

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

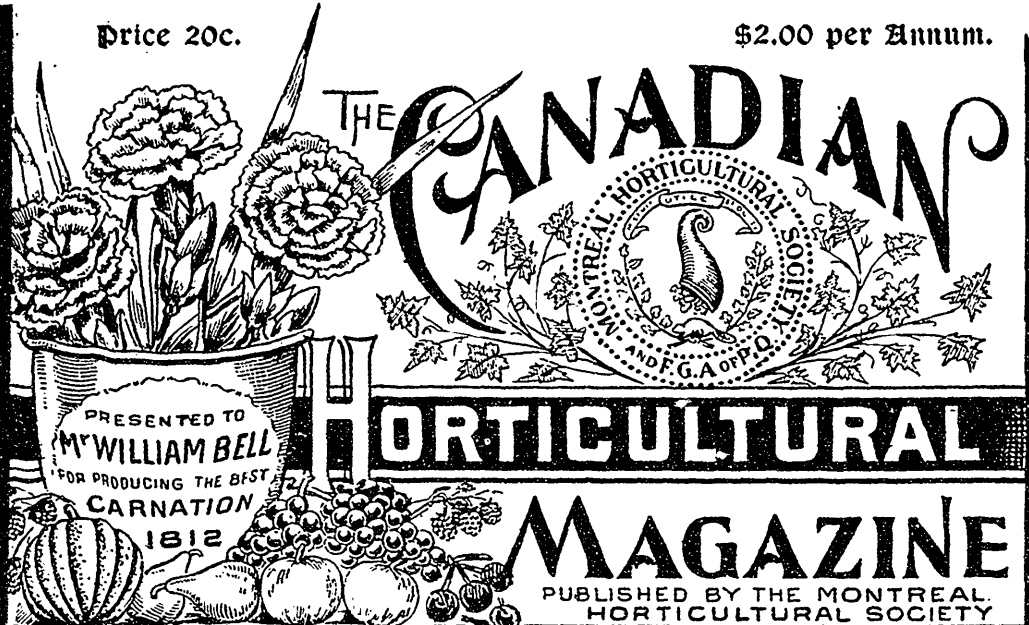
Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

Price 20c.

\$2.00 per Annum.



Oct., 1898.

Entered at the Post Office Department of the Dominion of Canada as second-class mail matter.

Vol. II. No. 7

OFFICE BEARERS—1897-98.

Honorary President, W. W. OGILVIE, Honorary Vice-Pres., ROBERT MACRAE.
 Honorary Microscopist and Entomologist, VERY REV'D DEAN CARMICHAEL.
 Honorary Botanist, REV'D DR. CAMPBELL.
 President, W. M. RAMSAY, 303 Peel St. Vice President, E. K. WATSON, Westmount'

DIRECTORS.

DAVID WILLIAMSON, THOMAS HALL, C. P. NEWMAN, JOHN DOYLE,
 FRANK ROY, GEORGE COPLAND, T. W. BURDON.

W. ORMISTON ROY, Secretary-Treasurer, P. O. Box 778, Montreal.

.. Contents ..

	PAGE.
Canadian Ferns—Part III.....	157
REV. ROBERT CAMPBELL, D.D., MONTREAL.	
Monocotyledones—Some Garden Flowers—Canna.....	165
MRS. G. W. SIMPSON, MONTREAL.	
Spraying.....	171
A. MCD. ALLAN, GODERICH, ONT.	
Hardy Herbaceous Plants.....	174
Winter and Spring Flowering Bulbs.....	178
Squash.....	182

PROPERTY OF LIBRARY
DEPARTMENT OF AGRICULTURE, OTTAWA

Lent to
Date
AL 32

PLEASE RETURN

THIS SPACE
TO LET.

The...

Major Mf'g Co.,

(Limited.)

600 CRAIG STREET,
MONTREAL.

Paper Boxes and Wire Goods.
Everything in Paper Boxes, Wire
Cloth and Netting, Foundry Riddles and Seives.

R. A. DICKSON & CO.

Beg to announce to their numerous Customers
that they will, in their New Premises



2261 St. Catherine Street,

Show one of the
most Complete and
Assorted Stock of

Jewelry,

that has ever been
shown...
in Montreal.

...ETC...

Fine Cut Glass, Clocks, Watches,
Sterling Silver and Plated Table Ware,
Brass and Onyx Goods, China Sets.



"NO TROUBLE TO SHOW OUR FINE STOCK."

P. DONNELLY, ~

Manufacturer of

Doors, Sashes, Blinds, Architraves,
House Finish in all kinds of Hard
and Soft Woods. Lumber Dealer.
Venetian Blinds a Specialty. Pack-
ing Boxes and Cases.

OFFICE AND MILL:

276 CRAIG ST.

Bell Tel. 415.

THIS
SPACE
TO LET.

APPLY TO THE PUBLISHERS,

"Canadian Horticultural Magazine,"
P.O. Box 778. MONTREAL.

FOR THE CONSERVATORY ...

Palms in many sizes and varieties.

Begonias, foliage and flowering sorts, and the finest and most complete collection of greenhouse plants, of all kinds, that you would wish to see.

Chrysanthemums, just right for potting or for autumn flowers, best kinds only, all named.

Roses for winter flowering, from 4-inch pots, ready in June and July, \$3 \$3 per dozen.

Carnations, large plants for winter flowering, will be ready in September.

FOR THE GARDEN.—Growing plants of all the standard FRENCH CANNAS, \$1.10 per dozen; newer varieties and novelties at reasonable prices. GERANIUMS for bedding, 25 for \$1. COLENS, or foliage plants, well colored, 25 for \$1.

If you have not seen our illustrated Catalogue, write for it; will interest you if you are interested in flowers.

Leading

Canadian Florists.

WEBSTER BROS., HAMILTON, ONT.

GUARDIAN FIRE AND LIFE ASSURANCE Co. LIMITED

HEAD OFFICE FOR CANADA

Guardian Assurance Building, 181 St. James St.,
MONTREAL.

Capital Subscribed, - - - - - \$10,000,000.
Funds in hand exceed, - - - - - 22,500,000.

Trustees in Canada { W. M. RAMSAY, Esq. J. O. GRAVEL, Esq. Hon. ALPH. DESJARDINS
R. WILSON-SMITH, Esq. W. H. BEATTY, Q. C.

E. P. HEATON, Manager. G. A. ROBERTS, Sub-Manager.

LONDON and
LANCASHIRE
LIFE ..

1897

Assets / / \$6280,000.

Interest overdue 2,005.

A RECORD WITHOUT A
PARALLEL.

Head Office for Canada,

Cor. St. James & Place d'Armes,
MONTREAL

Chairman, RIGHT HONORABLE

LORD STRATHCONA AND MOUNT ROYAL

B. HAL. BROWN,

Gen. Manager.

J. L. KERR,

Asst. Manager

* ESTABLISHED 1825. *

The Standard Assurance Co.'y

OF EDINBURGH.

Head Office for Canada, - MONTREAL.

Invested Funds, - - - - - \$41,200,000
Investments in Canada, - - - - - 12,500,000

[WORLD WIDE POLICIES.]

Thirteen months for revival of lapsed policies without medical certificate of five year's existence. Loans advanced on Mortgages and Debentures purchased.

J. HUTTON BALFOUR, Superintendent.

W. M. RAMSAY, Manager.

Agents Wanted.

EWING'S Selected Bulbs.

HARDY PERENNIAL PLANTS,
and GARDEN and GREENHOUSE REQUISITES.

Illustrated Catalogue now ready and mailed free.
Please send us your address



Early Forcing Bulbs,

The Finest Roots
obtainable,

Consisting of...

- ROMAN HYACINTHS
- DUTCH HYACINTHS
- NARCISSUS,
- TULIPS,
- FREEZIAS, &c.

SELECTED HYACINTHS

For growing in water
or earth. All the best
sorts and splendid
bulbs. The very best
varieties.



A Full Assortment of
SINGLE AND DOUBLE
DAFFODILS, TULIPS,


Including the LEAD-
ING LATE VARIETIES,
which make such a
grand show in succes-
sion to the early ones.

And an extensive assortment of the **Leading Bulbs and Roots** for fall planting, either
inside or in the flower garden.

We also offer a selection of the best varieties of **HARDY PERENNIALS**,
and now is the time to plant them.

Manures, Insecticides, and Garden Tools of all descriptions.



William Ewing & Co., SEED 
MERCHANTS,

142 McGill Street,  MONTREAL.

Write for our Illustrated Bulb Catalogue, and please note the very
Low Prices Quoted.

THE CANADIAN HORTICULTURAL MAGAZINE.

Vol. II.

October, 1898.

No. 7

CANADIAN FERNS.

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

PART III.—ONOCLEA.

I. ONOCLEA SENSIBILIS (L.)—*Sensitive Fern*. There is none of our ferns better known than this one, as it is found wherever there is a flat piece of wet land, by fences, or river banks, or in the woods. The sterile leaves abound, but fertile leaves are not to be seen on every plant. The contrast between the fertile and sterile leaves is so striking, that the casual observer who knows nothing of Botany, is not likely to associate them as parts of the same plant. The sterile leaves are often three or four feet high and a foot broad; their segments, especially near the apex, being shaped somewhat like those of the leaves of certain oaks,—hence one of the common names for this species, “Oak-leaved Fern.” The fertile leaf does not exceed a foot and a half in height, and the pinnae are closely rolled up into narrow necklace-like segments. The sori are borne on the back of the veins. One has to search for it during its early stages, as it is lower and slenderer than the surrounding sterile fronds; but in the autumn the first frost slays the sterile fronds, and there remains standing a forest of fertile ones, which live on and ripen with the cold season. It is the sensitiveness of the sterile leaves to frost which has earned for the plant its specific name, *Sensibilis*. This fern is always an object of curiosity to the English immigrant, as it does not grow wild in the British Isles. It grows abundantly all over Canada.



(11) *Onoclea Sensibilis* (L.) SENSITIVE FERN.



(2) *Onoclea Struthiopteris* (L.) Hoffm. OSTRICH FERN.

2. ONOCLEA STRUTHIOPTERIS (L.) HOFFM.—*Ostrich Fern*. This is one of our finest ferns, whether regard is had to the fertile or sterile leaves. The pinnæ of the fertile leaves have an upward curving growth, those on the opposite sides together forming the shape of a lyre, and all taken together resembling the outline of an ostrich feather,—hence the specific name, *Struthiopteris*, which, being translated, is “Ostrich-winged.” It used to be held to constitute a *genus* STRUTHIOPTERIS, with the specific name, “*Germanica*,” because it occurred in Germany. It has sometimes been counted in also as an *Csmunda*, *Osmunda Struthiopteris*. The sterile leaves are both large and graceful in outline, growing sometimes to a height of five or six feet. They form a circle round the usually single fertile leaf, greatly over-topping it, and, as it were, standing between it and all intrusion. The sori are crowded on the pinnæ of the fertile leaves, and run into one another. This fern abounds in wet woods on the island of Montreal, and all over the northern part of this continent. It is easily transplanted, and hence is often seen in the garden plots of our citizens, to which it proves a distinguished ornament.

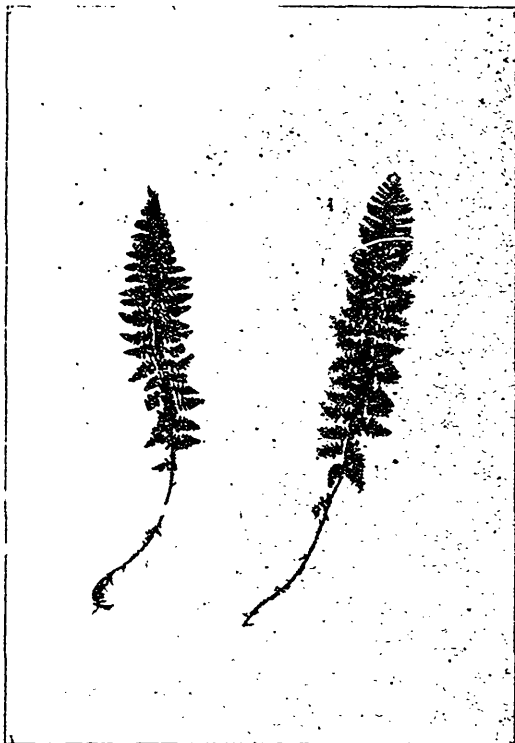
WOODSIA.

1. WOODSIA ILVENSIS (L.) R. BR.—*Rusty Woodsia*. The name of Joseph Woods, an English architect and botanist, has been attached to a *genus* of small tufted pinnately-divided ferns, of which the commonest is the “*Ilvensis*,” so-called from the island of Ilva or Elba, of which it is a characteristic plant. It receives its folk-name from the bristle-like chaff which clothes its stalk and the under-side of its pinnæ, this hairy chaff being of a rusty colour. It bears a large number of fruit dots round the pinnules, and when old they run into one another, completely covering the under surface of the leaves. It is found only on exposed rocks, and mainly in the northern portion of the continent. It abounds on the rocks forming the crest of Mount Royal, and on all the mountain regions to the North and East. Its peculiar features make it easily known.

2. WOODSIA SCOPULINA D. C. EATON.—*Rocky Mountain Woodsia*. This fern is credited by Britton and Brown only to



(3) *Woodsia Ilvensis* (L.) R.Br. RUSTY WOODSIA.
(4) *Woodsia Scopulina*, D. C. Eaton. ROCKY MOUNTAIN
WOODSIA.



(5) *Woodsia obtusa* (Spreng) Torr. BLUNT-LOBED WOODSIA

Western Ontario, and to the intermediate region all the way to the Rocky Mountains. But the specimen used in this illustration was found as far east as "Fern Cliff," Gananoque, the species abounding on the rocks facing the St. Lawrence there. It is both larger and hairier than *Woodsia Ilvensis*. The stipe and lower side of the leaf are dotted with small flat hairs which in the mature plant entirely cover it. The leaves are lance-shaped, tapering from the middle to both ends. The pinnæ are wider apart than in the "Rusty Woodsia." Altogether it is a graceful and interesting little fern, and well worth the attention of gardeners.

3. *WOODSIA OBTUSA* (SPRENG.) TORR.—*Blunt-lobed Woodsia*. This "Woodsia" is counted even rarer than the one described above. It is, indeed, widely distributed, being occasionally met with all the way from Nova Scotia to British Columbia. The specimen here shown was found on the top of one of the highest of the Cap-a-L'Aigle hills, county of Charlevoix, Quebec. This *Woodsia* is a much larger plant than either *Woodsia Ilvensis* or *Woodsia Scopulina*. Its stipe is green, whereas that of the other two is brown. The leaves are both longer and broader than those of the other two species shown in this paper. The spore covering is the noticeable feature of this fern. It encloses the sporanges entirely, at an early stage of the plant's development, as it does in the specimen here used for illustration. But an occasional one of these coverings can be seen splitting up into broad sections showing the sori. Like all the *Woodsias*, the *blunt-lobed Woodsia* loves the clefts of rocks where its wiry little roots find the soil and situation best fitted to promote the life of the plant.

DICKSONIA.

DICKSONIA PUNCTILOBULA (MICHX) A. GRAY.—*Hay-scented Fern*. This fern also gets its name from an English botanist and nurseryman, of the last century, James Dickson. It is one of the most delicate of our ferns, and needs to be put under pressure immediately that it is plucked, as its tender leaves begin to wilt at once, unless they are shielded from the air by being placed between



(6) *Dicksonia Punctilobula* (Michx.) A. Gray.
HAY-SCENTED FERN.

the drying papers. Its delicacy of fibre has earned for it the title of "Gossamer Fern;" while the odor it yields is like that of new mown hay,—hence its folk-name. Its stipe is green early in the season, but with the advancing year it gets of a reddish-brown colour. The leaves, too, alter with the seasons. At first they are light green, but they turn to a yellowish colour later on, and finally are covered with rusty patches. The light green pinnæ are covered with a soft down and are close together. This fern is late in unfolding; but when it does expand its leaves, it proves one of our loveliest ferns. I found it abundant in the parts of the State of New York which I visited last summer. Its favourite soil is a sandy loam in the woods on hill-sides. It grows plentifully in the woods skirting the Mountain Park, as well as in Bagg's woods, and the woods along the valley of the River Rouge. I have found it also at Cacouna, Bic and Cap-a-L'aigle.

ROBERT CAMPBELL.



MONOCOTYLEDONES.

SOME GARDEN FLOWERS—CANNA.

By MRS. G. W. SIMPSON, MONTREAL.

"It is impossible," writes a botanist, "to form any conception of the manner in which living bodies have arisen on this once molten planet, from lifeless matter." Perhaps not. But the human family, having received the beautiful gift of woods and fields, garnished as they are with verdure of all kinds, can do no less than hasten to accept it all, with something more than mere animal stolidity. To the animals as well as to us it is given for food. "The beast of the earth, the fowl of the air, and everything that creepeth upon the earth" receive it, however, with such discrimination as their nature permits, and feed while the food lasts. To man it is

given with the peculiar power to subdue the earth, and by his labor to multiply food material, improve its quality, and so increase the happiness of the world at large, from generation to generation, of everything capable of reproduction.

Such labour is necessary; without it we could not live to any good purpose. And the higher agricultural labour, that which demands the exercise of the mind as well as of the body, is work worthy of a prince.

It has been suggested that the molten state of our planet was followed by a state of vapour and heavy rains—that the first dry ground was swampy—that early vegetation was reedy—reeds and rushes prevailing everywhere.

Such thoughts bring us to the subject of rushes, and to that class of plants I want to come.

Rushes, *Juncaceæ*, grow in wet places, by the side of running streams, and are thought to be the oldest family of the flowering plants. Very, very old plants, pre-historic in fact! Accepting this venerable pretention we proceed to pay them a little respectful attention. They have been very useful in their day. They have thatched our cottages, bottomed our chairs, plaited our baskets, carpeted our churches, palaces and dwelling places. The festival of the "Rush-bearing" was observed quite recently, and perhaps is still observed, in the northern English counties. And a very pretty sight it is. A procession of young men and maidens, carrying bunches of freshly cut rushes, adorned with lilies and water-flowers, proceeds to the parish church one Saturday in midsummer and decorates the church in memory of the time when the Rush was not so much an ornament, as the comfort of the home through long, dark winter months to follow.

The Rush, then, whatever it may be now, has been in its time a very useful member of society, and we are not surprised to find that many of its allied families, profiting by length of years, as well as great general utility, are found at this late day to possess qualities of great wealth and extreme beauty.

The Rush is a *monocotyledone*; that is, it comes up from the

ground with one seed-leaf. The monocotyledones have this in common, that their vascular tissue, that is, the woody or fibrous tissue which serves to strengthen and uphold the cellular tissue in the stems of their plants and trees, are in bundles, and not in rings. You will easily understand this if you will cut across the flower stem of any lily. The White Arum, or Calla Lily, is a fine example in which to see the bundles; and you would do well at the same time to remark the triangular form of the stem. On the other hand, the cord wood we burn in our stove shows us woody tissue in rings, and where we see rings in the trunks of trees we know we have not to do with any member of the Rush family.

The great clan of the monocotyledones generally have leaves with parallel veins. A beautiful example of this is found in the Canna and the Palms, and notably in what we call *common* grasses. Before going further I think I had better name some of the most distinguished families of the clan. As a type, the Lily; for usefulness, the grasses, palms, banana, ginger; for beauty, and in some cases for usefulness as well, Narcissus, Iris, Arum, Cann?, Orchid.

The Ginger, so much valued for its pungent root, and the Canna famous for the large size of its starch grains, are members of a monocotyledonous family bearing the somewhat uncommon name of *Scitamineæ*. To this family the valuable Banana belongs, which affords food to the natives of the tropical countries, and is to them what the potato is to Ireland, staple and preferred food.

The Lily is generally considered the best type of the whole class of the Monocotyledones. But in giving a title to this paper I have selected the Canna, because it seems to me that the Canna is the fashion, and it is wise to give fashion her due, if only because she holds public attention for the time being. Before, however, we can properly appreciate the Canna we must devote a few lines to the Lily.

A type is a perfect pattern; a pattern which all the allied families are expected to reproduce with more or less fidelity.

The Lily has six floral leaves, or petals, in two whorls; six stamens in two whorls; the ovary has three carpels, and the pistil

has three stigmas ; the stem is formed of bundles of vascular tissue, and the leaves have parallel veins. Moreover, the Lily flower is *actinomorphic*. This word signifies, shaped like a star, that is, with equal points radiating from a centre. In all this the Lily has faithfully followed its humble prototype the Rush. But the flower of the Rush is not so accessible in the winter season, and when had, is too small to be examined without a magnifying glass. But a glass reveals the fact that in form, the flower of the Rush is a perfect Lily.

We may well suppose that in the time when the *Rush* and other coarse strong grasses struggled for existence against tempestuous weather, wet marshes, and clouds which hid the sun, that there was no incentive to produce choice Lilies: such as we know in our woods and fields. There would be no trees to shade them ; no pollen-seeking insects, when the ground began to emerge from the wet and steaming surface of a world half drowned. The tiny star-like flowers of the Rush would not fear the strong drying winds, but would welcome them ; and we are not surprised to find that wind was the servant of the flowers, bearing their pollen from plant to plant, cross-fertilizing and strengthening, in preparation for that better time which was coming when sunshine and butterflies would invite the production of more floral beauty.

The *Canna* is not *actinomorphic*, but a symmetrical which signifies, not regularly shaped. This is the first thing we notice. Indeed, it is not easy at first sight to determine exactly what its shape is. One does not like to say that anything so beautiful is deformed. One must think of it as a strange departure from the type, and by careful, thoughtful examination try to make it tell its own life-history.

We find it grows wild in the fields of tropical America. It has been forced by circumstances out of the simple habits of its forefathers. Instead of bending before the blast like the Rush, it has formed its vascular tissue into a solid stem like the *Arum*, and on the top of the stem clustered its beautiful but frail flowers into a strong spike. With backs firmly set against the stem, each flower, which could find a place, did its best to catch the sunshine, and in

its genial warmth found itself able to reflect its rays. Thus Cannas prospered from generation to generation until they attained (the gardener helping with skilful care) their present size and beauty.

The *Canna* perianth or floral envelope consists of six petals in two whorls, which are inconspicuous, having no great pretension to beauty. It has six stamens in two whorls. Here we meet with considerable departure from the type. We can in fact locate but one stamen, and that one grows on the side of what looks like a petal. But they are not petals. Because they are *like petals* they are called *petaloid*; they are stamen-filaments which have forsaken their original use, and pass their time holding out banners to the sun and insects. And with their form they have changed their name, and are called *staminodia* because they are *like stamens*. Under certain circumstances they might even shrink the expanse of their banners, and return to the ancestral six stamens. At present only one half of the one stamen is fertile. When you have the chance open a flower while still in bud, and you will see the stamen in more perfect form.

The Pistil, originally triangular, has developed into a petaloid style; yet the triangular form is easily discerned in the bud. The half anther matures early, and deposits its mealy pollen on the flattened blade or style of the pistil. The anther then shrinks and its staminodium develops more beauty. The visiting insect seeing the handsome open flower alights on the stigma, and there leaves that ripe pollen which it has brought from the last *Canna* visited, and which is still clinging to its hairy body. While unconsciously effecting this act of fertilization it rubs well into the fresh meal or the style, feeding and painting its coat at one and the same time. Being satisfied, it flies off to repeat the operation on another *Canna* flower. You may wonder how one pollen is kept separate from another on the same insect. Experiment has shown that flowers discriminate, accept foreign pollen, and generally refuse fertilization by their own pollen. Their own pollen is then to them inert, while quite active to any other flower.

Let us look once again at the staminodia, which constitute the

beauty of the flower. We ought to find six representatives of the six typical stamens. Can we do so? It is difficult at first sight, but not impossible. The three largest petaloid staminodia stand for the outer whorl. The inner whorl consists of three unlike parts; first, the one stamen and its petaloid filament; second, a broad staminodium called the lip or labellum; and lastly, a dwarfed, abortive staminodium growing like an excrescence out of the one side of the labellum. This, like the anther, is best studied in a large but unopen bud.

One arrives at the conclusion that the *Canna* has nearly given up the business of propagating its kind by seed. Perhaps it now finds it better to spend its strength in another direction. The family seems to be much taken up with the work of storage, in that form of stem or root called a rhizome. But of that another time.

LUCY SIMPSON.



SPRAYING.

ALEX. MCD. ALLAN, Goderich, Ont.

Now that the crops are mostly gathered and the results from spraying known let us enquire what they are ?

Like most matters entrusted to a public, results are not satisfactory in a large number of instances, and the reason is not hard to discover. If horticulturists would combine and follow well thought out and properly tested plans and methods, but little difficulty would be found in subduing enemies in the form of insects or fungi. But where the scattered few in a section attend strictly to forms laid down and follow out instructions implicitly, the majority either wholly or partially neglect all, and hence results cannot reasonably be expected to be as desired. It is so with respect to spraying. From my experience the past season I conclude that best results were obtained where fruits were sprayed later in the season than most people did it. It would be interesting to know if others had a similar experience. In 1897 results here were more uniformly successful than in the present season.

Many consider the work as labor in vain, and claim that the crop was as good where no spraying was done as where orchards were regularly treated. This I cannot agree with. But I do say this, that everything depends upon the state of the orchard. Where we find an orchard kept clean, pruned properly, the trees at a proper distance apart (40 feet every way), the soil cultivated in spring and early summer and well supplied with rich manures but little difficulty is found in harvesting a good crop of fruit of good size and fine quality. Our old neglected orchards are running out and form propagating spots for every disease and insect that comes their way. A new fruit is always better in form, growth and cleanliness, just because the new blood is there in all its strength. But wait a very few years until the tree produces a few crops and reduces from the soil those qualities needful for the production of perfect wood, buds

and fruit, and we find it in the same plight as the older ones. Varieties change until we can scarcely recognize them. The R. I. Greening is seen now-a-days in many forms and seldom in the original type, largely caused by neglect of the grower in not adhering to the rules of crop growing laid down long ago when the garden was given to man to "till and care for."

Of course, nurserymen must shoulder part of the blame by their lack of care in selecting wood for grafting and budding. A couple of weeks since I looked at a seedling tree located in the edge of a bush lot, in virgin soil. It was loaded with very attractive specimens, evidently of the Fameuse type, and I could not find a spot of fungus upon an apple, nor yet a sign of the Codlin moth. This no doubt was largely due to the fact that the tree was a seedling and was located where it could feed upon suitable soil.

Is there no way of enthusing our growers? It is for their own benefit, and if this fall they would spend a little time in cleaning up their orchards and burning all refuse, cart in a liberal supply of manure and try the experiment (!) of clean, perfect cultivation and feeding for a term of, say, three years. If they will do so we will see the Fameuse and all its seedlings coming forward to delight the eye and appetite of a hungry market the world over. That magnificent apple is, like others, running out, but can be resurrected. Montreal was once proud of her Fameuse in several forms, and justly proud when you could point to a Sucre the most beautiful and delicious of that great family.

But back to the top line again, Spraying, I have observed the fact that an improvement, to my mind, can be made in the spray pumps. There is not power enough to send a fine spray in sufficient quantity to the tops or even high limbs of large trees with sufficient ease. If the *crank power* were substituted for the *pump power* this difficulty would be overcome. I notice in all old orchards the best results upon lower limbs where the spray covered well, whereas a large quantity of poor fruit, badly spotted I find upon the high limbs. I refer now to an orchard that was sprayed regularly by the agent sent out by our Government for the purpose.

Where a tree is not sprayed ordinarily we find any good specimens upon the high limbs and in smooth skin kinds scarcely any upon the lower limbs. But in the case I refer to, the contrary was the result, although upon the top of these trees specimens were very much better and cleaner than where not sprayed. Upon the lower limbs it was hard in some instances to find a spotted specimen.



HARDY HERBACEOUS PLANTS.

[Abstract of a paper read before the Toronto Horticultural Society,
by J. McPherson Ross.]

Herbaceous is a name commonly applied to all plants with perennial roots and annual stems. As a general thing in the past, hardy herbaceous plants have not received the attention they deserve, but I am glad to see that there is a growing interest now taken in them, particularly by the professional gardeners, who as a class have rather despised them. Perhaps this may be attributed to their easy growth, calling for no special care in their propagation or after cultivation. Leaving the profession out of the question, we might say that public indifference is largely due to pure and simple ignorance of their value; but the main reason may be better attributed to the common practice of indiscriminate planting, to that hit or miss style which can be seen anywhere and everywhere with but very few exceptions. It is evident now that this indifference is passing away, for nearly every floral publication issued recently contains reference of some kind about the beauty and value of hardy herbaceous plants. It is sometimes urged that there would be more of them planted if their flowering season were longer, that the majority of them last such a short time in bloom that to have many flowers would require very extensive collections, taking up too much space in small gardens, and that, therefore, their general employment would be most suited for extensive grounds or parks. There is very little in this argument. That we see them fade with regret and turn with zest to the season of flowering of the next favorite, forms, to my judgment, their chief claim to attention.

Then there is the foliage, so attractive in its varied forms and colors. I find also that the artistic delight in color is growing with the public so that there is a real source of enjoyment in the study of the endless scale of greens. At least one very clever gardener assured me that he took almost as much pleasure in comparing the varying shades of the foliage as he did in the flowers. I think,

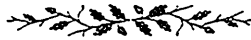
myself, that the renewed interest taken in herbaceous plants is partly owing to too much carpet bedding and ribbon planting with which we have been dosed so heavily during the past twenty years; and really, in many cases, artificial plants would answer just as well as natural ones in the formal arrangements where the individual characteristics of the flowers are lost and only the color effects shown, which could also be more easily and just as satisfactorily secured by painting the various colors on the sod with colored calcimine. We turn with relief to our herbaceous plants after this exhibition of floral fireworks. No other system is so effective in displaying the beauties of herbaceous plants as that of grouping each kind in masses without definite form. Always avoid circles, squares and rows, and by keeping this in mind when planting collections you will produce the effect of the plants growing and spreading naturally. The various kinds can be cultivated just as conveniently by the commercial grower in irregular masses and systematically labeled and dug for packing and shipping in the selling season as if they were grown in straight rows. In this way they also are shown in the most attractive manner to a customer, and the most suggestive for his or her own planting.

A proper selection of the different species will give us flowers from earliest spring to latest fall, forming a constant source of pleasure and gratification to the grower, so that starting with the earliest flowering dwarf irises, pansies, forget-me-nots, the sprightly daisy, phlox subulata, the graceful racemes of the bleeding heart, and many others, we have nearly two months of flowers before it is safe to plant out such greenhouse stock as coleuses, geraniums, etc. Besides the renewed interest now shown in well known varieties of herbaceous plants, there is also a general awakening to the fact that many of our native wild flowers are exceedingly beautiful and deserving of a place in our gardens. The hardy trillium is eagerly sought after and brings high prices in Europe, also the dog's tooth violet, hepaticas, lady's slipper and many other native plants that heretofore received but slight attention are now collected and grown with zeal and care. This popularizing of the neglected herbaceous plants

will be productive of good. New varieties will be produced at a rapid rate, and as an example we may note the endless varieties of the columbine and poppy now in cultivation. We cannot yet estimate the value of herbaceous plants. In order to do this accurately we must consider their hardiness, the small amount of care required after planting, their adaptability to any situation, thriving in poor as well as rich soils, sandy or clay. Then there is the question of expense, their low cost and permanence often rendering them preferable in comparison with our bedding plants which require renewal every season. In herbaceous plants we do not lack for contrasts in growth, for in size we find in the plants, from the dwarf phlox to the gigantic polygonums, every variety of colour and form of bloom and foliage. In this assortment we find plants suitable for any location, small beds and borders in the contracted city lot as well as large plantations on big estates and public parks.

It would be impossible in the limits of this paper to fitly describe the beauties and characteristics of each plant, or even to mention without description the numerous varieties. The subject is entirely too large to be treated in one evening as there is an abundance of interesting matter to make a paper on herbaceous plants alone for every meeting of the society. The flowering season of these plants, in many cases, can be prolonged by cutting back the old flower stems, which will have the effect of throwing out new flower spikes later on. This is true notably of phlox and larkspurs. It is not necessary to mention soils most favorable for their growth, for as I said before, the majority of them will grow anywhere, though like everything else they rejoice in a rich clean soil and in all other good conditions of it. Nor have I much to say regarding their propagation, as they grow so freely from division that it is not necessary to go to the trouble of raising them from seeds. There is no special call for art or skill in their planting or proper disposition. In such a case the purchaser of plants would be required to learn the habit and nature of each so as to plant the creeping or dwarf growing plants in situations suitable for them; as, for instance, the moneywort on rockeries, margins or borders, the moss pinks on

hillocks, etc. The rule most generally followed in planting early flowering species and varieties is to put them in the most conspicuous point of observation, such as by the gateway or in the border by the pathway leading to the residence. This desire may be explained by stating that there is almost an anxiety on the part of everyone to show early flowers, and after the long dreary days of winter it is a positive pleasure to see the first flowers of spring. Tall growing plants are usually placed in the back of the border next the buildings, trees or fences, or in the centre of large groups as the case may be. Where the grounds are large enough to permit it, the grouping of thirty or forty plants of one species together makes a fine effect; a large bed of pæonies, for example, produces a very fine effect in themselves. A bed of hollyhocks with *Bocconia cordata* in the centre, then a broad circle of pæonies, next irises, or campanulas, then *Achillea aurea* or *spiræa filipendula*, finished off with an edge of *cerastium* always commands admiration. Of course, other and better combinations may be made, but it is always best not to observe uniformity.



WINTER AND SPRING FLOWERING BULBS.

There is probably no cheaper or easier way of decorating and beautifying home surroundings with flowers than by the cultivation of bulbs. Grown for indoor decoration they can be had in bloom most of the winter, and planted in the garden they bloom in spring before it is safe to set out other flowers.

The requirements for their culture are simple, and few plants will succeed as well under unfavorable conditions. For spring ornamentation bulbs are planted in the fall, usually after other flowers have been killed by frost. For the most part they are fairly hardy, and if planted early and not too near the surface of the earth they seldom get winter-killed. In cold exposed positions it is safe to protect the beds by covering them with leaves or straw. The covering should be removed as early as possible in the spring, before the bulbs have made much leaf growth. The bulbs should be planted, from six to eight inches deep. The simplest way to insure their being planted an even depth in the ground is to remove six or eight inches from the bed, plant the bulbs and then replace the earth. After the top has been removed, and before the bulbs are planted dig in a liberal quantity of well rotted manure. It is hard to make the earth too rich for bulbs, but they will often do well in poor soil. Drainage is perhaps the one great necessity in their culture. They will not do well in low, damp, undrained places. A mulch or covering of leaves, straw or manure is especially desirable if the bulbs are planted later than the first of November. The mulch should be of sufficient thickness to keep out the frost for a month or six weeks while the roots are forming. If the bulbs are to be preserved for another year, remove the flowers as soon as they commence to wilt, in order to prevent the plant from bearing seed, which weakens the vitality of the bulb, which in order to mature properly, should not be lifted until the leaves have completely withered.

The Snowdrops are the earliest flowering, and are fairly hardy. The blooms appear before the snow has entirely gone. They are pure white graceful little flowers with a pleasing odor. If planted in some out-of-the-way corner, where they need not be disturbed when done flowering, they will propagate and continue to flower for several years, until they become over-crowded, when they should be taken up and replanted about two inches apart and three inches deep.

Following the Snowdrops come the Crocuses with their more showy flowers of different shades of white, yellow and blue. They should be planted six inches deep. *Scilla Siberica* is treated in the same way as Snowdrops, and bear an abundance of lovely blue flowers, which are useful for cutting. Hyacinths come next into bloom, and are more tender than the Crocuses or Snowdrops, and seldom succeed unless protected by a mulch. They deteriorate more quickly than most of the other bulbs, and are rarely worth planting the second year.

The single varieties are more showy and graceful than the double ones, and both can be had in many shades of color. Roman Hyacinths bear very graceful and attractive little spikes, and are more useful for cutting than the other varieties. All the Hyacinths have a delightful perfume in the garden, but indoors the odor is sometimes too strong, suggesting the heaviness of the tuberose scent when confined. The early blooming Daffodils or *Narcissus* come into bloom at the same time as the Hyacinths, and their beautiful yellow blooms combined with the blue varieties of the Hyacinths form a very pleasing bud. Of late years the Daffodils have come into great favour both for winter forcing and outdoor decoration. Unlike the Hyacinths and Tulips the quality of both the flowers and bulbs has been steadily improving, and growers find them a more reliable crop. No doubt this is owing to the fact that they can be propagated in countries outside of Holland, where of late years the bulbs have been going back. Great Britain produces the best Daffodils, but Hyacinths cannot be propagated there so successfully as in Holland.

The last of the spring flowering bulbs to come into bloom are the Tulips, and perhaps on the whole they are the most satisfactory to grow. Their wide range of bright colors and delicate shades and tints render them very attractive. The blooms of the single varieties are prettier and more graceful than the double ones, and are better adapted for cutting. In masses the double blooms are more showy, and in hot, dry weather, last longer. In wet weather their petals soon rot. The single Tulip, "Gesneriana," is a magnificent late variety bearing blooms of rare size and beauty, but the Parrot Tulips for individual blossoms are pronounced by all who see them to be the prettiest of all, many of the blooms rivalling orchids in their beauty. There is a great difference in time of blooming between the early and late varieties, and by having a fair proportion of each, a succession of bloom can be kept up better with Tulips than with any of the other bulbs. In seasons that are not too cold, a charming effect is obtained by planting Forget-me-nots in the beds of Yellow Tulips or Daffodils. Planted after the bulbs, one foot apart, they come into bloom at the same time and continue to bloom for quite a while.

WINDOW CULTURE.

Many bulbs are well adapted for winter forcing in the house, and although to do this they require more care and attention, still the extra trouble is repaid by the blossoms appearing at a season of the year when other flowers are scarce.

Hyacinths and Chinese Sacred Lilies are the most easily forced. They are often grown in water, in glasses or bowls. For Hyacinths, a special glass is made, which can be obtained at any seed store. About the 1st November, the glasses are filled with water and the bulbs placed on top. Then set the vases in a cool place in a dark corner of the cellar and covered them with a mat.

They remain in this position until the glasses are well filled with roots, when they are gradually brought to the light, first by removing the mat and then removing them nearer to the light for a few days, when they can be placed in the window. A small piece

of charcoal placed in the water will help to keep it fresh. Here again the single hyacinths are the best. The season of blooming can be lengthened greatly by bringing a few bulbs to the light every week. It will not hurt them to remain in the cellar for several weeks, if the place is cool and they do not show much growth excepting at the root.

For Chinese Sacred Lilies a bowl will be found most convenient. The bulbs are placed several in the bottom of the dish and then filled around with small stones or rough gravel to keep them firmly in their place. They are then treated like hyacinths but can be brought to the light sooner. For glass culture always select large firm bulbs. In growing bulbs in pots or pans a little more care is needed. The pots, which are usually from five to six inches in diameter, should be thoroughly drained by filling them about one-quarter full, with rough cinders or other such porous material. Almost any potting soil will do, but a light, rich compost with a liberal quantity of sand added is the best. After draining the pot, fill it about two-thirds full of soil, then place the bulb in and fill the compost around it to within half an inch from the top of the pot. When the bulb is planted, give the soil a good soaking and place it away in the cellar and cover it with about three or four inches of soil or ashes, to retain the moisture. If it is not convenient to keep the bulbs in the cellar, put them in the garden and cover them in the same way, and then spread a thick coating of leaves or litter over the whole to keep out the frost. In from six to eight weeks the bulbs will be ready to bring to the light, and if plunged out of doors, a mild day must be chosen to bring them in.

Nearly all the early flowering bulbs can be successfully forced. Hyacinths, double, single, and Roman, Tulips, Duc Van Thol, and other early sorts, Narcissus, Crocuses, etc., are all very suitable.

SQUASH.

I am induced to say a word for a local grower as it may induce a spirit of competition. Mr. W. Warnock, of this town, is now known pretty well as a grower of mammoth squash and pumpkin. He it was who took first place at Chicago World's Fair for the largest. This year he breaks his record at our own fall exhibition with three squash weighing respectfully 344, 355 and 388½ pounds each. The largest is still upon exhibition in a store here, and if there are any incredulous people in Montreal or elsewhere I fancy it could be obtained easily and transported. Mr. Warnock gives special attention to the care and feeding of the vines during the season to get the great results he yearly has. I understand he grows only one specimen upon a vine, and uses well rotted manures and an abundance of water in his treatment. But I will not attempt any further particulars, only ask Quebec growers to give us one better for 1899.

ALEX. MCD. ALLAN.

Oct., 1898.





The illustration depicts a woman with a large, pointed hat and braided hair, holding a tray. On the tray is a small bottle labeled 'BOVRIL' and a cup also labeled 'BOVRIL'. The scene is framed by a decorative border with a circular cutout effect around the woman. The background features stylized, swirling patterns.

BOVRIL

For Health and Strength

10 Standard Works on Agriculture and Horticulture

Practical Floriculture, by Peter Henderson	\$1.50	Cook's Manual of the Aplyary	\$1.25
Gardening for Profit " " "	2.00	Bees and Honey, by Thos. G. Newman	1.00
" " Pleasure " " "	2.00	How to make the Garden Pay, by T. Greiner	2.00
Hand Book of Plants " " "	4.00	Mushrooms. How to Grow them, by Mr Falconer	1.50
Nicholson's Illustrated Dictionary of Gardening		Allen's New American Farm Book	2 30
4 vols. each	5.00		

SENT POST PAID ON RECEIPT OF PRICE.

W. DRYSDALE & CO., School and College Books a Specialty.

Publishers, Booksellers and Stationers 232 St. James St., MONTREAL.

THIS SPACE
TO LET.

Seal Brand Coffee

Only ripe full grown
perfect coffee used
in this famous brand.

Chase & Sanborn,

MONTREAL,

BOSTON,

CHICAGO.

G. A. GRIER,

Wholesale Lumber
and Timber Merchant.

OFFICE :

2704 Notre Dame Street.

JOHN ALLAN,

CARPENTER
AND BUILDER...

Conservatory Building a Specialty.

Estimates cheerfully furnished on application.

26 STANLEY STREET, MONTREAL.

...IMPORTANT NOTICE...

A Popular Edition
of the Celebrated
Work entitled

**Familiar
Wild...
Flowers**

is now being published, to be completed in 21 parts, at 20 cents per part or \$4.00 for the complete set—payable in advance. This is just one-fifth of its former price.

"The Colored Plates in 'Familiar Wild Flowers' are exquisitely beautiful; they are more like finished paintings than print."—*Gardener's Magazine*.
"This is a charming work. The lover of wild flowers will be sure to add it to his store. The colored illustrations are perfectly true to nature, and are in the highest sense 'things of beauty.'"—*Irish Times*.

F. E. GRAFTON & SONS,

Publishers, Booksellers and Stationers,

250 St. James St., MONTREAL.

Send for Catalogue of
Standard Rural Books,

Bell Telephone 1665.

D. Nicholson & Co.,

.. ROOFERS ..

41 ST. ANTOINE STREET.

Gravel Roofing a Speciality.
Repairs of all kinds promptly
attended to.
Charges very moderate.
A trial solicited.

Alex. Bremner,



Drain Pipes,
Farm Tiles,
Land Plaster,
Portland Cement,
etc.

50 BLEURY ST.,

...MONTREAL.

Bell Phone 356. Merchants' Phone 50.

Squire, Watson & Co.,

ARE SOLE AGENTS FOR

FOX CUTLERY CO.—Razors, Scissors, Pocket,
Pruning and Budding Knives.

F. DUMOULIN & CO.—Guns, Rifles and Revol-
vers...

A. & F. PARKES & CO., Ltd.—Shovels, Spades,
Draining and Garden Tools of all kinds.

CHRISTOPHER JOHNSON & CO., Sheffield.—
Finest grade goods in Pocket Knives, Table
Cutlery, Carvers, etc.

JOHN YATES & SONS.—Silver Spoons and Forks,
and Electro Plated Ware.

Temple Building, - MONTREAL.
Solicit Orders for Import.

Wm. F. Coupland,

129½ ST. ANTOINE STREET,
MONTREAL.

**CARPENTER
and BUILDER.**

Orders promptly attended to.

...Telephone 1973.

**Desks, and
Office Furniture.**

Why write on the kitchen table

When you can buy one of

TEES' DESKS?

TEES & CO.

300 St. James St.

Get your

**Magazines and
Library Books**

BOUND BY.....

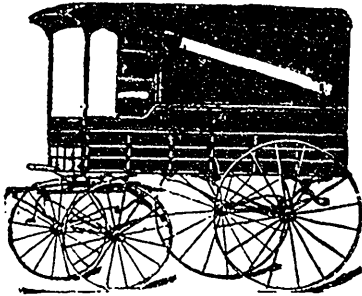
Plow & Sully,

General Bookbinders,

448 ST. JAMES STREET.

The "Horticultural Magazine" neatly
bound for 60 cents.

Tel. 406.



Express . .
and Delivery **Wagons**

Phaetons, Buggies,
Carts, Farm Carts and Wagons

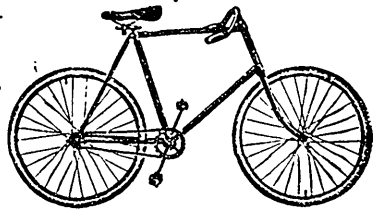
FARM IMPLEMENTS OF ALL KINDS.

Nichol's Chemical Coy's "FERTILIZERS"

Plant Food, Etc.

BICYCLES

For Men, Women and Children,
All Sizes. All Prices.



R. J. LATIMER, 146 McGill Street.

WM. EVANS,

Seedsman,

ESTABLISHED 1855

Cor. McGill and Foundling

☀
FRESH
FLOWER and
VEGETABLE
SEEDS
☀
GARDEN
TOOLS
☀
FERTILIZERS
Etc., Etc.



☀
SPRING and
FALL
BULBS
Large
Assortment.
☀
Lawn
Grass
Seed
A Specialty.



SEND FOR ILLUSTRATED CATALOGUE.

Apple and Pear Trees,
 Grape Vines,
 Hardy Shrubs, Roses,
 Asparagus, Strawberry
 and Raspberry Plants.



**R. JACK
 & SONS,**

HILLSIDE, CHATEAUGUAY BASIN,
 QUEBEC.

B. T. GRAVES,

Florist
 and Nurseryman.

STORE: 2458 St. Catherine Street,
 TELEPHONE 3873.

NURSERIES: 334 Cote St. Antoine Road,
 WESTMOUNT.

TELEPHONE 4922.

Telephone orders promptly and
 reliably filled.

I make a Specialty of Perennial Plants, of
 which I offer a fine Named Collection; also
 Bedding Plants. Send for Catalogue.

THIS SPACE
 TO LET.

Vice-Regal Decorators
 and Florists,

 **W. B. Davidson
 & Sons** 

No. 70 Victoria Square.

CONSERVATORIES: Cote St. Paul,
 Conservatory attached to 70 Victoria Square.
 TELEPHONE 2584.

Marriage Bouquets, Cut Flowers and
 Funeral Designs

Made to Order in every Style at Short Notice.

TELEPHONE 4226.

F. LOGAN GIRDWOOD,

✧ FLORIST ✧

Call and see my Decorative 2254
 Plants, Palms,
 Table Ferns, Etc., Etc. St. Catherine St.

CUT FLOWERS, VIOLETS, ETC., BEST IN MARKET.

Floral Designs, Table Decorations
 at Short Notice.

Nurseries at Ste. Annes de Bellevue.

COLIN CAMPBELL,

FLORIST

AND DECORATOR,

2267 ST. CATHERINE ST.,

...MONTREAL...



Greenhouses at Rockfield,

... NEAR LACHINE.

To Market Gardeners and all Growers
 of Choice Vegetables.



The "New White"
 Jerusalem Artichoke.

See notice of this variety by the Editor
 of the London "Fruit Grower, Fruiterer, Florist
 and Market Gardener."

TUBERS FOR SALE IN LARGE OR SMALL QUANTITIES

Enquiries and Orders sent to

P. O. Box 788, Montreal.

COLONIAL HOUSE

... Phillips Square,

 MONTREAL

China Department.

All the very latest devices for Table Decorations, in

SPECIMEN GLASSES,

FLOWER TUBES,

FLOWER JUGS,

EPERGNES, &c.,

In plain and colored glass, from the best Venetian, French, German, English and American Factories.

.....
FERN POTS,

FERN STANDS,

HANGING POTS,

TABLE POTS and FLOOR POTS,

JARDINIERES,

POTS and PEDESTALS.

In all the New Combinations of Color from the most celebrated European and Continental Art Potteries.

.....
Mail Orders promptly and carefully attended to.

HENRY MORGAN & CO.,

MONTREAL