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MAY, 1894.

The Canadian Horticulturist.

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EDITED BY L. WOOLVERTON M.A.

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BEN DAVIS.

THE

Canadian Horticulturist

VOL XVII. 1894. No. 5.

THE BEN DAVIS.

PERHAPS there is no apple about which more difference of opinion exists than the Ben Davis. Like the Kieffer pear, the Crescent strawberry, the Lombard plum, and the Concord grape, we might say of the Ben Davis that, while far from being the first of its class in quality, it stands at the head for productiveness and consequent profit. The early orchardists in Ontario planted their commercial orchards with the Baldwin, but now find that in many localities instead of being the most productive, it is the least so; orchardists in the Western States, on the other hand, have planted the Ben Davis in their commercial orchards, and in fruitfulness at least it has not disappointed them.

In Southern Ontario many of the best orchards of Baldwin have been almost barren for the last half decade of years, and it is for this reason we bring under the notice of the owners an apple which is not a failure in this respect at least. The late P. C. Dempsey, who was our director for Prince Edward Co., had great confidence in the Ben Davis, and in our report for 1893, page 7, he says, "I can make more money out of one tree of the Ben Davis than I can off fifty Kings. We have a lot of trees of the latter variety twelve years planted, and have never realized twelve barrels off them, but we have taken that many off a single tree of the Ben Davis. For market value, we find that in England the Ben Davis has sold as high as 32/ a barrel."

At our meeeting in Peterboro' last December, Mr. Alex. McNeill championed the Ben Davis. He said, "The Ben Davis is like a piece of cork in the

fall or winter, but in the months of January, February and March, a well grown Ben Davis is just as nice an apple as I want to eat, and I am very particular in my choice of an apple, too. As for profit, I believe there is no apple grown that will give you as much." Mr. Stenson, of Peterboro', said, "I planted seventeen trees of the Ben Davis sixteen years ago. They began bearing in six years, and have been bearing ever since. This last year I took eighty-six bushels off those trees—eighty of them good salable apples. I would sooner grow the Ben Davis at 50 cents a bushel than any other apple at $1.00." Mr. Stenson's method of handling them is to store them until the 20th of May, when he ships them to England, and gets the top price in the market.

On the other hand, it is urged by some apple growers, whose experience is equally reliable, that when planting an orchard we should choose varieties of better quality than the Ben Davis, because the time will come when quality must rule in the markets. At our meeting in Windsor, Mr. Elliot spoke as follows concerning this apple, "No doubt the Ben Davis sells well, but I think a man who charges his neighbor $2.00 for a barrel of Ben Davis robs him of $1.75. It may do very well for hotel keepers, for one barrel of them will last a first class hotel as a dessert apple about three months, whereas a really good apple will not last a week. If you send a boy into the cellar for an eating apple, he never brings a Ben Davis, and if your wife wants to please you with an apple dumpling, she does not choose the Ben Davis."

Mr. A. McD. Allan said at the same meeting, "Although good prices are now paid in England for the Ben Davis, it is bound to come down in value before very long. The fact is they are looking into the quality of apples in those markets more closely than the consumers in our own markets."

The estimation in which this apple was held by our fruit committee is shown by the rating they gave it, viz., dessert 0, cooking 1, home market 8, foreign market 9;—only 18 points out of a maximum of 40.

At Chicago the Ben Davis was one of the finest looking apples shown by Idaho, Oregon and British Columbia. As grown in those quarters, the apple is twice the size of those grown in Ontario, and more highly colored; while the Spy, one of our best quality apples, is a miserable failure. No wonder that the Ben Davis is the great apple of the west.

Our colored plate shows a large sample of the Ben Davis, too large to be grown in Ontario, but scarcely as large as those shown at the World's Fair by British Columbia. We cannot better describe this variety than by quoting from A. J. Downing's great work. He says, "The origin of this apple is unknown. J. S. Downer, of Kentucky, writes that old trees are there found from which suckers are taken in way of propagating. The tree is very hardy, a free grower, with very dark reddish brown, slightly grayish young wood, forming an erect round head, bearing early and abundantly. In quality it is not first rate, but from its early productiveness, habit of blooming late in spring after late frosts, good size, fair even fruit, keeping and carrying well, it is very popular in all the south-west and west.

Fruit medium to large. Form roundish, truncated conical, often sides unequal. Color yellowish, almost overspread, splashed and striped with two shades of red, and dotted sparsely with areole dots. Stalk medium, rather slender. Cavity narrow, deep russeted. Calyx partially open. Basin wide, abrupt, slightly corrugated. Flesh white, tender, moderately juicy, pleasant subacid. Core medium to large. Good to very good. December to March.

EVAPORATORS.

REFERRING to evaporators and evaporating fruit, a subject which has received some attention in the HORTICULTURIST, I am of the opinion that it will pay every farmer who has an orchard to own an evaporator of his own, not that he will make lots of money out of it, but because it is one of the things necessary to make an orchard more profitable. To illustrate:—two years ago a strong wind blew down a large quantity of my fruit early in the fall. I could not sell it for anything and I decided to evaporate it, and did so. In season I sold my unevaporated fruit and also my evaporated wind-falls, and the latter netted me more per bushel than my best unevaporated fruit. The evaporator I used had a capacity of seven to nine bushels per day. I believe many poor evaporators have been sold. I bought one several years ago, which disgusted me, and in this connection I beg to say that a fruit grower here, who has used different kinds of evaporators, has invented a good evaporator, suitable for farmers and fruit growers, which is simple and cheap. Some of its good points are economy in fuel, quick evaporation and first quality of product, no waste of heat by inserting, removing, and adjusting trays. If you want nearly an even heat over all the trays you can have it. If you want a stronger heat on part of the trays than others you can have it, or if you want nearly all the heat on the one tray, or on any number of trays, you can have it, all of which is important in practical work, and a separate bleacher is not required. This evaporator, as applied to cook stoves too, will really be a valuable and economical machine for many farmers. It utilizes the heat in the stove in its own way, and will evaporate several baskets of fruit per day, or as much as some evaporators with heaters attached. Sits on the back part of the stove, out of the way, leaving the front half free for other use. The escapement flue will fit a stove pipe and may easily be connected with cook stove pipe, thereby avoiding objections to bleaching the fruit in the house.

It is proposed to manufacture these evaporators as cheaply as possible, cheaper than others of same capacity, and as soon as satisfactory arrangements are completed and patents secured. Any wanting them for next fall's use will need to give their order some length of time before wanted.

Stevensville, Ont. P. H. HENDERSHOT.

PARIS GREEN WITH THE BORDEAUX MIXTURE AND AMMONIACAL COPPER CARBONATE.

THE efficacy of certain spraying fluids for combating injurious insects and fungus diseases of plants is now well established and recognized. Of the insecticides, Paris Green in water is perhaps the most important; of the fungicides, the Bordeaux mixture and the Ammoniacal Copper Carbonate are the most widely known and used.

At times, more especially in orchard work, both an insecticide and a fungicide are required. Consequently, there have been efforts made for several years past to prepare a fluid which would combine these functions. The application of such a fluid, if efficaceous, would result in a considerable saving of time and labor. The simplest method, and one that at once occurs to those using spraying fluids, is to add the Paris Green, in the proper proportion to the fungicide. Such fluids or mixtures using Bordeaux and Ammoniacal Copper Carbonate, have been tried for several seasons, and, as might have been expected, various results have been reported. In some instances, failure to protect from the ravages of insects and fungous foes is said to have attended these trials, and further that the failure is to be attributed to a solution or decomposition of the Paris Green in the fungicide fluid. To ascertain if such a decomposition or solution actually occurred, the following experiments were made:

1. Diluted Bordeaux mixture with Paris Green was prepared from the formula

Copper Sulphate	4 lbs.
Lime	4 lbs.
Paris Green	4 oz.
Water	50 gallons.

The freshly burnt lime was slaked and stirred with water until the whole was of the consistency of cream. This was then stirred into a vessel containing the dissolved Copper Sulphate and made up to the required volume. The Paris Green was then added and the mixture thoroughly stirred.

(*a*) After keeping the mixture thoroughly agitated for two days, a portion was withdrawn and filtered. The clear filtrate was then submitted to careful chemical analysis, but not a trace of arsenic could be detected.

(*b*) For a further period of a week, the mixture was kept agitated and then another portion withdrawn and filled. Analysis did not reveal the presence of arsenic in the filtrate.

We are therefore justified in concluding that under the conditions here stated no decomposition or solution of the Paris Green takes place in the Bordeaux mixture, and therefore that the efficacy of this arsenical poison, as an insecticide, is not thereby lessened.

2. Ammoniacal Copper Carbonate was prepared according to the following formula :

Copper Carbonate	5 oz.
Ammonia	2 qts.
Paris Green	4 oz.
Water	50 gallons.

The Paris Green was stirred in after the dilution to the full amount, viz., 50 gallons. This precaution was taken, as *strong* ammonia dissolves Paris Green readily. It was noticed that the Paris Green very quickly subsided in fluid, when the latter was allowed to remain at rest.

(*a*) The fluid with the suspended Paris Green was thoroughly shaken for two days and a portion withdrawn and filtered. On analysis it was shown to contain *traces* of arsenic.

(*b*) For seven days more the mixture was continually agitated. A portion was then filtered and analysed, the result showing that *heavy traces* of arsenic were in solution. It was clearly proved, however, that no appreciable quantity of the Paris Green had been dissolved.

Consequently, as in the case of the Bordeaux mixture, Paris Green may be added to the Ammoniacal Copper Carbonate without its insecticide qualities being injured or materially lessened.

It may be pointed out that successful spraying depends upon many factors, only one of which is the quality or composition of the fluid. Carefulness, thoroughness, the *time* and frequency of application, and the character of the season, have all a marked effect upon the result.

FRANK T. SHUTT, M. A.

Chief Chemist Dominion Exp. Farm.

Exposure for a Rose Bed.—A friend inquires what is the best exposure for a rose bed. We would say that any exposure is good enough, the main point being to have the soil in proper condition, which is that it shall have drainage and be well enriched. On a level surface especially must the drainage be well attended to, but this is scarcely less necessary on hillsides even of considerable declivity, if the soil is heavy. A slope to the east or to the north, we think, most desirable for roses, for the reason that the blooms will last longer and there is less danger from severe freezing in winter. A southern exposure might give a little earlier bloom, but it would be of shorter duration, and the danger of injury in winter is greater, and the same is true of a western exposure. But if the circumstances should decide any one of these exposures it should not exclude the pleasure of a rose bed. Experience might vary with the different exposures, and varieties which might succeed with one might not be so well adapted to another; but this is true in regard to all locations. The rose is so beautiful and desirable, and with moderate attention will bloom so generally that it should be universally planted, and that not sparingly.—Vick's Magazine.

WESTERN NEW YORK FRUIT GROWERS—III.

Pear Scab—Grape Rot—Bordeaux Mixture, etc.

NOTHER prominent gentleman, whose presence contributes greatly to the meetings of this Society, is Prof. L. H. Bailey, whose portrait we here give our readers. Born at South Haven, Michigan, in 1858, in the fruit centre of that State, he was reared on a fruit farm, and thus early in life became thoroughly acquainted with the practical side of fruit growing. In 1882 he graduated from Michigan Agricultural College, after which he was fortunate enough to be associated for two years with the greatest of American botanists, the late Professor Asa Gray of Harvard. Then for four years he was Professor of Horticulture and Landscape Gardening at the Michigan Agricultural College.

After a visit to Europe, he was appointed in 1889 to the position he still holds at Ithaca as Professor of General and Experimental Horticulture at Cornell University. His bulletins are the most attractively printed of any that come to our table, and have a direct, practical bearing upon the work of the fruit grower. His reputation is rapidly growing, because of his frequent valuable publications, such as "Annals of Horticulture," "Horticulturist's Rule Book," "The Nursery Book," "Cross Breeding and Hybridizing," "American Grape Training," "Field Notes on Apple Culture," "Talks Afield,' etc. We hope for the pleasure of his presence at some of the meetings of our own Association in the near future.

Prof. Beach, of the Geneva Experiment Station, gave the result of his experience during the past season in spraying for pear scab, and, as they are quite opportune, we will give some account of his statements.

The Bordeaux mixture was the most satisfactory liquid used; its cost was only about one-half cent a gallon, and the pecuniary profits from its use were very evident when it was faithfully applied. From careful computation he estimated that a profit of $50 accrued from its repeated application to one hundred pear trees, thirty-five years planted. Fruit from some Seckel trees, for instance, that were faithfully sprayed, sold for $6 per barrel, while that from trees unsprayed averaged only 90 cents a barrel. Not only was the fruit itself comparatively free of scab or deformity, but it also hung better on the trees during wind storms, while the trees themselves were more vigorous and the

foliage more healthy than that of the trees unsprayed. This success, however, can only be attained by early and faithful application, for the action of the poison is largely preventive by destroying the life germs as they germinate, and by coating over the fruit and foliage so that they become impenetrable by spores of diseases. He also found an increasing benefit year by year from spraying,

FIG. 655.—PROF. L. H. BAILEY.

because the disease germs seem to grow gradually less in number. The recipe for making Bordeaux mixture, given by Prof. Beach as the latest, was as follows :

Dissolve four pounds of copper sulphate in water, nearly filling a forty-five gallon cask. Next make a whitewash or cream of freshly slaked lime. Have on hand a small bottle containing a saturated solution of yellow prussiate of potash (ferro-cyanide of potassium) in water. As you add the lime to the copper sul-

phate water, apply the test from time to time by adding a drop from the small bottle. As long as you notice a change of color in the mixture, more lime must be added. When further addition of the drug ceases to change the color, the mixture contains lime enough. The necessity of straining can be avoided by using only the clear milk of lime, not the settlings. Freshly slaked lime is always to be preferred. It sticks better, and it does not take so much lime. Its object is simply to neutralize the acid in the sulphate. The mixture must be constantly stirred while being applied. For close work, there is no better spraying nozzle than the Vermorel. A bamboo extension may be used with which to get the nozzle into the tree. A weak mixture put on thoroughly is better than a strong mixture applied in a hap-hazard way.

For very high trees he commended the MacGowan nozzle, made at Ithaca, N.Y. A stop cock in the hose near the ground would be found a most important provision. Some people complain of the difficulty of dissolving the copper sulphate; this could be overcome by using boiling water.

He begins spraying with the Bordeaux mixture when the buds first swell, and at this time a smaller amount of the mixture per tree is required, because there is no foliage to cover. In his thirty-five-year-old orchard he used about three gallons per tree for the first application, but later on it was necessary to use more than double the quantity.

For black rot and mildew of the grape, Prof. Waite, of Washington, stated that five or six applications of the Bordeaux mixture seem necessary to secure certain results, but he had demonstrated that black rot was absolutely controllable. Of ten bunches of Concord grapes sprayed, 95% were perfect, but of ten under the same conditions left unsprayed, 95% were worthless. He makes the first application when the young shoots are six or eight inches long; an earlier application is useless.

Anthracnose he found harder to deal with, but still largely preventable if application is made every ten or fifteen days during the growing season.

For gooseberry mildew, potassium sulphide was found to be more serviceable than was the Bordeaux mixture.

Mr. S. D. Willard gave the following list of plums as, in his experience, the best six market varieties: 1, Bavay, Green Gage or Reine Claude; 2, Hudson River Purple Egg; 3, French Damson; 4, Fellemberg; 5, Grand Duke; 6, Monarch. In extending the list to twelve, he would add: Field, Bradshaw, Gueii, Golden Drop, German Prune and Peter's Golden Egg.

Relation of Phosphates to Fertilizers.—The fact that phosphorous compounds are absolutely necessary for the maturity of plants indicates that phosphates are essential to complete fertilizers. Soils become deficient in phosphates more quickly, in general, than in other fertilizing ingredients, and, therefore, when the use of fertilizers is needed at all, phosphates are generally required, whether with or without other fertilizing elements.

SPRAY CALENDAR.

For aphides or plant lice use kerosene emulsion on all plants.

PLANT.	FIRST APPLICATION.	SECOND APPLICATION.	THIRD APPLICATION.	FOURTH APPLICATION.
APPLE (*Scab, codlin moth, bud moth.*)	When buds are swelling, copper sulphate solution.	Just before blossoms open, Bordeaux. For bud moth, Arsenites when leaf buds open.	When blossoms have fallen, Bordeaux and Arsenites.	8–12 days later, Bordeaux and Arsenites.
CABBAGE (*Worms, aphis.*)	When worms or aphis are first seen, Kerosene emulsion.	7–10 days later, if not heading, renew emulsion.	7–10 days later, if heading, hot water, 130° F.	Repeat third in 10–14 days if necessary.
CHERRY (*Rot, aphis, slug.*)	As buds are breaking, Bordeaux; when aphis appears, Kerosene emulsion.	When fruit has set, Bordeaux. If slugs appear, dust leaves with air-slaked lime. Hellebore.	10–14 days, if rot appears, Bordeaux.	10–14 days later, Ammoniacal copper carbonate.
CURRANT (*Mildew, worms*)	At first sign of worms, Arsenites.	10 days later, hellebore. If leaves mildew, Bordeaux.	If worms persist, Hellebore.	
GOOSEBERRY (*Mildew.*)	When leaves expand, Bordeaux.	10–14 days later, Bordeaux.	10–14 days later, Ammoniacal copper carbonate.	10–14 days later, repeat third.
GRAPE (*Fungous diseases*)	In Spring when buds swell, copper sulphate solution.	When leaves are 1–1½ inches in diameter, Bordeaux.	When flowers are open, Bordeaux.	10–14 days later, Bordeaux.
PEACH, NECTARINE (*Rot, mildew.*)	Before buds swell, copper sulphate solution.	Before flowers open, Bordeaux.	When fruit is nearly grown, Bordeaux.	5–7 days later, Ammoniacal copper carbonate.
PEAR (*Leaf blight, scab, psylla, codlin moth.*)	As buds are swelling, copper sulphate solution.	Just before blossoms open, Bordeaux. Kerosene emulsion when leaves open, for psylla.	After blossoms have fallen, Bordeaux and Arsenites. Kerosene emulsion if necessary.	8–12 days later, repeat third.
PLUM (*Fungous diseases, curculio.*)	When buds are swelling, copper sulphate solution.	When blossoms have fallen, Bordeaux. Begin to jar trees for curculio.	10–14 days later, Bordeaux.	10–20 days later, Bordeaux.
POTATO (*Blight, beetles*)	When beetles first appear, Arsenites.	When vines are two-thirds grown, Bordeaux and Arsenites	5–15 days later, Bordeaux.	
QUINCE (*Leaf and fruit spot.*)	When blossom buds appear, Bordeaux.	When fruit has set, Boxdeaux.	10–20 days later, Bordeaux.	10–20 days later, Bordeaux.
RASPBERRY, BLACKBERRY, DEWBERRY (*Anthracnose.*)	Before buds break, copper sulphate solution.	During summer, if rust appears on leaves, Bordeaux.	(Orange or red rust is treated best by destroying the plants.)	
STRAWBERRY (*Rust.*)	As first fruits are setting, Bordeaux.	As first fruits are ripening, Ammoniacal copper carbonate.	When last fruits are harvested, Bordeaux.	Repeat third if foliage rusts.
TOMATO (*Rot, blight.*)	At first appearance of blight or rot, Bordeaux.	Repeat first if diseases are not checked.	Repeat first when necessary.	

—Cornell University Bulletin.

Apples, grapes, peaches, pears and plums may need a fifth and even a sixth application, for the best success.

FORMULAS.

Bordeaux Mixture.

Copper sulphate, ... 6 pounds.
Quicklime, ... 4 "
Water, ... 40 gallons.

Dissolve the copper sulphate by putting it in a bag of coarse cloth and hanging this in a vessel holding at least 4 gallons, so that it is just covered by the water. Use an earthen or *wooden vessel.* Slake the lime in an equal amount of water. Then mix the two and add enough water to make 40 gallons. It is then ready for immediate use. For rots, moulds, mildews, and all fungous diseases.

Ammoniacal Copper Carbonate.

Copper carbonate, ... 1 ounce.
Ammonia, ... enough to dissolve the copper.
Water, ... 9 gallons.

The copper carbonate is best dissolved in large bottles, where it will keep indefinitely, and it should be diluted with water as required. For same purpose as Bordeaux.

Copper Sulphate Solution.

Copper sulphate, ... 1 pound.
Water, ... 15 gallons.

Dissolve the copper sulphate in the water, when it is ready for use. *This should never be applied to foliage, but must be used before the buds break.* For peaches and nectarines, use 25 gallons of water. For fungous diseases.

Paris Green.

Paris green, ... 1 pound.
Water, ... 250 gallons.

If this mixture is to be used upon peach trees, 1 pound quicklime should be added. Repeated applications will injure most foliage, unless lime is added. *Paris green and Bordeaux can be applied together with perfect safety.* The action of neither is weakened, and the Paris green loses all caustic properties. For insects which chew.

London Purple.

This is used in the same proportion as Paris green, but as it is more caustic it should be applied with the lime, or with the Bordeaux mixture. Do not use it on peach or plum trees. For insects which chew.

Hellebore.

Fresh white hellebore, ... 1 ounce.
Water, ... 3 gallons.

Apply when thoroughly mixed. For insects which chew.

Kerosene Emulsion.

Hard soap,	½ pound.
Boiling water,	1 gallon.
Kerosene,	2 gallons.

Dissolve the soap in the water, add the kerosene, and churn with a pump for 5–10 minutes. Dilute 10 to 15 times before applying. For insects which suck, cabbage worms, and all insects which have soft bodies.—Bulletin of Cornell University Experiment Station.

Berry Basket Holder.—The accompanying illustration shows my device for holding two-quart boxes while picking raspberries, which has given me great satisfaction. Everyone who sees it in use praises it, and pickers take to it like a duck to water. B is a ⅜-inch iron rod drawn to a point so as to be easily inserted into the earth. It has a handle, A, and is flattened at E E, where two holes are made to screw the rod to the box. The bore should be made large enough for the boxes to be taken in and out easily. The two slats shown at D D are better to hold up the boxes than a solid bottom. The front of the box is cut away so as to facilitate handling the boxes when full of fruit. The box should be made of light, thin wood, but the back piece should be of hard wood, so that the screws will hold fast. I pay fifteen cents each to the blacksmith for the rods. The boxes cost nothing but a little time on a stormy day. These boxes keep the fruit out of the dust and dirt, and save stooping.—F. HARMER, Mich.

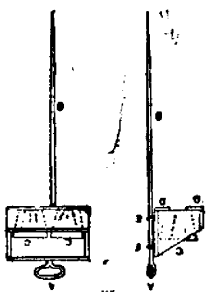

FIG. 656.

Rose Culture.—You can succed with roses as with other shrubs, giving but little time to their care, but that care must be in the line of the needs of the plant. Three "plenties" are absolutely essential to success in growing roses—plenty of sunshine, plenty of water, and plenty of manure. They will not flourish in gravelly soil, nor in its opposite, clayey soil. Good loam is the thing. If the soil be already poor, spade in barn manure about it, then cover a place as large round as a wash tub, with the manure three or four inches deep about each rose bush; a half wheelbarrow load to a bush is none too much. This mulching is better done in the fall than spring, but it will do good now. In dry seasons, the bush must be watered freely; wash water is good. Except with yellow roses, it is the new growth that blossoms, so cut your bushes back to within a foot of the ground, that will give the new growth a better chance. Rose bushes should be set where the sun can cast its rays freely upon them. Persian insect powder, used with a little blower, such as are sold at the stores, and blown over and under the leaves, will kill the white lice; white hellebore, such as is used on currant bushes, will kill the slugs (worms). Three or four applications in the season usually suffices. Your eyes and heart will be delighted with the result.—Connecticut Farmer.

THE HARDINESS OF THE CANADA RED (RED CANADA).

N a paper read by me before the Farmer's Congress, at the City of Quebec, in January, 1893, and which was afterwards published in the last June number of the HORTICULTURIST, I mentioned Canada Red as having proved to be a very hardy tree, after upwards of three years of trial at Hudson-on the-Ottawa. It is extraordinary that the fact of the hardiness of this variety does not seem to have been brought prominently before the notice of fruit growers heretofore. The test of the hardiness of Canada Red, to my mind, is conclusive. The orchard at Mount Victoria, Hudson, Ont., is situated within two miles of my own at Como, and I have had ample opportunity to observe the present condition of the trees of that orchard, and to know of the dreadfully neglectful way in which these trees have been cared for, ever since the death of the late Mr. George Matthews (some twenty years ago), who planted out the orchard. The farm was sold shortly after Mr. Matthews' death to a Montreal gentleman who never, I understand, visited the place, and the several tenants who have rented it, from year to year, of course never took the slightest trouble to cultivate the orchard properly, or even to prune the trees. The soil of that orchard is the poorest quality of sand, so poor that the present tenant has told me he sometimes fails to get even a crop of oats off it in dry seasons. Under such conditions it is surprising that any of the trees planted by Mr. Matthews, nearly thirty-five years ago, are alive at all. Some of the trees were obtained from Montreal, such as Fameuse, St. Lawrence, Pomme Grise, and Bourassa, and of these only a few survive. I distinctly remember Mr. Matthews saying that he bought a number of his trees at Rochester, N. Y. Among these, I think only Canada Red and some Talman Sweet survive. But the best trees by far, the healthiest and most productive, are the last named. The present tenant says he has frequently taken six barrels per tree, of good marketable apples, off them, and obtained some years four dollars per barrel. For many years the several tenants of Mount Victoria sold the Canada Red under the name of Red Spitz. I never took particular notice of this apple until four years ago, when I was struck by the fine, clean, healthy appearance of the fruit. Knowing that Red Spitz could not be the correct name, and at the same time being aware that many of the trees of this orchard were brought from the State of New York, I sent specimens to several pomologists, among others to Mr. L. Woolverton, of Grimsby, and all pronounced the variety Canada Red.

Fine specimens were sent from this province to the World's Fair in the fall of 1892, and placed in cold storage there, with other Quebec apples, and were exhibited until the disastrous fire in the Cold Storage building destroyed all the fruit, of 1892, in July last. No specimens of Canada Red were sent to the fair rom this province in 1893.

In this connection it is interesting to quote a letter recently received from J. C. Plumb, of Milton, Wisconsin, an authority in that state on fruit. He says: "Mr. Hoxie (who was in charge of the Wisconsin fruit), brought from the World's Fair several specimens from the Canada fruit, one labelled "Red Canada," which is our Baltimore—See Downing, pages 86 and 322. The tree Red Canada is much less hardy and vigorous, but bears double the fruit here, and in quality far better than the Baltimore. If the Baltimore bears well with you it is valuable. Its fruit is larger, cavity smaller, stem shorter, calyx closed, basin much more shallow than Red Canada. It bears almost entirely at the extremity of last year's shoots, which are thus enlarged at that point, making quite a bunch, where last year's fruit was borne."

I wrote Mr. Plumb and stated that the specimens taken to Wisconsin in the fall of 1893, by Mr. Hoxie, could not have come from the Province of Quebec, but probably from Ontario—and, furthermore, I am of the opinion that Downing's description of Red Canada more correctly corresponds with the fruit as grown at Hudson than that of Baltimore.

Downing, however, says "Red Canada is not now much planted on account of its small size and poor fruit." This has not been the experience of those who have grown that variety here. Under the most careless cultivation, and the disadvantageous conditions above mentioned, the fruit is, at least, *medium* in size and often above medium. It will be interesting to hear something from growers in Ontario who have had experience with both Red Canada and Baltimore.

Montreal, Que. R. W. SHEPHERD, JR.

A Profitable Combination.—Villagers or persons who have but a small acreage will find the following plan a very good one if they desire to economize their space, which it is very often necessary to do, and always a good practice: I propose to plant a piece of ground fourteen by six rods to pear and plum trees, setting them about one rod apart each way, which will give six rows with fourteen trees in each, or eighty-four trees in all. Around this I shall construct a fence of wire netting six feet high. Just on the outside of this fence I build a chicken house large enough to accommodate about 200 hens (Plymouth Rock and Buff Leghorns), having the north side on the line with and forming part of the fence, and the south or front side freely exposed to the sun. The hens are allowed free range of this orchard—chicken park—and I expect the chickens and trees to be of mutual advantage to each other. The hens furnish nearly or quite all the fertilizers the trees require, while the trees will provide shade for the chickens. We are thus making good use of the ground while the trees are small. After they once come into bearing, with fairly good care, you have a right to expect largely increased profits. Pears and plums are seldom, if ever, a drug on the market. The chickens are also a great benefit in preventing the depredations of the curculio. We also keep bees, and thus add another element of profit and mutual benefit.—Gardening.

GINSENG.

FEW of our people had taken notice of a recent Act of Parliament protecting the plant Ginseng, which provides that a person gathering it between January first and September first in any year, may be fined not less than $5 or more than $20. Prof. Panton has taken the trouble to publish a valuable bulletin on the plant, which he first describes as follows:—"Main stem about one foot long, branches into these stakes at the summit, each three and one-half inches long; on the end of these are arranged fur leaflets, borne on slender stalks an inch in length. The leaflets are then smooth below, and of delicate structure; two in each cluster are about two inches long and others almost four, oval in general form, but tapering to a point and doubled toothed along the edge. Rising from the main stem and in the centre of the three compound leaves is a stalk three inches long bearing inconspicuous greenish white flowers, appearing not unlike a small head of white clover.

This *single flower stalk* is an important point, for I have found some calling a plant of this family ginseng (Aralia quinquefolia) which had four flower stalks and belonged to an entirely different species, though of the same genus.

The root of a specimen in the College herbarium is quite fleshy, rather short (three inches) and from it arises the single stem already described. By means of the above descriptions, technical and popular, together with the accompanying cut the reader will readily identify the plant ginseng from other plants in the vicinity.

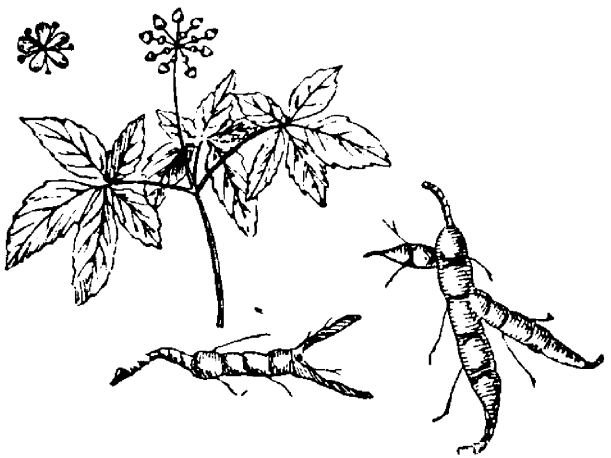

FIG. 657.—GINSENG (*Aralia quinquefolia.*)

History of Ginseng —The genus Panax was first applied to it, and not Aralia ; this was, no doubt, on account of its being considered by the Chinese as a panacea for all diseases. The name of the plant, among both the Chinese and the North American Indians, means, in their language, the figure of a man, and was given to it from a fancied resemblance of the human figure. In fact, much of its virtue seems to depend upon its form. With us there is little faith in its medicinal power, but the Chinese have unbounded belief in it and hence are eager to secure it. It was first discovered in Canada, near Montreal in 1716, by Father Lafitau, a Jesuit missionary among the Iroquois, and in 1718, a description of it was furnished. The French soon engaged in collecting and exporting it to China, and so great did the trade become that it gave quite an impulse to the commerce of Montreal for a number of years. At one time great numbers of Indians were engaged in gathering it about Montreal and Quebec, and large quantities of it were sent to China. In 1832 the shipments of ginseng from the United States amounted to 407,067 pounds, valued at $99,303. In one county in Wisconsin the trade is reported to have reached, in 1858, $40,000, and in 1859, $80,000. Immense quantities have been exported from Minnesota. At present the chief sources of the plant in the States are Ohio, West Virginia and Minnesota. About the close of the eighteenth century it was discovered also in Massachusetts, its exportation commenced and large returns obtained. During the last year, 75,000 pounds were sent from America. In the forests of Tartary, where it was once plentiful, it is now almost extinct, and hence has arisen the demand for it from America. It is not regarded of any value in this country as a medicine. Some are fond of chewing it, as the taste is rather agreeable, being sweet, bitter, somewhat aromatic and pungent. The fact that Chinese doctors claim that the roots of different shape possess widely different medicinal properties, indicates that its healing virtues are more of an imaginary character than real. But faith in its virtues continues, and as yet a great demand for it exists. The Chinese physicians introduce it into almost all their prescriptions for the nobility, to heal the sick and increase the vigor of the healthy.

A traveller in China remarks, he never entered a drug shop but ginseng was being sold. Volumes have been written by Chinese doctors upon its medicinal powers, asserting that it gives ready relief in extreme fatigue, renders respiration easy, strengthens the stomach, promotes the appetite, relieves all nervous affections and gives a vigorous tone of body, even in extreme old age.

The following figures, taken from the *Canadian Pharmaceutical Journal*, April, 1891, will give some idea of the trade in ginseng in Canada :

The quantity sent out of Canada last year is stated to represent $100,000, and one retail druggist exported $1,600 worth. From along the Kingston & Pembroke Railroad fully $20,000 worth was shipped. The price realized was from $3 to $3.50 per pound for dry roots. The question is now being considered whether it would not pay to cultivate it.

A writer in Vick's Magazine writes as follows upon the cultivation of

ginseng: I have recently taken the roots from three beds (3 x 16 feet each) which had been in cultivation, one five years, the other four years. The combined product of the three beds was 1,074 roots, which weighed 73 pounds; from these I assorted out 833 roots, 20 pounds, for transplanting again, leaving 53 pounds of clean washed roots to be dried for market which made 17 pound dry, which I have sold for $4 per pound, 50 cent per pound more than common wild roots sold for. It will be observed that the stock has only been decreased 241 roots. The 833 roots taken off for replanting were much larger than the roots with which the beds were originally stocked. The seed produced from the three beds during the time was worth at least $40.00. I have at this time (November, 1893) in my garden 32 beds 3 x 16 stocked with roots and seeds: also over 30,000 seeds in forest nursery beds. I have this season's crop of seeds, about 100,000, packed in loam in condition to promote germination, ready to be sown next season. The figures I have given show something of the possibilities in ginseng culture. The results certainly were far beyond my most sanguine expectations.—Vick's Magazine.

Plant Digging Device.—Here is an implement for lifting plants which I have used for a number of years, and find very convenient The handle was taken from a discarded snow shovel and fitted with a strong fernle. The blade was made from a piece of heavy buggy spring, the heavier part being drawn to a shank by a blacksmith, and driven into the handle. The brace on the under side, made of heavy strap-iron, serves both to pry across and as a foot-rest. It also serves to cut out plantain and dandelions from the lawn, as it removes the whole crown, and is so small as not to disturb the grass roots. With a little practice, one can stab the blade down by the root, holding the tool in one hand, and throw the root out almost with the same motion. I think it would be just the thing for lifting celery when grown.—American Gardening.

FIG. 658.

For some years past the N. Y. Experiment Station have succeeded in treating gooseberry mildew with complete success. The treatment has been to spray the bushes, as soon as the leaves appear, with a solution of potassium sulphide (liver of sulphur) made by dissolving one half ounce in one gallon of hot water. Hot water is used in preference to cold for the reason that the sulphide dissolves more readily in it. The solution is sprayed upon the plants at intervals of about twenty days throughout the season. The cost of the material is a mere trifle—one cent's worth is enough to spray about twenty-five bushes—and the labor is not great.

GROWING STRAWBERRIES.

I SEE many methods described for growing strawberries, but have never seen my plan mentioned by any one. I select a field most favorable in soil and location to suit me, get the land seeded with clover—fall wheat preferred as a mother for the clover. In autumn or winter, tile-drain thoroughly, running the drains from two to four rods apart, according to nature of soil and lay of the same.

The clover is allowed to grow about all it will, then ploughed under (with a wide plough); from 15th to 20th of June is usually the best time. I keep the surface worked enough to keep down weeds for six or eight weeks, then plough again, top work enough to keep down weeds and thistles until late in autumn; then plough again, in wide lands; this time we follow the ordinary plough with another team and subsoil plough, which loosens up the subsoil six to eight inches deep, but does not throw any out.

We endeavor to run the drains across the field as much as possible and plough the opposite way, which I think gives deep and thorough drainage; it also renders a much better circulation of air through the soil, the plants root deeper and stand drought much better than when land is not so treated. We give a light dressing of ashes in the fall, when we have them, and always top-dress rather heavily with fine manure during winter or early spring.

About the first of May we prepare the land by thoroughly cultivating, harrowing and rolling (never plough clay in spring that was ploughed in autumn); we mark out crossways with marks 2 ft. 6 in. apart, lengthwise 4 ft. apart; cultivate both ways with the horse, until runners get to pushing out strong, then we cease cultivating across the field and allow runners to root. We keep off all blossoms the first season, also cut off runners until they begin to come strong and numerous.

As soon as ground freezes hard enough to bear horses, we mulch with wheat straw; in spring go along and part this from over the plants, leaving it between the rows for pickers to kneel on; it also holds moisture in the soil, keeps down weeds, and keeps fruit clean. As soon as the last picking is made, we go on with the mowing machine and cut off all leaves, also weeds that have sprung up; as soon as well dried—two to five days, according to weather—I watch for a favorable time in middle of the day, with some breeze, and fire the patch, which will burn over in a few minutes, destroying all weeds, if there be any, also all insects, and rust. As soon as rain comes, we go on with the cultivators again and cultivate occasionally until fall, very little hoeing being required as a rule: mulch again with straw; this time, as soon as through picking, we plough all under.

We have never taken off more than the two crops, a third might pay if weeds and grass did not get in too much. I have followed this plan for six or seven years, and think it the best plan for my soil (a light clay loam with a more or less porous subsoil; though in one or two cases I removed the hay before ploughing.

By planting 1½ to 2 acres each spring, we have 3 to 4 acres in fruit each season, and get a large quantity of fine berries. In the summer of 1892 we ploughed under, instead of cleaning out our fruiting bed, so last season only had 2½ acres of new bed; but in spite of a drought which cut off the last end of the crop, we sold 16,600 boxes; this does not include any that were used in the house, or what was eaten by from 30 to 50 pickers daily, which would be over 1,000 quarts more.

I intended to say something about varieties, but as I have already spun out too long, will stop for this time.

Arkona, Ont. J. H. HILBORN.

Mulberries for the Home Garden.—If a family had no other kind of fruit than the mulberry, it would, no doubt, be highly valued and duly appreciated, but where the mulberries will thrive, other and better kinds can certainly be raised in abundance; so, with this fact in mind, I would say to all who own a garden, plant a mulberry tree or two if you wish, for the children and birds, but other and better kinds for your table and for sale, if there is a surplus beyond the home demand. The trouble with the best of the mulberries is the difficulty in gathering, as the berries ripen very unevenly, only one here and there on a twig or large branch, compelling the picker to go all over the head of even a large tree to get a few pints or quarts at a time, and when gathered each berry has a woody fruit stalk attached, which forms a good handle for eating the berries out of hand, but if there is any stewing or cooking to be done these fruit stalks must be removed with scissors or knife, and the housewife or cook finds this a slow and irksome task in preparing the fruit for use. Of all the numerous varieties I have tested I like the Downing best, because it is of the largest size and has a rich, sub-acid, sprightly flavor, somewhat like that of a well-ripened blackberry.—Am. Agriculturist.

Growing Tuberoses.—The following simple method of growing tuberoses has been found successful: Keep them in paper bags in a cool place till May, then plant them in good soil in the garden. There they grow steadily and hardily, producing stout flower spikes till the autumn when the plants are taken up and potted. Plants thus treated grow rapidly, twelve to twenty blooms on a stem, and afford a valuable supply for cutting for an unusually long period.

STRAWBERRY CULTURE FOR BEGINNERS.

HE prospective strawberry grower should not set plants from an old exhausted bed; neither should he set strawberry plants at all, unless he can and will give them proper care and culture. The selection of varieties is always a difficult problem for the beginner, and is a problem to which, owing to varying soil and climatic conditions, no one can give him the exact solution. It is a safe rule, however, to make a selection from among the standard varieties, avoiding high-priced novelties. Those wonders at $2 per dozen will either be much cheaper or quite forgotten in a year or two. You cannot go very far wrong if you select Haverland, Warfield and Crescent for main crop, with one-third as many of Beder Wood, Woolverton and Lovett's Early for pollenizers, with perhaps Gandy and Parker Earle for late varieties. Then by adding a few new ones each year from among those most highly recommended by growers, and discarding such as prove undesirable, you will soon have a selection difficult to improve upon. Set on land well manured for the preceding crop or crops, using bone and potash liberally at time of setting and nitrate of soda at such times and in such quantities as the plant growth might warrant; but plenty of good stable manure thoroughly fined and incorporated with the soil, with a liberal application of wood ashes, will come nearer meeting ordinary conditions, and will bring no disappointment at picking time if all other requirements are met. The broad matted row system gives the largest yield, and if not allowed to mat too thickly, the berries will be of good size and quality; but remember that surplus plants in a row are quite as bad as weeds, perhaps worse, because they are usually unsuspected robbers. I would recommend setting a new bed each spring, ploughing the old one immediately after picking the first crop, though some find a second crop profitable. As to marketing, get a good supply of clean baskets and crates, see that your berries are carefully picked and that the baskets are well filled, get up as good a team as you can afford and don't forget to spruce up a little yourself, for the larger part of your dealings will be with the ladies. Then if you have raised some nice berries and offer them at a reasonable price, the question of marketing will soon solve itself. Master all the details by reading the best authorities, begin in a modest way, enlarge gradually, and if after picking one or two crops, you find yourself fairly in love with your berries, go ahead. But if your efforts result in straggling rows wherein lurk a few puny berries lost in a tangle of grass and weeds, you cannot quit too soon.—Farm and Home.

Always pick your flowers early in the morning, if possible, you will find they will keep better than those gathered at midday. Roses will have to be cut at different times, but avoid cutting when the sun is hot.

ROSES.

Seasonable Suggestions.

ROSES in the garden will in all probability be attacked by the Thrip as soon as the foliage appears. Spraying with Paris Green will be found an effectual remedy, a small quantity of soft soap, or even common soap, added, will make the remedy more effective. Care should be taken to burn all the wood pruned out of the Roses, as that is where the Thrip winters in the larvæ state, and as many of the Roses are alive to the tips, or nearly so, this spring, a large number of the little pest will probably be found at work.

Examine all budded Roses and remove all suckers that may have been overlooked last summer, this is of very great importance, as the suckers if allowed to remain, invariably destroy the Rose bush. In pruning, the strong growing varieties should not be cut back as closely as those of a medium or weakly growth, for instance, if a strong vigorous bush of John Hopper were pruned as closely as Louis Von Houtte, the great probability is that John would produce elegant canes but little bloom. Some objections may be taken to this plan, but as a set-off, there is a certainty of great numbers of Roses.

The old question of budded or own root Roses, comes up fresh as ever every spring, and there is doubtless something to be said for and against either. Roses budded on the Manetti stock will succeed in a greater variety of soils than roses on their own roots, and some roses, such as La France, will attain a good size budded on a strong stock, while on their own roots they have sometimes a struggle for existence for the first year or two. The only objection to the budded Roses is that they are liable to throw up suckers from the stock, which if left to grow will injure the Roses.

The "nice black mould from the woods," is the source of many a total failure among Rose amateurs, it is doubtless desirable for some plants but Roses will have none of it, a stiff clay suits them much better.

Reference was made on page 137 to the comparative merits of Gloire de Dijon, and William Allen Richardson. The writers experience has been, that while the old Gloire de Dijon is hardy enough to survive our winters with slight protection, and is a strong grower and an abundant bloomer. W. A. Richardson was, when grown under similar circumstances, a free grower, but an unusually shy bloomer; what few blooms were produced, were however very fine.

A very good plan for growing the strong-growing varieties, is to plant a number of them together and, instead of shortening back the canes, simply to thin out weak shoots, and to carefully bend down the canes, securing the tips to the ground by means of pegs or otherwise; this will cause the eyes along the entire length of the canes to send forth shoots and bloom, that would never have started had the cane remained perpendicular.

Hamilton, Ont WEBSTER BROS.

RECENTLY INTRODUCED SHRUBS.

OUR gardens have been enriched, within a few years, by the introduction of a number of shrubs having great merit for ornamental planting. I will give a brief description of a few of these, which will probably be hardy in parts of Canada, and which are worthy of trial in all the Provinces.

We are indebted to the Arnold Arboretum for more of these recent introductions than any other source, and of the plants that have come from there, one of the most important is Berberis Thunbergii, a dense growing, thorny bush, with crowded small leaves, pretty yellow flowers in spring and bright red fruit in fall, that holds to the bushes nearly all winter without losing its brilliancy. The plants can now be obtained from several nurseries, in quantity, at a low price.

The Rosa multiflora is equally as hardy and promises to be next in importance. It is a vigorous growing, green barked rose, that will scramble into a tree to the height of fifteen or twenty feet. In June it is covered with pyramidal clusters of small white flowers with a mass of yellow stamens in the centre. The foliage is pretty and seems to be more free from insect enemies than most roses. The abundant red fruits, which hold on all winter, are especially attractive in connection with the green stems. Mr. Jackson Dawson has raised at the Arboretum, from which this plant came, a number of interesting hybrids.

Ilex crenata, a small leaved holly, has proven hardy about Boston for a number of years; if it should be entirely hardy, it will be a great acquisition to the few plants of this class. Apparently we have only one sex, so that fruit is not formed; but if in addition to its green foliage, it has attractive berries, it will be a plant for every collection.

Stephanandra flexuosa is another recent introduction, coming through the Arnold Arboretum, which has a very beautiful and delicate foliage and pretty, fine flowers. It seems hardy enough here, only the tips of its branches being occasionally killed. If it should have the habit of a herbaceous plant in parts of Canada, it would still be worthy of a place in gardens.

Rosa wichuriana is another decided acquisition. It is a hardy trailing rose with almost evergreen foliage here. It hugs the ground closely for some years, then slowly piles up in a thick mat of stems. The flowers and habit of the plant are very much like the Macartney rose of England, which is not hardy. Its white flowers are large, about two inches across, with yellow stamens, and they come in June and July.

These are among the best of the new plants, and they should receive the attention of all those who are interested in good shrubs.

Brookline, Mass. WARREN H. MANNING.

HEDGES.

URROUNDING our principal school grounds, several acres in extent, and enclosing a large number of our finest private residences, the Hawthorne, Spruce and Beech Hedges of Yarmouth, excite the wonder and admiration of visitors. The common Scotch Hawthorne is used, to which Burns refers in his "Cotter's Saturday Night."

"Beneath the milk white thorn that scents the evening gale."
Fond lovers in each other's arms breathes out the tender tale.

Three year old plants are imported, costing, delivered here, about eight dollars per thousand, the ground is properly prepared, drained, dug over and fertilized, the plants are set early in the spring, being among the first to grow, in double rows, ten or twelve inches apart, breaking joints, they are pruned two or three times a year to make a dense, bushy hedge, and allowed finally to attain a height of five or six feet, or in some cases, twelve or fourteen, that is proof against man or beast, dog, goose or small boy, and a perfect protection from the wind.

I can remember the first of these hedges, set out over *sixty years ago* and *still one of the best.* About thirty years ago, to improve its condition, it was cut back to the single stem, which was then hacked and slashed when it was desired new buds should break, and within a few years the whole hedge was in finer shape than ever.

A few specimens of this single White Hawthorn have been allowed to grow, without pruning, to a height of about twenty feet, with a diameter of trunk of (12) twelve inches or more, and in some cases whole hedges have been neglected and permitted to grow to their full height. In June these are a mass of white bloom of most delightful perfume, filling the whole air with fragrance. The double white, single and double, rose and red Hawthorn, are grown singly among our favorite ornamental trees, and are very beautiful during the brief period of bloom, but are destitute of fragrance.

Hedges of the native Spruce from six to twenty feet high, are also grown to perfection; they bear pruning equally with the thorn, and in the winter season, in their comfortable dress of living green, opposing as impenetrable barrier to the fiercest winds, seem preferable to a deciduous hedge.

The Norway Spruce fails here *utterly* everywhere, in hedges the lower limbs die, and as individual specimens, the growth is scraggy and irregular; out of the hundreds that have been planted, not a single fine specimen has ever been grown.

The Scotch Beech has been planted in hedges and as single ornamental trees, chiefly in our cemetery, it bears pruning well, and its perfect hardiness, its thrifty, rare a growth, and its fresh, pretty shade of foliage makes it a favorite.

No other Hedge plant has succeeded out of the many that have been tried, on the recommendation of the ubiquitous tree agent. I recall the Locust, the Cedar, the Buckhorn, the Privet, and the Box, among the failures.

Yarmouth, N. S. CHAS. E. BROWN.

THE VEGETABLE GARDEN.

THERE is something about every vegetable that makes one think when it comes that it is more desirable than any of its predecessors, and I always feel so when I commence to gather that most delicious fruit, the cantaloupe melon. This is one of the musk-melon family and is too well known to need any lengthy description. It should not be planted until the ground is warm, as it is almost as tender as the squash. Plant in hills and thin out to two or three plants in each hill. When the plants have made four leaves the ends of the main shoots should be pinched off, which will cause the lateral branches to put forth sooner than otherwise; this will strengthen the growth of the vines and the fruit will come earlier to maturity. The Arlington, Montreal and Hackensack are three as good cantaloupe melons as grow. About fifteen hills will give a good supply.

Water-melons are cultivated the same as musk-melons, but are not grown in this section with equal success, as our seasons are not long enough to bring them to that perfection which this vegetable reaches further south. Mountain Sweet, Vick's Early, and Phinney's Early Oval are good sorts. It will not take much room to try a few hills, and so if our watermelons are not successful it need prove no great loss.

The squash is one of our tender annuals and until all danger from frost is past it should not be planted, as, aside from the tender nature of the plant, the seed is liable to rot in damp, cool weather. Make the hills eight or nine feet apart and thoroughly manure them. Place seven or eight seeds in each hill so as to have plenty for the bugs, but as soon as the plants are well up thin out to three plants in each hill. The bush varieties, such as Summer Crookneck and White Bush Scallop, can be planted nearer together, say six feet apart each way. Press the seeds down firmly before covering and cover early-planted ones an inch deep and late ones two inches deep. Fine plaster is about as good an article as has yet been found for driving away the bugs Plant Early Summer Crookneck and White Bush Scallops for summer use; Boston Marrow for fall, and Hubbard, Essex Hybrid and American Turban for winter. Be sure and gather the crop before it is nipped by the frost if you wish your squashes to keep well. A dozen hills of the summer kind will be enough, but quite a quantity of the fall and winter sorts should be planted.

Tomato plants should be set out in rows about June 1. Their cultivation is very simple. Set them six to eight feet apart, make the ground very rich and keep them free from weeds. Just before frost take up the vines with all the earth that can be made to adhere to the roots and place them in the cellar, and the tomatoes which have not been picked and are fully grown will ripen. I have

seen perfectly ripe tomatoes of excellent quality on the table at Thanksgiving which were ripened in this way. Favorite varieties are Acme, Livingstone's Perfection, Cardinal, Essex Hybrid and Emery. There are so many good tomatoes that it is hard to make a selection ; but anyone who plants any of these kinds will be satisfied. Set out about thirty-five to fifty plants to have a good supply all summer.

The turnip is propagated from seed and it should be planted where the plants are to remain as they do not do well when transplanted. For early crops sow as soon as the ground can be made ready in the spring, and thin four to eight inches apart according to the size of the variety. The principal trouble in planting turnips is in getting them so thick that much work is made in thinning. Swede turnips are planted later, about June 1, while the purple-top varieties may be planted either early or late ; a good crop may be secured as late as August 15. The Sweet German turnip is a very desirable sort for winter, as is also Carter's Imperial Swede. These turnips should be planted from June 10 to 20 for the best results. The Sweet German turnip is commonly known as the Cape turnip and is raised extensively on Cape Cod, Massachusetts. Do not fail to have a plentiful supply of this excellent vegetable for winter use.—*Ex.*

The Currant Bush Borer.—The parent of the now common and widely distributed currant bush borer is a small, slender, dark-blue moth with transparent wings, but rarely seen except by entomologists, who know where to look for such insects, or breed them from the larvae found in the stalks of currant bushes. These moths usually appear in July, and the females deposit their eggs singly at the axils of the leaves and on the vigorous young shoots. When the eggs hatch the minute grubs bore directly into the stalk until they reach the soft, succulent pith, following this and feeding upon it until they arrive at maturity the following season. This destruction of the pith of the cane so weakens it that it is very likely to be either broken off by winds or it dies the next season before the fruit comes to maturity. But sometimes the cane is not killed the first season, especially if the grub bores its way from some lateral twig into an old cane, and the latter may live a year or two after its pith has been completely bored out : usually, however, the presence of the borers may be detected by the feeble growth of the young canes and their pale green or yellowish leaves late in the summer.

By carefully examining the bushes in August and September, or very early in spring, the infested canes can be found, and these should be cut out back enough to reach sound pith, and the part removed and burned, in order to destroy the grubs within them. No other effectual way of getting rid of this pest has been discovered, but this is not at all difficult or expensive, and it should be repeated annually, so long as a grub is to be found in the bushes.—ANDREW S. FULLER, in New York Tribune.

TO GROW THE FINEST TOMATOES.

SELECT a sandy loam with a southern exposure. Put on well-rotted stable manure at the rate of 10 to 15 loads per acre. Plow and harrow well, so that it may be thoroughly incorporated with the soil, or in place of this, 2 or 3 shovelfuls of rich compost may be added to each hill. Sow the seed, and sow only that purchased from reliable dealers, or saved from the finest, earliest specimens, in the hot-bed, the first of March. When 2 in. high transplant into cold frames, 3 or 4 in. apart. Be sure to shade and water the plants until well rooted. Transplant again, when 4 in. high, 8 in. apart. This will make fine, stocky plants, with strong roots. Of course, protect the cold frames from frosts or storms by covering when necessary, but manage to give light and air as soon as possible after the danger is over.

By all means be careful not to set the plants in the open air until all danger from late frosts is over. The risk is too great and you gain nothing, as the plants are growing faster. If properly transplanted, the earth made "firm" around the stalks, they will be retarded very little. It is better if possible to set just before a rain, or if this cannot be done late in the afternoon, so that they may have the coolness of the night to revive in, but if strong plants and well set, they will wilt but little, and in a day or two will look as thrifty as ever.

Set the plants 4 by 4 ft. each way with the exception of the dwarf Champion, which will bear 3 by 3 ft. Cultivate both ways with a horse cultivator. Should an unexpected frost occur after setting in the open ground, the plants may be saved, unless very badly frozen, by a thorough sprinkling with cold water. We once saved half an acre by this means; but it must be done before sunrise. In the North, where frost comes early in the fall, pull the vines before frost; throw them in a large pile or piles and cover with hay or straw. Green tomatoes, matured enough, will ripen and repay you for the trouble.—Farm and Home.

DEATH OF A DIRECTOR.—On Tuesday, the 17th of April last, at his home at Cataraqui, near Kingston, Mr. David Nicol was suddenly removed by death. On page 132, Volume XV. of this journal, will be found an interesting sketch of his life, so that little more need he added at this time. He had been elected a member of the Board of Control for Experiment Station work, but was unable to attend the meeting of this Board at Guelph. He was also asked to act as one of the experimenters, but his duties as Superintendent of the Cataraqui Cemetery, and his own business, were, in his opinion, as much as he could undertake. The sincerest sympathy of our directorate is extended to the mourning friends, for we have lost a wise counsellor, and a contributor to this journal, whose valuable articles have been highly appreciated by its readers.

New Way to Bush Peas.—The old method of bushing peas by sharpening green limbs and twigs and sticking them thickly along each row, has a good deal of labor in it, and is moreover far from satisfactory in its results, for a high wind is almost sure to lay both bushes and growing peas flat along some portion of the rows. Then, too, the pods are often hard to get at when hidden away among the branches of some more than usually vigorous bush. A better plan is to stretch a length of narrow poultry netting along the row, holding it firmly in position by stout stakes, as shown in the cut The netting need not be wide, as it can be placed 6 or 8 inches above the soil, the young peas being able to catch on to it at that height. Such netting in rolls of 150 feet is little more than one-half a cent per square foot, and if kept housed when not in use, it will last a score of years. One's garden will look much neater for its use, while the peas can be picked from such a support with much more ease than from the old-style bush support.—Country Gentleman.

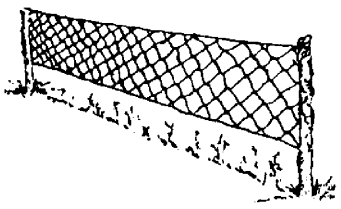

FIG. 659.

Packing and Picking Peas for Market.—Green peas should be picked as soon as the berry develops sufficiently to be perceptible, carefully avoiding such pods that are without contents or imperfect. Spread out in a cool, dry place until they are thoroughly cool and dry. Pack in the regular vegetable crate, settling it down well as you fill it, so as to have the package well filled, but do not press it. This is a very difficult vegetable to get to market in good condition, but usually affords best results when sent by express. In the early part of the season, when shipments come from distant points and peas are high-priced, packed in one-third bushel boxes. Later on, when this vegetable becomes more abundant, use well-ventilated, sound bushel boxes. Peas that are overripe, discolored or wilted are almost unsalable in any market. Another great mistake is that of picking too soon, before half-grown or half-full. They heat readily in large packages, especially in barrels, sacks or tight packages, even when shipped by express. They should not be out over two days, or three at most, though they cannot be regarded very green or fresh if on the way longer than twenty-four hours in warm weather. In packing shake down thoroughly, and a little pressing down in nailing on the side pieces or cover of the box won't hurt them. Have them as cool and dry as possible before packing, to avoid heating. The least dampness soon heats them, or they get moldy, and the larger the package the greater the danger, to goods while in transit, especially unless packed under the most favorable conditions.—Farm and Home.

Forestry.

BLACK WALNUT TREES FOR LUMBER—II.

(*Continued from March No.*)

TREES grown to produce timber require very different treatment. In this case, the planting should be done in large blocks, and the land should be as well prepared as if for a crop of wheat. The nuts should be planted in rows about five feet apart and about the same distance apart in the row. The land should be kept in a high state of cultivation so that a vigorous growth may be assured. Vegetables may be grown between the rows. The cultivation may be done mostly by horse labor, and should be continued for eight or ten years, after which it will only be necessary to keep down extraneous growth and to see that the groves are properly pruned and thinned.

The tendency of trees growing near to each other is to grow taller and to put out fewer branches.

Pruning walnut trees consist only in cutting out the few small shoots on the trunk of the tree and to assist nature—by removing an occasional branch—in developing a straight upward growth.

Thinning a walnut grove.—Over 1,700 trees will be grown on each acre when planted at about five feet apart each way. As this number must be reduced to about fifty in forty or fifty years, it requires the exercise of much judgment and discretion to select about fifty of the best of these from this number that are about equi-distant from each other, and to remove the remainder from time to time, so that the trees selected for growth to maturity shall have sufficient room on all sides for proper development, and at the same time receive the necessary protection from the other trees to enable them to maintain their upright, sturdy growth for at least fifty years.

(2) Walnut groves may often be planted on land less valued for agricultural purposes. In many places, even in the thickly populated portions of the rural districts, areas of considerable extent may be found quite unsuitable for ordinary farming operations (although the soil may be of excellent quality) because of its being cut from the cultivatable portion of farms by a small river, a ravine, a rocky ridge, a railway, or other obstacle; or where the land may be low lying, the soil very rich and deep and so intermixed with boulders to the depth of several feet, as to render it almost worthless for ordinary cultivation; hundreds of acres of this description may be seen from the railway between Omemee and Peterboro', as also in thousands of other places throughout the province. Planting such lands with walnuts and subsequently managing them with ordinary intelligence would ultimately prove to be more profitable and safe investments and more beneficial to posterity than in cultivating the best lands after the manner usually prevailing at present.

The want of shelter from fierce north-west winds during the inclement seasons of the year for the crops, the orchard and garden, the stock and the farm buildings is everywhere felt and admitted to be necessary throughout the well-settled districts of Ontario, and no other kind of tree is more suitable for this purpose than the walnut ; for when grown along the fences, where they are exposed to the storm from all points of the compass they branch near the ground and become, that most desirable of all wind-breaks, one that affords the necessary protection, and at the same time permits free circulation of the atmosphere on the sheltered side.

The soil of the greater portion of the land referred to, consists of calcareous clay, enriched by the accumulations for ages of decayed vegetable matter, overlying and mixing with alluvial deposits; such soil contains all the necessary elements for the growth and developement of black-walnut lumber of the best description. The great need of shelter and the suitability of the soil being admitted, every farm owner should see that walnut trees are planted along all permanent fences, and also along the road sides, without further delay, and in twenty years from this time, provided other conditions remain as at present, it will be found that such farms may all sell for twice the sum which can be obtained for them now.

The beauty and the utility of its growth on the farm during the development.—The cut at the beginning of this paper (page 94) representing a pleasant rural scene of European life, conveys but a faint idea of the truly majestic appearance of the walnut tree grown on the lawn or other places where it has sufficient room for its full development on all sides.

It then becomes one of the grandest trees known. Upright in trunk, growing to a great height ; a wide-spreading head—rugged in outline—with its lower branches often recurving to and sweeping the ground ; the lovely green of its long divided leaves always retaining the purity of its color throughout the season or until scorched by early autumn frosts.

The time has not arrived when *matured* cultivated specimens of the walnut tree may be found in this country although specimens of good size may occasionally be seen. The best tree it has been my privilege to see stands on the lake shore, in the Township of Hillier, Prince Edward County. The owner of this tree assured us (the late P. C. Dempsey and myself) that his grandfather had planted the nut from which this tree grew, about 70 years before. It is a magnificent specimen : the trunk is perfectly erect and carries a beautifully symmetrical wide-spreading head, forming a noticeable feature in the landscape when approaching it from the south-east, at a distance of several miles.

The late Mr. James Dougall, of Windsor, Ont., when writing of the walnut tree said, "Owing to its gigantic size, its beautiful and graceful appearance when at maturity, its quick growth and the great value of its wood in a commercial point of view, besides its value as a nut-bearing tree, it is first of its class. It is in every way adapted for road, lawn or grove planting, where the soil is suitable." Mr. Dougall planted some one year old trees in 1853, but soon after cut down

most of them including the largest, to make room for some building; one of those remaining in 1881 measured three feet six inches in circumference six feet from the ground, and was upwards of forty feet high. Mr. Dougall also says, "Had the *nuts* been planted where the trees were to stand, and had they not been injured by buildings so near them, they would probably have been much larger."

Lindsay, March, 1894. THOS. BEALL.

CANADIAN WALNUT GROWING.

I AM pleased to see by your March No. that our old and much respected friend Mr. T. Beall, of Lindsay, is still fond of discoursing upon his most favorite topic "The Canadian Black Walnut," and frequently with much acceptance. It is most certainly a very fruitful theme, and one is scarcely able to express all its rich treasures of pleasure and profit in a single lifetime. Although in many times and seasons in the past we have been deeply stirred and liberally instructed by his sage and mature discoveries in this and other lines, yet it is somewhat surprising now in this eminently "advanced age" to realize some of the statements and conclusions that his well-ripened wisdom heedlessly brings him to amid the profound blazing light of this present time. Allow me, Sir, to example as a key to my meaning a few of the statements of this paper of Mr. Beall's upon "The Black Walnut Tree for Lumber," as given in the said No. of the CANADIAN HORTICULTURIST.

After speaking of the advantages and needs to us as a people of timber planting, and enumerating some of the good points of the Black Walnut for these purposes, the writer goes on to say on page 96, "With regard to propagation and culture," that these are to be done especially for three important purposes, namely, "for shelter, for ornament, and for profit." This by itself being rather a queer annunciation when you come to take in the situation properly, viz., *timber growing for lumber.*

Again, with regard to Walnut tree propagation, he advises "that it is of the utmost importance that the nuts be planted where the trees are to grow," and then goes on to prescribe that holes be made in the ground with a sharp pointed stick, and the nuts be forced down into them with the other end, and lastly that the holes are to be filled in with the soil, etc. This last stroke of advice reminds me very forcibly of the statements of a gentleman of my recent acquaintance near the city of Guelph, who, being very anxious to establish a young forest on one of his new stumpy fields on the back of the lot, made an effort thereto. For this purpose he went to the highways and open fields, and

clearings, and roughly dug up a large quantity of young and tender seedlings of Maple, Beech, Basswood, Ironwood, and various others, as fortune offered them to his quick perception, being from four to six feet in height, and brought them home by the wagon load. He now proceeded to plant them in his new half cleared turfy field, and in spots where it happened to suit. And how did you get them in we enquired? "Oh," said he, "I just took an old axe and thrust holes in the sod, and then stuck my small trees into these holes, and pressed them down with my feet and all was done!" About six months after the event, the sight was transparently disappointing, and the prospect of forest trees for the birds on that field was very far in the distance.

But to return to our theme. I want here to say that I think there are better methods of procedure, and many of them in this matter, than the one Mr. Beall has outlined for us, notwithstanding the sagacity of its conception.

If this principle was essential and of first importance, what is to become of the immense world-wide experiences and practices of the world's nursery business of to-day, not merely with regard to the Black Walnut, but to all other classes and types of forest trees? I do not feel here and now that it is in my proper place to offer suggestions or to propose counter methods of procedure in the case, but I am sure that it must appear to any intelligent man with the least experience in these matters, that there are and must be of necessity some other method to produce more satisfactory results than here indicated and marked out.

Allow me to say finally that I am deeply pleased that the CANADIAN HORTICULTURIST has opened up the "Department of Forestry" in its pages for discussion. It is a department that should have even more attention given to it for our benefit when we consider the fearful rate of denudation annually going on of our Canadian forest growth and beauty. What the future is to do for want of these things, unless speedy and liberal plantings are made, none of us can now possibly tell. It is to be hoped, however, that this whole question of tree planting, not only and merely of the Black Walnut, but also with regard to many others of our most valuable, most varied and beautiful forest trees of home growth, may sufficiently appeal to the good sense and keen Canadian judgment of the whole of our people, and at once.

Strathroy, Ont. B. GOTT.

The Canadian Horticulturist

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

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

Notes and Comments.

THE FRENCH TREATY seems about to be ratified, notwithstanding all our appeals. A committee of our Association, consisting of A. H. Pettit, of Grimsby, Alex. McNeill, of Windsor, and W. Boulter, of Picton, interviewed the Hon. George Foster and others, who carefully noted all the injurious results to the grape industry, threatened by this treaty.

FOUR OR FIVE FRUIT EXPERIMENT STATIONS are to be established in the Province of Ontario this spring. The committee appointed at Peterboro' has since prepared an excellont scheme, which has received the approval of the directorate and also of the Minister of Agriculture. It contemplates ten stations, in various parts of the Province. The experimenter in charge of a station is to be a specialist in growing some one or more kinds of fruit; thus, for example, a grape grower of large experience is to be asked to experiment with grapes; his stock of varieties is to be enlarged to cover all kinds worthy of trial, and he is expected to report on all the varieties on his grounds several times each year. In addition, he would be given plants and trees of other fruits, which it is desirable to test in that locality.

The following is a list of the stations proposed to be established at once, with the estimated expenditure:

STATIONS AND LOCALITIES.

No. 1.—*Apples, pears* and small fruits. Located in Prince Edward Co., managed by W. H. Dempsey, of Trenton.

No. 2.—*Apples*, grapes, plums, and strawberries, currants, gooseberries and cherries. Located in Simcoe Co., and managed by G. C. Caston, Craighurst.

No. 3.—*Plums*, apples, pears, grapes and small fruits. Located in Huron Co., experimenter not chosen.

No. 4.—*Grapes*, currants, gooseberries, plums, pears, cherries and blackberries. Located in Wentworth Co., and managed by Mr. M. Pettit, Winona.

No. 5.—*Peaches ana strawberries*, currants, cherries, gooseberries, raspberries, plums and quinces. Located in Essex Co., and managed by Mr. W. W. Hillborn, Leamington.

N. B.—The fruits italicised are those to which the station is to be more particularly devoted.

ESTIMATED EXPENDITURE FOR 1894.

Five stations at $100	$500
Trees, plants, etc., for five stations	200
Meetings of Board of Control	75
Travelling expenses of official visitors	75
Clerical work—corresponding with stations, purchasing stock, keeping lists and reports from each, tabulating same	50
Contingent fund	100
	$1,000

BUYING AND EXPORTING APPLES.—The Canadian Fruit Buyers' and Importers' Association has issued a circular giving the names of those apples which are found by practical experience best suited to the export trade. The following is a portion of the circular referred to :—

"It is absolutely necessary to improve the quality of our fruit if we are to hold our own in the foreign markets. The prevalent idea that European countries are unable to produce good winter apples is a mistaken one, they *are* producing, and in rapidly increasing quantities, fruit that is as good as many of our best winter varieties, and far superior in every respect to such kinds as the Phœnix, Pewaukee, Talman Sweet and others. This is notably the case in Denmark, Belgium, Holland, and parts of Germany and France. Growers in these countries are now becoming as much alive to the importance of this branch of their export trade as we are. Heretofore they have not marketed their apples in as good shape comparatively as Canadians—this will be obviated in the future, as a number of large Continental handlers of fruit visited the British markets last autumn, for the purpose of finding out the best kind of package, and the proper mode of packing the fruit to suit the demand. For some years past they have been planting and grafting, especially in Denmark, only those kinds of fruit which compare favorably with our best varieties, such as the Northern Spy, Greening, Seek, Baldwin, Golden Russet, etc. We cannot ignore these facts if we desire to hold our own in the foreign markets. It is

necessary to use much greater care in the planting of an apple orchard than in the planting of anything else. A mistake made in planting an inferior variety of wheat, corn, or any other kind of produce, may be rectified the following season, but this is not the case in setting out an apple orchard, and it behooves those intending to plant apples to exercise the greatest care possible. The Association strongly recommends the planting out and grafting only of those varieties which are in themselves intrinsically superior in quality, and meet with the market's requirements, having due regard to the locality and to the soil. The following kinds are known to be excellent in quality, and by thorough test have proved their superiority as good shippers: *Summer*—Duchess of Oldenburg, Alexander. *Early Fall*—Gravenstein, Maiden Blush, Cayuga Red Streak. *Late Fall*—Blenheim, Ribston, Twenty Ounce, Cranberry Pippin, King, Hubbardston, Fallawater, Fameuse. *Winter*—Northern Spy, Spitzenburg, Greening, Baldwin, Golden and Roxbury Russet, Seek and Jonathan.

"The Association would further recommend the re-grafting of all Talman Sweets, Phœnix, Pewaukee, Swaar, Jennettings, etc., with the Northern Spy, Golden Russet, or any of those varieties which are recommended to be grown. The Association further recommends that growers give more attention and care to their apple orchards. From the appearance of the majority of the orchards throughout the country one would suppose the growers imagined they had done their duty when they have planted the trees, and that nature is expected to do the rest. After planting the right varieties a thorough system of cultivation, and a proper pruning of the trees is as essential to the production of good fruit as a thorough system of cultivation and care is necessary in growing anything else."

This Association has invited the Executive of our Association to meet with them at Toronto, at an early date, to re-consider the grades of apples established for our export trade, in order that they may be satisfactorily adjusted for operation during the coming apple season.

BLACK KNOT—ERRATA. In paragraph 3, near bottom of page 128, should read, "A characteristic fungus is formed in them, fruiting in the knots from their earliest stage—and nowhere else."

OUR REPORT FOR 1893 will be one of the most interesting yet published. It will only be sent to those who have paid their membership to our Association. A bound copy will be mailed from the Department of Agriculture to names and addresses of paid members furnished by us.

A YELLOW BARKED VARIETY of the bright red twigged Red Osier Dogwood, Cornus Stolonifera, has been sent us by Mr. W. K. Manning, of Brooklin, Mass., one of the judges in landscape art at the World's Fair. The variety was found in Stockbridge, Mass., where the type abounds; and Mr. Manning calls it Cornus Stolonifera, var. aurea, or the Yellow Osier Dogwood. These plants are valuable as an edging plant for groups of large shrubs on account of its habit of spreading along the ground.

THE PLANT DISTRIBUTION.

SMITH'S GIANT RASPBERRY.—We have secured 100 plants of this black cap for distribution. It is said to be wonderfully productive, and larger than Gregg. It originated with A. M. Smith, St. Catharines.

We have also secured 100 Winchell grapes, 100 Moyer, 100 McIntosh Red apple, 200 Pearl gooseberries, 2,000 Michel's Early strawberry, 1,000 Saunders, some Woolverton, and Enhance strawberries.

THE CENTRAL EXPERIMENTAL FARM at Ottawa has sent us 600 Caragana arborescens, 200 Acer ginnala, 200 Prunus pumila, 100 Sarah raspberry, and 50 Eleagnus augustifolia. All these are being distributed among our members as quickly and as suitably to the various wants and localities as possible.

Description of Ornamental and Fruit Plants furnished by the Central Experimental Farm.

BRIEF description of the ornamental plants furnished by the Experimental Farm this year for distribution to the members of the Society may be of interest to readers of the journal, and is given below.

ACER GINNALA, Ginnalian maple.—This was first introduced from the Amur River region in Asia, by Dr. Regel, the eminent Russian botanist. Prof. Budd, of Ames, Ia., and the late Charles Gibb, of Abbotsford, Que., were instrumental in bringing it to America; and the plants which are this year being distributed to the fruit growers are raised partly from seed grown at Ames, Iowa, and at the Experimental Farm at Ottawa. Nicholson says, "The tree is generally classed as a variety of *Acer tartaricum*, but its habit is more graceful, and in this form the leaves are prettily cut and lobed, whilst the leaf-stalks and mid rib are more deeply colored." It never attains large size, and should be ranked among the arborescent shrubs in this respect. In the early autumn it is a thing of beauty upon the lawn—resplendant in a dress of bright crimson—it glows like a ball of fire, and warms the whole landscape. Another characteristic much appreciated in the north is its extreme hardiness. At Brandon, Man., and Indian Head, N. W. T., it has been reliable so far.

CARAGANA ARBORESCENS, Siberian Pea Tree, as the name indicates, is a native of Siberia, and belongs to the pea family. It grows 15 to 20 feet high, and is very ornamental in early spring by reason of its light green, feathery acacia-like foliage, which is plentifully sprinkled with golden colored pea like blossoms. These are succeeded later by small pods enclosing the seeds, which may be sown as soon as ripe or kept till the following spring. They germinate very readily. Some 10,000 were grown here last year in two beds 4 × 10 feet

long. Like the maple this is extremely hardy. I have been recently informed that hedges of this tree have been grown by settlers of the Mennonite districts in Manitoba, which proves the assertion in regard to its hardiness.

ELAEAGNUS ANGUSTIFOLIA, Wild olive.—This was, I believe, introduced from East Europe by Prof. Sargent, of the Arnold Arboretum, as well as Prof. Budd, of Ames. It is closely related and resembles in many respects our Western Buffalo Berry (*Shepherdia argentia*), but is much more silvery in leaf and twig. It grows rapidly, but does not attain large size. The flowers are inconspicuous, appear in early spring, and are extremely fragrant. From the name wild olive, people are occasionally led to believe that it is a fruit bearing plant, which is quite inaccurate, as the fruit is entirely inedible. This is a very desirable bush for shrubberies.

PRUNUS PUMILA, Sand Cherry.—This plant is found growing wild in various portions of Western Canada and the United States, and being widely distributed, varies much in quality of fruit and character of growth. Its normal form is prostrate and depressed. In Nebraska it has been cultivated by early settlers for a number of years, and improved varieties will undoubtedly appear under cultivation before long. One is already being offered for sale under the name of Dwarf Rocky Mountain Cherry. This is claimed to be a special form native to certain regions of the Colorado Rockies. The fruit of the type is smaller than the Morello cherry, is nearly black when ripe, with a small proportion of pulp to pit. As a fruit plant it will be useful where the Morellos cannot be grown. It may be of much value as a dwarfing stock both for plum and cherry, and this phase is now under experiment. As a plant of possible value, and as a botanical curiosity, it is decidedly interesting.

The following description of the Sarah raspberry appeared in the Horticulturist's report for 1893 :—

SARAH.—(Record number 4-38.) Produced in London, Ont., by Prof. Saunders, from seed of Shaffer's Colossal. Plant a moderate grower, suckering freely, and propagating naturally only in this way. The foliage seems to be intermediate between the European raspberry, Rubus Idæus, and the American, Rubus Strigosus. The canes have been affected to some extent by anthracnose, but not more than Cuthbert or Marlboro growing along side. Fruit large, round; drupes large, deep garnet, firm, very juicy, pleasantly acid and exceptionally rich. A few ripe berries were found last year, and this year, at the time of the first picking of Cuthbert, but the main crop did not ripen till the season of Cuthbert was over, the last picking taking place each year from the 8th to 12th August.

A striking characteristic of this variety is its habit of ripening the fruit in consecutive order and much regularity, beginning with the terminal clusters of each branch. Of course this is in a measure true of all red raspberries, but none that I know of carry the peculiarity to the same extent.

JOHN CRAIG.

Ottawa.

Question Drawer.

Carp.

640. SIR,—Can you inform me if it is possible to buy young carp in this country, and if so, where? Also address of any person who sells bees?

P. H. DEWDNEY, *Eglinton, Ont.*

Boilers for Making Jams and Jellies.

641. SIR,—Could you give me the address of any firm who manufacture small boilers suitable for making jams and jellies, with a capacity of about fifty or seventy-five pounds at a time? Could you also furnish me with the address of a firm who make tin pails for holding jams.

JOHN STEWART, *Nanaimo, B.C.*

The G. H. Grimm Manufacturing Co., of Rutland, Vermont, who have a Montreal office, send us their catalogue illustrating a sugaring-off arch. This they make in any size required from 2x2 feet and upwards; the usual size is 2x4 and the arch ten inches longer. Instead of using tin, the pans should be made of copper. These cost f.o.b. at Montreal, $35. They also make an evaporator in the arch above described, which would probably be more satisfactory, as the liquid would not remain over the fire as long as it would in ordinary pans, and the result would be a better quality of product. Such an evaporator made of copper, complete with arch would cost about $50. Pails for jellies may be had from the Sydney Shepherd Co., Buffalo, N.Y., and possibly from Thos. Davidson & Co, Montreal. In Fig. 000 the pan measures 26x47x12 inches.

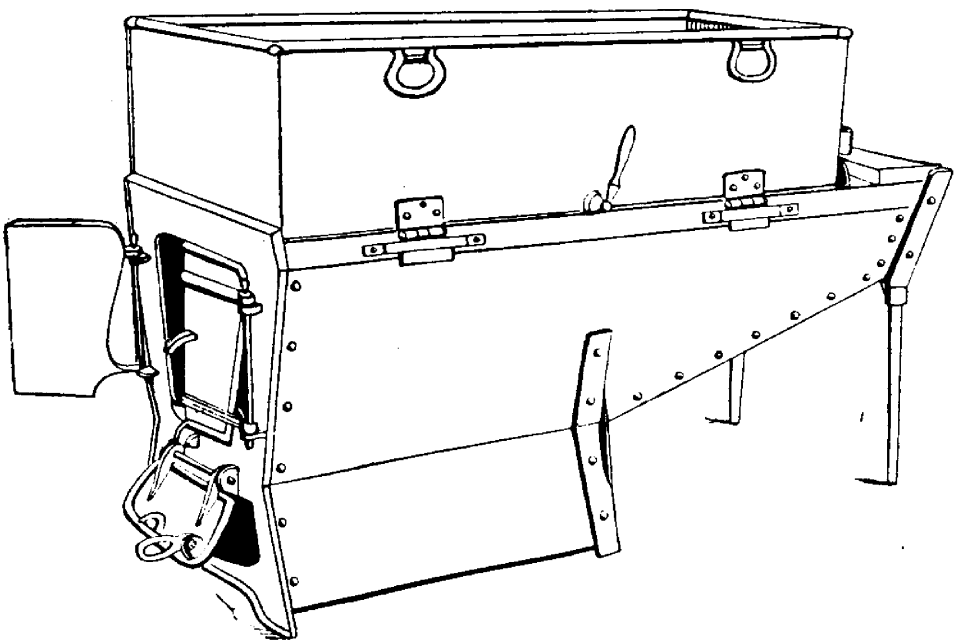

FIG. 660—GRIMM'S SUGARING-OFF ARCH AND PAN

The Ontario Apple.

642. SIR,—Is the Ontario apple hardy? Would it stand our climate? Is it a good bearer? What is its size?
IRA N. BURTT, *Keswick Ridge, N.B.*

Reply by Mr. A. McD. Allan, Toronto.

The Ontario apple tree is, as far as tested, quite as hardy as Spy, and I think should succeed in York Co., N.B. It is a biennial medium bearer, the fruit being always well distributed over the tree, and generally of uniform size (which compares well with a good-sized Spy). Ontario comes into bearing early, and taking one year with the other, alongside of Spy in full bearing age, will produce much better results than the Spy. I think you will find it is successfully grown in parts of Nova Scotia, and I have never heard complaints of tenderness in the tree.

Best Varieties.

643. SIR,—Please name earliest and best of each of the following: Yellow, freestone peach; pear; plum; red, white and black grapes.
O. F. W., *Fort Erie.*

These kind of questions cannot be satisfactorily answered, because best in one place is not always best in another. In general we would name following in order: (1) Early Crawford or Foster peach; (2) Giffard and Bartlett pear; (3) McLaughlin and Imperial Gage plums; (4) Lady, Niagara and Diamond, white grapes; (5) Delaware, Lindley and Brighton, red; Moore's Early, Concord, Worden and Wilder, black grapes.

The Apple Tree Bark Louse.

644.—SIR,—I am much troubled with the bark louse on my apple trees. Can you suggest a wash to kill them, giving the quantity of each ingredient to, say a pailful of water. I have tried a number of the solutions advised, but don't find them any good.
J. MURRAY SMITH, *Montreal.*

The apple tree bark louse, known as the Oyster Shell bark louse, from the shape of the mature insect, is a very common and a very troublesome insect. Many orchards throughout the country are dying on account of its ravages, and the owners are not even aware of its presence. The only time in the year when it can be effectually destroyed by any wash is about the first of June, when the young lice hatch out. Being tender at that time, an alkaline wash, such as washing soda and water, is effective, using as much of the former as can be dissolved. The best remedy is spraying the whole tree with kerosene emulsion, a formula for which may be seen on page 161. In order that the liquid may have the better effect, the rough bark should be scraped off with an old hoe, previous to spraying.

An Ichneumon Fly.

645.—SIR,—A large plum tree in my garden has some little holes in the bark, about as big as pigeon shot; and as spring advances I find, by close watching, an insect coming forth of wasp-like shape, but smaller, leaving a cocoon at the outlet. I send you specimens collected last summer.

W. S. DANA, *Portland, Me.*

Mr. W. H. Harrington, of Ottawa, says these are the remains of a species of Ichneumon, probably Ichneumon acerbres, a common small black species. It is a parasite upon other insects.

Russian Apricot.

646. SIR,—Is the Russian apricot a success in Ontario? We have some which are thrifty enough and bloom well, but never bear fruit.

G. B. LINDENWOOD.

Your experience corresponds with ours at Maplehurst. We have a dozen Russian apricots which have bloomed freely for several years, but give us no fruit. This is apparently owing to the early period of blooming, which is subject to injury from the late spring frosts. If any of our readers are more fortunate would they please report.

Ashes from Cedar.

647.—SIR,—What quantity of ashes would be produced by burning a cord of cedar wood?

P. J. WILKINSON, *Cambray, Ont.*

Reply by Prof. Shutt, of Central Experimental Farm.

Dry cedar wood is very light, but I cannot guess even at the approximate weight of a cord of it. If your correspondent could furnish that datum, perhaps the weight of ash produced could in sound numbers be arrived at. We have no figures as to the percentage of ash of cedar, but from analogy I should judge it to be about one per cent. on the air-dried wood. The proportion of bark to wood would materially effect the weight of ash produced, since the percentage of ash in the former is, I suppose, about three times greater than that in the latter.

Grafting the Grape.

In answer to Question 639, by Alex. McNeil, Windsor.

Cleft-grafting the grape is frequently unsuccessful. A better method is a species of marching. Make a hole large enough to accommodate the roots of a good one or two-year old vine at the base of the vine to be grafted. Make a V-shaped incision in the stalk, as low as convenient, into which fit the new wood of the young vine. Tie in place, and keep earth around the stem to cover the union, leaving two buds of the scion exposed. Prune the old vine severely, to give the scion every advantage, but not enough to injure the root system. The next year cut the old stem off above the union and the graft below.

✱ Open Letters. ✱

Plum Knot Insect.

SIR,—I have read Mr. Gibbs' contribution on the "Black Knot" in your April issue with much interest, and also the reply by Messrs. Craig and Fletcher; and it is much to be regretted there are such differences between practical fruit growers, for such lead to carelessness and indifference on the part of many, which is sure to defeat union of effort in stamping out fruit pests. No doubt Mr. Gibb has been led into an error, and there should be no doubt that his opponents are right.

Of course, we all know it is a subject of great importance to fruit growers in Ontario, causing an annual loss of tens of thousands of dollars; and we are all doing a little—some of us very little—to get rid of the evil.

I will be greatly obliged if Mr. Gibb will kindly send to me, or to you, Mr. Editor, or to any interested entomologist, a few specimens of grub-infested black knots, on which the bark is not ruptured. For myself, I may say that after about forty years' rather intimate acquaintance with this pest, I have failed to find larvæ—grubs—in knots in which the bark was not ruptured; and I may also say that, on several occasions, I have kept the disease in check by cutting out the galls (knots) before the rupturing of the bark.

WM. BRODIE, *Toronto.*

SIR,—I see in the March No. a letter signed W. T. D., in which he gives an account of his success in fighting the black knot on his cherries, and was glad to see that it agreed with my own experience. I commenced about five years ago, as my trees were then young, and cut off the knot from the large branches and applied turpentine; the following year I started with the coal oil, which I have used ever since, and last year I applied the coal oil without cutting off, and it seems to kill them, the only difficulty is as the knot is not removed a fresh attack might be mistaken for the old ones, if not looked for carefully. Still, I believe that prevention is better than cure, and that can only be attained by the destruction of the diseased trees; but as the law now stands it is almost a dead letter, as a man does not like to inform against his neighbor and thus get his ill-will, so that the only way to carry out the law will be to appoint a stranger to look after it; say, let the district at first include two or three counties where these fruits are largely grown, and where their services would be appreciated, and gradually extend the area. The Bee-keepers Association succeeded in getting an inspector for foul brood, and it is pretty well stamped out of the Province. Could not the same man take both? This ought, I think, to engage the attention of the Fruit Growers' Association at their summer meeting, as it seems to me that is the only agency by which it can be accomplished, and I have written this to bring it to your notice.

A. J. COLLINS, *Listowel.*

SIR,—I have taken a great deal of interest in the CANADIAN HORTICULTURIST, and I find it a very useful publication indeed, and I have been pleased to sound its praises to all I meet who are engaged in fruit growing, believing they can all benefit very much by its perusal. But yet I think we must use caution and consideration in accepting all its contents as infallible. I have been greatly interested these past three yeors in that pleasant and ennobling branch of industry—fruit growing—and I like to do all I can to further the interests of fruit growers, and I find your journal of signal benefit to me; yet I cannot fully concur with all I read in it without somewhat modifying some of the passages.

I notice on page 81 of the March number, a paragraph headed, "Are Novelties worth their Cost?" Prof. Bailey thinks they are. My experience, gained from careful observation, is that they are worth testing, but I think farmers and those intending planting should either leave them alone or go into them very cautiously and sparingly till they have become older and their good name has become an established fact, when they will always be obtainable at a much reduced price. I have seen a great many cases where fruit tree agents go through the country recommending some new variety of fruit, and selling it largely for a high figure, and the result of such has generally been failure, and the nurserymen and their agents thus acquire a reputation unenviable.

Of course, I think it well for our experimental stations, and those engaged in testing new fruits, to give all such new fruits proper trial, and persons who are actively engaged in fruit growing, who have the time and money to spare, may test them sparingly in their own localities. But I think it a mistake to plant a lot of new varieties before their char-

acter has been properly tested. It is too much like marrying a wife without having made her acquaintance. I like Count Von Moltke's advice—"Weigh, then accept"—better. We have seen too many cases of where new fruits receiving high recommendations have been planted largely by growers, and the result a failure. For instance, the Weaver plum was highly recommended, and sold at a high price at one time, and now it is almost discarded. Also the Moore's Arctic has been sold through many sections of Eastern Ontario for $1.50 each, and we can scarcely find a tree alive now, although it was said to be very hardy, of excellent quality and perfectly free from attacks of the curculio. This last is generally true, as there is scarcely ever any fruit seen on them down in this part of the country. So I think it well to advance slowly but surely. And especially the farmer or those who are planting for their own use will do well to plant nothing but well tested varieties, as experimenting is too costly and requires too much time for individuals to carry it on very extensively. W. J. KERR, *Smith's Falls, Ont.*

Prunus Simoni.

My Simon's plum, which you sent me two years ago, bore last year. The fruit was like a peach, but very bitter, even when preserved. A good many agents are selling them, and I think we should make it public that they are not of much value.

D. L. SKIPPER, *Mount Forest.*

Question Budget.

Any reader will please send in a reply to any question.

Will vegetables, such as onions, potatoes, etc., get tainted by growing in ground which has been enriched with fish manure?

Does it injure strawberries to pull them early in the morning with the dew on?

Do jams and jellies take a woody taste when put in small wooden pails? If so, what is the best method to take it out? JOHN STEWART, *Nanaimo, B. C.*

Could you tell me, through THE CANADIAN HORTICULTURIST, the value of flesh and the hair from the tannery, as a manure? What would it be worth a load? A member.

C. M., *Port Elgin.*

GROWING TOMATOES UNDER GLASS.—*Sir*,—How are they set on the benches? At what temperature should they be kept? J. BECK, *Egmondville.*

SPRAYER.—*Sir*,—What kind is best, and where made, and probable cost?

THOS. LAWLOR, *Whitby.*

FERTILIZER.—*Sir*,—What is best kind of fertilizer to use in a young orchard of pear and plum trees? T. L., *Whitby.*

SEEDING AN ORCHARD.—*Sir*,—What is best mixture to seed down an orchard? It is sandy land, with slope to west. It was broken up and last year seeded with buckwheat.

H. M. McD.

CONSULTATION WITH EXPORTERS.—A Committee from our Association, consisting of Mr. M. Pettit, of Winona, and Mr. A. H. Pettit, of Grimsby, met at Toronto on the 13th inst., with the Committee representing the Apple Exporter's Association mentioned above. Three points were especially debated upon, viz., the inspection of apples according to the legalized grades, the basis of a contract between buyers and growers, and the varieties most suitable for export. The views of the exporters on this last point is well set forth above, the contract between buyers and shippers is probably wise if it can be made equally protective for the apple grower as for the apple buyer, but the inspection and grading is evidently too much in the interests of the growers, because if this practice were adopted, they could sell direct to English dealers on contract based on the established grades, without middlemen.

Our Book Table.

BOOKS.

REPORT OF THE ILLINOIS FRUIT EXHIBIT at World's Fair, 1893. H. Dunlap, Savoy, Ill. Sec.

"THE BOOK OF THE FAIR."—A magnificent work, giving a most complete representation in detail of every exhibit. The letter press is printed on the finest enamelled paper, size of pages 14 x 18 inches, and interwoven with the text are two thousand or more photo-engravings, done on copper. The whole is a beautiful gallery of World's Fair subjects, and worthy of the great original. Parts 11 and 12 received, 40 pages each, contain special chapters on Ontario's Horticultural Exhibit, and should be widely seen and read by our people. Published by the Bancroft Publishing Co., of Chicago, Ill. $1 each part.

SPRAYING CROPS. Why, When and How. By Prof. Clarence M. Weed, D.Sc. of New Hampshire College of Agriculture. 1894. 130 pp., 16mo., illustrated. A practical handbook of insecticides and fungicides, and how to apply them. Sold at 25 cents.

EXPERIMENTAL FARMS. Reports for 1893.—This is an interesting volume, showing what excellent work is being accomplished by the various Experimental Farms of the Dominion, under the competent direction of Prof. Saunders. This kind of work requires long and patient experiment, before reliable results can be reached. The plan of having five farms under one management gives the Dominion system of Experimental Stations a standing above any other stations upon the Continent in importance and in great possibilities.

CATALOGUES.

BRUCE'S CATALOGUE OF SEEDS FOR 1894. John A. Bruce & Co., Seed Merchants, Hamilton, Ont.

M. J. HENRY'S Annual Price List of Fruit and Ornamental trees, plants, shrubs, etc. 604 Westminster Road, Vancouver, B.C.

A. G. HALL & SON'S Catalogue of Trees, Plants and Vines. Central Nurseries, St. Catharines, Ont.

A Chicago paper claims to have on its editorial staff a lady of extraordinary abilities. The editor says he "never knew any one who could write with equal ease upon so singular a range of topics with information so exact in detail." An envious contemporary asks why it never publishes any of her articles.—Ex.

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Curious Visitor—"Why is it that all these buildings are faced with hard, smooth brick?"

Resident—"That's for looks."

"And why are these streets paved with soft and rotten wood?"

"That's for use."—Chicago Tribune.

TO ALL GROWERS OF FRUIT.

THE Committee on New Fruits is very desirous to receive samples of seedling fruits thought to be worthy of dissemination; also of all fruits recently introduced. Gentlemen having any such are earnestly requested to assist the committee by sending, when ripe, six average specimens of all tree fruits with unbroken stems; of grapes, three bunches, with three leaves of the vine; and of small fruits, one pint of each sort. Send by express or mail to D. W. BEADLE, 303 Crawford Street, Toronto.

Feed the Plant, and the Plant will Feed You.

FEED YOUR PLANTS WITH

Freeman's High Grade Manures

And you can depend on your plants feeding you.

Freeman's High Grade Manures contain Plant Food in a soluble form and in such proportions as will nourish your crops from beginning to finish.

Send for Catalogue for 1894, giving experience of leading Canadian and American farmers with Fertilizers. Remember, FREEMAN'S MANURES HEAD THE LIST. Buy them—have no other.

W. A. FREEMAN, HAMILTON, ONT.

WATERDOWN, ONT., January 24th, 1894.

W. A. FREEMAN, Esq., HAMILTON, ONT.

DEAR SIR,—We find that it pays remarkably well to use your fertilizers on potatoes. The fertilizer not only produces a large crop, but the potatoes are smoother, handsomer and of much better quality than where large quantities of good yard manure are used. We seeded to oats last year the field in which we used your potato manure on potatoes in the season of 1892. The oats were large and heavily seeded—some of them grew over four feet high; on the land where no fertilizer was used, they were very short, and all through the season looked as if they were sick. The difference could be seen as far as a person could see the field. We cannot farm with profit without "plant food" and believe the cheapest form in which to get such food is in commercial fertilizers.

Yours truly, (Signed) MULLOCK BROS., per L. J. M.

BOYD'S POTASH SALTS !!!

Truth Stranger than Fiction. What Mr. Kerman says.

SIR,—The Muriate of Potash which I got of you in the spring has **far exceeded anything I have seen in the way of fertilizers.** The first thing I applied it to was my **asparagus bed**; the result was **really astonishing.** Owing to my being ill and confined to the house for some weeks about the end of May, I had a small block of peach trees which were omitted to be cultivated. I did not get round until the **10th July**, when there was a large crop of fruit on them, but the trees **looked very sickly and the leaves yellow.** On the **13th July** I put on round the trees, about three feet from the stem, **3 lbs. of Muriate of Potash** per tree. The effect in **even 10 days was extraordinary** (they were Alexander peaches), and **there were not near the rotten ones** on those trees that there were on other trees that had not been dressed. I am **very pleased** you recommended it to me, and **cannot speak too highly of it.** Should you at any time wish to make any use of this letter, you are at perfect liberty to do so.

D. KERMAN, Post Dalhousie.

29th August, 1893.

ALFRED BOYD Chemical & Fertilizer Merchant, 1 Wellington St. East, Toronto.

DUDLEY & BURNS PRINTERS