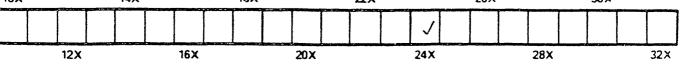
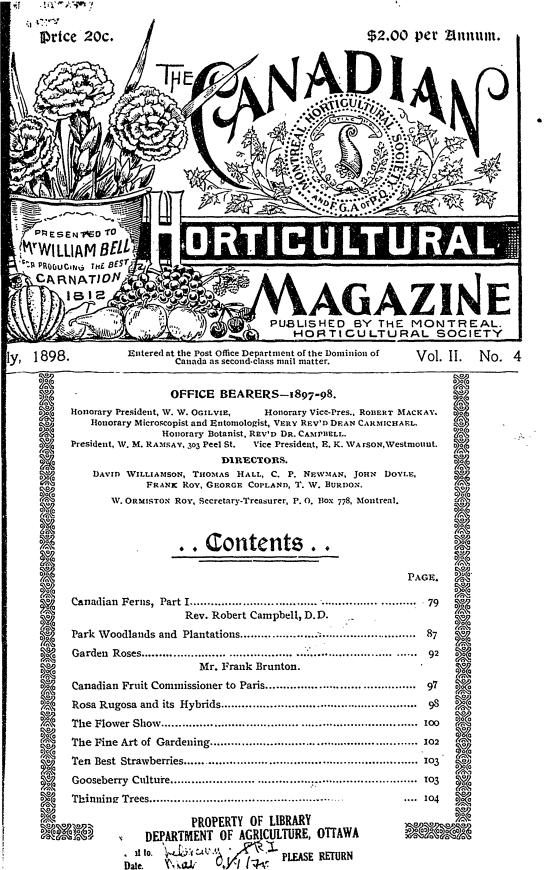
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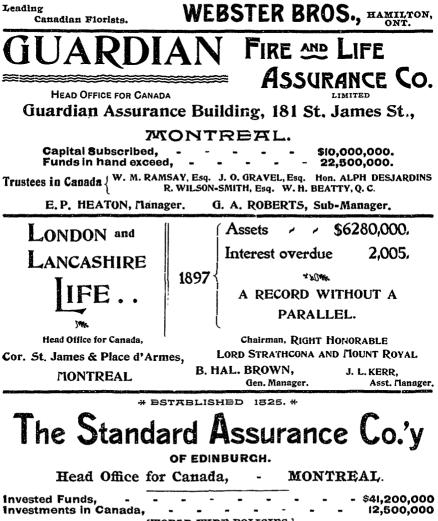
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THE CANADIAN

HORTICULTURAL MAGAZINE.

Vol. II.

July. 1898.

No. 4

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CANADIAN FERNS.

BY REV. ROBERT CAMPBELL, D.D., MONTREAL.

The study of Ferns is a branch of Botany that can easily be taken up and prosecuted by itself. It has clearly defined boundaries, and one does not need to know much practically of other departments of the science, to succeed in collecting and determining Ferns. They abound wherever there are swamps and woods, and are easily recognized. If they have no blossoms to make them attractive they are clad in nature's livery of green, of which the eye never tires. And a specially desirable quality they possess is that they retain their vivid greenness when pressed; so that a dried and mounted plant is as fresh looking as when it was collected. Of course, the pose of nature is the most graceful and charming; and if we could have the camera with us in the woods, to catch the drooping form which belongs to most Ferns, the pictures of them we could get would be much more effective than can be had off dried and mounted specimens.

Canada is rich in Ferns, and the people of Montreal do not need to travel far from their own doors to possess themselves of most of the varieties that grow wild in the Dominion. Mount Royal alone yields nine-tenths of all the Ferns which are to be found in Canada,

In the description here given we will not enter into the minute study of each species, but will rather indicate those apparent general characteristics, which even the naked eye can discern, and which will probably on the whole best serve to guide the most of the readers of the Horticultural Magazine. The illustrations will greatly help to give such a presentation of each plant that collectors can



(1) LITTLE GRAPE-FERN. Botrychium Simplex E. Hitchcock.

have little difficulty in knowing it when they meet with it in the woods.

BOTRYCHIUM.

We begin with the genus BOTRYCHIUM. Properly speaking, the first in order is the Adder's-tongue, OPHIOGLOEDUM VULGATUM (L.) But though it may be met with all over the continent, yet one may tramp about the country for years and yet not come across a specimen of it. Before my collecting days began I occasionally stumbled on one; but for a long time past I have not been lucky enough to pick one up, so that my cabinet does not possess a specimen which might here be reproduced for a guide to your readers in determining the plant in case of their encountering it. The Botrychium, having the same leading characteristics as the Ophioglossum, is ranked under the same family, called the OphiogLossACEA or Adder's-tongue family.

There are six species of Botrychium in Canada, but only five are described in this paper; because the BOTRYCHIUM LUNARIA (L.)— S.W., or OSMUNDA LUNARIA (L.), as it is sometimes called, like the *Adder's-tongue*, while widely distributed, is rather a rare plant in these parts, and I have not met with it in my rambles.

1. BOTRYCHIUM SIMPLEX E. HITCHCOCK—Little Grape Fern, is a tiny little plant which might easily pass unnoticed by any but a practised eye. When showing it to people, I have often been asked, is that a Fern? Little as it looks like one, it has in its construction all the characteristics of a Fern, the tissues of its stem, and the unsexual spores, which is the organism by which propagation is effected, being quite clearly discernible. It is to be looked for in moist situations, near the edge of woods or in meadows. It has been found lately at the north east base of Mount Royal. The specimens here shown were collected on an island in the River Raisin near Martintown, Ont.

2. BOTRYCHIUM MATRICARIÆFOLIUM (A. BR.)—Matricary Grape-Fern, is a size larger than the one described, and has a more fully developed leaf and fruit system. The Botrychiums are called Grape-Ferns from the resemblance which the shape and arrangement



(2) MATRICARY GRAPE-FERN. Robrychium Matricariæfolium A. Br.



(3) TERNATE GRAPE-FERN. Botrychium ternatum (Thunb.) Australe S.W.

of their spores bear to a cluster of grapes. The sterile leaf is different from that of any of the others of the family, and when the spores are examined with a lens they too are seen to be different from those of the other species. This Grape-Fern is to be looked for in grassy woods and swamps. The illustration is taken from a specimen found in Burgess, Ont.

3. BOTRYCHIUM TERNATUM (THUNE.) S. W., TERNATE, Grape Fern, is so designated because both its sterile leaf and its fruit system are ternate in form. It varies "considerably in size; but whether large or small, it has the one characteristic mentioned. There are four varieties of this species; it is the largest of them, var australe, that is here presented. It is a very fine specimen, and was found on the side of a hill in Avoca, in the valley of the Rouge River. The sterile leaf persists throughout the winter. This Fern occurs in moist meadows, and in woods on the sides of hills.

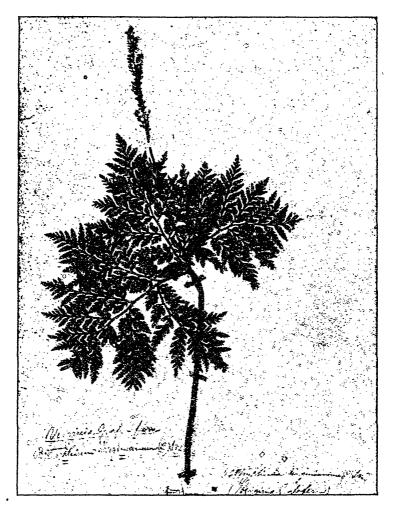
4. BOTRVCHIUM LANCEOLATUM (S. G. GMEL,) ANGS.—Lanceleaved Grape-Fern, as its specific name indicates, has a lance-shaped leaf system,—both in the general outline of the fertile and sterile leaves,—and in the parts in detail. One characteristic of this plant is noticeable, namely, that the sterile leaf is sessile, and immediately under the fertile leaf. The appearance of the spores under a lens, and the arrangement of the leaf bud for the following year, also clearly mark it off from the other species. It is found in meadows, woods and swamps all over the Dominion. The specimen here illustrated was also found on the banks of the Raisin, near Martintown.

5. BOFRYCHIUM VIRGINIANUM (L.) S.W., — Virginia Grape Fern, is the species best known, as it is abundant all over the North American continent. It is to be found in hundreds around the damp slopes of Mount Royal. It is the largest and finest of all the Botrychiums, as well as the most abundant. The sterile leaf is sessile, above the middle of the stem, and is pinnate-ternate, and so differentiated from the sterile leaf of the Ternate Grape-Fern. Its spores are also distinct in form from these of the other species. As it is so plentiful, collectors can afford to experiment on this species,

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(4) LANCE-LEAVED GRAPE-FERN, Botrychium lanceolatum (S. G. Ginel) Angs.



(5) VIRGINIA GRAPE-FERN. Bolrychium V.r.jinianum (L.) S.W.

ROBERT CAMPBELL.



PARK WOODLANDS AND PLANTATIONS.

The following paper was read by J. A. Pettigrew at the American Fark and Outdoor Art Association convention at Minneapolis, June 22:

The subject of the treatment of natural woodlands in parks is of vast importance, and commands the earnest₁thought of landscape [•] gardeners. Such areas are generally made up in great part of thick growths of trees, which have injured each other more or less, by close contact, natural perhaps, in the sense of having sprung from the soil without the aid of man, but having, nevertheless, been subject to such unnatural conditions as to upset nature's balance.

The effort on the part of the landscape gardener or forester to improve the natural or growing condition of woodlands in public parks, is generally met with opposition from probably well-meaning, but badly informed critics. who cry that the work is an interference with nature, and who call in the aid of ready tongues, and readier pens to stop the "outrage."

The forester brings into service the practical experience and study of years in his efforts to assist nature in her work, yet all for naught. The clamor of a few enlisted in a mistaken crusade discourages him, or influences those in authority to the extent of causing a stoppage of the work, and the result is seen too painfully all over the country, in their malformed and distorted condition, from over-crowding of park trees.

General rules can scarcely be framed for the treatment of natural woodland—much depends on the use to be made of it, whether for woodland effects or woodland use. The first operation

in a thick piece of woodland desired to be retained for natural effects, should be that of thinning. Trees of individual merit or beauty should have interfering trees removed, to allow of their own development. In places, areas of greater or less size may be entirely filled with trees, which, by reason of overcrowding, are so far injured that they can never recover their lost beauty. In such case, a free cutting should be made to allow light to penetrate to permit of the growth of saplings or newly planted material below; and further cuttings made, from year to year, as the young growth Care should be taken that all saplings that may not be demands. needed are cut out, only retaining those necessary to replace sickly or injured trees. Judicious thinning of all trees should be made where interfering with the growth of better ones, noting, at the same time, and retaining picturesque groupings or pleasing combinations of trees, preserving, in the general mass, a natural appearance, and encouraging as much individuality as possible, without impairment of natural woodland effects. This thinning will permit of the passage of light to the undergrowth, which will respond quickly to its influence and materially enhance the beauty and naturalness of the woodland. A woodland so dense as to prohibit the growth of vegetation on the ground, is monotonous and dreary.

The improvement to the wood by thinning is noticeable in the following season's growth, the branches, relieved of the necessity of having to struggle upwards to an opening in search of light, spread out, and it becomes apparent very quickly that the work of the axe will have to be resumed the following winter, in fact, whether in woodland or plantation, the work of the axe is never completed ; it is vandalism to lay it away.

The best time to make selections for permanent trees or for cutting is in the summer. At this season, the condition of the tree can be more easily ascertained; its relative position and needs are more apparent.

Natural woodlands, when included in lands taken for park purposes, must of necessity either dominate, or be subservient to a general scheme of adaptation, in the latter case modifications of

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their outlines may be necessary. Let no mistaken sentiment prevent the execution of this work. A park is not made for a day; the work of the present is subject to the judgment of the future; the mistakes of to-day bear disappointment for posterity. Should it, then, become necessary to cut away any part of the woodland, in the execution of a properly devised plan for the unification of the different parts of the ground into a harmonious whole, hesitate not to apply the steel.

Very often natural woodlands are subject to severe and constant use of the public, when it is impossible to retain underbrush and ground cover; in such cases the destruction of underbrush exposes the ground to the action of the sun. The roots running near the surface which have been protected from heat and dryness under the natural forest covering are killed off and the trees soon die. This result can not be avoided unless some other covering can be substituted. One of four or five inches of loam seeded in grass will serve the purpose, and be besides of great benefit to the trees.

The proper treatment of park woodlands includes the careful cutting from the trees of all dead or diseased limbs. A large proportion of trees come to an untimely end, because of the decay introduced into the boles through the stumps of dead limbs. Each cut should be made close and even with the bole, and well painted over, renewing the coat whenever necessary until the wound is healed over.

While natural woodlands within park areas are arbitrarily placed and generally control any scheme for harmonizing them with other features, plantations are entirely governed in their location and character by the landscape gardener.

The preparation of the ground for planting is of the first importance to the trees. On it depends largely whether the plantation shall be a mass of healthy, vigorous foliage, or a collection of stunted trees, dragging out a starved existence. For the production of a healthy growth of deciduous trees, an essential necessity is a sufficiency of good soil. A park commissioner once said, "Besides the diamond, since becoming a park commissioner, I have discovered another valuable—loam." Without it, noble proportions in the trees can not be expected. Therefore, to achieve good results, soil, and plenty of it, must be provided. This is expensive work; an old saying contains sound advice: "If you wish to spend twenty dollars to plant a tree, spend nineteen and a half of the amount in the preparation of the ground."

No work of park construction should take precedence over that of tree planting, other than the work necessary to make the ground intended for plantations available; bridges, buildings, roads and walks are of secondary importance in comparison.

Assuming that the soil is good, preparation for planting should, be commenced in the preceding summer by plowing and deeply subsoiling, plowing the ground two or three times, reducing it to a good con⁴ition of mellowness. Spring planting is preferable in our northern latitudes. Fall planted trees, unless put in early enough to have made roots to sustain them, are apt to dry out by evapor- ' ation during the long freezing months. A good method is to make selections and purchases in the fall, which can be heeled in over winter, and protected from drying winds; thus planting can be commenced much earlier, unhampered by the delays of spring shipments from nurseries. In planting, plant thickly-ten to twelve feet apart is not too close-the ground then is more quickly shaded, the trees also shelter each other. Thin out by transplanting or even by cutting when the branches interfere. Under no consideration, permit injury to be done by overcrowding. This method has many advantages; it provides shade for the ground and for the trunks of the trees; the trees, thickly placed, protect each other from scorching winds; it permits of easy and cheap cultivation of the ground, and is a convenient nursery from which finer trees can be gotten each season than can be had in commercial nurseries. The plan also gives a greater variety from which to select the permanent trees, it gives, too, the effect of mass more quickly.

The contrary opinion is held by some who advocate the planting of the trees in their intended permanent positions, and no

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others; the principal reason for which seems to be that from a fear of public outcry, the thinnings are not made, or that from negligence or ignorance the trees are allowed to overcrowd and spoil each other. The first objection may be met by transplanting, instead of cutting out. To the second, it may be said that ignorance or negligence can not be guarded against by any method of planting.

It is best to plant the intended permanent trees at a distance of from thirty-five to fifty feet, according to their expected development. A second arrangement may be made, nearly alternating, of some other kind of tree, and even a third combination may be made, again alternating. The advantage of this plan is that any one of the three arrangements may be adopted as may be deemed best, at thinning time, for the permanent trees.

The effect of large masses of trees of one species is much more dignified and impressive than a conglomeration of trees of different kinds and habits of growth. The mass or groups of varying size may be allowed to merge into each other in irregular, ragged outlines. It is not considered desirable to plant shrubs throughout new plantations, as they interfere with the free use of the cultivator, which is a valuable adjunct to the diligent planter desiring vigorous, rapid growth.

Cultivation should be maintained for a period of three years or so, when the shrubbery or ground cover may be introduced. Shrubbery should, however, be planted on the borders of the plantation, when made of such wood-bordering plants as shadbush, redbud, viburnums and cornels, etc.

For planting in public parks our native trees and shrubs can not be surpassed for appropriateness and beauty, and for this purpose their use alone is advocated; nothing can be more inharmonious than the introduction into park woodlands and plantations of exotic trees and shrubs or of variegated sports and monstrosities; rather let our parks be typical of our native woods and glades, helped along nature's lines by the artistic hand.

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GARDEN ROSES.

Although the rose season which has just terminated has not been by any means the best we have had within the past decade, it has been fairly good, and growers of all classes have but little cause to feel otherwise than well satisfied. More especially have those who cultivate roses otherwise thar. for competitive purposes ample justification for hearty congratulation, for if the earliest flowers were not exactly what could be desired, those by which they were succeeded were of excellent quality, and by reason of the vigorous growth resulting from the abundant rains after the end of May, the flowers were produced freely and continuously until quite the end of the season.

There is nothing new in the fact of roses requiring an abundance of moisture at the roots when making new growth; but many growers are unacquainted with it, whilst others do not attach a sufficient degree of importance to it. Twenty years ago one of the most successful of trade rosarians of that day, who, by the way, still holds his own, said to me in the course of a chat about roses and rose growing: "To produce roses of the finest quality you must supply the plants liberally with water, not only when the buds are expanding, but from the time the trees begin to make new growth, particularly during April and May, as the brilliant sunshine and drying winds frequently impose a heavy tax upon them." The soundness of this advice has been proved over and over again in the long interval that has elapsed, and not many days since a gardener who has taken a goodly number of valuable prizes this year, attributed his success almost exclusively to the liberal use of the watering pot from the end of March till the rains rendered further waterings unnecessary. It is not, of course, desirable to treat roses as if they were aquatics, and maintain the soil in a constantly saturated state, but if the beds are fairly well drained there will not be much risk of the supply being in excess of the requirements of the case, as the tax on the strength will impose a

most effectual check. These remarks apply perhaps with greater force to roses grown for exhibition purposes than for garden decoration, but the latter should be assisted with water during periods of dry weather, previous to their coming into bloom, for by promoting a vigorous growth early in the season, the foundation of a satisfactory display of bloom is laid. It is almost beneficial to give the trees a few thorough soakings of water, and when the first lot of flowers are nearly past their best, to induce the trees to at once grow away freely and produce a good display of flowers early in the autumn.

Water alone will not suffice in the production of roses of good quality, although of great importance; the soil must be moderately deep and in good heart. In the first instance the soil must be deeply trenched, and have a liberal quantity of manure incorporated with it, but afterwards an annual dressing of manure will suffice to maintain the trees in a vigorous condition for an indefinite period, provided they are on their own roots. But when they are on the brier or manetti it is not always possible to keep them in a satisfactory state, for even with the greatest care they will not unfrequently present a stunted appearance, and in some instances dwindle away. and ultimately perish. Own-root roses should alone be grown by the amateur, for when once planted in properly prepared soil they can be depended on to remain not only in a healthy state, but to increase in size and attractiveness for an almost indefinite period, and, therefore, the planting of a bed of them may be regarded as a permanent investment. It is necessary to impose a certain limit on the number of varieties, because some are so weakly in constitution that they cannot be propagated by means of cuttings with any degree of success, and, moreover, make such slow progress without the aid of foster roots, that it is impossible for the nurserymen to grow them with profit to themselves. All the free-growing roses will succeed admirably on their own roots, and as they are sufficiently numerous to produce a thoroughly varied display, they alone should be grown for garden decoration. It is sometimes asserted, but less frequently than was the case a few years since, that own-

root roses make but little progress during the first two or three years after they are struck, but there is no foundation for assertions of this kind. As a matter of fact, strong cuttings inserted in October will generally produce two or three stout shoots each the summer following, ranging from fifteen to twenty-four inches in length. In the second year, providing the pruning has been judicious, they will form strong bushes and produce a very satisfactory display of blocm. One word more with reference to cultural matters, and that is, although August is not considered a favorable month for planting roses, pot plants may be put in now with every prospect of their -doing well; indeed, if moderately strong and carefully managed, they will bloom freely in the succeeding summer. Plants, for example, that are well established in six-inch pots and furnished with -four or five stout shoots, will produce flowers of excellent quality in the summer following their being put out.

Generally speaking, the dark roses have been much the finest, and on the whole have been the most satisfactory, for the light flowers, although not wanting in size or quality, were so injured by the storms that they were in many instances seriously disfigured before they were more than half expanded.

The most satisfactory of all the varieties were those of the type represented by Beauty of Waltham, Dr. Andry, and Paul Neron, which do not require brilliant sunshine for their full development, like the very dark varieties, such as Louis Van Houtte, and are not so soon injured by the weather as Captain Christy or Madame Beauty of Waltham and Dr. Andry may well be Lacharme. -considered two of the very best of the rosy crimson flowers, and are too well known to need comment. Paul Neron is a triffe coarse when grown in very rich soil, but under ordinary conditions the flowers are large, and not altogether wanting in refinement. Boildieu has failed to realize the expectations of those who thought it would make a good exhibition flower; but it is a capital flower in the garden, and this year, now that the plants have acquired their full strength, it has left but little to be desired. Those who have seen and admired that splendid rose Alfred K. Williams at the ex-

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hibitions will learn with satisfaction that it blooms so freely and continuously as to justify its having a place amongst the garden varieties. Duchess of Bedford, which has perhaps had more praise than any rose introduced of late years, well justifies the character it has received. It was one of the first to come into bloom, and it is now flowering so freely that plenty of blooms will be obtainable until quite late in the season; the color is a rich shade of light scarlet crimson. Crimson Bedder is a capital variety for front lines, as the growth is short-jointed and compact, and the flowers are produced freely and continuously throughout the summer. John Hopper still holds its own in its peculiar shade of color, and its freedom of flowering and general good quality were abundantly exemplified by its frequent appearance in the competitive stands in the past seasons, whilst in the garden there were not many to surpass it. Madame Victor Verdier, a well-formed flower of a rich cherry-red color, May Quennell, rich rose-carmine, and Victor Verdier, rosecarmine, are all good garden roses, and have this season done remarkably well. Triomphe de France has proved disappointing as an exhibition flower; it is indeed quite worthless, but in the garden it is a capital companion to Paul Neron, and will not fail to please those who have a liking for big roses.

Turning to the crimson and scarlet-shaded varieties, Alfred Colomb and Marie Baumann must be mentioned first of all, for if not quite so free and continuous in flowering as some others, the flowers are invariably of such excellent quality that they must have a foremost place amongst garden roses. Dean of Windsor, a richly colored variety shaded with vermilion, is one of the most effective in its way, and Charles Darwin, bronzy crimson, claims attention for its distinctiveness and the freedom with which it blooms during the autumn. Mrs. Harry Turner has not been in commerce long enough to be subjected to a thorough trial, but judging from its appearance in the nurseries of the raiser it is likely to fully sustain the character it has received. It has been shown well this year, but it is hardly full enough to be considered worthy of a place amongst first-class exhibition flowers. Its proper position is amongst the

-decorative roses, where it is likely to bear out all that has been said in reference to it. Baron de Bonstetten is rich in color and remarkably free. Etienne Levet, Fisher Holmes, Lord Macaulay, scarlet-crimson, Oscar Lamarche, rich crimson-lake, Prince Camille de Rohan, dark crimson, R. Dudley Baxter, bright crimson, and Star of Waltham are also free flowering, and, it need hardly be said, of high quality. Duke of Connaught, velvety crimson, J. S. Mill, deep red, Richard Laxton, red-crimson, and Maurice Bernardin, vermilion, are of great merit for decorations, and where a rather large number of sorts are required they should certainly be included.

The pink and rose colored varieties include a considerable number of great beauty and possess much merit as garden roses. ·One of the most generally useful is that fine old rose Marquise de -Castellane, which, by the way, is not less valuable for exhibition. A grand rose is Countess of Rosebery, for with a vigorous and continuous flowering habit are combined flowers of large size and the best possible quality. Ma lame Jeanne Bauyer, bright rose-pink, is very free and effective, and not so soon injured by the rains as some others. Miss Hassard, bright, fresh pink, free and fine. Rev. J. B. M. Camm, deep rose pink, is a useful variety, being free flowering and producing blooms of good quality. La France, well known as one of the most beautiful of the light roses, is also one of the most abundant bloomers, and owing to the stoutness of the petals the flowers are not so quickly injured by the weather as are most of the other light varieties. Madame Morant Jeune, satiny rose, has bloomed freely throughout the summer, and from present appearances it will continue in bloom until quite late in the autumn. Magna Charta also flowers so freely during the autumn as to be of -special value for that season, whilst it is equal to most of the other rosy pink flowers during the summer. Marie Louise Pernet, in the way of Antoine Ducher, is as yet not well known, although of sufficient merit to justify its being generally grown. Captain Christy is free and effective, and in fine seasons Madame Lacharme is exceedingly beautiful, but the flowers are so injured by the weather that it should be planted somewhat sparingly. The most generally useful

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of the white roses is undoubtedly Boule de Neige, as its freedom of flowering and capability for withstanding a little rough weather more than balance the small size of the blooms.

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FRANK BRUNTON, Boston, Mass.



MR. ALLAN APPOINTED CANADIAN FRUIT COMMISSIONER TO PARIS EXHIBI-TION, 1900.

We are greatly pleased to learn that the Minister of Agriculture has given Mr. Alex. McD. Allan, of Goderich, Ont., the appointment of Fruit Commissioner to the Paris Exhibition in 1900.

Mr. Allan is exceptionally well qualified to fill this important, position, his expert knowledge of fruit culture, his wide intercourse popularity and eminent standing amongst pomologists in this country and in Europe, his experience at the Colonial and Indian Exhibition and at the Centennial Exhibition, his agreeable personality and manner, and his readiness and lucidity in imparting information, will no doubt in the result prove creditable to our country and beneficial to our fruit growing industry.

Mr. Allan is well known to Montreal horticulturists, having acted as judge of fruit at all our recent exhibitions. His appointment was strongly recommended by this society.



Mr. Alfred Joyce has kindly thrown open the beautiful grounds at his residence, Rockland Avenue, Cutremont, tc the members of the M. H. S. and their friends. They will be welcome to visit the grounds any Saturday afternoon, during the months of August and September.

ROSA RUGOSA AND ITS HYBRIDS.

It seems singular that a hardy rose like *R. rugosa*, one so attractive in all its parts and free from disease and insect attacks, writes W. C. Egan. in *Gardening*, should not have found its way into cultivation much sooner than has been the case. Known to botanists and rosarians since 1845, its possibilities remained dormant until a few years ago. Once started into popularity, however, its progress has been rapid. Some forty years after its discovery the plant was found to be extremely valuable for hybridizing purposes, and then France and the United States shared the honor of producing the first meritorious hybrids and the best varieties in commerce.

Simultaneously M. Georges Bruant, of Poitiers, France, and Mr. E. S. Carman, of River Edge, N. J., produced the first worthy hybrid of R. rugosa. Owing to some difficulties in propagation experienced by Mr. Carman, the French hybrid was placed upon the market first, as the pioneer of a new race. This rose, Mme. G. Bruant, is the result of crossing R. rugosa with one of the hardiest of teas, Sombreuil, a creamy white in color. We are not told whether the white or pink form of the rugosa was used, but are led to believe it was the former, as the flower of Mme. Bruant is distinctly a paper white. It is about three inches in diameter, semidouble, with the bunch of its yellow stamens half-hidden in the center, and exquisitely fragrant. It follows the rugosa habit of blooming in clusters, and continues flowering more or less all summer.

It is most attractive when the long, pointed buds are but partially opened. The leaflets are generally seven in number, larger than those of R. rugosa, but not quite so dark a green, and bear evidence of its parentage in the veining. While this rose is classed as hardy, it requires protection. It might be well at this point to call attention to a true form of R. rugosa from Kamtschatka, named Blanc Double de Coubert, which is extremely hardy and very closely resembles Mme. G. Bruant in bud, flower and perfume; in fact, were it not that it has the true rugosa foliage, it would readily be taken for the French hybrid. As its hardiness is unquestioned, it may be substituted for Mme. G. Bruant where the latter requires protection. Mr. Carman's hybrid, Emily Agnes Carman, is a glowing crimson, or, to quote from his own description, "the size, color and odor of General Jacqueminot," and, strange to relate, Harrison's yellow was the second parent. It makes a good shaped bush some four feet high, and when seen at a distance resembles a huge plant of *Pæonia* tenuifolia. Its foliage is about the same color as that of Mme. G. Bruant, but larger and coarser veined.

M. Bruant has sent out two more, one, Calocarpa, is a cross between R. rugosa and the old Bengal rose. Its chief attraction is found in the fruits, which, while somewhat smaller than those of R. rugosa, are brighter in color and more numerous. The flowers are pink, medium sized and fragrant. His Belle Poitevine has larger and lighter-colored foliage than R. rugosa, and not so heavily veined. Were it not for this fact, I would be inclined to consider it a variety of the species, as its flowers bear strong resemblance to those of the latter plant. They are large, single and of a deep pink color. At the World's Fair a French exhibit of R. rugosa was made in front of the Woman's building, in which the flowers of the red varieties were as large and as brilliant in color as those of Belle Poitevine. The Lovett Company, Little Silver, N. J., has sent out a hybrid of R. rugosa and Caroline de Sansal, the latter a perfectly hardy remontant, bearing full but rather flat flesh colored flowers. The hybrid is a very prolific bloomer, beautiful in bud and flower, which is full, very double and pink in color.

Handsome and attractive as are these hybrids and varieties, there is still another one which, in my opinion, far surpasses all others in the exquisite tone and brilliance of its color. This we owe to the skill and patience of Mr. Jackson Dawson, of the Arnold Arboretum, whose work among roses and other plants has been of inestimable benefit to the gardens of the world. His hybrid rose to which I now refer, so far unnamed and not yet in commerce, is the most brilliant in color of any I have ever seen. It is the result

of a cross between *R. rugosa* and General Jacqueminot. The leaves are as dark in color as those of the species, and in this emerald setting are clusters of flowers three inches in diameter, richest carmine color, fading to a dark crimson. They are darker and more brilliant than Paul's carmine pillar rose, and the nearest to them is found in Cooling's single bedder. At the base of each petal is a crescent shaped, light pink area, and the over-lapping of the petals so covers these crescents that only the points are discernible, and these form a five pointed pink star, crowned in the center with the numerous yellow stamens.

There is a simple beauty in a single rose that touches the hearts of all of us, and when it is arrayed in the most brilliant of all colors, carmine and crimson, its charm is beyond all praise. Still, in admiring these one cannot forget the immaculate beauty of the single whites, the contemporaneous R. moschata nivea, Paul's single white, and the new white form of our native R. lucida, or the earlier blooming R. Altaica. There is another unnamed hybrid of Mr. Dawson's raising which I have not grown long enough to speak about fully, but so far it promises to be of unusual value. It is a cross between R. rugosa and R. Wichuraiana, possessing well marked characteristics of both parents. The foliage is intermediate in size between that of its parents, retaining the glossiness of R. Wichuraiana. It has the true pink flowers of R. rugosa, single, and some two and a half inches in diameter. The plant is procumbent in habit, and if (as appears likely) it makes as vigorous canes as those of the Memorial rose, we shall have a rose that can be treated as an absolutely hardy climber. There are other Dawson hybrids that I may have occasion to mention later on, but in the meantime let us hope that he will give his most worthy products a name and launch them out upon the world that the people in general may enjoy them. Prof. J. L. Budd, of the Iowa Agricultural College, has been working along the same lines, but as the plants I have from him are yet too small to bloom, I must wait another year before mentioning them in detail.

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THE FLOWER SHOW.

The Horticultural Society has issued the premium list for this fall's exhibition which will be held in Montreal on the 7th, 8th and 9th of September.

The show committee is endeavoring to arrange for the holding of the exhibition in a tent, on a vacant lot on St. Catherine street. It has been the experience of exhibitors of recent years that a tent is a more satisfactory place in which to hold a flower show, than a building. The plants especially suffer much less from want of light, fresh air and ventilation, and the fruit and cut bloom also keep better in a tent.

This year's premium list includes all the classes for which prizes were offered last year. The prizes in some instances are not so large, and there are fewer third prizes. The rules are practically the same. The Juvenile members are again invited to place the plants furnished them by the Society in competition, and a prominent part in the exhibition will be reserved for their exhibits.

Prizes will, as hitherto, be awarded by the Society to the successful exhibitors, according to the number and degree of merit of the exhibits from each School.

Mementoes of their success will also be presented to the three Schools whose aggregate exhibits attain the highest degree of merit.

There are three silver trophies and one gold medal to be competed for in this year's Cottage Garden Competition. Gold medalists of previous years only are debarred from competition and not all winners of medals as stated in prize list. There are two hundred and three sections in the open and amateur classes, and exhibitors are requested to bring for exhibition any new or rare fruits, flowers, plants, or other objects of particular interest, for which no premium is offered in the prize list; and premiums will be awarded by the judges if deemed worthy. There is every indication of this being the finest show the Society has ever held.

Prize lists and all other information may be obtained by apply-

ng to W. Ormiston Roy, Secy.-Treas., P.O. Box 778, Montreal, and all persons interested in horticulture are invited to contribute articles for exhibition.



THE FINE ART OF GARDENING.

At the last meeting of the Vermont Horticultural Society at Middlebury, Prof. F. A. WAUGH, speaking on this topic, said that there are five fundamental principles governing the practice of landscape gardening, either in park-making or in planting home grounds. These are unity, variety, character, propriety and finish.

Unity demands that some definite plan be arranged, and always adhered to. Most people fail here. They see one nice feature in one garden and another elsewhere, and somewhere else a third and a fourth and a fifth. These are all brought together, and the result is a meaningless jumble of inharmonious and incompatible objects.

But variety is desirable, and may be secured in many different ways. There is an unlimited variety of horticultural material for the planter to choose from; and various plants offer variety in color, size and form, and in season of leafing and blossoming. Variety in arrangement, and variety in distance and in aspect, may also be secured if study be given.

Such a composition may or may not have what we call character. We speak of music, poetry or architecture as having character, by which we refer to its individuality of expression: and the same quality of individuality naturally belongs to horticultural compositions, as to all works of art.

Propriety of appropriateness is a universal test.

Finish serves as a general term for indicating the perfection of mechanical execution in any piece of gardening. A garden must not only be artistically planned, but the plants must be healthy and wellgrown, the drives smoothed, the lawn mowed. Uncleanliness or untidiness may soon ruin the good effect of the best planned park or garden.

TEN BEST STRAWBERRIES.

From a list of seventy-five varieties fruited last season on the Indiana Experiment Grounds, ten have been selected which have been tested long enough to warrant Horticulturist Tropp in recommending them for general cultivation. In a special experiment station bulletin, Beder Wood is named as one of the earliest and quite productive, recommended for the home garden, fruit not as large as many others ; Brandywine, a very luxuriant grower, medium to late in ripening; Brunette, not generally grown by commercial growers but one of the best table berries on the list; Bubach, now a comparatively old variety, one of the largest and most profitable on the market; Clyde has shown itself to be one of the most productive, fruit large and handsome and holds up well through the season; Greenville, a vigorous grower, requiring plenty of room; Haverland, a very desirable home market berry ; Lovett ripens about midseason and is a good pollenizer for Bubach; Parker Earle will give excellent returns if planted on a rich, moist soil; Warfield, very best berry for canning purposes, retaining color and flavor better than any other grown at this station.



A CONTRACTOR

GOOSEBERRY CULTURE.—It is well known that, in the dry, warm climate of America the gooseberry is not a success. At least, this is true as regards the foreign variety of gooseberry. They are attacked by a species of mildew which not only interferes with the ripening of the fruit, but also weakens the vital powers of the plant. A bush which has suffered from mildew is more likely to be injured by frost than one which is free from the attention of this little parasite. In a recent walk through the garden of Mrs. Betton, in Germantown, near Philadelphia, it was surprising to notice the absolute health and ١,

vigor of large numbers of English gooseberry plants. They were perfectly healthy and bearing as large and fine fruit as could be seen anywhere. The gardener informed the representative of our magazine that his practice was to reduce dry lime to absolute powder, and then sift it over the plants early in the season. This he regarded as a perfect preventative to the mildew. As this is done every year, with good results always following, it does seem certain that this dry powdered lime is really effective.—*Meehan's Monthly.*

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THINNING TREES.

Meehan's Monthly for June states:- The great beauty of many trees lies in the horizontal spread of their branches. In laying out ornamental tracts, trees have to be planted closer together, for immediate effect, than would be desirable at a later stage. They require thinning out after growing together for a number of years. But this is seldom thought of by the planter. When the necessity for thinning arrives, he cannot do it, as it sacrifices trees he has learned to love. Henceforward they have to go on struggling with each other as best they can. After the trees have journeyed well on toward maturity there is nothing gained by thinning. Trees advanced in years will never assume a pretty horizontal spread of branches. To cut away mature trees, does not benefit those left, but rather places them in an ugly light. It is better to leave them do the best they can together. One cause of the short lives of many trees is the struggle with each other for the scant supply of food. In this case, though thinning will do little good, a liberal surface dressing of manure will work wonders.

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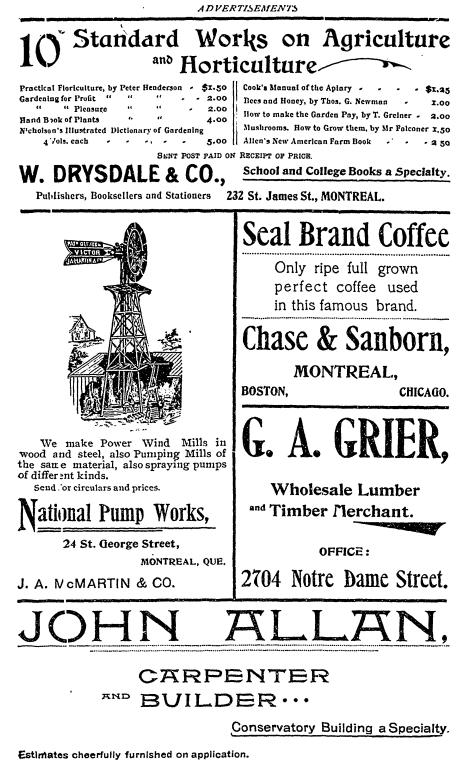
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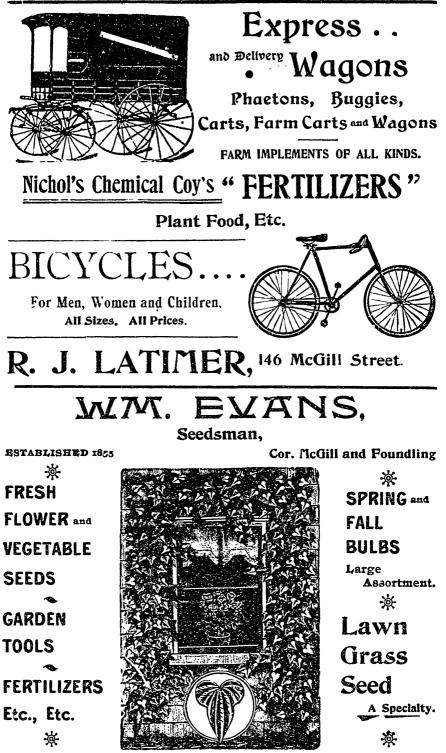
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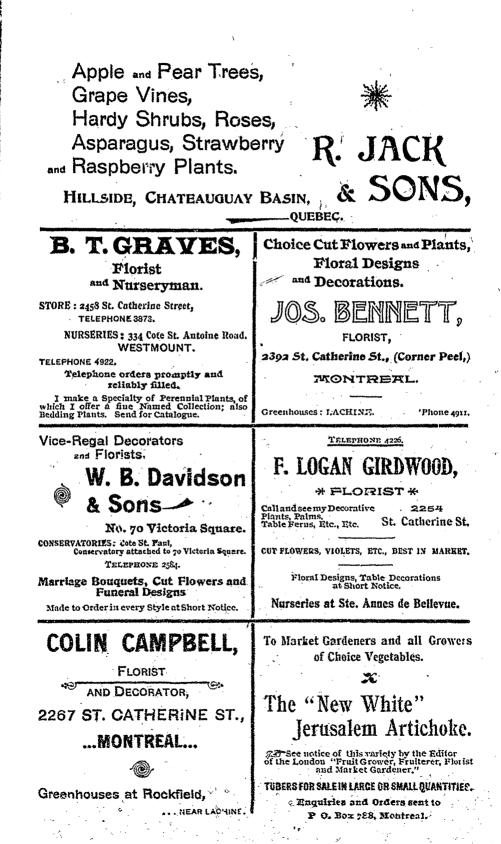
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