open air. The leaves, however, partly die off after a while. Does the wind hurt them in swaying the leaves, or should it be kept in the house only?

JOHN MUELLER, *Waterloo, Ont.*

The Canna is a plant very easily propagated, either from seeds or by the division of the bulbs. If by the latter mode, each portion should have both buds and roots attached. The pieces may be planted in four-inch pots and grown in the heat, but this is not necessary. They will also succeed if planted in the open ground. Those which have been started in pots should be planted in the open ground as soon as the weather is fit. Plant singly in a good depth of rich soil with plenty of moisture. They ought to have warm, sheltered location, where the wind will not play too freely with the leaves. In the autumn, after blooming, they should be lifted and stored away in boxes or pots of earth for another season.

BOOK ON SHRUBS.

SIR,—Could you tell me where I can procure a small book on the cultivation of shrubs?
M. F. SMITH, *Port Hope, Ont.*

Not knowing of any book especially devoted to this subject, we referred the inquiry to Mr. Elias Long, of LaSalle, N. Y., editor of the *Popular Gardening* knowing that he has written a good deal under this head.

He says that in several of his books, which have been published, he has paid more or less attention to this question, and refers us to his larger work—"Ornamental Gardening for Americans"—which can be procured from the Rural Publishing Co., for \$2; also to a more recent work of his, entitled "Landscape Gardening," which is sold by the same concern for 50c.

SHOT LEAF FUNGUS.

SIR,—I have been a subscriber to your valuable journal for a number of years and with profit. I would be glad if any of your readers could tell me what is the trouble with my plum trees and if there is a remedy. The leaves rust, dry up, and fall off after the middle of August. Some of them are now (Sept. 7th.) as bare of leaves as in winter. German Prunes are the worst effected. I feel anxious about the trees as I am just starting fruit growing for a living. I enclose sample of the leaves.

ALEXANDER JOHNSON, *Collingwood, Ont.*

We shall be glad if any of our readers will give their experience under this head. The leaves sent us by our correspondent are affected with what is known as Shot Leaf fungus (*Septoria Cerasina*), which was described in the *CANADIAN HORTICULTURIST* of 1890, page 315, to which we would refer our readers.

PLANT DISTRIBUTION FOR 1892.

THE particular attention of our readers is invited to the very valuable LIST OF TEST PLANTS to be sent out for trial in the Spring of 1892. It will of course be understood that the Fruit Growers' Association guarantees nothing concerning the merits of the trees or plants. They are sent out to be tested by the members and by all subscribers in order that reliable reports concerning them may be given to the public.

1. **Moore's Diamond.**—The new White Grape, described with colored plate in Volume X, p. 97. One year old plant.

DESCRIPTION.—Originated by Isaac Moore. Described as a pure native; bunch large and compact; berry about size of Concord; color, greenish-white, with a yellow tinge when fully ripe; flesh juicy, almost without pulp; quality very good. Fine, vigorous and productive. (Nurserymen's price, \$1.50.)

2. **The Idaho Pear.**—One to two feet high. This pear was described, and illustrated with a colored plate at the beginning of Volume XII of this journal. The fruit is very large, delicious in quality, and ripens in September and October.

3. **Four Plants of Woolverton Strawberry.**—This is one of Mr. John Little's seedlings, which he values very highly.

4. **Gipsy Girl.**—A new Russian Apple, imported by the Central Experimental Farm with a view of extending apple culture further north. Very handsome and reliable Winter apple for the north. Placed on our list by kindness of Director Wm. Saunders. Or one tree of *Round Borsdorfer*, or of *Blushed Calville* (excellent hardy varieties for the North, and which may be very valuable anywhere in Ontario), or of *Silken Leaf*, or of *Little Hat*. These are from new importations by the Experimental Farm, which are thought to have special value for the cold North.

5. **Two Plants of Aquilegia Bergeriana.** This is a very fine deep blue Columbine, obtained by the Central Experimental Farm from Dr. Regel, Director Botanical Gardens, St. Petersburg, Russia, some years ago. It is a very early bloomer and is quite distinct from other varieties, and blooms before the others are in flower. It is not liable to become mixed, hence it can be grown from seed from time to time without difficulty and kept pure. A fine hardy perennial. Placed on our list by kindness of Mr. Wm. Saunders.

6. **Hall's Japan Honeysuckle.**—This is one of the most satisfactory and hardy of the honeysuckles. It is nearly evergreen; flowers, pure white, produced abundantly; fragrant like a Jasmine.

7. **Two Chrysanthemum Plants, viz.:**—Louise Canning, white; and Mrs. Richard Elliot, red.

8. **Two English Violets.**—Napoleon, double blue; Princess Louise, double white.

9. **A Year's Numbers of the Canadian Horticulturist.**—Either vols. I, II, III or IV.

All selections should be made at the time of sending in the subscription money.

Anyone sending in new names may have an additional choice of plants for each new name, in place of commission, if preferred.

A beautifully bound volume of the CANADIAN HORTICULTURIST, worth \$1.25, sent free, in place of three premiums, to any person sending in three new names, for his commission. This is in addition to the test plants selected by the subscriber.

New subscribers for 1892, whose names are forwarded before January 1st, may have the current month's numbers free. Address,

L. WOOLVERTON,

Secretary of the Ontario Fruit Growers' Association,

GRIMSBY, ONTARIO.