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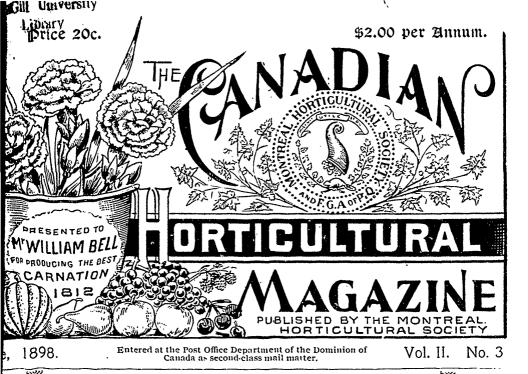
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THE CANADIAN

HORTICULTURAL MAGAZINE.

Vol. II. J	une, 1898.	No.	3
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DIANTHUS FOR AMATEURS.

Unlike its near allies, the Lychnis and the Silence, this old and deservedly popular genus is composed almost entirely of perennial species, many, of course, entirely useless as garden plants, but the great majority of those in cultivation at the present time are of a highly ornamental character, and will be found useful alike for the flower-bed as for the mixed border and the rockery. In speaking of the genus Dianthus, we must here disclaim any intention of including the florist's carnations, pinks, and picotees, which, though descendents from species of Dianthus, are not usually included with them in the amateur's garden. Taking Dianthus proper, the number of species given by the latest monographer of the genus is 231, about half as many varieties, and certainly not less than three times as many synonyms. This question of synonymy does not, however, concern the amateur very much, so long as he is content to stay at home in seeking to add to his resources. Should he try the continent with a like experience to our own, with this genus in particular, he will find his names increase much more quickly than his plants.

The cultivation of the more useful species of Dianthus is comparatively easy, and it is only with the Alpine section, including D. alpinus, D. glacialis, D. gelidus, etc., that the beginner will have to feel his way. With these, as with many other Alpines, slightly different treatment in different localities or districts will be required, and it will be safe only to make a few general observations.

The most common pink in cultivation is D. plumarius, an extremely variable plant, and in one of its many forms we find it cropping up everywhere under all kinds of assumed names. It

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varies both in the size of flowers, depth of fringe, length and colour of leaves, and in the general habit. It is a handsome plant when in full bloom, sweet scented, and in the neater habited varieties a charming rock trailer. It is called the feathered pink, and was cultivated as early as 1629. It is a native of European mountain pastures, and dry woods.

Next in order comes the Indian or Chinese pink (D. sinesis) which has given rise to a beautiful race of plants largely cultivated at the present time. The flowers are as varied in size and marginal incisions as they are in colour, and the plants may be treated as annuals, biennials, and in mild localities where the soil is dry, as perennials. The forms, both single and double, are very beautiful; they are classed chiefly under Heddewigi and Laciniatus, to both of which belong many distinct named sorts which may be found described in florist's catalogues.

The fringed pink, D. superbus, is also a handsome species, as fragrant as heather, and easily distinguished from all the others of its race by its deeply laciniated petals; they are divided into lines or stripes for over half their length. It grows about a foot in height, and though apt to perish in severe winters, it is easily raised from seed. It is a native of Europe, flowering July to September.

The Maiden pink, D. deltoideus, the Amoor pink, D. dentosus, fimbriatus, petraeus, hispanicus, arenarius, Requienii hirtus, etc., all charming and distinct kinds, may be classed as a group more suitable for the flower-bed than the rockery, although in gardens where the latter is large enough, many or all the above may be added with advantage.

Our own native sand pink (D. arenarius), though a small single-wered species, is a very attractive plant on the rockery, the profusion of its white blossoms amply compensating for any deficiency in size. It is found, or used to be, says Linnaeus, on old walks and buildings in many parts of England. But this is said to be the common, not the sand pink. It is found among drifting sand in Silesia, and generally over Europe.

The rock pink, D. petraeus, is a pretty dwarf species, both the

single and double forms of which are to be found in our gardens. The flowers are almost as large as those of the fringed pink, and sweetly scented. The hairy pink, D. hirtus, is just such another plant as arenarius, the flowers a little larger, sweetly fragrant, with hairy stems; the habit is very neat, the whole plant rarely exceeding three to four inches in height.

The fringed pink, D. fimbriatus, somewhat resembles D. superbus; the flowers are, however, smaller and less fringed than in that species.

Another group which we have found most useful for beds and borders is that which includes D. cruentus, barbatus, atrorubens, etc. These species differ widely from the above in being more compact in habit, with smaller, rarely fragrant flowers, usually of a deep red colour.

The sanguinary pink, D. cruentus, which is next to barbatus, the commonest in gardens, is one of the easiest to cultivate. It is a true perennial, and never fails with its abundance of flower stems, on which are surmounted the dense heads of bright red flowers.

The Sweet William, D. barbatus, and its numerous varieties are too well known to require description here; we might, however, draw the reader's attention to the new double crimson Sweet William, which is certainly one of the brightest, if not also the daintiest of this lovely group. Taking the above as a whole, the soil in all cases should be on the poor rather than the rich side; the position fully exposed, and away from the influence of trees or large shrubs.

The most interesting group of all, however, is that containing the Alpine pinks, amongst which are included some of the loveliest of our late spring flowers, and when doing well, which, fortunately, is not rare, a source of the greatest pleasure to the amateur cultivator. We have seen them grown in pots, and very successfully, too; but this entails much care and labour, and although the display more than compensates for this, it is always most satisfactory to have them out on the rockery where they are well able to take care of themselves. Their greatest enemy is a small maggot, which we have in particular years found troublesome. This sometimes ١,

weakens the plants so much that flowers have been at a discount. This plague we at last overcame with a strong solution of tobaccowater, applied daily until the plant showed signs of renewed vigour. The maggot affects alpinus and glacialis more particularly, and we have never so far seen it on neglectus, caesius, gelidus, Fischeri, or any of the others.

The soil most suitable for this group is a mixture of loam and peat, with a good half of grit and lime rubbish added. They may be increased by division or seed, the latter, where obtainable, being always preferable; but, as in the case of Fischeri and a form of alpinus called tener, we have never been able to obtain seeds, and have had to resort to division, which is never a safe means with these Alpine pinks.

Our own Cheddar pink (D. caesius) has been a picture this year. Its large, rosy, fragrant flowers quite hiding the close tufts of glaucous foliage. It is a choice rock-plant, and should certainly be in every collection, however small.

The Alpine pink (D. Alpinus) in its typical form may be easily recognized by its very dark green, blunt leaves, and large, deep, rose crimson, spotted flowers. Grown from seed it is very variable, and this certainly is the best means of propagating, though it is easily raised from cuttings.

The glacier pink (D. neglectus), the beauty of which is indescribable, is one of the most exquisite flowers we grow; very dwarf, forming dense tufts close to the ground, the leafage literally hidden with its profusion of large, deep, bright rosy-crimson flowers. Native of the Alps and Pyrenees.

The woodland pink (D. sylvestris) is also very fine, but where space is limited may be left out in preference to either or all of the above.

FRANK BRUNTON.

NATIVE PLUMS IN THE NORTHWEST.

The old-fashioned garden plums of European origin, states The Country Gentleman, are proving satisfactory to modern fruitgrowers only in limited areas of the United States and Canada. The best fruit regions of New York, southern New England, southern Ontario, Michigan and the Pacific coast, grow them with great success; but almost every where else they are more or less unsatisfactory. Even in the territory mentioned they are being somewhat more than supplemented by the Japanese plums; and these latter are finding favor in many other sections, especially southward, where the Domesticas have proved distinctly untrustworthy. But the native plums are coming rapidly into greater prominence for these plumless regions, and are even making their way into the territory of the Domestica and Japanese varieties. In the colder regions, where the Domesticas, and still more the Japanese plums, are not reliably hardy, the varieties of the native Prunus Americana are taking the lead; while in the central and southern States the Chickasaws and Hortulanas are finding great favor.

Thus far the work with native plums has been largely experimental, and has not made the same impression on the pomological records as the same amount of work in other lines. Prof. Bailey was the first, in 1892, to publish a systematic treatise on the native plums. Since that time they have been given much further effective study. The latest, and one of the best contributions to this subject, is by Professor Goff,* of Wisconsin, who has so many important observations to make that we feel compelled to quote at considerable length.

Respecting the wide range of the native plums, he says:

"At least one species of the native plum promises to furnish our hardiest tree fruit, with the possible exception of some of the crab-apples. Already some varieties of *Prunus americana* are being

[&]quot;*The Culture of Native Plums in the Northwest, by E. S. Goff, Wis, Ex. Sta., Bull 63; p.p. 67, figs. 32; Oct. 1897.

successfully grown and profitably marketed at Stonewall, several miles north of the city of Winnipeg, in Manitoba, and the northern limits of the profitable culture of this species are by no means determined."

He then goes on to say:

"The culture of the native plums has been chiefly developed in the Mississippi Valley. This has doubtless come about from two causes. The wild plums were probably of larger size in the sparsely timbered wooded belts of this region than in the denser forests of the East, and the flower-buds of the Europen plum were found not sufficiently hardy to endure the winters; hence the pioneers who were horticulturally inclined made a virtue of a necessity, and transplanted the best wild plums to their gardens. As the country be, came more settled and the wild plum thickets became fewer, the product of the garden plum trees began to find its way into market. Next, certain enterprising nurserymen discovered the possibilities in this fruit, and began to propagate, and to grow seedlings from the choicest varieties. Thus a new fruit has been introduced to our markets that promises to become only second to the apple in importance.

"The season of maturity of the native plum in the Northwest extends from the latter part of July to the middle of October. The fruit is excellent for cumary uses and preserving, while the finer varieties are becoming prized for dessert use. Feople who have been accustomed to the fine European plums of our markets generally pronounce the native plums greatly inferior to them. 'The northwestern plums will be of almost no value where the best European plums can be grown,' embodies a sentiment that has been often expressed. But those who have become accustomed to the finer sorts of native plums, and have learned their value for culinary use, think differently, as is shown by the excellent market demand for them in many of our cities. The thickness and harshness of the skin is perhaps the most serious objection to the native plum. But when divested of the skin, the flesh of the finer sorts is scarcely surpassed in richness by that of any of the stone fruits. In some

varieties, as the Mankato and Gaylord, the skin separates very readily from the ripe fruit. The skin of the Cheney and Ocheeda practically dissolves in cooking, and that of the Aitken and a few other sorts is so thin and delicate when the fruit is ripe that the skin is no more objectionable than that of the finest European or Japan sorts."

As to the market value of the native plums, Prof. Goff quotes several growers who have made a specialty of them. Mr. J. W Kerr, of Denton, Md.,—probably one of the best localities for the Japancse plums—writes as follows:

"You ask me for my experience as to prices of best native plums compared with European kinds. The facts in the premises are about as follows. From about 200 trees of Domesticas I have never had fruit sufficient to make a test of the relative market merits of the two species, but repeatedly in the Baltimore and Philadelphia markets, when the finest of 'Europeans' from New York State and elsewhere were a drug at prices ranging from 15 cents to 30 cents per 10 lb. basket, my natives, such as Lone Star, Whitaker, Wild Goose, Newman, etc., have sold readily at 40 to 60 cents per basket of same size; the prime reason for which is found in the fact that the natives were in the market a month before these Europeans. Last year in St. Louis market the natives and Europeans were in competition with each other simultaneously. And a reporter for the Fruit Trade Journal of New York stated in that paper that 'the fine large green and yellow Gages will not sell at any price, while the bright red Wild Goose variety moves right along.' I have had one crop in 15 years from 75 Shropshire Damson trees, and that very crop netted me 15 cents per basket less than my native plums."

The bulletin then goes on to notice the propagation of native plums, recommending Americana seedlings for general use in the Northwest. Budding seems to be preferred, though root-grafting is sometimes practiced. The Marianna is also mentioned as extensively used in the South. The author might have added that the native plums, as well as the Japanese, are often worked on peach at the South; and where this is done by root-grafting, so as to secure own-rooted trees (of non-sprouting varieties), it is probably one of the best methods. Next in order soils are considered. The native plums are found to succeed on various soils, from fine sand to heavy clay loam. It is recommended that the trees be set not less than 25 feet apart each way. Pruning, insects and fungous diseases and cultural and market methods are considered. There are then given detailed descriptions of nearly two hundred varieties, with excellent naturalsize photo-engravings of fruits, pits and leaves of several. The nomenclature and classification seem to be very painstaking and accurate and the descriptions add very materially to our knowledge of these fruits.

The author does not commit himself to a recommendation of any particular varieties for planting, but he finds that the most popular ones in Wisconsin, Iowa and Minnesota are De Soto, Forest Garden, Rollingstone, Weaver, Hawkeve and Cheney—all Americanas. Several of the Wild Goose type are mentioned with considerable favor, as Wild Goose, Milton and Poole's Pride, with the closely related Miner.

The men who grow plums, especially native plums, have fallen into the habit of calling themselves jocosely "plum cranks;" and while the bulletin in hand is a really valuable addition to American pomology in the broadest sense, it will awaken a peculiar delight among the members of the "Plum Crank Lodge."



WATER LILIES IN TUBS, TANKS AND PONDS.

WHEN AND HOW TO PLANT THEM.

G. B. Moulder writes in *Meehan's Monthly* :---May is the ideal month in which to plant Water-lilies, though the season begins in March and continues into July, being regulated by the climate and the varieties one wishes to plant.

Aside from natural waters, there are three receptacles used for growing Water-lilies, namely: tubs, tanks and ponds.

Tubs are less used than tanks or ponds, coming in as an invaluable makeshift to those lacking better facilities. Ordinary halfbarrel tubs are the most numerous, though tierces, vats, hogsheads, etc., are often sawn down and used. The tub is filled to within 8 or 12 inches of the top with soil, the lilies planted, the tub placed in full sunshine and kept full of water (should be wintered in the cellar.)

Tanks or cement basins, either under glass or in open air, are most satisfactory places to grow all kinds of water plants. The size and shape of the tank are matters to be adjusted by the owner and the purpose for which it is intended. Circles, ellipses, and paratlelograms are mostly used. We prefer the latter; irregular and naturalistic character may be given in the planting; 6 by 12 feet or 12 by 20 feet and $2\frac{1}{2}$ feet deep are convenient dimensions for small tanks; 20 by 50 feet and 3 feet deep in the middle is a good size for larger nymphæas. Victorias should have at least 700 square feet of water surface. The tank should be given a sunny location. In the absence of water-works, water to replenish with during the summer will have to be provided for from a spring, well, lead-trough from the roof of some building, or otherwise. Two barrels of water per week will supply a 12 by 20 tank during a scarce time.

The most economical tank is made by digging into the ground. Soil from the excavation may be thrown around the margins, sufficient to make a neat embankment if desired. Before the masonry

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is begun, a supply, an overflow and a drain pipe should be put in place, and, if the tank is to be artificially heated, connections for the flow and return pipes should be put through the walls in course of construction. The walls should be of brick or stone laid in cement and the soil well packed around the outsides. In cold climates, they should be 13 inches thick ; in the latitude of southern Kentucky, 8 inches; further south, 4 inches thick will suffice. For the bottom, beat the soil down firm and cover to the depth of 4 inches with coarse gravel or broken brick or stone. On this, pour thin mortar made of one part sand and two parts cement, seeing that the gravel is coarse enough and the mortar thin enough to run freely to the bottom everywhere. Then finish both bottom and sides with a good coat of Portland cement. In latitudes where there is no danger of hard freezing, or in greenhouses, a good coat of cement plastered to; the soil, without a wall will be sufficient. Care should be taken, in this case, to pack the soil solidly together, as there is danger of the plaster bursting from the heavy pressure of the water. Lilies should not be planted in a tank for a few days after completion while the water is strong of cement.

The construction of ponds is less intricate. If the water is to be had from surrounding hillsides, from springs or streams generally, the lowest part of the ground is the most suitable place. If the pond is to be made by building a dam across a stream, due preparation should be taken against freshets by throwing the basin to one side in order that the current may not rush pell-mell through the lily plantation. The water line or edge of the pond should be determined by a spirit-level or otherwise, and the soil removed to the depth required, either by an ordinary pond-scraper or with pick, shovel and cart. If desired for water plants wholly, three and onehalf feet is deep enough; but for large ponds, it is recommended that considerable depth be attained and only the shallower places be used for lilies. Where the soil is porous or gravelly and the water supply scant, the whole basin should be plastered with a three or four inch coat of stiff clay mud; but where the soil is naturally of a clavev texture, a good pounding with mauls or allowing stock to

tramp the place for a season will make the bottom almost as retentive as if cemented.

Doubtless there are a greater number of failures in Water-lily culture arising from an undue knowledge in *the selection of varieties* than from any other source. If tubs are to be planted, select stock adapted to tub culture—the same with tanks and ponds—and do not expect plants from Sweeden to flourish alongside of those from Brazil.

In tubs of the hardy Water-lilies, any of the Nymphæa pygomæa N. Laydekeri, or N. odorata families may be grown well. The Marliacea varieties are rather large. Nelumbium, or lotus, make fine tub plants—especially N. speciosum and N. album grandiflorum, because they have been under rigid cultivation in the Orient for centuries. Of the tender varieties, N. Mexicana, N. flava, and N. gracilis are the best. The Zanzibar lilies, N. dentata, N. scutifolia and N. Devoniensis may be "dwarfed" in tubs, where they do splendidly, but cannot be brought to themselves in water of less than 10 feet in diameter. The other tropical lilies submit with reluctance to limited quarters and should be given plenty of room.

In a Water-lily tank, without artificial heat in open air in this latitude, all the tropical Water-lilies, including the Victorias, may be planted out after June 1st and be flowered with success; strong, healthy plants and plenty of food being the chief requisites. All kinds of hardy lilies may be grown in tanks.

In natural ponds of proper depth and mud bottoms, that are not supplied by cold springs and that are not too much shaded, all the hardy Water-lilies will thrive and live over winter without protection anywhere in the United States or Western Canada. All the tropical Water-lilies may be grown successfully in open ponds, but require the protection of a greenhouse or warm cellar over winter.

No Water-lilies do well in swift streams; but slow streams and coves may be utilized with perfect satisfaction. In swamps or sloughs where the soil is barely covered with water, the lotuses may be grown with good effect. The soil for growing aquatics is of the simplest kind. They are strong but not choice feeders. Heavy loam from the garden, made rich by well-decayed manure, is an ideal artificial soil. If commercial fertilizers or fresh manure is used, in decomposing they give a stench to the water and cause it to stagnate.

For planting, the soil may be placed either in boxes or spread entirely over the bottom of the tank or pond to the depth of ro inches. Planting in boxes is preferred in ponds where the water is liable to rise and fall during the summer, in order that the young plants may be kept at congenial depths until established, discretion should be used in planting the small varieties in shallow water and the stronger sorts in deep places; care should be taken never to bruise a Water-lily root, especially a lotus, as it often proves fital. In planting, dig out a trench in the mud with the hands and la the root in horizontally—riot set up endwise—and cover to a depth twice the thickness of the root. If there are fish in the water, poultry netting, slab stones or something more available should be placed around the roots for protection.

Being judiciously selected and planted in favourable quarters, Water-lilies need practically no further cultivation and are sure to succeed with anyone.



THE HARDY FLOWER BORDER.

There is an enjoyment in watching the hardy flowers peep through the earth in spring that is not experienced in any other part of the garden.

What a pleasure it is to watch the Lillies, and the Phloxes and the Delphiniums poke through the ground, and how delightful it is to find, after scraping away the earth from some old favorite, that it is still alive. How disappointing it is also to go a little further and find that the frost has killed some little treasure we had taken every care to save. The uncertainty of seeing these plants again seems to endear them to us, and when we do see them alive in spring, it is like meeting old friends we have not met for years.

The same pleasures are not enjoyed with the annuals, nor the ordinary bedding plants, put out from year to year, where they are not with us long enough for us to become attached to them individually, as we would to a plant or tree we have watched spring into growth for years. And it is for these reasons that the hardy flower garden is becoming more and more popular, as well as through the fact that it requires less attention and in the long run is less expensive than the garden that has to be replanted every year.

Last winter was very suitable for hardy plants in this locality, and many varieties that usually do not survive our winters pulled through. All the perennials that have come through the winter will now be well advanced in growth, and many of the best of them are in bloom. Some of the very early flowering kinds have finished blooming for the season, such as the dainty little Auriculas and Polyanthus, Lilly of the Valley and some of the Forget-Me-Nots. It is not generally known that the Auriculas ("Dusty Millers"), and Polyanthus winter freely in this locality in seasons when there is a good covering of snow. Their lovely shades and exquisite markings combined with their very early blooming render them very desirable and much admired. Their low growth and distinct foliage make

:

them very suitable for edgings of walks that are not marked with grass or other borders.

One of the prettiest of the perennials which has now been in bloom some time is the Iceland Poppy with its graceful blossoms of yellow, orange or white. These charming little flowers, cut with long stems, and arranged loosely in a vase are exceedingly pretty, and a delightful combination is formed by arranging the yellow varieties, and the dear old-fashioned Forget-me-nots together in a vase. Better results and larger blooms are obtained when the Iceland Poppies are transplanted every year. If allowed to grow in one patch for several years they become over crowded and consequently produce smaller blooms. The seed pods must be removed as soon as the petals drop if the supply of bloom is to be kept up all season. Allowing the seed to ripen shortens the flowering period.

The Oriental Poppy differs greatly from the little Iceland and is very gaudy and not so useful. In common with all the Poppies its blooms fall quickly. It does not continue to bloom, however, when the seed is removed as do the Iceland varieties, and for a small garden it is coarse and not nearly so desirable. No flower surpasses it in size or fiery brillancy of blooms, which seem to monopolize the garden, often completely spoiling the effect that might be produced by the more graceful and refined plants around it. Some writer has likened them to fireworks that dazzle for the moment then make one painfully sensible of the darkness.

The grand Doronicum Plantagineum with its large, handsomely shaped daisy-like flowers of bright yellow has now been in bloom for some time. This is a very desirable plant, growing about three feet high and is perfectly hardy. Its blooms are very showy and are nice for cutting. It is a profuse bloomer and lasts for quite a while, and sometimes a second crop of flowers is produced towards the end of the season.

Orobus vernis, *the bitter vetch*, with its pretty little pea-shaped flowers of purplish hue, is a neat little plant which blooms about the middle of May.

The little Arabis, is now through blooming for the season. It

is one of our earliest flowering perennials, and when in bloom forms a literal carpet of snow. Its pretty little white blossoms so sweetly scented are one of the first attractions for the bees, and are usually swarming with them.

Primula Cashmeriana with its round trusses of pale mauve flowers and handsome foliage is one of our earliest and most beautiful flowers. Primula Cortusoides also is a neat and pretty little plant, and both are deserving of place in every hardy border.

Pæonies are now in full bloom. What a pity their season of flowering is so short, and in this respect they resemble the Oriental Poppy. The foliage is more attractive than that of the Poppy when the flowering period is past, and the Pæony is the more useful as well as the prettier of the two.

The flowering Pyrethrum, both double and single varieties, are lovely flowers not often met with in our borders, although a large percentage of them will be found to winter every year. They are very graceful and come into flower towards the end of May, and continue to bloom a long while if the old flowers are removed regularly.

The Hemerocallis, *Day Lilly*, is now in flower. It withstands our coldest winters and its large yellow, Lilly-shaped flowers are very sweetly scented.

Few of our hardy plants form a prettier or more imposing specimen than a well grown plant of the Scotch Thistle, Onopordon Giganteum. Under favorable conditions it attains a height of from 5 to 7 feet, and with its pretty leaves and thistles makes an imposing plant.

Hesperis matronalis resembles the Perennial Phlox of olden times, but comes into bloom earlier. With its dull pink flowers it is not to be compared with Phloxes of to-day. The double purple and white varieties, however, are very choice perennials that are seldom seen in this country. Many of the irises are now in blossom.

The Japanese varieties, the finest of them all, will not be in flower for a few weeks yet.

The Columbines, *Aquilegias*, have been a mass of bloom, white, blue, and pink. Their season is short, but they do not take up very much room and they have pretty foliage. They are amongst our most beautiful Perennials and are quite hardy.



NEW STRAWBERRIES OF MERIT.

Geo. S. Butler, writing in the New England Homestead on the above subject says:—Among the multitude of recent introductions three have impressed me, as being particularly worthy of propagation. Viz: Erie, Gardner and Clyde. The Erie is a large, rich, dark colored berry of fine quality, quite productive, firm, and very late, beginning to ripen when the rush of common varieties is past. It extends the strawberry season ten days, and brings a very profitable price. As a canning berry I have never tasted its equal. Shall plant largely of it as soon as I can produce the plants, which multiply quite slowly, although making a very strong plant.

The Gardner is an extremely strong plant maker. I believe it is destined to take rank among the select few general-purpose berries. As a pollenizer it will prove valuable, not only producing an abundance of pollen but also a large crop of fruit. In color it is about like Haverland, in size equal to Sharpless, in quality no better than most of our popular market berries, but firmer and more productive; sure to become a favorite among commercial growers. The Clyde is another very vigorous plant and prolific bearer. Fruit large, and if plants are not allowed to mat too thickly, of excellent color; but if shaded apt to be too light. Probably possesses as many good points as any market berry ever introduced, and the grower who does not obtain a stock as soon as possible will regret it.

FRUIT TREE PRUNING.

Whoever attempts to prune a fruit tree of any sort before cutting off any limb, branch, twig or fruit-spur, writes Serreno E. Todd, in *Country Gentleman*, should be able to assign a scientific reason for pruning off one or more of such portions of the tree-top. If a pruner is not able to give a scientific reason for cutting back or removing any part of the top, he will be quite as likely to damage a tree as to improve the growth or the fruit productiveness of any tree.

When I was a small boy, my father sent an illiterate woodchopper to prune his apple trees, using no tools but a wood-chopper's axe. The man was an expert with a woodman's axe. He knew how to chop down trees, how to trim off the branches, and how to pile up the brush and the wood; but he had not the slightest conception of the scientific knowledge essential to enable a pruner to prune a tree so as to improve its lateral or its upward growth, or its fruit productiveness. Consequently he went to work in the orchard as he would when clearing ground of a forest. Such pruning ! Such reckless cutting and slashing and such damaging vandalism was really provoking and heart-sickening !

The trees were large and in full bearing; very few of them needed any more pruning than cutting off, here and there, a small But that pruner chopped off with his keen edged axe many branch. large and leading limbs from every tree. Many of the limbs were fourteen to eighteen feet long, and six to eight inches in diameter at the butt end where they were severed from the parent stocks. Then the branches that were allowed to remain were all trimmed neatly and clean of every twig, leaf-spur and fruit-spur, leaving nothing but a large bush at the end of a long limb. I well remember how long, and destitute of branches and twigs, most of the limbs were. In many instances more of the top was slashed away than remained. Huge and gaping wounds on every tree, which were never covered with wax of any sort, were exceedingly damaging to those trees. From the time of that reckless pruning, the rapid decay of the most

fruitful trees commenced. Every season the yield of fruit continued to diminish. Many of the trees, I well remember, continued to decay at the heart, until there was nothing left except an old, halfdecayed tree, standing on two prongs, like an old decayed tooth.

Now, let us contemplate a better and more philosophical mode of pruning. Here is a point of immense importance, which only a few persons understand. Every fruit tree (if it is a generous producer of fruit) will send out fruit-spurs on the sides of all the limbs and small branches, covering the sides and upper surface with fruitspurs and leaf-spurs from the body of the tree to the extremity of the branches. These should never be removed ; yet many owners of orchards, with saw or hatchet, clip off every fruit-spur from the main part of the large limbs and small branches, leaving only a denuded branch.

Fruit-spurs are small shoots only one or two inches long. These should not be cut off, nor jammed off by one's feet when he is plucking the fruit. Fruit-spurs produce fruit-buds in one season for the crop of fruit the following season. Leaf-buds may appear one year and the following season they will produce fruit-buds, and the succeeding season the fruit-buds will yield fruit. Dame Nature is a scientific philosopher. She would cover all the large branches with leaf-buds or fruit-buds and leaves, for the purpose of protecting the bare branches from the scalding heat of the summer's sunshine. That is one point of transcendent importance to be remembered by every one who owns a fruit tree of any sort. Still another consideration should be well remembered. When the fruit-spurs of any tree are replete with fruit, the crop will not be half so liable to be shaken off by furious winds as is the case when the fruit grows at the extremity of long and swaying limbs. Most cherry trees will produce fruit-buds in abundance on every limb and branch if they are not cut off, or jammed off by the reckless feet of people who pluck the fruit. Thoughtless pickers will often claw off a large cluster of cherries and take also the fruit-buds, thus destroying the crop of fruit for the next season. Such pruning of fruit trees is always very damaging to the fruit productiveness and to the growth of any fruit tree.

We have only one large cherry tree, the limbs and branches of which are well covered with fruit-spurs. No one is allowed to climb into that tree-top to pluck cherries until he or she is made to understand that the fruit-spurs must not be clawed off with the fruit. The branches of our apple and pear trees are well covered with fruitspurs; and the spurs always yield a generous amount of fruit. It is a wrong practice to prune away all the small branches, twigs, fruitbuds and leaf-buds from the interior of a tree-top, making it like the interior of a tent. The old sterotyped rule is to cut away the interior of a tree-top so as to let in the sunshine and air. There is no sound reasoning in such direction for pruning trees. The foliage at the extremities of the branches will exclude all uirect sunshine. Fresh air and wind will sweep through a tree-top, even when the top is so dense that a person cannot climb around among the branches. Fruit trees require but little pruning. Many need none at all. The fruit buds should not be removed at all.

Every tree that needs pruning should be pruned when the superfluous branches are small. When the branches are allowed to grow ad libitum or at random until they are as large as a man's arm, it will be very damaging to the tree to cut off such large branches. If we examine any fruit trees and some ornamental trees we can see at the point of articulation or junction of the limbs with the main stem a sort of crease or seam or cicatrice extending around the base of each branch. That natural seam indicates the better place for severing the limb from the main stem. If a branch is sawed off at that seam, the wound will always heal much sooner than if the kerf or cut was made on either side of it. I have directed the attention of many intelligent men to this important point; but not one of them had ever observed that seam. Wherever I go about the country or city or village, I see many fruit trees and or amental trees ruined by ignorant pruners, who saw off large branches several inches from the main stem; whereas, they should be severed at the seam indicated in the growth of the bark.

My own practice has always been to keep a small kettle of grafting wax on hand, by melting a pound of rosin with a pound of tallow, which is applied warm to the wounds, with a small paint brush. If this proportion of rosin and tallow should be too brittle, add a small quantity of linseed oil. Should the wax be too soft, add more rosin.



THE LAUREL OAK. QUERCUS IMBRICARIA.

A writer in Park and Cemetery says :--What a surprise it would be to the landscape gardeners of fifty years ago could they see the change in the kinds of trees planted to-day and those of their time. At the present time native trees are largely represented in all plantings, and among these oaks have a conspicuous place The landscape gardener of the former period could not have gotten native trees and shrubs had he desired them. The nurseries of that day depended on importations from abroad for the stocking of their grounds, and, of course, European trees and shrubs were largely their stock in trade, But of late years our nurserymen have paid much attention to native trees, believing them the most desirable for our climate, and this belief has been shared in by our landscape gardeners and by the editors of the leading horticultural papers of the country. Oaks, as stated, are used in great quantities. This is well deserved, because of their great beauty and variety. Thinking now of the latitude of the Middle States, there are as many as twenty good species hardy enough to be used. There are species in many states which are not common in others, so that when we are looking for novelty, as we all do, we can find it in this family of trees. There is, for instance, the Laurel oak, Quercus imbricaria, common enough in some States, but rare or entirely absent in others. It is one of the most useful of trees. Unless for some special reason, park trees should be allowed to branch close to the ground.

This oak is unlike any other oak in foliage. The leaves are entire, very dark, shining green, and much longer than wide. To those not well acquainted with oaks it would not be thought to be one of that family There is a southern oak, Quericus laurifolia, known also as laurel oak, but this is not met with in cultivation in the north.

There are some oaks, the bicolor and the palustris, for instance, which transplant very well. Others require very hard pruning when removed, and in this class is the imbricaria. The younger an oak the better it will transplant, but take a tree of six feet of any kind, prune it well and its chances of living are very good. Early spring is a good time to transplant, but if done in early fall, the trees closely pruned and then well mulched, to keep the frost from the roots for the winter, but few will miss growing. Close pruning means the cutting away of most all the branches when the trees are of a size that the stem would measure, say two inches in diameter, at one foot from the ground. Lesser sizes may be trimmed less closely, but oaks need a closer cutting in than other trees of a like size.



WINDOW BOXES FOR FLOWERS.

In the city, where it is impossible to have a garden, there may still be quite a substitute for it in the form of a window-box, and this substitute may be enjoyed by the occupants of upper stories as well as by those living on the ground floor. A window-box that will grow plants quite as well as the elaborate and expensive boxes used by wealthy people, will cost very little. The box should be as long as the window is wide, or a little longer, and about a foot wide and a foot deep. Fasten it level with the window sill, or just below it. For support use iron brackets, which can be screwed to the wall just below the box, or by braces of wood running from the outside of the bottom of the box to the wall, set at such an angle that ample support will be provided. A few nails can be put through the box into the sill or side of the house, to give additional security and firmness. Any boy ten years old can put the box in place, if you furnish him with a saw, a hammer and some nails to work with. Packing boxes of about the right size and shape can be bought at many of the dry goods stores for a small sum.

When in place, fill it with the best soil you can get-the richer the better; but if you cannot get such soil, use whatever is at hand and depend upon soap-suds and the like for food for the plants. The best annuals for use in window-boxes are: For flowers-petunias, phlox, calliopsis, sweet alyssum and nasturtiums; for fragrancemignonette; for training up and about the window-morning glories. Among other good plants, not annuals, geraniums, both double and single, are excellent; also verbenas, heliotropes, and roses of the ever-blooming class. If I wanted a window-box that would be as near perfection as possible in the beauty and fragrance of its bloom, I would have a Perle des Jardins rose--nch yellow and very sweet; a few dark purple and a few pale yellow, white and sky-blue pansies, a heliotrope, some mignonette to droop over the sides of the box. a rose geranium, and morning glories at the ends to train up over the window. You would not be likely to get as many flowers from such a selection as you would from annuals, like those named above, but what flowers you did get would be so choice, so exquisite in color, sweetness, and form, that you would find them more satisfactory if you are at all fastidious in this direction. From such a window-box one can cut a dainty button-hole bouquet every day during the season, if it is carefully cared for; and what could be lovelier than a yellow rose-bud and a purple pansy, with a geranium leaf, or a cluster of pale yellow, white and blue pansies, unless it is a Perle rose, just opened wide enough to give you a glimpse of its golden heart, with a cluster of lavender heliotrope?-American Agriculturist.

LEAVES ON RUBBER PLANT TURNING YELLOW.

Byron D. Halstead, in *American Florist*, writes about a leaf trouble of the India rubber plant, Ficus elastica. This time the complainant came in person and laid his case before me, which is the same old story of the foliage losing its beautiful green color and turning to a sickly greenish yellow that finally ends in the affected foliage turning brown and becoming dry and distorted. Anything that affects the foliage of a rubber plant is sure to bring ruin, for the chief beauty resides in the luxuriant large thick leaves, deep green in color and glossy upon the surface. It is a serious blemish if any leaf is imperfect in any respect.

The disease in question is due to a fungus of the group known as the anthracnose and belongs to the genus gloeosporium. The same or a similar species (Gloeosporium elasticæ Cke and Mars) works upon the crotons, dracænas, neriums and dieffenbachias, and it is not unlikely that the disease spreads from one or the other of these greenhouse plants. As a rule the leaf shows at first a single patch an inch or so across that is losing its healthy green color and enlarges, and the centre finally becomes light brown when the fungus begins to burst through the skin, most frequently upon the under side, and produces small pinkish rifts in the epidermis of the leaf. It is by means of spores that the fungus is spread from place to place.

Should the reader wish for an illustration of a similar fungus the bitter rot of the apple may be mentioned, which in appearance to the naked eye is not easily distinguished from the one upon the ficus. As a remedy it is written that all affected leaves are beyond cure and should be removed and burned. The variegated variety of ficus is much more susceptible to anthracnose than the ordinary sorts, and if such diseased plants are grown they may breed the disease for the fully green specimens that might not otherwise be attacked. It is not expected that spraying could ever become popular with such plants as the ones under consideration, for the beauty would thereby be greatly diminished by the coating of the fungicide. It is possible that the whole plant may become infected and then there is little hope of saving it, but when a single leaf is diseased, and fortunately it is usually among the older ones, it should be promptly removed before the disease spreads to other portions of the plant.



TRUE LIFE HISTORY OF THE CODLIN ; MOTH.

According to Prof. M. V. Slingerland, of Cornell experiment station, writes an exchange, the old story of the entomologists about the codlin moth laying its eggs in the blossom end of the apple is a myth. The moth that lays the eggs does not appear until a week after the blossoms fall, and then it deposits them upon the side of the apple. In about ten days they hatch and the little worms crawl around on the surface until they find the calyx, then creep in between the lobs which have by this time closed tightly. Up to this time the insects have not eaten, but soon after entering the calyx they begin to gnaw their way into the apple.

From this it can be seen that trees should be sprayed for this insect as soon as the blossoms fall, as the paris green can then be deposited in the calyx where it will be eaten by the worm, while if it is delayed ten days or longer, the calyx will have closed over the basin and the Paris green will only be deposited on the outside of the fruit, where it will in no way injure the young worm. The closing of the calyx is in one way a good thing, as it covers the poison and protects it from being washed out by rain. The calyx of the pear does not close, and hence it will be better to wait for ten days or two weeks after the blossoms fall before spraying pear trees, as there will be less danger of the poison being washed away.

POTATO SCAB.

A new remedy for potato scab has been tried at the Indiana experiment station and is highly recommended by Prof. J. C. Arthur in a bulletin soon to be issued. It is one of the triumphs of practical botany that the cause of this trouble has been traced to a minute germ that feeds on the surface of the potato tuber, and to a less extent on other fleshy roots and tubers. It has also been found that a suitable fungicide will kill the germs on the tubers without injuring the growth of the potatoes. Corrosive sublimate meets these requirements, but it is deadly poison. A new substance equally efficient and not poisonous is formalin (sometimes called formaldehyde), a watery solution of a gas, not very expensive, and rapidly coming into favor as a general antiseptic, so that it is likely to become still cheaper and better known. It is sold by the fluid ounce and can be obtained at most drug stores. The method of using the new fungicide is very simple. Eight ounces of the formalin are added to 15 gallons of water, and in this the seed potatoes are soaked for two hours. After taken from the bath they can be cut and planted as usual, either at once or after some time. Formalin is not corrosive, and so can be used in any kind of vessel, and not being poisonous, there are no particular precautions to be observed. It does, however, make the hands smart, if there are any raw spots, and the fumes irritate the eyes and throat, but these are only slight annoyances.-New England Homestead.



CANADIAN HORTICULTURAL MAGAZINE.

QUARANTINING PLANTS.

The Canadian Government has prohibited absolutely the introduction of certain nursery stock from the United States to the Dominion, for fear of introducing the San José Scale. Americans cannot much complain, as most of the States have been quarantining each other; and Germany, alarmed by our own excitement, has prohibited American fruits. To show how silly this is, it is only necessary to say, that the insect already exists in most of these places, and if not can easily get there, in a multitude of ways aside from traveling by nursery stock. The Colorado potato beetle simply took a ride on a railroad train for the East; and the Scale can get across the line on a bird's foot or feather, just as well as on a tree, and no doubt can breed just as well on a native forest tree, as on any tree from a nursery.—*Meehan's Monthly*.

Mr. Frank Brunton, of 136 Boylston St., Boston, Mass., has formed a "Hardy Plant Club and International Exchange," for the purpose of procuring for its members "new and scarce plants that are not obtainable by ordinary means."





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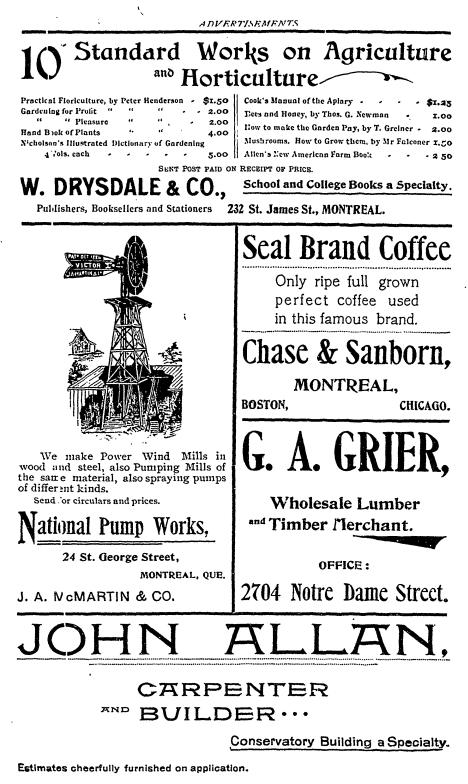
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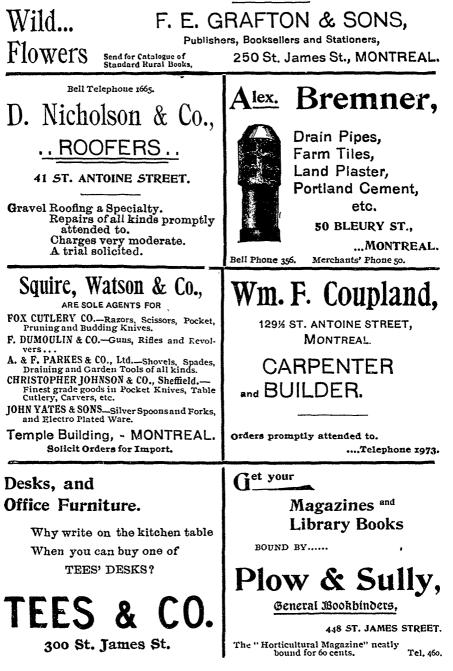
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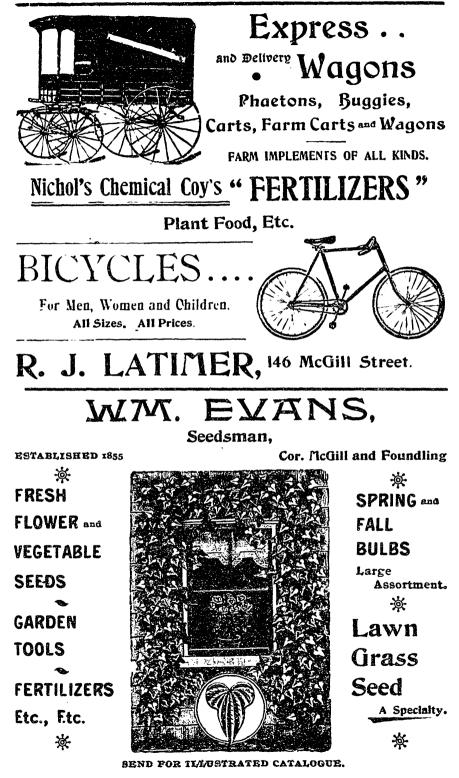
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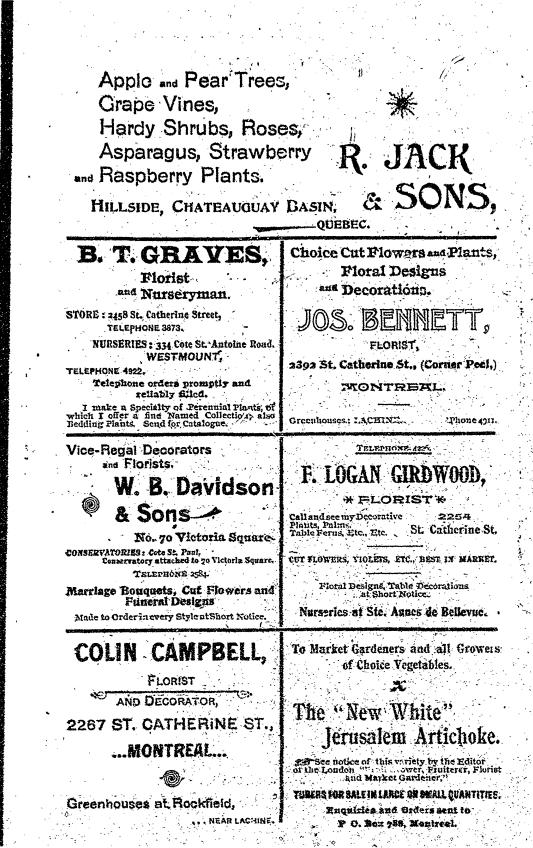
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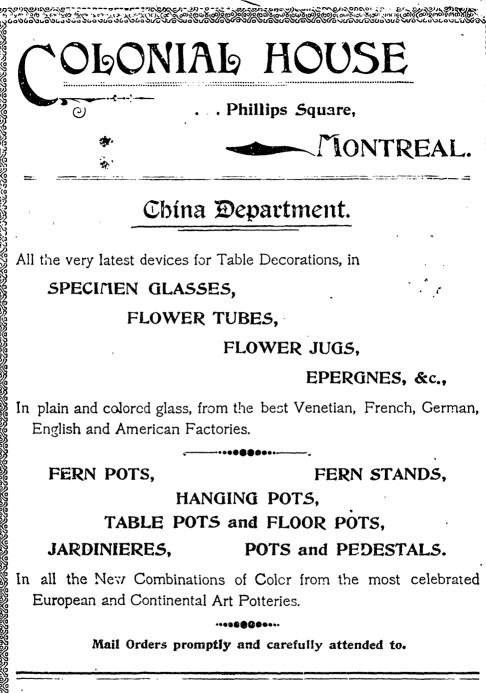
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