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AUGUST, 1894.



HORTICULTURIST.

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A. W. KNOWLES, WINDSOR, ONT.

Nov. 12.

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Feb. 12.

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, free of charge, to

JOHN CRAIG,

Central Experimental Farm,

Ottawa



STECHER LITH. ED. BELLEVILLE

WILDER.

THE
Canadian Horticulturist

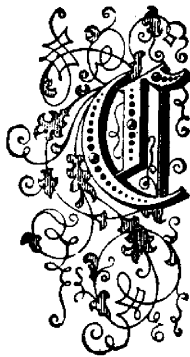
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THE WILDER GRAPE.



VERY year it is becoming more and more a question with the fruit growers, which he should rank first in importance, quality or productiveness, when he is planting for profit. The Concord grape for instance, is one of the most productive varieties that grows, but its quality is second-rate, and consequently the market price is every year tending downwards. Last year many growers had to content themselves with $1\frac{1}{4}$ to $1\frac{1}{2}$ cents a pound, a very low figure in consideration of the care of the vineyard, the trellising, harvesting, and purchase of baskets. Should this tendency continue, there will soon be no profit at all in growing such varieties. But with grapes of such excellent size and quality as the Wilder, there is no danger of low and unremunerative prices. By common consent this grape is counted one of the most showy of American out-door black grapes, for exhibition purposes, and one of the best for dessert purposes.

At Maplehurst this grape has not been largely planted for market, because it is somewhat subject to mildew and rot, and is not always productive. But since we have learned so well the benefit of using copper sulphate in our vineyards to destroy the fungi, there is no reason why we should not henceforth plant this variety more freely. To get the best results it should be trained on the renewal system, having two arms of old wood on the first or lower wire, and training the young growth upward. Every year the alternate uprights are to be cut out to the bud nearest the old wood, and those left will bear freely.

The Wilder, or Rogers' No. 4, was raised by Mr. E. S. Rogers, of Salem,

Mass., and it is counted one of the best of his numerous hybrids, being not only large and beautiful in fruit, but the vine is also vigorous, hardy and productive.

The following description is from the Bushberg Catalogue :—

Bunch large, often shouldered, sometimes weighing a pound; *berry* large, globular; *color* dark purple, nearly black, slight bloom; *flesh* tolerably tender, with a slight pulp, juicy, rich, pleasant and sweet. Ripens with, and sometimes earlier than the Concord, keeping for a long time. The vine is vigorous, healthy, hardy, and productive; roots abundant, of medium thickness, straight, with a smooth, moderately firm liber; canes heavy and long, with well-developed laterals. Wood firm, with a medium pith.

BEN DAVIS APPLE.



THE second annual meeting of the Southern Illinois Horticultural Society was held in Fairfield, Feb. 17th and 18th. The attendance was very good, about two hundred, notwithstanding the absence of many on account of the prevalence of sickness, and the lateness of the meeting. Hereafter the meetings will be held earlier, probably some time in January.

There was much local interest in the meeting, as the people of the surrounding country are thoroughly aroused to the matter of planting apple orchards for profit.

The Ben Davis is decidedly the leading favorite, and more largely planted than all others combined. In fact, it is safe to say that about 90 per cent. of all the trees being planted are Ben Davis.

There are some parts of Southern Illinois where the Ben Davis is not the best apple to plant. In the extreme south part of the State along the Ohio River, the Winesap does phenomenally well, the tree being a fine grower and bearer, the fruit large, fine and of excellent quality, and a good keeper. The Ben Davis in this part of the State ripens too early to be a winter apple, hence, most of the plantings consist of Winesap. In some parts of the northern part of Southern Illinois the Jonathan does exceedingly well, and being an apple of excellent quality and not largely grown, it brings a better price than Ben Davis, and is always ready sale, so in some parts it is being planted largely by some planters.

That the Ben Davis is not the best apple in quality, was generally admitted, and an apple having all the good characteristics of the Ben Davis, with better quality added, would be hailed with delight and generally planted. But the large orchards now being planted in Southern Illinois are put out for the purpose of making money, and past experience has proven that for this purpose no other apple now generally tested can compare with it.

GRAPES FOR TABLE AND EXHIBITION PURPOSES.



WRITER in American Garden gives the following as his choice of grapes for table use and exhibition purposes, viz.:

For table quality only. Red—Brighton, Lindley, Delaware and Catawba. White—Duchess, Moore's Diamond, Eldorado and Prentiss. Black—Herbert, Worden, Concord and Amenia.

For exhibition only. Red—Brighton, Jefferson, Salem and Gœthe. White—Niagara, Lady Washington, Irving and Duchess. Black—Wilder, Concord, Worden, Highland and Telegraph.

Notes on the Varieties.

Reds.—Brighton I look upon as the best, provided it is not allowed to become over-ripe; it is not a good shipper, and has a very thin skin which breaks easily; it is a large showy grape and one of the finest in quality. Lindley is not so showy in the bunch, but the berries are very large, and it is a good keeper and shipper; I claim this to be the best flavored, although many concede that quality to the Delaware. Delaware is smaller than either of the above, but is considered a first-class grape. Catawba is a well-known grape, very showy and late in ripening. The others are all among the earliest in the red section.

Whites.—Duchess is the finest white grape grown, considering all points, and has been so decided by several horticultural societies. Its meaty flavor partakes of the nature of a foreign hot-house grape. The bunches are very compact, and in damp weather, when the rain gets into them, are apt to crack. Bees also pick into the fruit after rains have started. If it can be ripened during a dry spell it will prove a good keeper; have kept it until January. Growing in bags tends to preserve the fruit, and Mr. Corby's method is to cut each bag open at the bottom. Moore's Diamond (new) is a fine grape, quality good, skin more tender than Duchess. The public are not generally acquainted with this variety. Eldorado—No white grape finer in quality, but it bunches loosely; keeps well. Prentiss—A very good grape, smaller than the Niagara but of much better quality; apt to over-bear; to remedy this fault it is necessary to trim closely and thin out the bunches.

Blacks.—Herbert is a very large, showy grape, a good keeper and the best flavored; much better in every respect than Concord; it, however, requires more care (being a hybrid), and is worth it; if the people who want good grapes realized its superiority to the Concord they would quickly substitute it. It does not always bear so abundantly as Concord. It was obtained from the European Black Hamburg crossed with the wild Monmouth. Worden—A fine grape in quality, but very thin-skinned and not a good shipper; better flavored than Concord, of which it is a seedling. Concord—Everybody knows,

or is supposed to know. *Aminia*—Is of very fine quality, approaching *Herbert* closely; it is smaller in the berry, but carries more berries than *Herbert*, making a showy bunch; its shipping qualities are not so good.

For Exhibition Only.

Reds.—*Jefferson*, one of the finest in quality, very large, showy and compact bunches. Mr. Corby has exhibited bunches weighing $1\frac{1}{4}$ pounds. *Salem*—Is a very large and showy grape, and is one of the largest of the *Rogers*; it bears a larger berry than the *Brighton*. *Goethe*—Has a very large berry; does better in the South, being a late grape, although in protected places it does well here; needs to be trimmed closely.

Whites.—*Niagara* is a very showy grape, and a prolific bearer. The berries of *Lady Washington* are not so large as those of *Niagara*, but the bunches are larger and very showy. *Irving* makes a large bunch, and in appearance is much like *Niagara*, fully as large, but later, and of fair quality.

Blacks.—*Highland* is first for size and the largest of our black grapes; late in ripening (about the 25th of September). *Wilder*—A first-class grape, large in bunch and berry, and one of the hardiest of the *Rogers'* varieties; bunches often weigh one pound. *Telegraph* makes a large compact bunch of medium quality; ripens early, about September 1st.

AVERAGE YIELDS.

Estimates of the probable returns per acre of the various fruit crops are by no means uniform. This arises from the various conditions in which growers operate, which give immensely divergent results. The publication of extraordinary results, without qualification, is misleading, and has the tendency of leading persons to engage in fruit culture with exaggerated notions of the profits, and afterward to meet with disappointment.

The following estimates by an Iowa fruit grower, are quite reasonable, and therefore we publish them, hoping our readers will give us items from their own experience, either corroborating or criticising them :

Strawberries.....	1st crop, 2nd year,	3,500 quarts.
Strawberries.....	2nd crop, 3rd year,	2,000 quarts.
Raspberries.....	1st crop, 2nd year,	1,000 quarts.
Raspberries.....	2nd crop, 3rd year,	2,500 quarts.
Raspberries.....	3rd crop, 4th year,	2,500 quarts.
Raspberries.....	4th crop, 5th year,	2,000 quarts.
Raspberries.....	5th crop, 6th year,	2,000 quarts.
Blackberries.....	1st crop, 2nd year,	500 quarts.
Blackberries.....	2nd crop, 3rd year,	2,000 quarts.
Blackberries.....	3rd crop, 4th year,	3,000 quarts.
Blackberries.....	4th crop, 5th year,	4,000 quarts.
Blackberries.....	5th crop, 6th year,	4,000 quarts.

A VISIT TO THE LEAMINGTON EXPERIMENT STATION.



ON Friday, the 15th of June, Professor Hutt and the writer visited our Experiment Station in Essex Co. Leamington is prettily situated on the shore of Lake Erie, but rather inconvenient of access by rail. The soil in that vicinity is mostly light sand, and well adapted to the cultivation of the peach, but the peach growing section is very limited. The farm of Mr. W. W. Hillborn is situated in the heart of this favored locality, and is being almost entirely devoted to the cultivation of the peach and strawberry. Of the latter he has about six acres in full bearing, and has already tested more than one hundred varieties. Of the kind now in cultivation, he prefers for market purposes, Bubach 24, Williams; Wilson, Saunders and Woolverton. As an early berry, Mr. Hillborn prefers the Beder Wood to Michel's Early, because it is just as early and much more productive, and for a late berry the Parker Earle, which is about as productive as Bubach 5, and is a fine showy berry. The plants have peculiar habit of growth, not spreading as much as other berries, but keeping well in hills. For a table berry the Governor Hoard is good, having an extra fine flavor. The Middlefield is not a good market berry. The foliage is very healthy and beautiful, but does not endure drouth very well. One sample of this variety that we picked measured one and five-eighths inches in length by one and three-quarters in breadth. But Mr. Hillborn's great specialty is in the cultivation of the peach. He has already planted about sixty acres of this fruit, and is to plant out about fifty acres more in the spring of 1895. When planted, his will be the largest peach orchard in Canada. He has laid out his orchard in a systematical way, in the manner of the streets of a town. The large drives or streets are thirty feet in width, and the blocks contain five hundred trees each, with twenty rows in each block. His plan is to number the block, then the rows and the trees in each row. His record book then will enable one to find at once any variety in any part of the orchard. The light sandy soil of this locality, which is very dry and naturally well drained, though rather too light for strawberries, is exactly suited to the cultivation of the peach. This fruit seems scarcely ever to fail to produce a crop. It was stated by one of the fruit growers in that section that there had not been more than one or two total failures during the past fifteen years. The greatest inconvenience is in shipping; on account of the connection it is difficult to reach the markets of Toronto, so their principal shipments are made to Buffalo, London, Detroit, Sarnia and St. Thomas.

Mr. Hillborn's method of protecting his trees from the peach tree borer is worthy of notice. To thirty gallons of water he adds equal parts of lime and ashes, about one bushel of each; to this he adds one of crude carbohic acid.

With this mixture the trees are whitewashed, and he claims that this will be a perfect protection.

Adjoining Mr. Hillborn's farm are two other fruit farms which we visited with considerable interest. One of them belongs to Mr. John Mitchell, who has about twenty-five acres in fruit, and about ten of these in peaches. The variety which he has planted most largely is the Yellow Albridge. He has also planted the Crawford, Tyhurst Seedling, and numerous other varieties. His orchard is remarkable as an example of shortening-in. He heads his trees about a foot and a half from the ground from the very first. He goes over his trees every year, in the month of June, with his shears pruning off about one-half the young growth. This applies to them the same principle that is often recommended for pruning grapes, namely, pinching off the young shoots, leaving two or three leaves beyond each bunch of grapes. In the same manner Mr. Mitchell leaves two or three leaves beyond the last peach of each limb. His trees are remarkably compact, no long straggling growth has ever been allowed, and though many of them were eight or ten years planted, they did not spread over more ground than many trees unpruned would do in half the time. He finds this method more convenient in picking, besides the bearing wood is kept in a dense head, and the tree lives to a much greater age. His apple orchard was well cultivated, and the trees beautifully formed. He is applying the same method of shortening-in in his apple orchard that he does to the peach. When taking us to visit his apple orchard, we drew his attention to the apple scab which was beginning to affect the leaves and fruit. He was surprised, and said that it had certainly appeared within the last few days. Upon further inquiry in other parts of Ontario, we find that this fungus has suddenly appeared between the 10th and 20th of June, owing to the very hot weather succeeding the wet season. In Mr. Mitchell's orchard the Ben Davis and Greening apples are ruined with the scab, and are rapidly dropping to the ground. Otherwise there would have been an unusually fine crop. Not only were the apples falling to the ground in many orchards in Essex, but the leaves also are suddenly turning black, all the result of this apple scab. Since returning home, we have examined the apple orchards at Maplehurst, and found that where the Bordeaux mixture has been faithfully applied, there is very little scab to be seen. No doubt the present season will be a clear proof of the benefit and efficacy of copper sulphate in preventing this evil.

We have frequently referred to the fine peach orchard belonging to Mr. E. Tyhurst, of Leamington. We had the pleasure of calling upon this gentleman, and have pleasure in saying that his orchards deserve all that has ever been written about them. He has about seventy acres in peaches, and of these about forty acres are planted with the Tyhurst Seedling which, judging from all appearances, surpasses the Early Crawford as a market peach, both in value and productiveness. He plants his peach trees ten feet apart in rows, and makes his rows twenty feet apart, thus giving room for a wagon to pass down in gathering. In addition to these, he has roadways here and there, and greater in width. Probably no man in Canada has made more money out of peach growing than has Mr. Tyhurst.

FANCY FRUIT.



THE art does not belong to everyone of putting up fruit in fancy style so as to command prices above the ordinary. The first point is, of course, to produce such fruit by extraordinary care in cultivation, manuring, pruning, etc. The great importance of an attractive label should also be considered; white paper with blue lettering is attractive, and should have printed upon it the grower's name and the nature of the goods, grade, etc. This can easily be pasted on each wooden package.

Picking, grading and packing choice fruit is a work of art, and unless a man has it in him, he cannot learn it by reading. All fancy fruit should be wrapped in dainty wrappers, white tissue is best, with the grower's name in bright blue ink. How beautifully such a label will blend with the scarlet and gold of a fancy Crawford peach! Who could pass a box of peaches so wrapped, and placed in shallow crates in layers and rows, without buying them! while the same person might pass a box or basket of unassorted fruit without notice. The proper grading is best done by having a packer for each grade, and when a basketful is turned out on the packing table each one selects fruit to suit his class, as, for example, extra selected, selected and 1st class; and what remains is sold as 2nd class, if at all. A California packer gives the following as his system of grading peaches for market; and in reading observe that instead of the terms we use, he employs the primes, extras, and standards:

"Before closing I will, in as few words as possible, explain my system of grading for market. Primes, or first grades, are packed 48 to 52 to the box six by four, top and bottom, or permissibly seven by four at the bottom. They must be nearly uniform in size, so as to pack square and snug, fitted in just so tight that the filled box may be set on end without its contents falling out, this holds good moreover of each and every grade.

"Extras, or second grade, go 56 to 63 to the box, two rows of seven by four each, or, for the higher number, a bottom row of seven by five.

"Standards, or third grade, should not exceed 80 peaches to the box, eight rows of five each top and bottom; anything running smaller than this I rate as culls, to be used for domestic purposes or sale to the canner or dry house."

"JOHNNY, add seven apples to two apples, and what will you have?"
 "Colic, sir."—Harper's Bazar.

RASPBERRY NOTES.



HERE happens to be just now need of advance all along the raspberry line, notwithstanding the fact that we have in the last half century created the whole raspberry harvest and market. Of the older sorts Cuthbert alone, of the reds, stands well nearly everywhere. It is somewhat tender as far north as Boston and Buffalo, in exposed positions. Turner suckers beyond endurance. Shaffers is too dark and the cane rusts. Marlboro, on some soils, is inferior, and always requires good culture. Thomson is early, but small. Hansell and Crimson Cluster are decidedly unsatisfactory with me, and the same must be said of several other sorts industriously disseminated. Of the newer sorts, Muskingum belongs in the Shaffer class, but has a very solid fruit that will carry well. No one, however, will buy these berries except at very low figures. Superlative is either the same as E. P. Roe's Pride of the Hudson, or very similar. It is not suited to general culture. Champlain is a pale yellow. Caroline, however, for a home berry to be used without delay after picking, is really fine table fruit.

Among the blacks, Palmer and Kansas are excellent. But Kansas is not equal in size to Gregg. Gregg is, unfortunately, not hardy. Now what we want is a succession of berries, beginning as early as Davison's Thornless and closing as late as Gregg, and fully as large as the latter. In reds, we need a berry as large and reliable as Cuthbert, but as early as Marlboro, and then a succession running on as late as Cuthbert. Marlboro, gives a standard of color, and Turner of quality. For canning I do not ask a berry better in quality than Shaffer's Colossal. But the color is not acceptable to housekeepers. It is a remarkable innovation in the fruit, however. The canes grow twelve feet in a season, and, while always killing bark, there is always a crop, and a very big one. It is a grand home berry. As a market fruit, the red raspberry is rarely ever in supply above demand. It is useless to raise it for a distant market. The local berry will always hold the local market. The red has fifty friends to one for the black.

The best remedy for a drouth is heavy mulching after spring harrowing. I run the cultivator in April, and then apply all the mulch that I can command. In the fall I gather enormous piles of leaves, these in the spring making admirable mulch. There is great advantage in growing the rows so that the bearing branches will reach out nearly to touch each other and shade the ground. Cut out old canes in September or October; then tie the new canes to wires, or rather in small bunches just below a wire stretched along posts. Then, in late October, cut off the tops with hedge shears, leaving the canes five feet high. Apply a good coating of manure, and wait until spring. In picking time the rows should present almost solid walls of berries, but if there be a lack of moisture, the upper clusters will be dried. Irrigation must ultimately be almost as common in the East as in the West.—American Agriculturist.

SUMMER PRUNING.

Summer Pruning Trees and Shrubs.—When it becomes better known how easily good shaped trees may be produced by summer pruning, there will be more of it done than there is to-day. Somehow, the idea prevails that pruning of trees should be done in winter. Fruit trees, which farmers are more interested in than they are in any others, are left to grow as they will in the summer, trusting to the saw and hatchet for the regulation of matters when winter comes. This is where the great mistake is made. The time to prune any tree to the best advantage is when it is growing freely in summer. Some few years ago I had under my care some peach trees. I had the planting of them as well as the care of them afterwards. From the first year these trees were summer pruned almost entirely. About June, when the growth was fresh, the trees were inspected and were kept in good shape by the pinching off of all the shoots that were growing out of place or too rapidly. This was done by finger and thumb. When topped in this way the side shoots pushed out, and a dozen shoots take the place of the one. The tendency of a peach tree is to make long shoots, and a tree left to itself will soon become unsightly. But when topped as described, beautiful specimens are obtained, as these trees were which I speak of. Instead of there being trees with long branches, bearing fruit only on the ends where the young twigs were, these trees were bushy from bottom to top, being well supplied throughout with young twigs, which are the ones that bear the fruit. These young shoots are the result of summer pruning, and they can be produced on all trees as well as on the peach.—Practical Farmer.

Summer Pruning Red Raspberries.—On the question of pruning there are diversities of opinion. My plan, where I keep them staked, is to do no pruning or pinching back until spring. My experience has shown that in my rich garden soil pinching off the terminals produces a rank growth of laterals, which continues so late that the wood does not ripen, and so perishes in the winter. I let them grow as tall as they choose, and in the spring, when the old canes are removed, the new ones are shortened in to about five feet and singly tied to the stakes. I leave from two to four canes in the hill. Leaving the old canes until spring furnishes somewhat of a windbreak, and I think they winter better when the pruning is thus delayed.—E. G. FOWLER, in Gardening.

Trimming.—In nothing connected with the business are so many mistakes made or so much ignorance displayed of the real ends desired, or of the true nature and habits of the plant. The first year, as soon as a shoot reaches 8 or 10 inches in height, the terminal bud should be pinched off, and under no circumstances should any other cutting or trimming be allowed until the next spring. We can have but one cane, and we seek to make it as branchy and

vigorous as possible. Hence the pinching back. After the first year, no trimming whatever should be made until the following winter or early spring. This has been against the almost general practice, but it is sound, not only when tested by experience, but in theory, also. We aim to prevent winter-killing, to have the plant complete its round of growth, the wood mature, and the leaves drop, because they are ripe, and not from frost. There are from four to eight canes, and these, without any branches of old growth, will fill the rows with their new shoots the next season. It is upon the new shoots alone that the fruit is formed, and the more vigorous these new shoot the greater the yield. One shoot, 20 or 30 inches long, will produce far more than 5 or 6, 4 inches long. Don't cut anything in the fall. Don't! Don't! Let the patch remain as near a wilderness as possible. In the winter or early spring cut out the old wood close to the ground, and then cut off the new canes as nearly 3 feet in height as possible. They will then be in the shape of straight sticks without a branch. But the roots are the matured product of an uninterrupted year's growth, and, as soon as spring opens, will develop the buds with great vigor. In no instance is the law of pruning more markedly shown than with the raspberry: summer pruning dwarfs both root and top; winter or spring pruning increases the growth of both. Late summer and fall cultivation and summer and fall pruning have cost the raspberry farmers thousands of dollars each year. The idea that the more work they do the greater the crop, has ruined thousands of acres every year. Two good crops is about the average number, while side by side, other farmers with less work get from five to eight crops. The unvarying rules for raspberry pruning are: 1. Pinch the terminal bud when less than 12 inches high the first year. 2. After the first year do not cut a cane, mature or immature, old or new, during the season of growth. Adherence to these rules will give a permanence to the plant, limited only by the ability to keep the ground free from weeds, and to supply the fertilizer necessary to sustain such an enormous vegetable growth.—JEFFERSON SHERMAN in Rural New Yorker.

The Importance of Thinning Crops.—I am satisfied that but few farmers know the importance of thinning. They seem to think nothing needs thinning but corn. One bought some raspberries of me and said, "Come, look at my vines and tell me what is the matter with them; they are a good kind but wont bear." I looked and saw at once. I said "How many stalks have you in each hill?" He laughed and said about forty. I said "What is the use of carrying your brains around with you if you don't use them?" There were ten plants where there should be only one as a rule. One good, thrifty, well-formed blackberry or raspberry stalk is worth a dozen over-crowded, thriftless, limbless ones. I once planted a big potato whole to get big potatoes and got a big hill full of little potatoes. It would have been all the same if I had planted a big ear of corn whole in a hill and expected big corn. Potatoes should be thinned to one or two eyes before planting. Few farmers do it. To thin my crop as I ought has taken more nerve than anything I have undertaken on the farm.—W. L. ANDERSON, Montgomery Co., Ind.

SEA-WEED AS A FERTILIZER.

SIR,—Will you please tell me if sea-weed is a good fertilizer, and, if so, whether for fruit or vegetables?

SEA-WEED, Vancouver, B. C.

Reply by F. T. Shutt, M.A., Chemist, Dominion Experimental Farms, Ottawa.



SEA-WEED is essentially a potassic manure, though in a certain degree it may be termed a "complete fertilizer," viz.: one that supplies the three more important constituents of plant growth—nitrogen, phosphoric acid and potash.

An analysis recently made of a sample of sea-weed (*Fucus furcatus*) obtained from the Atlantic coast, afforded me the following figures:—

Analysis of fresh Sea-weed.

Water	63.49
Organic matter, containing nitrogen	27.93
Ash or mineral matter, containing potash and phosphoric acid	8.58
	100.00

Pounds of fertilizing constituents in one ton of the fresh Sea-weed.

Nitrogen	pounds	9.36
Phosphoric acid	"	2.18
Potash	"	40.50

Sea-weed is a valuable manure both for the potash and nitrogen it contains, and for the ease and rapidity with which, by fermentation, this plant-food is converted into soluble and available forms. Its ready decomposition in the soil (except in very wet or very dry seasons) is of great advantage, since the sea-weed requires no previous treatment and its results are obtained in the first crop. Its application often improves the tilth of soil by supplying decomposing organic matter (humus) and increasing their absorbitive capacity for moisture.

Sea-weed gives best results on an open, porous, sandy, warm soil, and may be applied at the rate of 20-30 tons per acre. For general farm crops it may be supplemented by bone-meal and wood-ashes. It may, of course, be used alone for all purposes (though then there is apt to be a deficiency in phosphoric acid) or with barnyard manure..

In a light soil it is a responsive though not a permanent fertilizer, since its readily soluble constituents easily leach away.

Owing to the large percentage of water in the fresh material (60% to 80%), it is good economy to pile the sea-weed on the shore and allow it to dry out partially before hauling.

Sea-weed acts as an excellent fermenting agent for mixing with peat in the compost-heap—and at the same time supplies much valuable plant-food.

THE EMBELLISHMENT OF HOME-GROUNDS.

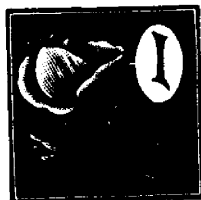
Flowers and showy foliage being professedly used for ornament should of course occupy the choicest site of the home-grounds. The work being necessarily formal and artificial, there will be no incongruity in the close proximity of rigid lines; and the dwelling-house may be as near as will best suit the general convenience in the use and enjoyment of the garden. The nature and extent of the collection will of course vary with the taste and means of the owner. The finer the design and the greater the variety of plants the better, so long as there is ample room for all in fitting proportion to the intrinsic merits of each kind, and to the general plan of the whole garden. It is well not to make any ambitious or pretentious display unless it can be easily and willingly kept in perfect order at all times. The immediate setting or surrounding of the garden should be in keeping with the central design. It is poor taste to make a gaudy show of fine flowers or bright foliage if adjacent grounds are weedy and seedy. It is equally bad taste to intrude such plants in formal masses into outlying portions of the grounds mainly devoted to other uses. Even on the ordinary lawn the quiet repose of the green sward may be disturbed by some garish mass of high colors. The discord is equally great when formal beds of like character are scattered along the lawn border amid irregular groups of shrubbery. This incongruity lasts the year round, for after the tender exotics die or are removed, the bald plots look equally foreign to turf and coppice. A lawn is one thing, a flower-garden another. Grass has recently supplanted gravel in the garden, thanks to the lawn-mower. But only in city lots can the plants be properly in such relative proportions to the turf as to convey the idea of both garden and lawn.—Wm. McMillan, before the Society of American Florists.

Pot-grown Strawberry Plants.—By the use of pot-grown plants, we market our early crops of potatoes, peas, etc., and afterwards, by setting these pot-grown plants, we may obtain a full crop of the finest strawberries the following season less than ten months from the time of planting, from the land that has produced a crop the previous season. One of my neighbors grows all his strawberries from plants set the preceding August or September, and he markets the choicest fruit grown to my knowledge.—R. N. Y.

GROWING ASPARAGUS.

STR.—Please give me, through the pages of your valuable Magazine, the necessary instructions for preparing and planting an asparagus bed.

ALFRED PRIGGE, *Hamilton.*



If two-year old roots are not readily obtainable, get seed of Conover's Colossal, Palmetto, or other popular sorts; and, as early as possible in the spring, sow in rich mellow ground in drills two feet apart, covering the seed one inch deep; should they come up too thickly, thin out to three inches apart. Keep scrupulously clean of weeds, and cultivate well for two seasons. If the asparagus beetle appears, apply any of the poisons used for potato bugs. Several applications may be necessary, as the larvæ of this small beetle destroy the foliage very rapidly.

Asparagus does well in almost any soil, for many years; therefore, when two-year-old roots are ready, choose a situation where they may remain, work the soil up 10 or 12 inches deep, incorporating a liberal quantity of well-rotted barnyard manure. Draw wide furrows eight inches deep, and flat in the bottom, so the roots can be spread out all around, cover so the ground is level all over when finished. Place the roots so the crowns are one foot apart in the row, and have the rows three feet apart, for garden culture, and at least four feet for field culture. A light mulching of fine manure, as soon as planting is done, will help to keep the soil mellow, and promote a vigorous growth. Cultivation must be continued for two years more the same as for seedlings, and each fall the growth cleared off, and good manure spread over the entire surface at least two inches thick.

With careful culture and liberal fertilizing, the roots will be strong enough to permit cutting shoots freely the third season. Allow the shoots to grow six or eight inches high, and cut at the ground surface, not below. They are then tender their entire length, and better flavored. During very warm weather cut twice a day, or the tops will get a seedy appearance. If blanched shoots are desirable, to have them perfectly tender, the roots must be planted 12 inches deep, and a ridge of litter put over the rows in the spring, six or more inches high, and compact enough to exclude light and air, and as shoots break through this, cut at the bottom of the litter.

Summer manuring will promote an enormous growth, and to have extra large shoots for cutting the following season, the thin stems should be cut out just before the growth gets too heavy to pass through, as this will throw all the strength into the heavy stems to develop strong crowns. When clearing off the growth in the fall, every precaution should be used, that the seed does not get knocked off and scattered over the asparagus bed, as this will save much labor in pulling up seedlings. The tops are best gathered and burnt on an adjoining

land. Give a liberal covering of rich manure before winter sets in, and in the spring work this in with a fork or harrow. A week or so before the shoots appear, sow a good fertilizer at the rate of 600 lbs. per acre, and clear out the weeds.

Asparagus is a great feeder, and will amply repay liberal manuring. This with care to prevent seedlings from getting a foothold and encouraging only strong shoots, are the requisites to produce the delicious asparagus.—Popular Gardening.

THE JAPANESE PLUMS.

Prof. Bailey, in Cornell Station Bulletin 62, classifies these plums as follows: *Yellow-skinned*—Georgeson, Normand, Kerr, and Ogon. *Red-skinned*—Abundance, Berckmans, Burbank, Kelsey, Long Fruit, Munson, Perfection, Strawberry, Babcock, Bailey, Berger, Chabot, Maru, Orient, Red Nagate, Willard and Yosebe. *Red-flesh*—Delaware, Heikes, Satsuma, Hale, Late Blood, and Uchi-Beni.

We select also the following from his notes concerning these plums:

The varieties now known to be hardy in the plum regions of New York are Burbank, Abundance, Willard, Ogon, Satsuma, Chabot, Yosebe, and Berger; and others give promise of being as hardy as these.

The period of ripening of the various kinds extends over a long season, running, in New York, from the middle of July to the middle of September. The same variety does not always appear to ripen at the same period in successive years. This is especially true of the Kelsey, which sometimes varies through a period of three months. In New York, the earliest market variety which has been tested appears to be Willard, followed closely by Ogon, then Abundance and Berckmans, and Burbank still later. Kelsey is generally the latest of all the varieties.

Most of the Japanese plums keep for several days, and some of them even for two weeks, after they are ripe. Satsuma is one of the best keepers known in the north.

The larger part of the varieties are red with deep yellow flesh, and the Satsuma and a few varieties less known, have deep red flesh. There are only four well-known yellow varieties. There are eight freestones, as follows: Ogon, Willard, Kelsey, Berger, Maru, Munson, Normand, Yosebe.

The varieties which can be most confidently recommended at the present time are, Abundance, Burbank, Willard, Kerr, Berckmans, Maru, Red Nagate, Chabot, Satsuma, and perhaps Ogon. Kelsey is recommended for the South.

The chief weaknesses of the Japanese plums are too early bloom of some varieties and liability to the fruit-rot fungus. Amongst their advantages are partial immunity from black knot and leaf blight, and often a partial freedom from curculio injury.

PLOUGH THE ORCHARD.



UCH of the popular teaching has been (on paper) never to plough the orchard after the trees have attained considerable size and have come into bearing condition. "The plough cuts off much of the root growth," the story goes, "and works great injury to the trees. Better far to top-dress or pasture sheep and let the trees remain in grass."

It never was our luck to be on the popular side. For some reason we always have to look on, as opportunity offers, and see how the thing works. That a bounteous crop of apples can be grown with the trees in grass, we have seen proved. At the same time we have noted far more of success, a more continuous and bountiful production of fruit, where the orchard was ploughed and manured in frequent rotation. From years of observation, and something of experience, we confidently claim an orchard will show no injury from proper ploughing, but on the contrary, that on land suited to plough this is the cheapest and most effectual way of sustaining the health and thrift of the trees, and keeping them up to a bountiful production. Fruit is what we are after, and we want it often. Put the plough in, then, and stir up the soil. No matter if the roots are cut off, the tree will not be injured thereby any more than by the removal of a limb in pruning. With the ploughing apply manure of some kind, in small quantity, and note the marvelous effect. It is fruit that is wanted, not grass. A light manuring will work good results where the grass is turned under. Better to manure lightly and plough often than to apply bountifully, thinking to continue the benefits of a single application through a series of years. We have never seen an orchard injured from ploughing, except in the mind of a sensitive theorist.

Pasturing to sheep is well as far as it goes, but in the long run is not sufficient to keep production up to its possible certainty and frequency, unless there is a wide run outside the orchard enclosure and the flocks huddle among the trees. We were forcibly impressed with the correctness of the ground here taken on passing, a few days since, the well-known "True orchard," in the town of Wayne. The last time previously we had passed this orchard it had been pastured for several years with sheep. The foliage was looking pale and sickly, and the orchard throughout wore a discouraged and decaying look, and with only here and there a few straggling apples upon the trees. Since that time this orchard has changed hands, and is now owned by that active and enterprising farmer, B. F. Maxim, of that town. Mr. Maxim has put in the plough and stirred up the soil of the entire orchard, and though a crop of grain was taken off the present season, yet the whole orchard apparently is red with its bountiful crop of fruit. No doubt this great change could have been brought about by top-dressing, but it would have been far more costly. Too much of the surface application goes to feed the grass only, while the trees are left to starve. The sod needs to be broken, and the fertilizer of whatever kind put into the soil where the rootlets of the trees can find it. Don't be afraid of ploughing the orchard, only do it carefully and properly.—Exchange.

THE TALMAN SWEET AND THE GRAVENSTEIN.



HE frontispiece of the July number of the HORTICULTURIST is embellished with a fine illustration of the Talmas Sweet apple. You half apologize for bringing this old variety of apple into such prominence. In the early history of this county, the Talman Sweet was a very common variety in our orchard, but most of them have disappeared, mainly by other and more salable varieties being grafted upon them. In those days they found a ready enough sale, but now they are not wanted. Your own treatment of its merits leaves little to be said of it either pro or con. It possesses one quality, however, you have not enumerated. It is without doubt one of the best apples we grow for pickling. It retains its size, form and flavor when pickled, better than any other apple I know of.

You quote Mr. Nicol as recommending the Talman Sweet as good stock upon which to graft more tender varieties, amongst which he enumerates the Gravenstein, which, he says, "can only be grown in favored localities." I have frequently heard the Gravenstein referred to as being a tender apple tree, and was once told by an eminent authority that it could not be grown successfully as far north as Owen Sound. I have long ago been convinced that the Gravenstein should be ranked amongst our hardy varieties. I have three of these in my orchard which have been twenty-two years planted, and will match them against any three apple trees in this Province of like age for size, form and vigor. I have no recollection of seeing three finer apple trees anywhere. They have withstood the rigor of this climate during all these years without a twig being touched by frost. I am so impressed with their hardiness that I have top-grafted every tree so treated in my orchard with scions off these trees. To those who know the quality of the Gravenstein it needs no commendation. To my mind, it has no equal amongst the late fall varieties. For cooking or dessert it is alike good. Its form is faultless, and it possesses a rich aroma peculiar to itself, and it is uniformly large and attractive to the eye. This is the apple that gave to Nova Scotia its premier place, in the markets of Britain, amongst the apple-exporting countries of America, and it surprises me that its cultivation has not received more encouragement in this Province.

Owen Sound.

R. MCKNAUGHT.

HERE is something for our ladies readers to try their skill on. Take a leaf of a tree or shrub, place it over a small piece of white linen soaked in spirits of nitre, and insert between the leaves of a heavy book, with a sheet of paper to receive the impression. Lay the book away for a few days and then examine. The leaf will be devoid of color, which will have been transferred to the paper in all the original beauty of tint and outline of the leaf. So says one who has tried the experiment.

EXPERIMENTS WITH STRAWBERRIES IN 1893 AND 1894.



THE following observations are made from the results of experiments made at the Ohio Experiment Station at Wooster, during the two seasons, 1893 and 1894. A more complete discussion will be given in a bulletin which will include descriptions and results, with many new sorts sent by originators for trial.

Beder Wood (perfect).—This has some merit as an early variety, but the foliage is subject to rust and the berries are too small to suit the demands of most markets.

Cyclone (perfect).—A new variety, grown three seasons at the Ohio Station, but not generally disseminated. The plant and fruit resemble the Haverland, but the berries are rather broader and shorter. Having perfect flowers and being similar to Haverland and Crescent, it can be recommended for planting with these varieties. It is quite early and yet continues long in bearing, and holds up in size quite well to the last. It should be given a trial generally.

Enhance (perfect).—In many respects a desirable variety, being prolific and having perfect blossoms. The berries are ill-shaped and quite acid. For canning and distant market it can be recommended.

Greenville (imperfect).—This has been on trial several seasons and is now quite generally disseminated. It has always been satisfactory at the Ohio Station, and seems to suit growers for near market. It is not firm enough for long shipments, but its freedom from disease, its prolificacy, fine appearance and good quality make it one of the best for home use and for near market. It is worthy of general trial.

Lovett (perfect).—This has been sufficiently tested to determine that it has merit. The plants are healthy and prolific, the berries average above medium size and it must be rated as reliable. It is a good companion for Crescent or Haverland.

Michel's Early (perfect).—Very early, but too small, soft and unproductive for general cultivation. A few may be planted for home use and when earliness is a desirable quality, but in any case the plants should be kept thin in the row.

Muskingum (perfect).—Somewhat like Bubach in being difficult to start, which often makes it disappointing. When well grown it is one of the most satisfactory of the perfect flowered sorts for home use and near market.

Marshall (perfect).—Plants vigorous and free from disease, but only moderately prolific. The berries are large, beautiful and of good quality, making it a desirable sort for amateurs and for those who cater to a market for fancy berries. For the ordinary commercial grower it will probably not prove more profitable than the best standard sorts, but that there is place for it can hardly be doubted.

Parker Earle (perfect)—One of the most prolific varieties in existence, but on poor soil or in dry season the greater share of the berries fail to reach a marketable size. Unless it can be given the utmost favorable conditions it will not prove satisfactory.

Princeton Chief (imperfect)—A new variety that requires further testing before a fair judgment can be rendered. The plants are very vigorous, but apparently not prolific. The berries are of medium size, quite attractive in appearance, but very acid. They are firm, however, and it may prove to be a valuable market variety. Season medium to late.

Swindle and *Shucklen* not desirable, although the latter has been tested one season only.

Timbrell (imperfect)—A much lauded and widely advertised variety, but far from satisfactory. The berries color poorly, often in patches, giving them an unsightly appearance. From 50 plants not a single quart of marketable berries were picked during the season. The same complaint is heard from other quarters, hence as a market berry the Timbrell is probable of little value.

The best of the old varieties are Warfield, Bubach, Crescent and Haverland, and no variety seems to have been found that is likely to supersede them.

Gooseberries.—The greatly increased demand for this fruit is even more noticeable this year than it was during the two previous seasons, and it is of growing importance that we should be able to raise fine gooseberries without mildew or other loss. I have for the last ten years had no trouble either with the native or the foreign varieties of this fruit. Formerly I was much troubled with mildew. My plan now is to grow on high, well-drained soil, in rows running north and south, and well open to the sun. There is no danger from shade if the land be open and well drained. The plants should be in rows, easily cultivated with a horse, and the soil often stirred in the spring. I do not think it pays us to grow the natives like Downing and Houghton and Smith, so long as we can just as well grow the larger sorts. Industry has never done well with me, but others report that it is prolific. Crown Bob and Whitesmith are two of the best of foreign parentage. But better yet is an old sort we have had for sixty years, and known only as the "Irish Gooseberry." The earliest and richest I have is a wilding, which resembles the foreign sorts in bush, but has a fruit like Houghton in color, but much lighter red. It bears abundantly, and is ripe about the 1st of July. It is evidently a cross between the foreign and native species. Columbus and Red Jacket, I think, are emphatically valuable introductions. There is room for a new race of cross-bred gooseberries.—Garden and Lawn.

‡ The Garden and Lawn. ‡

☞ SOME HANDSOME AUGUST-BLOOMING WILD FLOWERS.



THE two coneflowers are very showy, well worthy of cultivation in the flower garden. The variety most widely disseminated is the ORANGE-COLORED CONEFLOWER, *Rudbeckia hirta*, Linn. It begins to bloom in July, continues through the month of August, and often to the middle of September. The ray florets are of a flaming orange color, varying in length from half an inch to an inch; the cone-shaped centre, or disc, is of a deep, rich purple, contrasting most effectively with the bright rays. It is to be found in open meadows and sunny spots on the borders of thickets. The plant is rough, hairy on leaf and stem, grows to the height of one to three feet, often a straight, simple stem, but in good soil is frequently branched from near the base. The flower heads are borne singly on long stalks, well adapted for cutting, and last in water for a week.

The leaves on the stalk are few, widely separated, and without petiole or leaf-stalk; the lower leaves are petioled.

The YELLOW CONEFLOWER, *Rudbeckia laciniata*, Linn, may be readily distinguished from the preceding by its light yellow rays, greenish disc, smooth stem, branching habit, taller growth, and lacinate, or jagged leaves. It grows to a considerable height in rich, moist bottom lands, but usually from five to seven feet. The May florets are often two inches long, narrow in proportion to their length, and drooping. Their color is a clear, bright yellow. The heads are borne on long stalks, and keep in water for a week when cut. This species is usually found growing in low thickets, and is specially vigorous in the flats of the Humber River, not far from Toronto.

There are two species of *Liatris* to be found growing in Ontario, known in some places by the name of Blazing Star. THE CYLINDRICAL BLAZING STAR, *Liatris cylindrica*, Willdenow, is quite common in the vicinity of Toronto, growing to the height of twelve to eighteen inches; the stem is slender, upright and rigid; the leaves long, narrow, grass-like. The flower heads are set alternately on the stem, in the axils of the leaves, and borne on stout stalks. The form of the flower heads is cylindrical, and there are from eight to twelve heads on a stem, containing from sixteen to twenty rosy-purple flowers in each head. It is to be found in dry soils, usually on the slopes near lakes or streams, growing from a bulbous or corm-like root; these corms can be easily taken up in the autumn and transferred to some dry, sunny spot in the garden, where they will flourish with but little care.

LIATRIS SPICATA, WILLDENOW, is much like the one just described, growing

taller, from two to five feet high ; the heads more closely crowded on the long spike ; and frequenting moist instead of dry soils. It has not been found by the writer, in the vicinity of Toronto. Mr. J. A. Morton mentions it among the attractive wild flowers growing in the vicinity of Wingham, and Macoun says it is found in marshy meadows, from Sarnia to Point Edward.

The flowers of both varieties retain their rosy-purple color when dried, thus making an excellent winter boquet. They can be grown from seed as well as by transplanting the corms, and make, in a short time, an attractive feature of the flower garden. There is another Canadian species found in our prairie lands the flower heads of which contain from thirty to forty flowers. It grows in dry England Westward to Minnesota, and southward. It is known as *Liatris scariosa*, *Willdenow*. The Rudbeckias and *Liatris* belongs to the compositic family. soil, from two to five feet high, and, according to Gray, is to be found from New

THE BUTTERFLY-FLOWER, *Asclepias tuberosa*, *Linn*, grows in any dry soil in the open sunshine ; sometimes to be found in open woods, or among trees of small growth. The roots are thick and in young plants carrot-like in shape, but lose this form with age, becoming more woody and extending to a considerable depth. They do not bear transplanting well, on which account it is better to raise them from seed sown where the plants are to remain. The stalk is erect, clothed throughout with broadly linear leaves, and fine hairs ; branching at the top, the branches terminating in a corymb of brilliant orange-red flowers, varying in intensity of color with the age of the flowers. The plant continues in bloom for a considerable while, and the cut flowers keep a long time in water, thus adding to the variety of such as are desirable for table boquets ; while the cut stems do not exude a viscid milky juice so abundant in some of the other species of this genus.

The peculiar form of the individual flowers of all of the plants of this genus is a very interesting study, a careful examination of which is earnestly commended, noting particularly the hooded nectaries on the tube of stamens which encloses the pistil, and the attachment of the anthers to the stigma, with their hanging pairs of pear-shaped pollen-masses.

THE CARDINAL FLOWER, *Lobelia cardinalis*, *Linn*, is widely distributed throughout Ontario, frequenting low grounds, yet easily grown in any good garden soil, especially from seed. The flowers are very showy, deep red, borne on stems two to four feet high, in elongated, somewhat one-sided racemes. The flame color of these flowers renders them a very conspicuous garden ornament. The plants will thrive in partial shade, or in the open air, but do not endure well a protracted drouth.

THE GREAT LOBELIA, *Lobelia syphilitica*, *Linn*, is a blue flowered species, the flowers nearly an inch long, borne on a leafy stem varying from one to five feet high. This also is to be found in low grounds throughout Ontario. The writer has had no experience with it in cultivation, yet has no doubt but that

it could be easily grown from seed in good garden soil, especially if not allowed to suffer from drouth.

THE HAREBELL, *Campanula rotundifolia*, Linn, this beautiful flower begins to appear in the last days of June, and continues with us all summer. The blossoms are bright blue, from half an inch to three quarters long; the plant seems to prefer partial shade, takes kindly to the garden, and makes a pretty appearance planted in masses.

Toronto.

D. W. BEADLE.

A UNIQUE PLANT STAND.



FIG. 681.

House plants must have their summer outing as well as the house people, and one often sees them set about on the doorsteps and ground. If there is a tree on the lawn, a novel table for them may be made about its trunk, as shown in the illustration.

Two cross-pieces are first spiked securely to the tree to serve as supports for the platform, which is made of boards fitted around the trunk. Four props are cut from slender branches and fastened underneath. These should be as little trimmed as possible, to give a more rustic effect. And the same effect may be given the edges of the platform by nailing on rough strips for a finish. These strips are obtained by splitting a 2-inch "sapling" lengthwise, the halves being then applied to the platform edges. The little table is then ready for its load.

If some of the plants are vines they will take very kindly to the strong, straight trunk as a climbing-post, and very soon will twist about it in a charming way. One can hardly imagine the artistic features of this little table of flowers till one sees it upon the home lawn, telling its own story.—W. D., in *Country Gentleman*.

"CALL these fine cattle?" said a big countryman at an agricultural show, where for some time he had been annoying the exhibitors by depreciating their stock. "They ain't nothin' to what my folks raise. Why, my father raised the biggest calf of any farmer round our part." "Ah," said a bystander, looking at him; "we can quite believe that!"—*London Tid-Bits*.

A FEW WORDS ABOUT ROSES.*

By the Hon. Mrs. Lambart, Ottawa.



OME years ago when I was invited to write a paper on Roses, I readily consented. I was then enjoying my first success in cultivating my favorite flower, and felt possessed of such an unlimited fund of information on the subject that I was ready to instruct anyone who stood in need of such knowledge. But since then years have put to the test some of my pet theories, and, I must confess, put many of them to flight, and now I only feel capable of saying just a few words in the matter. The wisdom of my reserve is all the more evident from the fact that my friend Mr. MacGrady's experience is almost directly contradictory to my own, especially in the matter of pruning.

It must be understood that whatever I now say is intended for the novice only. I no longer aspire to teach the experienced floriculturist.

The first necessity for rose growing is morning sun. I do not believe that any satisfaction can possibly be obtained without it, even though the sun should beat on one's roses from midday to midnight. It is the early morning sun which is the source of life and strength to them, and if, after midday, they are in shade, so much the better. Rich soil, a shelter from north and east winds by shrubs, or by a fence not too near, and plenty of room, of ventilation between the bushes—under these conditions any rose, except standards, may be grown with perfect success in Ottawa.

Of course nearly all of them must be covered in winter—and the tea-roses much more heavily than the others. *Rosa Rugosa*, all the briars (including the two yellow roses) and all moss roses are better for being left quite unprotected. All should be heavily mulched before the 1st of July.

The most important division, to the gardener, is that of remountant and non-remountant of summer varieties. The former bloom on shoots of the same year's growth, while the latter must have two-year-old wood before they will show us a flower. As to pruning: if one's roses are all remountant, the experience of Canon Hole, the well-known rosarian, will serve as a guide. He said that his roses had never been so glorious as they were the year they had been pruned by a donkey, when a donkey had broken into his garden and cropped his remountants to the ground. According to this one should cut out, as one does with its cousin the

* A paper read before the Ottawa (Canada) Agricultural Society, June 26, 1894.

raspberry bush, every shoot that has borne, and shorten the new growth ; while with the others only two-year-old wood must go.

If I could only grow one rose it should be Jacqueminot, and if I could have six they should all be the same ; but if more might be mine for the choosing, I would say : three La France, three Madame Victoire Verdier, three Baroness Rothschild, three Merveille de Lyon, one Gracilis Moss, one Old English Moss and one Crested Moss.

There are of course dozens more, perfect dreams of loveliness ; but some weakness of constitution or shyness of blooming would make me wait until a year's success with the varieties I have named had given me strength to bear the trial of a possible failure with the host of beauties which rise before me at this moment and plead in vain for a word on their behalf.

Vine Lynne, New Edinburgh, Ottawa, Canada.

A Few Words About Mignonette.—Among the various varieties of mignonette, my choice is, Machel, either for open air or pot culture. When required in large quantities for winter flowering in pots, I consider the best method is to prepare a quantity of turfy loam and leaf mould in equal parts, mix the same and spread it over the place intended to sow the seed, say on an old hot-bed. If for early bloom, the seed should be sown early in August ; and not later than the beginning of September if required for mid-winter and early spring. After the seed is sown it should be well watered and shaded for a few days. When the plants are up give them all the light and sun possible. The plants may be allowed to remain in the seed bed until they have made four or five good leaves which will be in about three or four weeks, when a light hot-bed should be prepared. After the bed has started to heat, place sufficient earth over the bed to plunge the pots required, which will be about six inch ; fill the pots with about three parts turfy loam and one part well decomposed cow manure mixed with a sprinkling of sand, taking care to give good drainage. When the earth becomes warm in the pots, the plants may be lifted and pricked off into the pots. Four or five plants in each pot will soon make a good saleable plant. The plants should remain in the frames as long as possible, and that they should get plenty of air and light. When mignonette is grown in the green house the plants should be given a cool, light, airy place near the glass. I may remark that, when the plants become pot-bound, liquid manure should be used, or it may be necessary to repot them if large plants are required. Where only a few plants are required I would advise that the seed should be sown in small pots in a cold frame. When up, thin out and repot when large enough.—JOHN PERRIN, before Montreal Hort. Society.

THE ZINNIA.



THE Zinnias are a very showy garden flower, so named in honor of J. G. Zinn, Professor of Botany at Gothingen. There are about half a dozen known species, mostly from Mexico. The best known species are annuals, and from one of these, *Zinnia elegans*, most of the garden varieties have descended, some of them single and some of them double, *e.g.*, *coceinea*, *Darwini*, *violacea*, etc.

Zinnia's should be sown in gentle heat, two or three months before time



FIG. 682.

for transplanting into the garden, and great care should be taken to prevent stunting at any stage of growth.

Cook Potatoes in Their Jackets.—Dr. Letheby, an English physician, who has given much attention to the analysis of foods, says that potatoes cooked in their skins contain a much larger amount of nutriment than if peeled before cooking. He says that baked potatoes are not only more delicious, but that they contain eleven per cent. more nutritious material than boiled potatoes.—*Literary Digest*.

Apple Trees of unfertile varieties, separated from other trees and that do not bear should be grafted with a fertile variety. To stimulate growth where the orchard has been in sod and cropped annually, plow three to four in deep in the spring, put on a liberal application of ashes and bone dust, and cultivate every fortnight during the season until Aug. or Sept.

* New or Little Known Fruits. *

LETTERS FROM RUSSIA—XV.

(Original in French.)



R. MITSCHURIN, one of the most celebrated of Russian horticulturists, has given much attention to the resolving of this question: "What kinds of fruit trees can be grown and propagated successfully in the Russian Province of Tambow (53 north latitude and 40 east longitude)?" He is about to publish the results of his experiments followed out during many years. These make a very interesting descriptive catalogue, which shows us all the varieties of fruit trees grown in the gardens of Mr. Mitschurin, and makes known to us how well each of them is able to endure the cold, and which are worthy of cultivation in the orchards of commercial growers and in the gardens of amateurs. This catalogue gives us the descriptions of many new and well-known kinds, and also some seedlings grown from seeds by Mr. Mitschurin himself. The object of this letter is to make these known to the worthy readers of the HORTICULTURIST.

Of apples, the said catalogue contains a list of one hundred varieties, of which number one to ten belong to a class known as Antonowka.

1. *Antonowka Simple*.—Fruit, moderate size; color, greenish with yellow side; form, conical; flavor, bitterish with a special aroma. This apple keeps at Tambow until March. The tree endures a great amount of cold, is very productive, and is likely to give very fine results in large commercial orchards.

2. *Stone Antonowka*.—(See CANADIAN HORTICULTURIST, August No., 1889.) Fruit, moderate size; color, yellow, reddish on the south side; form, round; flesh, firm and agreeable; keeps until May without suffering in flavor. The tree is less hardy and less productive than No. 1, and consequently the raising of it is to be less commended for commercial orchards.

3. *Pound Antonowka* (Fig. 683*).—This sort is preferable to all the varieties of Antonowka. It originated from the White Antonowka. The fruit is very large, and under favorable circumstances it reaches two pounds, Russian weight—usually only one pound. Color, whitish green; form, oblong, with some sides projecting. In a word, the apple is very fine. Its flavor is mild acid, it has a fine aroma, and the flesh is firm. The tree is hardy and very productive, and the fruit keeps until May without losing quality. Mr. Mitschurin highly commends this variety for general trial, both for commercial growers and amateurs.

4. *Antonowka de Mohileu* differs from the preceding variety, being about one half the size.

*The illustrations lack elegance, but show the natural size of the fruits.

5. *Antonowka Blanche* resembles No. 4.
6. *Antonowka Douce* is a very fine apple, but the tree is not hardy.
7. *Antonowka d'Automne*.—The fruit of this variety is very large ; form, round ; flavor, very good ; keeps till December. The tree is very hardy, and may be recommended for commercial orchards.
8. *Golden Antonowka*.—Fruit, large ; color, white with a yellowish shade ; flavor, agreeable. The tree is not hardy.
9. *Grosse Antonowka*.—An excellent kind, which keeps a long time. The tree is very durable.

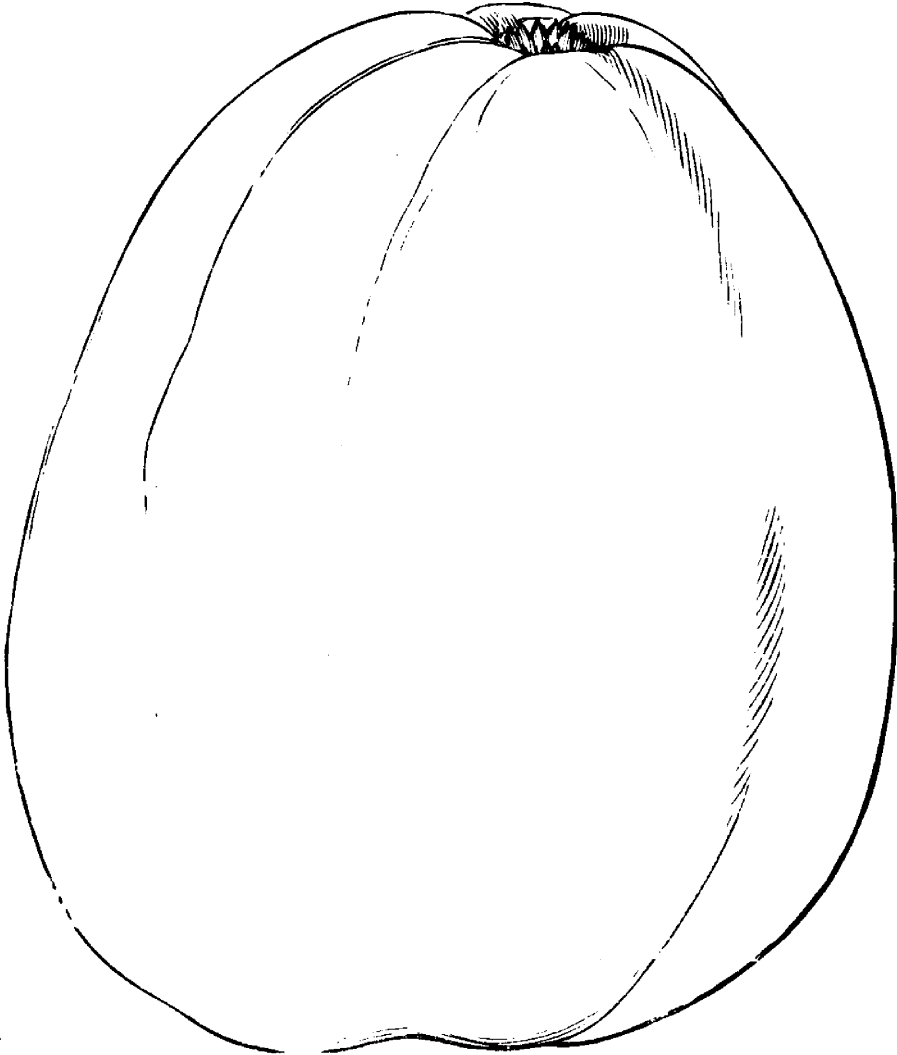


FIG. 683.—POUND ANTONOWKA.

10. *Nouvelle Antonowka*—This superb variety, with very firm flesh, has been raised by Mr. Matschurin from seeds of the Stone Antonowka.

22. *Duchess of Oldenburg* was raised from seeds of the celebrated Borowinka. The fruit is very large, raddish-shaped; color, bright purple; flesh, yellow, and very delicious. It keeps till January. The tree is very productive, and hardy to an extraordinary degree. A better commercial sort.

71. *Beaute d'Été*.—A new seedling. Fruit of moderate size and excellent flavor and magnificent coloring. A good apple for dessert, and an excellent commercial sort. The tree is hardy.

Although the climate of Tambow is very unfavorable for the cultivation of pears, Mr. Mitschurin has raised twenty-six varieties of them, namely:—

1. *Bessemianka Ordinaire*.—Fruit is of moderate dimensions; form conical pointed; color green; flesh juicy, agreeable; ripens toward the end of August, and keeps for several weeks. The tree is very hardy.

2. *Grosse Bessemianka* (Pear without seeds).—Fruit is large enough; color green; flesh soft, buttery, very agreeable; better commercial sort. Tree tender.

3. *Bakholda*.—A new kind. Fruit large; form oblong and conical; color yellow; flavor mild acid; ripens in September and keeps until October. Tree longlived.

4. *Bergamotte d'Automne*.—Fruit of moderate dimensions; form round; color greenish brown; flesh agreeable, coarse. The tree is fairly longlived.

5. *Bergamotte d'Hiver*.—New kind. Fruit rather small; form round; color green; flavor good; ripens towards the end of September and keeps until the middle of December. The tree is longlived and a strong grower.

6. *Bergamotte de Kursk*, and 7. *Bergamotte de Voronegè*.—Two varieties with showy fruit, but the trees are not hardy.

8. *Sand Bergamotte*.—A good kind, and agreeable; moderate size; tree durable.

9. *Béré Blanche de Lifland*.—(See annual report Ontario Fruit Growers' Association, 1892), and (b) *Béré Verte de Liflande*.—Fruit of excellent flavor. Trees not hardy.

10. *Vosschanka*.—(Poire cire.)—Fruit of moderate size; color yellow; flavor excellent; ripens in the month of August, and keeps till October.

11. *Winter Nelis*.—A foreign variety which is so well acclimated that it suffers very little in our severe winters. Ripens in September, and keeps till January. Those who graft them prefer Ussuriensis stock, as they are longer-lived when grown upon that stock.

12. *Krivonogof*.—A good sort, originating in the Province of Toula. Tree very hardy.

13. *Kozlof*.—Fruit moderate size; flavor very good; ripens in the month of September. Tree very hardy.

14. *Médvèdevka*.—Resembles No. 9 (a).

15. *Médofka* (Poire miel).—Fruit very small ; form conical ; color clear yellow ; flesh very melting and agreeable. Tree enduring.

16. *Mitschurin*.—A kind known under this name at Calouga, a town in Russia, for more than fifty years. The tree is very hardy. Fruit moderate size ; ripens in August.

17. *Ordynka*.

18. *Princesse, Beurre Romaine*.—(See annual report of the Ontario Fruit Growers' Association for 1892). Fruit large, fine ; form long ; flavor excellent. Tree hardy.



FIG. 684.—ROULEF PEAR.

19. *Rylsk*.—Fruit of moderate size ; color yellow ; flavor passable. Tree enduring.

20. *Roulef* (Fig. 684).—A variety raised from seeds by Mr. Matschurin. Fruit moderate size ; color yellow ; flavor excellent. Tree enduring. Deserves to be commended for its productiveness, flavor, and firmness, for commercial orchards.

21. *Sapieganika*.—(See CANADIAN HORTICULTURIST, August, 1890.) Fruit of moderate dimensions, and superb flavor. Ripens in October. Tree sufficiently hardy

22. *Tonkovetka*.—Fruit moderate size ; form conical ; color yellow, with red on the sunny side ; flesh porous ; ripens in the beginning of August, and keeps till September. Tree hardy, fine, productive and commendable for commercial orchards.

23. *Tsar*.—Fruit moderate size ; form conical ; color yellow, red on the sunny side ; flesh soft, mellow and agreeable ; flavor mild ; ripens in the month of August and keeps till September. Tree very firm and wonderfully productive ; pyramidal in form.

24. *Tchbiché*.—As yet little tried.

25. *Poire Livre*.—Fruit large, sufficiently desirable. Tree hardy.

26. *Chéropay*.—As yet little known.

With regard to plums and cherries, Mr. Mitschurin has cultivated twenty-three varieties. Among them he has tried some fine varieties of his own growing. The said catalogue mentions the following varieties of plums :—

1. *Sainte Catharine Bleue*.—Fruit large ; color blue ; flavor excellent. Ripens toward the end of August. Tree hardy.

2. *Nikolski Blanche*.—Fruit moderate size ; color greenish white ; flavor excellent ; very productive. Tree durable.

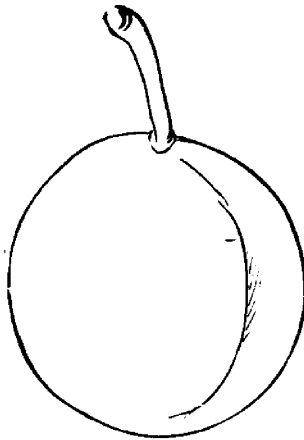


FIG. 685.—TABLOTCHKOF PLUM.

3. *Progrès*.—A seedling grown by Mr. Mitschurin. Fruit large ; form oval ; color red ; flesh mild. Ripens in the beginning of August. Tree particularly hardy.

4. *Moore's Arctic*.—An American variety which endures well the climate of Tambow.

5. *Reine Claude Mitschurin*.—A new sort from the seed of Washington plum. Tree sufficiently hardy.

6. *Reine Claude Verte Nouvelle*.—Grown from the seed of the green Reine Claude. Tree hardy.

7. *Reine Claude Verte Naine*.—An excellent variety grown from the seed of Reine Claude Verte. Tree hardy.
8. *La Precoce Rouge*.—Fruit large, red. Ripens in the beginning of August. Tree hardy.
9. *Hébé*.—A new variety. Fruit whitish. Tree hardy.
10. *Myosotis Bleu*.—A new seedling of Mr. Mitschurin's. Fruit small. Tree hardy.
11. *Kozlof Bleu*.—New seedling. Tree hardy.
12. *Tablotchkof Rouge* (Fig. 685).—An excellent variety originating in Toula. Fruit large; flavor excellent. Ripens in the beginning of August. Tree very durable. First-class commercial variety.
13. *Kozlof Egg*.—A seedling raised by Mr. Mitschurin. Fruit large, yellow. Tree hardy.
14. *Pount Blanc*.—Fruit very large; color yellowish green. Ripens in September. Tree hardy.
15. *Merise Bleue*.—An excellent variety. Fruit small; flavor agreeably tart. Tree durable, productive. Excellent for canning and, therefore, the price in the market is always high.

Winnitza, Podolie, Russia.

JAROSLAV NIEMETZ.

Crosby's Seedling.—Two samples of this gooseberry came to hand from A. Reeve, Highland Creek. It is surely a seeding of some good English variety. Size, large to very large, an inch and a quarter to an inch and a half in length. Rib veins, mostly visible. Skin smooth, flesh soft, juicy, very good.

Kearney's Golden.—Some five samples of this berry also came to us from Mr. Kearney, Paris. He says it is probably some old English sort brought by him to this country twenty-five or thirty years ago. About size of Whitesmith.

Two varieties also came with name of sender. One a fine very large green variety, and the other a medium sized red variety.



THE SARAH RASPBERRY.



AMONG the new fruits distributed last spring among the members of our Association for testing, was the Sarah raspberry, plants of which were kindly furnished by the Director of the Central Experimental Farm at Ottawa. We give a cut of this berry and description from the last report of the Horticulturist, Mr. John Craig.



FIG. 6.—SARAH.

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 Idaeus* and the American *Rubus Strigosus*. The canes have been affected to some extent by anthracnose, but not more than Cuthbert or Marlboro' growing alongside. Fruit large, round; drupes large, deep garnet, firm, very juicy, pleasantly acid and exceptionally rich. See Fig. 686. 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.

The Marshall Strawberry.—The Rural New Yorker is responsible for the following statements regarding this berry, and also for the accompanying engraving of it.

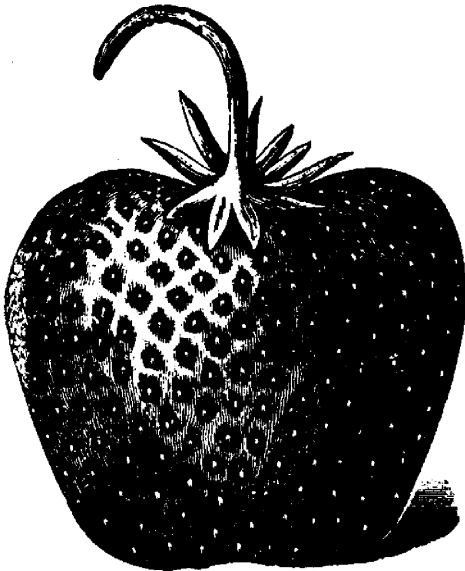


FIG. 687.—THE MARSHALL STRAWBERRY.

were of the largest size, fairly regular, scarlet, red flesh, mild flavor, and about as firm as Sharpless. They are still ripening, though the berries now (June 20) are of ordinary size.

T. J. Dwyer praises the new strawberry Marshall as "the finest sort ever grown in this country." He considers it as surpassing in size any other variety, as of the richest quality, as a "remarkably fine keeper and carrier."

Mr. E. W. Wood, of the Massachusetts Hort. Society, regards it as "the most promising variety grown, the largest measuring over seven inches in circumference."

The Marshall was sent to us in May of last year by M. F. Ewell, of Marshfield Hills, Mass. The vines are healthy, but not unusually vigorous. Berries began to ripen June 1. These

THE APPLE AND PEAR CROP.

Every month the prospect for a heavy yield of apples has become more gloomy. That terrible scourge, the apple scab, has so weakened the trees, that both leaves and fruit are inclined to drop, until very little is left to come to maturity. Not only in Southern Ontario is this the case, but also in Middle and Northern Ontario, where hitherto there has been much less damage from this fungus.

We append extracts from reports received up to the 26th ultimo.

Southern Ontario.

W. M. ORB, Stoney Creek :—Apples, although promising a large crop in the spring, will prove almost a total failure. The superabundance of rain in May, followed by intense heat and drought in June and first half of July, with thermometer at times nearly 100 in the shade, was too much for the apple crop. The leaves have blighted badly, and most of the fruit has fallen. Winter fruit will be from 5 to 10 %, and Fall varieties from 10 to 15 of a full crop. Pear trees are well loaded, and promise a full crop, with very little blight.

A. M. SMITH, St. Catharines :—Since writing you before, apples have dropped badly, and there will not be more than one-tenth of a crop in this section. Pears are doing fairly and I think will be 50 % ; plums about same ; grapes are looking well and will go 75 to 80.

J. R. HOWELL, Brantford :—The apple crop will be poor this year, with the exception of Astracans and Duchess. Some trees have blighted badly. In a fifteen mile drive in our county the other day, there seemed to be hardly an apple in any of the orchards.

JOHN ARNOLD, Paris :—Our fruit prospects are not the brightest, pears in particular are dying with blight, so that in a very few years we shall have none. At one time I thought the Bartlett was the most subject to its attack, but now it seizes all kinds alike. Has the unusual hot weather lately been partly the cause of it ? Allow me to congratulate you on the improvement of *our* paper ; it is taking a foremost place in our county.

J. K. McMICHAEL, Waterford :—We have at present about 25% of an apple crop ; with very badly diseased foliage, and the fruit still dropping. Pears will be about half a crop.

W. W. HILLBORN, Leamington :—So far as I can learn the apple crop in Essex is above an average crop, but it is badly affected by the apple scab, or fungi. Pears are a large crop, and now appear to be quite clean and if the weather should prove favorable we may expect a large crop of fine fruit.

A. McNEILL, Windsor :—Apples will be 50% of a crop in Essex County, but fungi and insect may render present indications deceptive. Pears 75, Bartletts full crop, Flemish Beauty 50, but scabby, Seckels 50.

E. WARDROPER, Pelee Island :—The grape is the only crop grown to any extent on this island and I find the prospects good for a fair crop from all. Concord and Ives at 75 and the Catawba somewhat better, no injury from frost or fungi at any time. All vineyards of any size are now sprayed here regularly. Last year not an inch of rain from 1st of June to September and I never saw finer grapes. It now looks as if we should have a repetition of the season. I notice young nut trees planted only three years ago have quite a sprinkling of fruit on this year ; how is it with yours ?

Middle Ontario.

GEORGE NICOL, Cataraqui :—Apples in this district will not be more than 60% Snow well loaded and clean ; Duchess, Astrachan, Transparent, 80, Russet, Ben Davis, Canada Red, and other late varieties are light and not more than 40. Very few pears planted in this county, crop light, probably 25.

R. MCKNIGHT, Owen Sound :—The aggregate crop of apples in this section will be fairly satisfactory. The fruit set but sparingly, considering the great profusion of bloom

last spring. I attribute the comparatively thin crop to the state of the weather at the time when fertilization is effected; at that critical period the weather was so cold that insects (whose function it is to assist in this work) were unable to be on the wing. This applies more particularly to Fall varieties. In 1890 we had a like state of things with a like result.

J. D. STEWART, Russeldale:—No improvement to note re apples and pears. On the contrary the crop is gradually getting smaller by degrees. Would reduce my former estimate of the same to summer and autumn kinds, 40%; Winter, 25. Pears, 25, and the samples, as regards size, cracks, and freedom from spots, far short of former years. What a change to fruit growers, and the public generally.

A. MCD. ALLAN, Goderich:—Apples as a crop, in the county, will not average over 50%, and if this dry weather continues much longer, the average will come down, as they are dropping badly. Pears will give an average of 65%, locally 75. Samples of all will be small, owing to long drought.

Northern Ontario.

JOHN CRAIG, Ottawa:—The prospects of the apple crop in this section have not materially changed since last writing you, on the subject. Tetofsky, Duchess and Wealthy, are a good crop, but show a tendency to drop more than usual this year. Winter apples give promise of a fair crop. This class of fruit, however, in this vicinity is not grown to sufficient extent to affect other than local markets.

W. S. TURNER, Ottawa:—I cannot make many changes from my former report. Visited several orchards yesterday and found apples, both fall and winter varieties, good, remarkably free from scab, resulting, no doubt, from spraying, as I see fruit growers are spraying more this summer than formerly. Small fruits have been good, with the exception of gooseberries, in one or two cases, which, though sprayed with potassium sulphide every two weeks, still suffered from mildew. The tent caterpillar is again making its appearance, fruit and shade trees of careless growers are suffering accordingly. I would put the fruit crop for this district as follows: Strawberries, 90%; currants and gooseberries, 75; apples, 100; plums, 75.

British Columbia.

N. BUTCHAD, Port Moody:—I will have to cut off all expenses this year, as our fruit crop is a failure.

JOHN MURRAY, Spence's Bridge:—Grand whhether here. Fruits of all kinds promise a good crop. I will begin shipping tomatoes the first of August. Expect to have 800 to 1000 forty pound boxes. Grapes, peaches and plums promise well.

Oregon.

F. F. BEATTY, Chemawa:—My fruit crop is a most awful failure this year, and I have to cut expenses down to the lowest notch. Out of an expected usual crop of plums of 3000 bushels, or more, I will have less than fifty. The apple crop is less in proportion; scarcely enough for home use.



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 Advantages of Spraying for Pear Scab have been distinctly observed at Maplehurst. One large orchard of fifteen hundred bearing trees of the Bartletts were some years ago so badly affected with *fusicladium pyrinum*, that the fruit was almost unsalable. In 1891 we sprayed the trees with ammoniacal copper carbonate, one application, and thought we observed some good effects; in 1892 we tried Bordeaux mixture, giving two applications, both after the young fruit was set. The scab was already bad upon all the young fruit, but the result was to stay its progress, and much of the fruit was marketable. About the same treatment and results were observed in 1893; but in 1894 (the present season), we have given the orchard more thorough treatment, with distinct results. Three applications of Bordeaux mixture have been made, in addition to the one of copper sulphate, which was made before the leaves came out. As a result we have healthy, vigorous trees, and the cleanest fruit ever seen in the orchard. The difference between trees treated and not treated is so marked that we shall not think of omitting the spraying with Bordeaux any future season. In the Experiment Record, Vol. 5. No. 10, p. 987, is given a table showing Prof. Beach's results in this line, with Seckel and White Doyenne pears, which we quote here.

The Doyenne trees were sprayed May 10, 19, and 31, and June 12 and 28. The Seckles were sprayed May 2, 10, 19, and 31, and June 12 and 28. On July 18 it was noted that merely every fruit on the lower branches of the sprayed trees was perfect, while on the unsprayed trees nearly every fruit was blemished by the scab. This difference between the sprayed and unsprayed fruit became more noticeable as the season advanced.

The fruit was picked the fourth week in September and assorted into three grades—firsts, seconds, and culls. No use was made of the culls. The prices realized for the different grades of fruit were as follows :

Comparative value of sprayed and unsprayed pears.

	Sprayed.	Unsprayed.
Seckel :		
Firsts	\$2.25 to \$2.75 per bushel.	\$1.25 to \$1.75 per bushel.
Seconds	\$1.75 to \$2 per bushel.	\$1 to \$1.30 per bushel.
White Doyenne :		
Firsts	\$4.50 per bbl. (\$1.80 per bush.).	None.
Seconds	\$3.25 per bbl. (\$1.30 per bush.).	\$2 per bbl. (80 cts. per bush.)

Without counting the cost of the extra packages and handling of the increased yield, the gain for treatment of the Seckel variety was from \$4.77 to \$5.57 per tree, and the White Doyenne \$6.10 per tree. The cost of treatment for six applications was 55 cents, and for five applications 47.6. The total gain per hundred trees from the spraying varied from \$423.10 to \$562.40. The increased value of the fruit does not express the entire gain, as the foliage of the sprayed trees was much more healthy than that of the unsprayed, and the sprayed trees made a much better growth.

APPLES FOR HAMBURG.—Mr. James Thom, Manager of the Hamburg American Packet Co., writes that he understands Canadian apples have been sent to Liverpool and London, and thence to Hamburg. Why should this be, when they can be sent direct to Hamburg by this line, and at less charges?

Pride of the Hudson Raspberry.—Samples of this berry were received to-day, July 18th, from Mr. John Arnold, Paris, Ont., and, though by no means new, it may be worth reviving as a dessert variety. The fact is that varieties of ordinary quality like the Cuthbert, the Golden Queen, and the Marlboro, often bring such low prices in our markets, that it may pay to aim more for quality than quantity even in commercial gardens.

Mr. Arnold writes of this berry :—"I purchased it from Mr. E. P. Roe, over twenty years ago, and have grown it ever since. It is hardy, repays liberal treatment, and is a good bearer. It retails here (Paris), for 15 cents a quart when other varieties bring only 8 or 10 cents."

Selby's Seedling.—Mr. Selby, of Newcastle, Ont., sends us several seedling strawberries (July 17), and his No. 1 is quite promising, judging from the samples forwarded. It is a large, globular, of a light red color, and good quality. We would advise Mr. Selby to send some plants to our experiment stations for careful testing.

✂ Question Drawer. ✂

The Hollyhock Rust.

662. SIR,—I have a great collection of double hollyhocks, and some disease or insect is spoiling all the leaves. They blister on the back, and the leaves spot and wither, beginning at the bottom and upward, till near the flower buds. Please tell me the cause and cure.

D. CAMPBELL, *London South, Ont.*

Reply by Prof. John Craig.

The hollyhock leaf which you forwarded me from Mr. D. Campbell, is affected with a fungous disease known as "Hollyhock rust," technically called *Puccinia malvacearum*, Mont. This rust attacks most forms of the cultivated hollyhock, causing the leaves to shrivel and fall off. I do not know of any effectual remedy which can be applied. The best practice would be to take off and destroy, with the fallen leaves, all the affected foliage. If the plants are severely attacked it would be well to root them up and destroy them entirely.

Fruitless Cherry Trees.

663. SIR,—I have some cherry trees eight years old which have not yet yielded a good crop of fruit. Though there has been plenty of bloom, the fruit after setting dropped off, when about the size of a pea. On one tree I noticed a number of insects, similar to ants, but about three-eighths of an inch long, and the body partly black and partly reddish brown. Later I noticed that the leaves began to curl, and under them were many small black insects.

AN INQUIRER, *Vancouver, B.C.*

Cherry trees seem somewhat susceptible to injury by sudden changes of weather. The dropping off of the young fruit is a frequent occurrence with us in Ontario, owing, no doubt, to the somewhat unfavorable conditions during the time of blossoming, which prevents proper fertilization. This has been especially noticeable during the present season. The long, cold, wet weather during blossoming was succeeded by a very hot and protracted drouth, resulting in the blighting of the young fruit, which was strewed on the ground in immense quantities, and left but a small crop to be harvested, even on our older and more vigorous trees.

The insects of which our correspondent speaks are probably the larva of one of the lady bugs. This insect is a friend of the fruit grower and should not be destroyed on any account. He visits the trees to devour those very troublesome black insects which he speaks of as being found on the under side of the leaves in such large quantities, and which are known as aphides. If the larvæ of the lady bug are sufficiently numerous they will entirely rid the trees of the aphides, but otherwise it will be necessary to spray with kerosene emulsion

Black Knot on the Hickory.

664. SIR,—I send you a branch of a hickory tree with two knots upon it. Would you please let me know whether it is the same as the black knot on the plum? The tree is covered with knots, and I am anxious to know whether there is danger of its spreading to other trees.

D. L. CARLEY, Windsor.

Reply by Professor James Fletcher, of Ottawa.

I have examined the knot on the hickory branch sent by Mr. Carley, of Windsor, and it certainly is not the black knot of the plum. Judging from the dead gall, I believe it is caused by one of the gall mites of the genus *Phytoptus*. If Mr. Carley would send one of the young galls we shall probably be able to identify it.

The Cigar Case-Bearer.

665. SIR,—Please name the enclosed insect, which has been destroying the leaves on my apple trees. They appeared on the leaves as soon as the buds began to open, and are still working destruction to the trees. Our Greenings suffer most. How long will they continue to work? If you will tell me all that is known of them and give me a remedy I will feel much obliged.

A. P.



FIG. 688.

Reply by Prof. Jas. Fletcher, Central Experimental Farm, Ottawa.

The specimens sent in your letter of 23rd inst., are the Cigar Case-bearer (*Coleophra Fletcherella*) of the apple. This insect is difficult to treat, and has been very abundant in some places this year. The most successful treatment is spraying the apple trees early in spring, with kerosene emulsion. Spraying with Paris green has had some beneficial effect, but not so much as I had hoped.

[We show cut of an allied species, viz., the Apple tree Case Bearer.—ED.]

Planting Strawberries.

666. SIR,—Please give me some information about planting strawberries.

A. F. Hamilton.

The most important consideration is the choice of soil. A light sand, especially if high and dry, will be too much affected by the severe June and July drouths to yield paying crops. Heavy clay, if subject to hard baking, is also unsuitable. On the whole, a deep, rich, sandy loam, somewhat moist, will be most favorable. The ground must be well worked up before planting. All the

better if it has been previously devoted to a potato crop, for the working up and manuring necessary for this crop will be the best of preparation. The ground must be well enriched, and, when well cultivated and harrowed, should be marked in rows three feet apart with a corn marker. In these rows the plants are set one foot apart. They should be carried to the field in a basket covered with a damp cloth. A man opens the earth with a slanting cut of the spade, while an assistant spreads out the roots and places them in the opening. The spade is then withdrawn, and the earth, falling back, is firmed with the foot, and the plant is securely and well planted.

* Open Letters. *

Fruit Shipments to Australia.

SIR,—I am in receipt of your letter of the 23rd of February, concerning apple shipments to this market. California apples come here in considerable quantities in October, November and December; the first two months are best. They are put up in cases of about one bushel each and each fruit is wrapped in tissue paper. The fruit brings about 12/ to 14/ a case. The varieties which sell best are Winesap, New York Pippin, American Pippin. This market does not want large apples; medium sized fruit sells best. I would suggest half barrels, and not barrels. We have never had apples here in any other packages than cases, and it is difficult to say how they would take in half barrels. In any case I would advise only one small shipment to be sent, to arrive here, say in November, and see how the cost landed compares with that from California; how they carry, etc. The cost would, of course, very much depend upon the railage at Vancouver. If the Canada Pacific Railway wish to encourage traffic, they will have to make their rates low. My own opinion is that, if the fruit arrives here in sound condition and the cost is not greater than from California, there will be a business done in them. The first shipment must necessarily be an experiment.

I am, sir, faithfully yours,

J. S. C. SMITH, Gov't. Agent.

Sydney, New South Wales.

Killing Burdocks with Kerosene.

SIR,—From seeing an article in your July number on "Weed Destruction," I am induced to mention to you a method of getting rid of burdocks which when carefully done has been found almost infallible. Cut off the top of a large burdoc, even with the ground, with a knife scoop out the heart of the root for a couple of inches and fill the cavity with *coal oil*; the larger the plant the deeper the cavity may be made, of course taking care not to cut through the rind of the root, otherwise it would not hold the coal oil which is absorbed by the root and which effectually prevents its sprouting again. Young plants are best treated by pulling up the entire root. Hoping the above may prove useful to some of your readers,

I remain, yours truly,

L. GILDERSLEEVE, 264 King St., Kingston.

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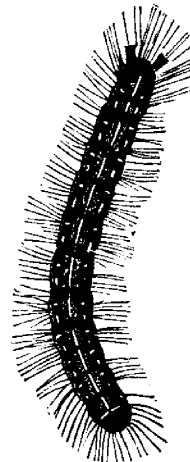
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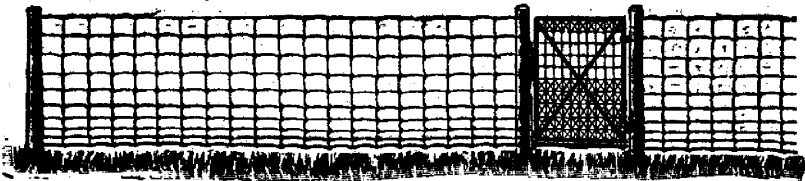
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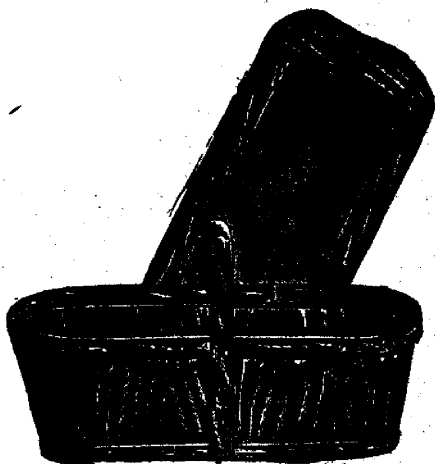
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