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CHRYSANTHEMUMS.

SEE COMPANION TO PROCEEDINGS.

THE
Canadian Horticulturist

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No. 4.

CHRYSANTHEMUMS.

THE Buttercups and Pansies will have all been laid to rest, The Tulips and Carnations all be gathered to earth's breast, The Roses and the Lilies will have lost their sweet perfume Before, to cheer the lonely earth, Chrysanthemums will bloom.

—*Dart Faithorne.*



CHRYSANTHEMUM Indicum, "the India plant," has, from time immemorial, been cultivated in India, China and Japan; and in these countries this flower, so free to flower, so easily cultivated, and so varied in its forms, has been a particular favorite. The Chinese and the Japanese have been competing with each other in the production of new varieties, and their success proves that the florist's art is by no means neglected in those distant countries. The Japanese have invested it with especial importance, and regard it as a sacred flower possessed of peculiar religious symbolism. This plant, introduced to America by some traveler, has now become one of our most popular flowers, and is produced by our florists in such infinite variety that none but a specialist could make any pretension to being posted on the

endless named varieties that have been catalogued.

So great has become the rage for this flower that at least a million plants were sold by the florists of America last Spring, and probably a larger number, still, will be sold this season. Chrysanthemum shows, of two or three days each, are the order of the day in Autumn both in Europe and America, and are attended by thousands of people.

It is deservedly thus popular, for what compeer has it among our late Autumn flowering plants, thriving as it does equally well in the small city lot, or the ample area about the suburban or country residence.

The three principal classes of Chrysanthemums are thus described by MR. JAS. VICK, ROCHESTER: *Chinese*, bearing a large, loose, graceful flower; the *Pompon*, with small and perfectly double flower in great abundance; the *Japanese*, with ragged fringe-like flowers, like the Chinese, only more so, and the *Anemone*, flowered or quilled. Our colored plate represents several choice varieties, which group together in a charming bouquet, viz.: (1) *POMPONS*, *Perfection*, reddish brown; and *Model*

of *Perfection*, pink, margined with white; (2) CHINESE, *Amphilla*, bright crimson; (3) JAPANESE, *La Charinense*, purple, shaded lilac and white; and (4) ANEMONE FLOWERED, *Tricolor*.

Regarding the CULTIVATION of the Chrysanthemum, we give the following valuable extract from a paper by Mr. A. H. Feukes, read before the Massachusetts Horticultural Society, at Boston:—

The *cultivation* of the Chrysanthemum should begin as soon as the plant is through flowering, for it is in a great measure upon the health of the cutting taken from the old plant that future success depends. Many growers, as soon as the plant has flowered, cut it down to the pot; but this is a very risky thing to do, as many varieties have a weak constitution, and will sometimes refuse to start into growth if the old tops are cut off too soon. The best way is to cut the branches back quite severely at first, but not to cut the plant down to the pot until the shoots have begun to start quite freely from the roots.

The Chrysanthemum is essentially a sun-loving plant, and any encroachment on its rights is fully paid for in sickly plants and flowers devoid of that exquisite coloring that should make them so charming. The plants, as soon as they are through flowering, should be put in the sunniest place possible, and have plenty of fresh air, judicious watering, and a temperature of about 50° or 55°.

An April cutting that has never been checked is much better than one started in February or March, and allowed to become pot-bound, for one great secret of success in

Chrysanthemum culture is to be found in keeping the plants in a healthy growing condition from the time the cuttings are made until they come into flower.

Pinching may begin as soon as the plant is about six inches high. Pinch out the smallest amount possible from the growing end, never cutting back to hard wood except in cases of unshapely growth. Pinching is best done a few days or a week before the plant is shifted to a larger pot, for by this time the new shoots have begun to start, and will be in condition to use the nourishment supplied by the fresh soil.

For planting out, such a location should be chosen as will, at all times, have a full exposure to the sun and air. It is desirable that it should be so situated as to be protected from strong winds, but this must not interfere with the prime necessities of sun and air. The plants can be so staked and tied that they will withstand all ordinary winds, but nothing will supply the deficiency of direct sunlight and fresh air.

A light, rich loam is the best soil; if possible, it should be quite sandy, so as not to adhere to the roots in hard lumps, but to fall away without taking the roots with it. With a proper soil and a high, open exposure, there need be little fear of mildew, the one nearly unconquerable enemy of the Chrysanthemum grower.

The plants should be placed in rows, about two-and-a-half or three feet apart each way. For each plant a hole about the size of a potato hill is dug and filled with manure, which is well forked into the soil. The plant is placed in the hole, which is

then filled up with loam, being careful that the surface is lower than the surrounding ground, so as to retain any water that may be given to the plants.

The plants are to be kept well watered until the roots have taken hold of the soil, after which they receive no water unless the season is dry and they show signs of suffering, when they may have it as often as needed, occasionally substituting liquid manure. Whichever is used should be applied at evening, so as not to be evaporated before it has time to soak into the ground. As soon as the roots begin to take hold of the soil, the plants will push out branches very freely, which should be pinched as soon as they are four inches long, repeating the operation as often as the branches become long enough, and continuing until about the middle of July, after which the plants may be allowed to grow at will, simply cutting back any unshapely branches. The most severe pinching is done while the plants are quite small, so as to secure as many branches near the bottom as possible. These remarks do not apply to varieties that make shapely plants without pinching; such had better be left to themselves.

The worst insect pest is the black aphid, which will cause much trouble if allowed to increase. Dalmatian powder, applied with a bellows, is an effectual remedy.

About the second or third week in August the plants are lifted, the best time being when the ground is very dry, for the plants will then recover sooner than when it is moist. They are taken up thus early because it is

better that they should form their buds after potting, for, if formed before, their potting will cause a severe check which is apt to result in deformed or one-sided flowers.

The plants are lifted with all the roots that can be secured; but in order to get them into reasonable-sized pots considerable of the soil is carefully shaken off, provided it is light enough to fall off easily without breaking into lumps. For potting, soil containing more manure than that for the small plant is used—about two parts of good loam to one of well-rotted stable manure. The pots are selected according to the size of the roots, being careful not to have them too large.

In potting large plants the soil should never reach higher than an inch from the rim of the pot, so as to leave ample room for an abundance of water and liquid manure.

After the plants are potted they are placed under trees where they can have plenty of air, but at the same time be shaded from the hot sun. They remain here about a week, or until they seem to have recovered, when they are taken to the ground where they grew, and plunged to the rim of the pot in the soil. As they begin to grow they must have plenty of water and never become dry. The young roots soon reach the sides of the pot, after which liquid manure may be freely given as long as the buds are growing.

As cold nights approach, the plants are placed under glass, even before actual frost appears. It is a mistake to try to keep the plants out until the actual appearance of hard frost, for we have many nights not cold enough

to freeze, but cold enough to check their growth, and this checking of their growth is an acknowledged cause of mildew wherever it appears.

Those who wish to cultivate Chrysanthemums, but have no house, will do best to procure young, healthy plants in May, giving the treatment above advised after that time, until the time for housing, when they may be taken in on cold nights and placed out of doors through the day. As house plants, they should be kept well watered, syringed as often as

possible, being careful not to wet the flowers, and kept in the coolest, airiest place to be found. The black aphid, or black fly, is usually found quite troublesome, but can be conquered by persistent application of Dalmation powder with the bellows.

If it is desirable to keep the old roots over the winter, they should be placed where they will be kept quite cool, and, if possible, near a sunny window. Early in the spring they may be divided and planted out in the open ground and receive the same treatment as young plants.

A REPORT ON THE CRANDALL, THE NEW BLACK CURRANT.

SIR,—I notice in your February issue an inquiry, No. 14, as to the Crandall Currant. I enclose my experience with growing it for two years.
E. E. S.

A SEASON'S trial of this new form among the currant family shows that it really has some very desirable qualities. In spite of the severe drought of last summer it made a most vigorous growth, fruiting on the one-year old wood. The Crandall is like the common Black Currant in being absolutely free from insect enemies, either here in New York State, or in Ohio, or in its original home of Kansas, but differs from it in not having that peculiar odor, resembling *Cimex lectularius*, a well-known household insect; the taste is like a ripe gooseberry, with something of the sub-acid quality of the Red Currant. For pies, jellies

and jams, it is not inferior to any of the small fruits, which were similarly treated, and unlike Raspberries, especially it has but few seeds.

As far as the disseminators, Messrs. Frank Ford & Sons, of Ravenna, O., are able to learn, the Crandall is a hybrid from the Red Cherry Currant (*Ribes rubrum*), and the Missouri Yellow (*Ribes aureum*), and, with me, its habit and productiveness confirm that idea. The color is a shiny bluish black; the size ranges from a half inch to three quarters of an inch in diameter, greatly resembling a Concord Grape; and as a market fruit it seems almost without a rival.
E. E. SUMMEY, La Salle, N Y.

NOTE BY EDITOR.—We have procured an engraving of this Currant, and here give it place; but wish it to be understood that we do not know of its having as yet been fruited in Canada, and therefore we only recommend it for trial.



FIG. 26.—THE GRANDALL CURRANT.

SEXUALITY OF THE STRAWBERRY PLANTS.

SIR.—Can you explain the following discrepancy:—Charles Green says Hermaphrodite strawberries are productive under all circumstances. Pistillate and Staminate only when planted within say ten feet of each other. Knapp says that they may be divided into two kinds, H. and P. The Staminate

being always barren, which I take it means it to be of no account.—J. C.

THE study of sexuality of the varieties of strawberries is almost indispensable to the success of the

strawberry grower. The Wilson, for example, will produce fruit in abundance wholly isolated from any other variety, but the Crescent, similarly situated, will bear comparatively light crops. The reason of this is evident upon the examination of the flowers of the plants themselves, for we find the Wilson to be a perfect flower, having both stamens and pistils, as is shown in fig. 27, in which the central portion is a group of pistils, or organs of the flower in which the seed is produced. Around these may be seen a fringe of stamens, or



FIG. 27.



FIG. 28.

organs which bear upon their tips little pods called anthers, full of a fine yellow dust called pollen. Now unless the pistils receive a portion of this pollen the seed never will mature, and if the seed fails to mature, the strawberry, which is but the receptacle which holds the flower and later the seeds, will never develop. The Wilson, having a supply of its own, as represented, never fails in this respect, and is therefore called *perfect* or *hermaphrodite*. The Cres-

cent blossom, shown in fig. 28, has pistils, but is almost entirely lacking in stamens. It must, therefore, depend upon the pollen of some perfect variety growing near, as the Wilson, and is called *pistillate*. In addition to these two classes there is a third, or *staminate* class, in which the flowers have stamens, while the pistils are few and imperfect. These latter class, it is evident, can not bear fruit under any circumstances, whether near to or far from pistillate plants. This latter class does not exist among cultivated varieties, and hence Mr. Knapp's statement that strawberries may be divided into two classes, hermaphrodite and pistillate.

From the above it is evident that to attain the best results with pistillate varieties, hermaphrodites should be planted in proximity. Growers differ as to just what distance is necessary to attain the best results; some advising a row of pistillate every third or fourth row, while others think one in seven quite sufficient.

As to the kinds which succeed best in company, much success has been attained with Crescents (P), fertilized with Captain Jack (H), for quantity, or with Sharpless (H) for size; also with Manchester (P), fertilized with Sharpless (H).

THE WOOD-PECKER ON THE BIRCH TREE.

BY D. NICOL, CATARAQUI, ONT.



THE vermilion crested wood-pecker—I am not sure about his specified name, but he looks very like the *Picus Pubescens*,*—is a bird about six and a half inches long, frequenting orchards and ornamental grounds in the neighborhood of dwellings, and with which almost every one interested in the growth of trees is familiar.

Its color is black and white speckled. The male differs from the female, in that he has a vermilion colored patch on the top or rather the back of his head. He is easily distinguished from some other birds of the same genus, by his loud single note uttered, and sometimes repeated, as he darts from one tree to another. The young males are not adorned with the bright crest until they are over one year old; consequently with their first coat of plumage they look very much like the mother.

He is a native of North America, and remains in Ontario throughout the year. He is a remarkably ingenious and industrious bird.

For a place in which to make their nest, a hole, as circular as if described by a pair of compasses, is cut in the solid wood of a tree, the first part about six or eight inches hori-

zontally, then downwards to the depth of eight or ten inches, roomy and capacious at the bottom, and smooth as if polished by a cabinet-maker. The entrance is judiciously left just large enough for admittance.

The eggs, generally six in number and pure white, are laid in the smooth bottom of this chamber. The male supplies the female with food, and about the first week in June the young may be seen climbing the tree with considerable dexterity.

The bird spends some portion of his time hunting for insects on apple and other trees, throwing off the outer bark scales and moss in order to get at his prey, such as spiders and their eggs, wood-lice, ants and probably some insects that may be injurious to the apple tree, although he never touches the bark louse. He also has a mischievous habit of boring small holes through the bark, about half an inch apart, in pretty regular horizontal circles around the body of the tree, as illustrated in accompanying figure, making it appear as if some human genius had spent some time boring the tree with a gimlet.

I have seen orchards in which almost every apple tree was perforated with thousands of these small holes; yet although many of the trees were seriously injured, I am not

*SIR,—Since I forwarded to you article on the "Wood-pecker," I have found the same bird fully described in Mr. McIlwraith's "Birds of Ontario," as "The yellow-bellied sapsucker," *Sphyrapicus Varius* (Linn). Here he is said to be migratory, but he sometimes stays very late and returns very early. He could be seen here in February this year.

March 28th, 1889.

D. NICOL.

aware of any being killed outright by the operations.

Not so, however, with the White Birch, the Weeping and the Cut-Leaf Birch. With this class of trees fatal results have of late years become quite common. In Cataraqui Cemetery, Kingston, during the last three years' time, Cut-Leaved and Weeping Birch have been killed by this wood pecker. On the fine smooth bark of this class of trees he bores the holes much closer together than on rough-barked trees, and the circles of holes are placed so much closer together that the tree may be said to be completely barked in some places as much as one foot lengthwise the whole circumference of the tree. Whatever of the bark is left on the wounded spot soon dies, so that the tree when not killed at once, only lingers with a decaying existence for a few years.

When the boring is done in spring as it most generally is, the evil effects are much more apparent because the sap flows profusely from every wound, consequently some of the trees actually bleed to death. He also attacks the Mountain Ash, Linden, Larch, Butternut, Blackwalnut, Scotch and Austrian pine and Norway spruce in the same way, but seldom kills any of the five sorts.

One thing particularly noticeable is that he hardly ever attacks a sickly or decaying tree. His depredations have lately become so prevalent in this part of the country that he is now considered the greatest pest that landscape gardeners have to contend with.

Some naturalists aver that he bores in search of the larvæ of in-

sects which, if allowed to remain unmolested, would ultimately destroy the tree. I think this statement is incorrect, for after having made very close investigations, I have failed to find any symptoms of insect life under the inner bark of such trees as have been attacked, and I am not aware of any of the trees mentioned ever being injured by any kind of insects which could have existed in a larvæ state where he so incessantly labors.

If there may be any animal life under the inner bark, it must be in the form of animalculæ, and I have been forced to the conclusion that he bores chiefly for the sap, which I have no hesitation in saying he drinks freely of. My belief in this theory is strengthened by the fact that he is often seen to keep his chisel-pointed bill inserted for a time in some of the newly-bored holes. I have no doubt it is this habit which has brought on him the opprobrious name of sap-sucker, by which name he is now known hereabout.

It is said by some that he taps the trees with a view of attracting insects, and that when they become gorged with sap they become an easy prey for him. I am not prepared to dispute this point, I am rather inclined to believe there may be some truth in the statement.

At all events, whatever may be his motives for boring so many holes, the evil is immeasurably greater than all the good he does. Therefore I am obliged to adopt means of extirpating him, the best of which I have found to be the shot-gun, using fine shot so as not to injure the bark of the tree.

March 11th, 1889.

NOTES ON VARIETIES OF SMALL FRUITS.

BY W. W. HILBORN, EXPERIMENTAL FARM, OTTAWA.

AS the time when planting will soon be at hand, a few notes of varieties of small fruits will perhaps be interesting to some of the readers of the HORTICULTURIST.

Ninety sorts of strawberries were in full fruiting on the Experimental Farm, Ottawa, last season. The weather was unusually dry during the period of ripening, which had a very injurious effect on the yield of fruit. Late varieties suffered most. Among the new sorts, *Mommouth* was the most promising for first early; *Bubach* produced the largest crop of any new kind in the collection. It will average, large to very large, quite early, not firm enough to stand shipment a long distance, but for home use or near market, it promises to be of much value. *Jessie* is of the same type; more firm; better in quality; a little later in ripening but not as productive or as vigorous and healthy in plant and foliage. *Lida* was the most wonderfully productive plant I have ever seen, but it is not vigorous enough in growth. There is not sufficient foliage to protect the fruit from being injured by sun scald. To succeed well it must have very strong rich soil and good cultivation. *Pine-apple* is a promising new sort for home use. It is not firm enough for market; it is of fine flavor; healthy in foliage; plant vigorous and productive. *Annie Forrest*, *Crawford*, *Daisy*, *Enhance*, *Gandy*, *Ontario*, *Pearl* and *Woodhouse* are all worthy of trial for market.

Itasca and *Belmont* were quite unproductive and the fruit was not of attractive appearance. *Covill* was very early but after the first picking the fruit ran too small in size. *Excelsior* and *Hoffman's Seedling* of no special value, fruit not large or firm enough.

Several of the older kinds that have not been very generally tested throughout the country, proved quite promising and should have a more extended trial. They would no doubt prove valuable in many localities. *Woodruff* made a good showing; the fruit was large, conical, often wedge-shaped and very firm. The plant, although not large, is very healthy and productive. *Atlantic* produced a fine crop of large, beautiful, bright, dark crimson berries, nearly or quite as firm as *Wilson*. But few if any, either old or new sort, produce a larger crop than did the *Maggie*; it is rather dull in color and not firm enough to stand shipment to a distant market. *Seneca Queen* is valuable for home use, especially on light sandy soil. *Lacon* is a very productive sort, fruit large, irregular, quite acid; plant very large and usually healthy; it is more easily affected by drought than most sorts. *May King* has not thus far proven to be a valuable market sort, not firm or productive enough.

Among the old, well-tested kinds, *Crescent*, *Cap. Jack*, *Manchester* and *Wilson* are the most profitable in the order named.

RASPBERRIES.

Turner, Cuthbert, Golden Queen, Johnson's Sweet, Tyler, Hilborn, Gregg and Shaffer's are the best varieties either for home use or market that has been fully tested. Ada and Palmer, two new sorts that are being introduced this Spring, did not show any superior merits over those named above. Some of Prof. Saunders' Seedlings and Hybrids gave evidence of superior merit, but more time is required to judge fully as to the value

compared with the standard sorts already in cultivation.

BLACKBERRIES.

Snyder and Taylor's Prolific were the best among the older varieties. *Agave* is quite hardy but does not appear to be very productive. *Stone's Hardy* is small in size and not equal to Snyder. *Minnewaski* appeared the most promising among the new sorts. *Erie* is quite tender. I think it will be valuable only in favorable localities.

RUSSIAN APRICOTS.

MR. SECRETARY:—From the reports of the meeting of the Ontario Fruit Growers' Association, published in the newspapers, it appears that the meeting was of the opinion that the Russian varieties of the apricot were a failure, notwithstanding that *not one member present had any personal experience with the fruit.*

If the gentlemen who were so free to condemn that of which they knew nothing, had taken any pains to inform themselves, they might have learned that the evidence was all the other way.

This fruit was first grown in America by emigrants from Russia, who thought so highly of it that they brought the seeds with them. They settled in Nebraska, planted the pits, and from them sprang trees which proved to be hardy enough to endure the low temperature of thirty degrees below zero. From these there has

sprung a race of hardy apricots of choice quality, known under the general appellation of Russian apricots, but bearing distinct names, such as Alexis, Alexander, Budd, Gibb, Nicholas, etc.

We are indebted to Messrs. Carpenter & Gage, of Fairbury, Nebraska, whose reputation as Nurserymen is unsullied, for the dissemination of these choice varieties. Living in the state where the emigrants from Russia settled, and having every opportunity of knowing the hardness of the trees, the quality of the fruit, and time of ripening, they do not hesitate to speak of them in the following terms:—

Gibb:—Fruit medium, yellow, subacid, rich, juicy, season June 20th.

Alexander:—Fruit large, yellow flecked with red, sweet, delicious, season July 1st.

Nicholas:—Fruit medium to large, white, sweet, melting, season July 10th.

Alexis:—Fruit large to very large,

*No opinion was expressed by the meeting as such, only by two or three individuals.—
EDITOR.

yellow with red cheeks, slightly acid, rich and luscious, season July 15th.

Catharine.:—Fruit medium, yellow, mild, sub-acid, season July 20th.

J. L. Budd.:—Fruit large, white with red cheeks, sweet, extra fine, with a sweet kernel as fine flavored as the almond, season August 1st.

Furthermore these gentlemen state that the trees are very hardy, standing uninjured when the *Moorpark*, *Golden*, *Breda*, etc., are frozen to the ground, enduring 38° below zero without a twig being injured :

That thus far they have been free from the ravages of insects and diseases; the borer does not molest them, nor the black-rot, nor the blight :

That the trees come into bearing as early as the Peach, and, the fruit being as valuable, these apricots will make a very desirable substitute for the peach in latitudes where that tree cannot be successfully raised :

That the fruit stands shipping better than the peach, and will keep longer after being picked.

The testimony of these gentlemen is fully confirmed by the editor of the *Emporia Republican*, Kansas; by Mr. E. L. Meyer and Mr. A. Tawny, of Iowa.

Now to come a little nearer home. Learning that Mr. Hayden, of Ridgetown, County of Kent, had lived in Nebraska, I wrote to him for his opinion of the Russian Apricots, and received the following reply:—

Ridgetown, Ont., Jan. 29th, 1889.

MR. D. W. BEADLE, St. Catharines,

DEAR SIR,—In regard to the Russian Apricots, from my experience and observa-

tion in Nebraska, I believe them to be a valuable fruit to cultivate in this latitude, as it proves to be perfectly hardy there where the Peach was a failure. The trees I planted there fruited the second season, ripened about the last of August and were fine flavored, nearly if not quite equal to the Peach. From its hardiness, and its being a great bearer, I believe it will prove valuable here. —O. M. HAYDEN.

Besides all this it happens that one of my St. Catharines neighbors had planted some of the Russian Apricots four years ago. These were not the improved varieties that are now being disseminated, but seedlings raised from the pits of those growing in Nebraska. I made inquiry of him as to his experience with this fruit and he replied as follows:—

St. Catharines, Ont., Jan. 12th, 1889.

MR. D. W. BEADLE,

DEAR SIR,—The Russian Apricots which I purchased some four years ago, have borne two good crops. The trees yield heavy loads of fruit, which is larger and of much finer quality than any other I ever saw. You can safely recommend them to everyone as a truly valuable fruit that thrives well in our climate.—CHAS. SMITH, Queenston street.

With all this testimony before me I do not hesitate to say that the Russian Apricots have not proven a failure, that they are well worthy of further trial in Canada, wherever the Baldwin apple tree will flourish; that they promise to be more certain to yield fruit than the peach and therefore likely to be more profitable; that they will be exempt from the "yellows," that terrible disease of the peach; and possibly are exempt from the borer, that so often kills the peach trees.—D. W. BEADLE.

WHITE GRAPE CURRANT.

BY S. H. MITCHELL, ST. MARY'S, ONT.

IT often happens that fruit growers, in their eager desire to obtain and test new and rare varieties of fruits, plants, etc., overlook the real merits of many of the older kinds. I believe this is particularly true with reference to the merits of the White Grape Currant. It is a variety of slow and rather dwarf growth, and being an enormous bearer it requires, and must have, extra good cultivation and heavy manuring, or it will soon exhaust itself and become useless.

Some years ago I planted a number of long rows of different sorts of currants and gooseberries to grow fruit for our market, with a view of testing what varieties would give the largest net profits. The rows were set six feet apart, and the bushes were set about three and a half feet apart in the rows. In currants, I planted White Grape, Red Cherry, and Black Naples. The result was that, although the ground was good, and I kept it clean and well cultivated, the White Grape bore such enormous crops that I could not get it to grow wood, and the bushes were becoming stunted. I then gave the land a dressing of unleached ashes, about three quarts to each bush. I spread it evenly over the ground early in the Spring and cultivated it in; and afterward as soon as the fruit was set I spread the land all over as evenly as possible, with about three inches of rough manure. No more is done to it except to pull up some odd weeds that may force

their way through until all the fruit is gathered.

Then the horse cultivator is run through between the rows two or three times, and the ground under the bushes cultivated and cleaned with spading, fork and hoe. The cultivating and hand cleaning is repeated in the Spring. The ashes and heavy coat of manure are put on every Spring. The result has been that the White Grape bore so heavy and such beautiful fruit that the profit from a row of the White Grape was more than double that of the Cherry Currant, and more than three times that of the Black Naples.

I then dug up all the Black Naples and burned them (as I do not believe in growing for market what does not pay), and planted the ground with Houghton Gooseberries. I kept the Cherry Currant two years longer, when the borer attacked them very badly, and as the large wood died and was pruned out, a rank growth of new wood sprang up. The large soft pith in the new wood seemed to just suit the borers, and they became unprofitable. I then dug them up and planted the ground with White Grape Currant.

For the past seven years, with the above treatment, my White Grape Currants have borne enormous crops, and proved the most profitable small fruit I have tried. I may add that so far they have been troubled with the borer very little. The reason they are not hurt with the borer lies in the fact that they make a slow

growth of very hard wood, so that the borer fails to penetrate them.

And here let me say that, in my

opinion, we have no other currant that equals them in *quality, productivity and beauty.*

THE EARLIEST PAY THE BEST.

By E. E. SUMMEY, LA SALLE, N.Y.

THE above assertion none, doubtless, will dispute. During ten years' experience in gardening, while generally successful in the early vegetable line, yet our constant study was to get small fruits in the market ahead of the main crop, and we obtained plants of many varieties, among them being a raspberry and a strawberry, which, after a two years' acquaintance, we find fills the bill. Thompson's Early Prolific Red Raspberry and the Haverland Strawberry equal many of the older ones as to quality; are early, extremely productive, and stood the severe drouths of 1887-8—the best of many sorts. These points counted with us, and likely do the same with other growers.

M. T. Thompson, of Lakewood, Ont., is fortunate in having disseminated two such valuable plants. The Haverland resembles the Crescent in habit, and also has imperfect flowers (May King being used as a fertilizer), but is much more vigorous and productive, with better flavor, nearly as

early as Covill's Early, but larger. Numerous correspondents have attested to its being adapted to a great variety of soils and climate, among whom is Matthew Crawford, the celebrated expert, who writes that on a row sixteen feet long and six inches wide he picked at one time four-and-a-half quarts, and adds that he has never seen any variety that would surpass it. Of the fruit, many specimens were nearly two inches long, ripens all over a bright red, and yields more of a crop on spring set plants than any other.

The Early Prolific is a robust grower, standing our drouth excellently, and friends in the South say that it appears to be of special value in that hot section. This berry has ripened perfectly, while in the same the Gregg dried upon the bushes, several acres not yielding a bushel of ripe fruit. It has not been injured by 22° below zero, and has come in a full week ahead of the Hansell with fine fruit, just as the strawberries were over.

HINTS ON GRAPE CULTURE.

THE following hints on this subject by Lewis Roesch, of Fredonia, N.Y., are seasonable and worthy of the attention of our readers:

Grape and small fruit culture de-

pends for success on the same conditions as ordinary farming. These are mainly liberal fertilizing, a careful preparation of ground, proper care and culture at the right time, and a judicious selection of varieties

suiting to the soil, climate, purpose and market. First of importance for fruit growing is a dry soil. Ground too wet for winter wheat should be underdrained, unless plowing it up into narrow lands with deep dead-furrows between be sufficient. A loamy soil is considered best, and sand or gravel preferable to stiff clay. Whatever manure is used should be plowed or harrowed in before planting, or else placed around vines, but not in direct contact with them.

What and When to Plant.—Plant mainly of varieties that are generally successful, and such as do best in your own neighborhood, but do not confine yourself to them alone. Try other well recommended kinds and new varieties. Be enterprising. If you are the first in a community who learns of the merits of a new kind you may get more satisfaction and money out of a small lot of them than you would out of a large lot of common kinds. Plant at the earliest moment possible. If that be in the Fall, do not wait until Spring. If it be in the Spring, there is certainly nothing to be gained by waiting until Fall.

Care of Stock when Received.—When the stock arrives, unpack and plant at once. Should it, however, appear frozen, do not unpack, but cover it up in a cool, dark cellar, where it may thaw out gradually. Freezing does not injure plants, but rapid thawing with exposure to light and air does. If not ready to plant when received, heel them in, in a dry place, protected both against sun and sweeping winds. Dig a trench deep enough to hold the vines or plants, open the bundles and spread them out against the side of the trench an inch or two thick; cover them with a layer of soil, which press firmly against the vines to exclude air, put on another layer of vines and soil, until completed, taking great care to keep the different varieties separate and well labeled. If the

stock is to be left heeled in over winter, both root and top must be well covered with earth, and over that place a cover of coarse horse manure and other litter to insure safety.

Selection of Varieties.—Beginners in fruit culture are often puzzled as to what to select from among the multitude of varieties offered. To such we would say that climatic conditions and other circumstances generally so limit the planter in his selection that he has usually but a comparatively small number to select from, and often too few indeed. In the extreme North they are short seasons and severe climate, so that none but the hardiest and earliest varieties succeed. In sections where the best can be grown, nothing else is wanted. For family use, only the best that can be well grown are desirable. For market, the most profitable only. What those are, each particular locality and market must determine. The most profitable in one locality and market may or may not be so in another. For keeping, and distant shipping, tough-skinned varieties are preferable. In sections where grapes are much subject to mildew and rot, only the most robust and healthy should be selected.

Varieties of the *Labrusca* class, at the head of which stands the Concord, succeed over a larger extent of territory than any other, and are particularly recommended for planting in the North and North-west. To this class belong the new varieties: Early Victor, Lady, Eaton, Moore's Diamond, Moore's Early, Niagara, Pocklington, Vergennes, Worden, etc. Varieties of the *Riparia* class, such as Amber, Elvira, Noah, etc., seem better adapted to the South and South-west.

Regarding Rogers Hybrids, Agawam, Lindley, etc., we would add that although they are not as reliable as some other varieties, being more or less subject to rot and mildew in unfavorable localities and

seasons, yet they are of the best for all purposes where they do succeed. Large to very large in bunch and berry, good keepers and shippers, strong growers, productive, and of the best quality.

The following we do not recommend; Adirondac, Concord Chaselas, Concord Muscat, Creveling, Eumelan, Rebecca, Rogers No. 2, 5, 7, 8, 13, 17, 24, 30, Senasqua. They have been superseded by newer varieties, but as we yet have more or less call for them we keep them on the list.

The following new varieties we do not find of sufficient value to recommend; Amber Queen, August Giant, Norfolk, Norwood, Oriental.

Planting.—Strong growing varieties as Concord, Niagaras, Rogers Hybrids, etc., should be planted eight to ten feet apart each way; and weaker growers as Delawares, Ladies, Jessicas, etc., some six to eight feet apart according to the strength and quality of soil. In cold climates and exposed situations plant deeper than in warm ones, to avoid injury by severe freezing. For same reason plant deeper in a loose soil than in a compact one. If the soil is clayey or wet, plant some eight or twelve inches deep, and in the Fall

plow up to them, leaving a dead furrow between the rows to carry off the water. But if the grounds be dry and gravelly or sandy, plant no. less than fourteen to twenty inches deep. While planting the vines use care not to let the roots get dry. Cut them back to about a foot long and dig the hole large enough so the roots can be spread out in it, about as they grew in the nursery. Work good, rich, fine and moist surface soil around and amongst the roots until they are all covered, when they should be firmly tramped down. Cover up but partially at first, and level off gradually during the season. After planting, trim vines back to within two or three buds of the ground.

The pruning may be done any time after the leaves fall in the Autumn and before the sap starts in the Spring, although a little bleeding will do them no harm.

Yield.—In ordinary vineyard culture, from two to four tons per acre and from five to fifteen pounds per vine, according to variety, is a fair average yield. However, six to eight tons per acre are sometimes produced, and single vines have been known to yield bushels of fruit.

EMBELLISHMENT OF SCHOOL GROUNDS.

IN a paper recently read before the Massachusetts Horticultural Society, Mr. L. M. Chase, Master of the Dudley School, Roxboro, ably advocated an increased amount of attention to this matter. And in this he is in accord with the spirit of our Association, which has been endeavoring to draw public attention to the bare appearance of many of our rural school grounds, and to the possibility of making them each models

for private lawns and pleasure grounds; and by planting collections of our native trees and shrubs, properly labeled, to educate our children in this department of horticulture. He said:—

The educational influence of a fine public building with grounds laid out in good taste is great. Among a number of examples I will mention the City of Toronto, Can., one of the handsomest on this continent, the beauty of whose school and other

public grounds—made beautiful by tree and flower planting—is celebrated throughout the world. The result is that a great majority of the homes, whether magnificent or mean, are adorned with fine trees and flowers. If the influence on mature natures is so great, what must it be upon young children, whose tastes and habits of thought are not fixed! The celebrated Locke declares that he gained more ideas before he was five years old than in all the rest of his life, and the Jesuits say that if they can have the education of a child until he is seven, they don't care who teaches him afterwards. Indeed, the permanence of early impressions has become a proverb. We cannot, then, begin too early to establish right conceptions of moral and natural beauty in the hearts of the young.

The recent words of the school committeeman who, in reply to the charge of lavish expenditures for schools, declared that "a child is at least as valuable as a paving stone," deserve immortality.

School grounds should be separated into two distinct portions—one for an outdoor gymnasium, and devoted entirely to that purpose; the other should be devoted to turf, trees, shrubs, flowers and walks. Pupils should be taught that everything which adds to the beauty of this place must be carefully preserved. Every plant should be labeled and catalogued, and most carefully nurtured. The play-grounds should have seats against the fences, a shelter from rain and heat, and a supply of pure water. All outbuildings should be screened by lattice work, or, better, by climbing vines like the Woodbine, Virginia Creeper, etc. Pupils should be early led to take an interest in the cultivated part of the grounds. They will soon love the plants and learn how to care for them. When this occurs, thefts and destruction of flowers, so common in many places, will almost entirely disappear, and most happy

results will come in the evident elevation and refinement of the moral sentiments of our children.

Rightly improved, trees, vines, shrubs and flowers can be made most important auxiliaries in instructing and developing our young children, furnishing means for numberless object lessons, even in our primary schools. Such lessons are learned without effort, and even with delight by children who find other school tasks irksome. I have been told by several persons that they first learned to love school through their nature lessons. Such instruction will never be forgotten, and will produce important results in mature life. In the words of that excellent paper, *Garden and Forest*, "Appreciation comes with knowledge, and until our people learn about our trees—their value, their qualities and uses, the history of their lives, their distribution and relationship to the trees of the rest of the world—they will never really appreciate nor value them, or learn to care for and protect them. If there is ever in the United States a stable, successful and popular system of forest control and forest management, applicable alike to the forests of the State and to the humble wood lot of the smallest farmer, it will rest upon a basis of a knowledge of trees and their importance to the community, commenced in the primary schools."

The time is near when, as in Germany, there will be connected with all our school grounds cultivated portions, in which can be found flowers in bloom, from the early snowdrop to the late-blooming chrysanthemum, and typical specimens of our finest native trees and shrubs, and small beds of broken ground where seeds can be sown from which children may see the mystery of germination and plant development. These will serve the double purpose of beautifying the premises and affording aid in practical instruction in natural science.

SOW FLOWER SEEDS IN COLD FRAMES.

FOR the proper germination of seeds of all kinds, two things, heat and moisture, are absolutely necessary. If the soil is wet and cold, many kinds rot, and if too warm and dry the seed will not sprout, or if they do the tender sprouts burn up before they reach the surface. Hotbeds are very useful for forwarding of plants, but inexperienced persons had better not attempt to start seeds in them, unless they are willing to learn by dear-bought experience just how to manage them, until they have become familiar with the management of a cold frame. A cold frame possesses nearly all the advantages of a hot-bed and is the very best plan for starting flower seeds. It is made by making a frame of four boards, the back one about a foot to 18 inches wide, and sloping to six inches in front. This is to be placed on a nicely prepared bed in some warm, sheltered spot in the garden, like the south side of a building or fence, and covered with glass, either regular hotbed sash, or, if these are not to be had, common window sash.

Make the soil in the frame very fine, and press it down quite hard and smooth with a board or the back of a hoe, and then sow the seeds on the surface, broadcast, thinly and evenly, in squares that have been marked out. This is a much better way than to sow them in drills. Label each sort with a short stick stuck in the ground. After they are all sowed cover them with soil of a light, sandy nature, that has been sifted through a sieve, by carefully sprinkling it over them, covering each set to a depth corresponding to the size of the seeds. Many fail with seeds because they cover them too deep. Very small seeds, like petunia and portulaca, should not be covered more than a sixteenth or eighth of an inch, and aster, verbena, and seeds of like size, not more than a quarter of an inch. In sowing the seeds it is well to sow the largest kinds in one end of the frame and the smaller ones in the other,

which will make the covering of them to the proper depth easier. After the seeds are all covered, press down the soil quite hard and firm.

After the seeds are covered give them a good watering, using a very fine sprinkler so as not to wash the soil from the seeds. The sash should now be put on, and be kept tightly closed until the plants begin to come up, but if the surface shows the least sign of drying up, it should be watered as often as necessary to prevent it. After the plants are up, the sash should be partly removed in the middle of bright, warm days, and protected from frost at night with boards, or straw if the weather is cold.

The time required for seeds to germinate varies very much; some, like aster and zinnia, germinate in five or six days, in a warm soil, while others require two or three weeks, and some a month or more. Some, like verbena and geranium, are very uneven about germinating, some coming up in two weeks and others make their appearance daily for several weeks or months.

As a cold-frame depends on the sun for heat, it should not be started before April in this latitude; my rule is from the 10th to the 20th of the month. The plants will then be quite large enough to transplant to the open ground as soon as danger from freezing is over. Many persons have good success by sowing seeds in boxes in the house, but it is much easier and less trouble to grow them in frames, and the plants are much more stalky and bear finer flowers.

I now make it a rule to grow everything that will bear transplanting in frames, and find it much the cheapest way, saving much work and seed. Some seeds have a hard, horny coat, like cypress vine, geranium and perennial peas, and must be well soaked in warm water to make them germinate. Canna seeds should have hot water poured on them and be soaked a week in warm water.—*Farm and Home.*



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.

THE Hamilton meeting was a grand success. The local attendance was large, and representative men were present from all parts of the Province. Very few changes were made in our Board of Directors, and President McD. Allan has been elected for another year. The appointment of the Summer meeting was left with the Executive. Any applications, therefore, either from town councils, or from our members in any locality, for a meeting to be held in a certain neighborhood, should be sent in to the Secretary.

Dr. J. A. Warder.

WHILE we are especially interested in noticing those of our

own countrymen who have distinguished themselves in the study and practice of Horticulture, yet we are pleased to acknowledge the debt

we owe to such gentlemen as M. P. Wilder, P. Barry, J. J. Thomas, Dr. J. A. Warder, and others of the neighboring Republic, who so worthily bear the title of "Fathers of American Pomology." Three of these gentlemen have already been



FIG. 29.—DR. J. A. WARDER.

pourtrayed on these pages, and we now have pleasure in giving place for the fourth. The late Dr. Warder, who was President of the Ohio Pomological Society, and one of the Vice-Presidents of the American Pomological Society, has left us a work in his "Ameri-

can Pomology," which, though published some twenty years ago, is still an authority on most of the subjects of which it treats, and the book is worthy of a place in the library of every fruit grower.

Digging Holes for Tree-Planting.

THE following hints from the book above mentioned may be of interest to some of our readers who intend planting on a large scale this Spring:

The next step in the preparation is the digging of the holes for planting the trees. Some persons lay great stress upon the importance of having these made large and deep, which may be very well in a grass lawn with a few trees, but it is a very expensive matter for an orchard of thousands or even hundreds. The holes should be prepared as wide as the field, and as deep as the plow can stir it, as already directed; that is the kind of holes that should be dug; if the land has been prepared in this manner, the opening of the holes and planting the orchard, either deep or shallow, becomes a very simple matter.

Having determined the distance at which the trees shall stand from one another, and the order or plan of planting, flag poles are to set in the line to be occupied by the first row of trees, and a deep furrow is then opened with a large plow, drawn by a pair of steady horses. The poles are moved and set for the next row of trees, and so on, until the whole is laid off, making the furrows as straight as possible. This done, a single horse with a lighter plow is driven across these deep furrows at the proper distance, so that the intersections shall indicate the stations for the trees.

Planting Trees.

WHILE the above plan is commendable in planting a large com-

mercial orchard, yet, for the small orchard in a prominent location, more care should be taken in order that the planting may be above criticism. For this case we would advise the additional precaution of marking out the ground with stakes placed just where the trees are to stand; and when these have been got to range perfectly the planting may proceed. In order to have the tree planted in exactly the same place as the marking stake

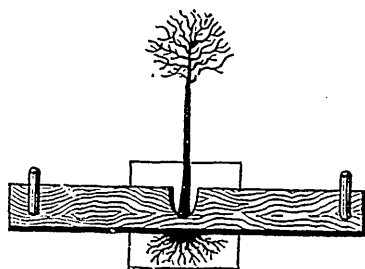


FIG. 30.

stands, the very simple device here shown, which is no new idea, may help some of our readers just at this season. It is simply an inch board about six inches wide and about four feet long, with a hole in each end and a notch in the centre. The board is placed so that the notch takes in the marking stake, and a pin is then driven in each end. The board and the stake are then removed without disturbing the pins while the hole is being dug, after which the board is replaced on the pins, and the tree set in the notch as shown in the engraving. Carefully keep the tree in position by means of this board, until the earth is firmly packed around the roots, when its help may be dispensed with, and the tree will be found to occupy exactly

the same position as that occupied by the marking stake.

Glory of the Snow.

WE are so pleased with the beauty of this flower, just now (March 5th), in full bloom in one of our windows, that we desire to draw the attention of our readers to it. Its technical name is *Chionodoxa Lucilia*, and its



FIG. 31.

general appearance is well shown in the engraving. The flower stalk with its racemose flowers, grows about nine inches high, and the flowers, five in number on our plants, are sky-blue on the apex of the petals, gradually shading off into pure white toward the base, while the yellow anthers are curiously attached to white strap-shaped filaments.

It is claimed for this plant that it is quite hardy, and will grow in any

ordinary border where the soil is not too wet or too heavy. It blooms very early in the season, with the Crocus and the Snowdrop, whence it derives its common name; and truly a bed of gold and silver crocuses, white snowdrops and blue glories would be a most attractive feature upon a lawn so soon after old Winter has released his icy grip upon us.

That this flower is little known as yet is explained by the fact that it is only about twelve years since its first introduction.

Vegetables for the Kitchen.

MR. WM. FALCONER, of Queen's, L. I., recommends the following vegetables as the best of their kinds:—*Beans*: Snap, Mohawk and Valentine; Pole, red-flowering scarlet runners for their blossoms. Lima, for shelled beans, variety Drear's Improved. *Beets*: Eclipse and long smooth Blood. *Cabbage*: Early Jersey Wakefield, Early Summer and Drumhead Savoy. *Cauliflower*: the various strains of Expert. *Carrots*: Early Scarlet Horn, Half Long stump-rooted. *Celery*: White Plume, Golden Heart, London Red. *Cucumber*: Nichols, and Tailby's. *Corn*: Cory, Concord, Stowell. *Egg Plant*: New York Improved. *Lettuce*: Boston Market, Salamander. *Mushrooms*: English Gray. *Onions*: Yellow Danvers, Large Red Weathersfield, and Southport White Globe. *Peas*: Improved Daniell O'Rourke, Alpha, Champion of England, Bliss Abundance. *Radishes*: French Breakfast, Scarlet Turnip, and of the long-rooted, Wood's Early Frame. *Rhubarb*: Monarch, Victoria. *Squash*:

Bush Summer Crook neck, Pine apple, Hubbard. *Tomatoes*: Acme, Trophy. *Turnips*: Red-top, Strap Leaf, Purple-top, White Globe.

weighs 10 to 12 ounces, and is round as the Globe.

A New Tomato.

MR. S. H. MITCHELL, a subscriber in St. Mary's, and the originator of the Canada Victor tomato, writes that he has been in the gardening business for twenty-eight years and has made a specialty of tomatoes. He has now another new tomato which he intends introducing next year, called the No. 1. It is described as having strong, growing, healthy, half-dwarf vines, *early*, an immense bearer; fruit, a beautiful, clear, bright red color, uniform in shape, color and size, has no black spots,

The British Apple Market.

It is a poor satisfaction to those of us whose apples were sacrificed in Britain during the glut of last December to find that prices now are advancing. Some of our readers, however, may be fortunate enough to have celled their Russets, and to them the following note from Williams, Thomas & Co., Liverpool, may be of interest:

SIR,—Arrivals are now coming forward in very moderate quantities, which find eager buyers at advanced rates. We quote: Baldwins, 13s. 3d. to 16s. 3d.; Russets, 12s. 3d. to 22s. 6d.; Spies, 12s. 3d. to 15s. 3d.; Various, 11s. 3d. to 17s. We can recommend shipping, as prices, we are of opinion, will improve with the small shipments. Russets are greatly wanted.

QUESTION DRAWER

Hardy Peaches.

22. ARE the new peaches now being introduced from China and Japan any hardier than our old varieties? I see that Prof. Budd says that they are 50 per cent. hardier, and others that they are as hardy as the plum or apple.—H. MCKEE, Norwich.

We are unable to reply from personal knowledge, not having yet tested them; but you may place confidence in statements made by Prof. Budd. Has any reader tested them?

Geraniums and Fuchsias in Winter.

23. In growing such plants as geraniums, fuchsias, etc., in the house or in a small greenhouse, what temperature is required and how much water?—A MEMBER.

The plants should not be over-watered. The soil would be better a little dry than kept always moist. About twice a week is often enough to

water, and then it should be done so thoroughly as to moisten every particle of soil in the pot. The foliage should be syringed daily to remove dust and keep the plants in a healthy condition.

The following list of plants do best in a cool room, or with an average temperature of about 55° Fahr., viz:—Azalea, Daisy, Carnation, Chrysanthemum, Cineraria, Camellia, Geranium, Petunia, Primrose, sweet-scented Violets and Verbenas.

The following list requires a higher temperature, say an average of about 70°, viz:—Abutilon, Begonia, Caladium, Canna, Coleus, Fuschia, Gloxinia, Heliotrope, Lobelia, Tea Rose, Smilax and others.

The Russian Apricot.

24. **STR.**—Will you kindly give me your unbiased opinion as to the advisability of planting the Russian Apricot in preference to the English. I have been advised that the "Russian" is the most desirable in all ways, but not knowing it, I take the liberty of applying to you for advice.—R. WILKINSON, Niagara-on-the-Lake.

Any opinion we give in these pages is "unbiased" by any connection with a nursery, as the writer is a fruit grower, and not a nurseryman. Regarding the Russian Apricot, we may say that it is one of those novelties from which much is expected, but little is yet known, especially as to its adaptation to our Canadian climate.

No doubt the English Apricots are superior in quality to the Russian, but so far we have had no success with them, as they are tender, and scarcely a single specimen escapes the curculio. The Russian is, no doubt, much hardier; but in buying we would advise careful examination to see that it is either grown on its own roots or is budded upon the plum, because if budded upon the peach stock the tree would be as tender as the peach. Another important point is the variety. First propagated from the seeds, many of the seedlings were worthless, but recently some of the finest of these have been named and propagated. The value of these is as yet imperfectly known. We have a couple of dozen trees, two years planted, and we hope to be able to report upon the quality of the fruit this Summer. At the meeting of the Western New York Horticultural Society, the fruit was not highly commended; but, as at our own meeting at Hamilton,

very few had any personal experience to offer.

We refer our correspondent to an article upon the Russian Apricot in this number, from the pen of Mr. D. W. Beadle, Esq.

Sowing Palms.

(SEE QUESTION 11.)

I have never found that any particular position is necessary for any of the palms usually grown from seed, which, however, must be as fresh as possible. I use six-inch pots, filled one-third full of potsherds for drainage. The soil is a mixture of equal parts peat and loam finely sifted, and a little sand. The seeds can be sown so that they nearly touch each other, and covered with a half inch or so of soil, depending on the size of the seed. The surface is pressed smooth and firm, and the pots plunged up to the rim in a warm house, with bottom heat. Keep the soil moist, but not over wet. Such kinds as the Cocos, *Latania Berbonica*, *Areca Lutescens*, etc., require several months before the plants show themselves. Leave the young plants until they are thoroughly rooted and the tops well up before potting them off; the last named and the *Kentias* should show the second leaf before potting. I like the long, narrow rose pots, because of the long, stiff roots that the seedlings have. Until thoroughly established, the young plants are given the same treatment as the seedlings required.—E. E. SUMMEY, La Salle, N.Y.

Duchess of Oldenburg.

25. Will the Duchess of Oldenburg apple flourish on the north shore of Lake Superior,

and in Manitoba. I know it does fairly well on the south shore at Marquette, Ishpeming, Calumet, and Eagle River (opposite Thunder Bay), so no doubt it would flourish in some parts of our possessions. Are there other Russian varieties which are hardier?

Will some readers in Manitoba please reply regarding the suitability of the Duchess of Oldenburg. It is a hardy variety, but not generally supposed to be equal to such varieties as Yellow Transparent and Wealthy in that respect. Mr. O. F. Brand, however, of the Minnesota Experiment Station, says his observations lead him to believe that it is superior in hardiness even to the newly introduced Russians.

Treatment of Large Trees after Transplanting.

26. SIR,—During the month of February I moved a number of large fruit trees, chiefly apples, in bearing, and am at a loss to know how they should be treated during the coming Spring and Summer. In my opinion the information I require will be valuable to your readers in general, and I therefore hope you will kindly devote some of your valuable space to the subject in an early issue.—JOHN FRASER, Petrolia.

It seldom pays to remove bearing fruit trees, as the shock of removal so impairs the vigor that it will be a long time in recovering. Our correspondent has used the wisest plan, in removing the trees in winter with a large frozen ball of earth attached, and if this has been carefully done, and the hole is well filled in and thoroughly packed with fine earth in the Spring, little more remains, except to remove a portion of the top to keep up an equilibrium between it and the roots.

Watering in the hot weather upon the surface is more productive of harm than good, as the surface quickly dries and bakes. If it is neces-

sary to apply water, a few inches of the surface soil should be first removed, and afterward replaced, or the whole surface of an area much greater than that occupied by the roots, covered with a heavy mulch, which would effectually hold the moisture and prevent the hardening of the soil.

We shall be pleased to hear from some of our readers on this subject, if any of them have any experience to offer.

Tar for Borer.

27. I am satisfied I can save my trees from an attack of the borer by applying with a paint brush, tar, or a mixture of tar or rosin, with some cayenne pepper or Paris green. Would the tar or the Paris green injure the tree?—D. YOUNG, Adolphustown.

We think such a remedy would be at the expense of the life of the trees. Tar is an injurious substance when applied to the young bark, as we have found to our cost when using it to prevent the female moth of the Canker Worm from ascending the tree.

Apples for Name.

28. SIR,—With this mail I send you two apples. Will you kindly name them for me? The trees were purchased from Bowman, of Rochester, and are now five years planted; they bear the fruit on short spurs, none growing near tips of branches; trunk medium height, dividing into two branches; head rather flat and inclined to be bushy. They are growing on the farm of Geo. Smith, Medonte township. He did not know the name of them, and as they appear like a good apple, I would like to plant some in the Spring, and you will much oblige if you can give me the proper name.—JOE DUNN, Orillia.

The two samples were duly received and very much admired. As the apple bears no resemblance to any varieties grown in this district, we submitted it to the Fruit Com-

mittee at the Winter Meeting at Hamilton, who reported on it that they judged it to be a seedling of the Snow, and that should it prove to be a new variety it should be watched, and if a good grower and productive, it should be propagated. If you will forward other specimens we will submit them to other pomologists for their opinion.

BULLETIN No. 8 of the Botanical Division of the Department of Agriculture has just come to hand, containing among other things an article on the Potato Scab, a list of the Parasitic Fungi of Missouri, and the two following questions and answers, numbered 29 and 30, which interest us as Canadian fruit growers :

Remedies for Apple Scab.

29. I am preparing to spray 1,400 ten-year old apple trees with Paris green and want to add something for the scab. Has sulphate of copper been used for the latter purpose?—CHARLES PATTERSON, Kerkville, Adair county, Mo.

I would suggest the use of liver of sulphur or sulphide of potassium, using the solution of the strength of one-half ounce to the gallon of water. This should be used as soon as prepared, or in other words, it should not be prepared until you are all ready to make the applications.

In regard to the use of sulphate of copper, the strength of the solution which may be used has been determined. The following preparation may be tried experimentally: In two gallons of hot water dissolve two pounds of sulphate of copper (pure); in another vessel dissolve two and a half pounds of ordinary carbonate of soda; mix the two solutions, and when all reaction has

ceased add one pint of liquid ammonia; then dilute to twenty-five or thirty gallons. This is easily applied with a good spraying pump, and adheres strongly to the parts sprayed. Its preventive action lasts for a long time. The action of the liver of sulphur is soon dissipated.

Pear Blight.

30. I send you by to-day's mail some diseased pear cuttings of the La Conte variety. The trees from which the cuttings were taken I set four years ago, being one year old at the time of setting. The trees are on well-drained sandy land, which has been well fertilized with stable manure, cotton-seed meal, and phosphates mixed with a large amount (one bushel to the tree) of well-rotted swamp muck or peat. They have been vigorous up to this year, but within the past month about every twelfth tree on a tract of four acres has manifested the "die back," beginning in the bud, generally of the highest and most vigorous shoot, and gradually extending downward until in a few instances it has reached the root, thus killing the entire tree.—C. H. FRANKLIN, Union Springs, Ala.

Your samples show unmistakable signs of the disease which has come to be generally known as "Pear Blight." This malady is caused by one of the most minute of living organisms—a species of bacterium, named by Professor Burril, the discoverer, *Micrococcus Amylovorus*. They are frequently spoken of collectively as disease-producing germs, and the malady they occasion belongs to the same category of germ diseases now definitely proven to occur among animals and plants. These germs are of extreme tenuity; they are borne from place to place and from tree to tree by the atmosphere, which is never so quiet but that its movements are sufficient to keep such impalpable bodies afloat. At present we know of no certain means for rendering the trees unsusceptible to

the disease. Fumigation, spraying, or washing the trees with various known fungicides, notably sulphur and lime, have given no positive results. As the disease is local and spreads through the tissue slowly, it is possible, as has long been known, to effectually check its progress by amputation. The smaller limbs should be cut off a foot or two below the lowest manifestation of the disease, and the spots on the trunk and larger limbs should be shaven out, cutting deep enough to remove all discoloration. The instrument for cutting should be kept disinfected with carbolic acid or otherwise, to guard against conveying the disease to freshly cut surfaces. The exposed and newly cut surfaces ought to be at once painted over in order to exclude the germs that might reach through the atmosphere.

Pruning Plums.

31. I have over 100 plum trees planted, some of them one year, some two years, and some three years. They grow two and three feet, and some of them four feet, in one year. Is it best to cut last year's growth back one-half, or let it grow as it will? Or would it be better to nip the growth in midsummer?—
WILLIAM SWITZER, Kirkton P.O., Ont.

Plum trees, as a rule, need very little pruning, except an annual thinning out where the heads are too close. Clipping back, or nipping in midsummer, would cause the production of more numerous side branches.

Cutting Scions.

32. Will scions, taken from a tree that never bore fruit, bear fruit as well as scions taken from a tree that has borne fruit? Please answer in your next issue.—
GEO. HANNAFORD, Pevensey, Muskoka.

Yes; and they are generally used by nurserymen.

OPEN LETTERS

The Hamilton Meeting.

SIR,—I am a new member of the Fruit Growers' Association, and I was present at the Hamilton meeting. I now write to express my surprise that the meeting was not crowded with farmers and citizens of the locality. It may be that the public consider it a private meeting of the Association, like that of any other corporation, and of interest to none but those specially in the business. Though no way concerned in nursery or fruit business, except as far as my own grounds extend, I found the whole proceedings both interesting and instructive. The argument ran principally on the export apple trade, in which I am not concerned, and which would not be generally interesting to ladies or amateurs; but at all times I felt that by asking a question quietly on a little slip of paper, I could call out plenty of discussion on any branch of horticulture or floriculture, and hear the subject worked out fully by a

dozen speakers who knew all about the business. I do not care to hear long speeches on what might be done in raising fruit, flowers or forests, such as were too frequently given by a certain professor who has lately left the scene, but I do take an interest in a man who can tell promptly what he has done, and knows others can do, in any department. It is a perfect satisfaction to me to hear certain members, in a perfectly unassuming way, tell us all we need to know, both practically and scientifically, on any point to which we call their attention. I think such observing men as Mr. P. C. Dempsey, Mr. A. M. Allan, Prof. Saunders, L. Woolverton or E. D. Smith, would make a success of any calling; and what I have heard from them seems worth years of experience to me, and would tend to increase the interest in all branches of horticulture in every one who listens to them.

I have a great respect for certain American writers on the same subjects, among them

P. Henderson, Mr. R. Douglas and Mr. W. Falconer, for adhering to their own actual experience, not in an isolated instance, but in years of labor. It will not do for me to say a word till I can speak with the same authority.—A LISTENER.

A New Organization.

SIR.—The fruit growers and gardeners of the district of Burlington met on March 1st and organized under the title of "The Burlington Horticultural Association."

The following officers were elected for the current year: President, George E. Fisher; Vice-President, J. S. Freeman; Secretary-Treasurer, A. W. Peart; Directors, Wm. Hopkins, Edwin Peart, Joseph Lindley, Dr. Zimmerman, H. Williams, Charles Davidson and Frederick Freeburn; Executive Committee, Joseph Lindley, Dr. Zimmerman and Chas. Davidson; Auditors, W. G. Pettit, P. Ernest Kerns.

At a meeting held March 12th, an excellent paper on "The Cultivation of Strawberries" was given by Mr. John Gray, of Burlington. The subject was thoroughly discussed by the members, many valuable ideas and suggestions being brought to the surface.—A. W. PEART, Secretary.

Room in England for Canadian Apples.

A SUBSCRIBER to our journal living near London, England, writes:—

"As for our supply this year of American apples, I read in Canadian papers, particularly in the columns of the Toronto "Globe," that your fruit growers are all complaining of bad returns for their crops, which were abundant in quantity. They say that their markets both in the North-west of Canada and in Great Britain were glutted and the prices run down before they could reap them, by their earlier neighbors of the United States. So that it would appear that while they are suffering from the low prices obtained for their fruit, we here are revelling in the enjoyment of the abundance of apples at very small expense. Now as far as the London market is concerned, this is not the case. No one in London knows that apples are more plentiful or cheaper than usual, but on the contrary, prices are higher than for several years back, and I think it must be obvious that high prices and over-supply cannot co-exist. In my own experience, my supply from my garden being exhausted, I bought a barrel of American Baldwins at the general store where I usually purchase household necessities. I could not get them under 21s., their price for the same apple last year, and the year before having been 18s. They had no

cheaper apple, as they did not keep inferior kinds, but they had others up to 25s. The Baldwins satisfied me, as I had had them before, and they assured me I could depend on their turning out well. They certainly did so, for I found them to be alike all through the barrel and in perfect condition.

I can believe it possible that they may be somewhat cheaper in Liverpool, but cannot believe the market to be over-stocked, as holders would relieve themselves by sending them to London or elsewhere. I know from the report of friends in Scotland that they are plentiful and comparatively cheap at Glasgow. They say they can get very fair American apples there for 1d. per pound, equal to, I believe, 14s. or 15s. a barrel, but not so good, I am sure, as the Baldwins in London at 21s. The larger supply I account for by the fact that freights on your side to Glasgow usually rule lower than to Liverpool or London, and shippers are tempted to believe that the saving in freight will be pure gain to them. This, however, is quite a mistake, as Glasgow is comparatively a small market, while it is too far away to re-ship to London, decidedly the best market of all. Glasgow, although a large city, has only one-ninth the population of London, and its market is limited or nearly so to the southern half of Scotland, while all Scotland does not contain as many people as may be found within the easiest possible reach within a ten-mile circuit round Charing Cross!"

Trees and Plants Tested at Ottawa.

SIR.—As it may be of interest to intending planters in this section of Ontario to know what success has attended the distribution of plants by our association in this locality, it affords me pleasure to hand in the following notes:—

1873. GRIMES GOLDEN apple survived several years and fruited well, but at length fell a victim to the borers and the cold.

1874. The Downing Gooseberry did fairly well. It is not so prolific as the Houghton or so large a berry as "Smith's," requires to be grown in partial shade, as the sun not infrequently scorches the berries before ripe. The Conn gooseberry is still the best here.

SALEM GRAPE one of the first quality, but subject to rot and mildew in some localities, and for that reason is of doubtful value as a market variety. No amateur should be without it.

1875. SWAZIE POMME GRISE APPLE still alive; stands by a board fence where the hot sun does not strike the trunk. It bears a few apples every year.

FLEMISH BEAUTY PEAR. This is the hardest of all the pears, but this tree only lingered a couple of years and was gone.

1876. GLASS SEEDLING PLUM. Tree quite hardy, but fruit spurs tender; have had as

much as a quart of fruit sometimes off this tree, but it is not a success here. Northern people should plant Pond's Seedling, which is hardier.

1877. **DIadem RASPBERRY** has been removed, the Cuthbert proving so much better.

1878. **BURNET GRAPE.** This hybrid grape of P. C. Dempsey's, of Albany, has done remarkably well and is to my taste one of our first quality grapes. It partakes much of the flavor of the Hamburg class, of which it is the offspring. The small berries in the bunches detract somewhat from its appearance.

1879. **ARNOLD'S ONTARIO APPLE** lives for a few years and produces several crops, but

The Wonderful Peach.

SIR,—One of the things in the way of fruits that has been wanted for a long time is a large, handsome, reliable, yellow peach ripening late in the season, after Crawford's Late and other varieties of similar character have disappeared. In the Chairs' Choice, which made its appearance a few years ago, it was thought the long-looked for boon had been found; but experience proves that while it is a handsome peach, excellent in quality and generally productive, it ripens very shortly after Crawford's Late and not with or after the old Smock, as claimed. In Beer's Smock, the old Smock Free and



FIG. 32.—THE WONDERFUL.

the effort of maternity appears to weaken the vitality of plant life, and it departed to its long home several years ago; I trust to refresh its originator.

1880. **SAUNDERS' SEEDLING RASPBERRY.** There were some fifteen of these seedlings. The one I obtained was not one of the best, it made an excellent canning variety. It has now disappeared.

1881. **DEMPESEY POTATO** was dry and nut-like in flavor, but the tubers did not expand to any great extent. It was therefore not a success and was allowed to drop out of sight.

P. E. BUCKE, OTTAWA.

Salway, we have varieties that are prolific and reliable in trees, but all lack in a great degree the desired size and beauty. It therefore has remained for New Jersey, the home of the peach, where such varieties originated as Crawford's Early, Crawford's Late, Oldmixon Free, Stump the World, Mt. Rose, Beer's Smock, etc., now the most popular of all varieties of peaches, to produce also the Wonderful, which it would seem possesses every point desired united in one variety.

In season it is among the latest (ripening quite as late as the Smock), of largest size, excellent quality, a regular and most prolific

bearer, and in beauty excelled by no other peach, the Crawfords themselves not excepted; being rich golden yellow, with carmine cheek. The fruit is of good form, as shown in the engraving, of regular shape, and, unlike other late, yellow peaches, is not excessively fuzzy. The flesh is exceptionally firm, deep yellow and bright red at the stone rendering it especially valuable for canning and evaporating.

A peculiarity of the variety is its inherent vigor, the foliage being very abundant, large, of exceedingly deep, almost black green, and remains on the trees until the ground has frozen and long after the leaves have fallen from all other varieties—J. T. LOVETT, Little Silver, N. J.

Kerosene Emulsion—Spraying Plums etc.

SIR,—You will have to pardon me for being so long in getting that formula from Professor Cook, but I have just received his reply, and it is as follows:—One quart of soft-soap, two quarts of water, one pint of kerosene oil; heat and stir till permanently mixed, and then add water until the proportion of kerosene shall be one to fifteen. Put on with a fine spray. This you will remember is for the aphid on plants or trees.

He says that he don't understand why Prof. Saunders should have found so much difference in the strength of London purple. He has always found it satisfactory, much more so than Paris green.

In relation to the curculio, he says that it does eat and gets poisoned, but it would be time thrown away to put it on before blooming.—L. B. RICE, Port Huron, Mich.

Fruit at Brussels.

SIR,—Your card came duly to hand, and also the six copies of the December number of THE HORTICULTURIST, for which accept our thanks.

Enclosed I forward to you three renewal subscriptions.

The season has been unusually severe on fruit growing. The winter's hard frost, and the heat, with dry weather in the summer, were against good crops of small fruit. But one thing much in favor was the open or free state of the soil peculiar to the last season.

We tried winter protection for our raspberries, and it proved quite a success. We laid the bushes down and covered some with earth, and others with manure, using some sods to keep the bushes down. They turned out finely and lively in the spring, and bore a fair crop of fruit; while some that we left standing were dead down to near the ground, and bore hardly any fruit.

Our strawberries were a middling crop, but good in quality; very few gooseberries, but good; currants were a fair crop and good;

there were very few grapes, the vines grew well in the latter part of the season; cherries were a small crop; plums, hardly any; while apples were abundant.

The past season has taught us the need of winter protection, with good cultivation, in order to fruitfulness.

Hoping you will succeed in your good work, and that we may be favored with a good season.—SAMUEL FEAR, Brussels, Ont.

Fruit Trees for Simcoe County.

SIR,—I am very pleased with the improvements you have made. I have just sent an order for apple trees and I consider that the information I have received from THE HORTICULTURIST was worth many dollars to me in drawing up that order. I send you a list of fruit trees that do best in this locality so far as tested, which may be of use to others in low-lying, cold sections:

APPLES—Astracan Red, Duchess of Oldenburg, Alexander, Ben Davis, A. G. Russet, Talman Sweet. All the above list have proven healthy and hardy. The Wealthy has not been fully tested.

PLUMS—Lombard, Yellow Egg, and Common Blue, none of which have proven to be hardy.

PEARS—The Flemish Beauty is the only pear that will do anything here, and it is not entirely hardy.

CHERRIES—I believe this is a good district for cherries; the Early Richmond and Common Red thrive splendidly, and very little black-knot.

GRAPES—The Clinton and Delaware do well. Concord rarely ripens here. The Delaware is by far the best grape to grow in this region; it has never failed to ripen with me and the quality is so good. All small fruits do well. The interest in horticulture is gradually increasing, and I look forward to the time when there will be a good orchard and garden on every farm. We have a fine country, and I have no doubt, through the noble work of the Fruit Growers' Association, every locality in Ontario will find varieties of trees that will be healthy and productive.—FRED. FOYSTON, Minesing, Co. of Simcoe.

Fay and Industry.

FAY'S currant is very fine and a good bearer. I find the Industry gooseberry all that one could wish in a dark berry; splendid to eat off the bush when ripe.—W. S. SHORT, 722 York Street, London, Ont.

The Jessie Strawberry.

SIR,—Although only two of the three Jessie Strawberry plants received last spring survived, yet from these two I now have one hundred and forty-four well rooted plants! Can any of your subscribers beat this?—JOHN KILLAM, North Kingston, N. S.