

Technical and Bibliographic Notes / Notes techniques et bibliographiques

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

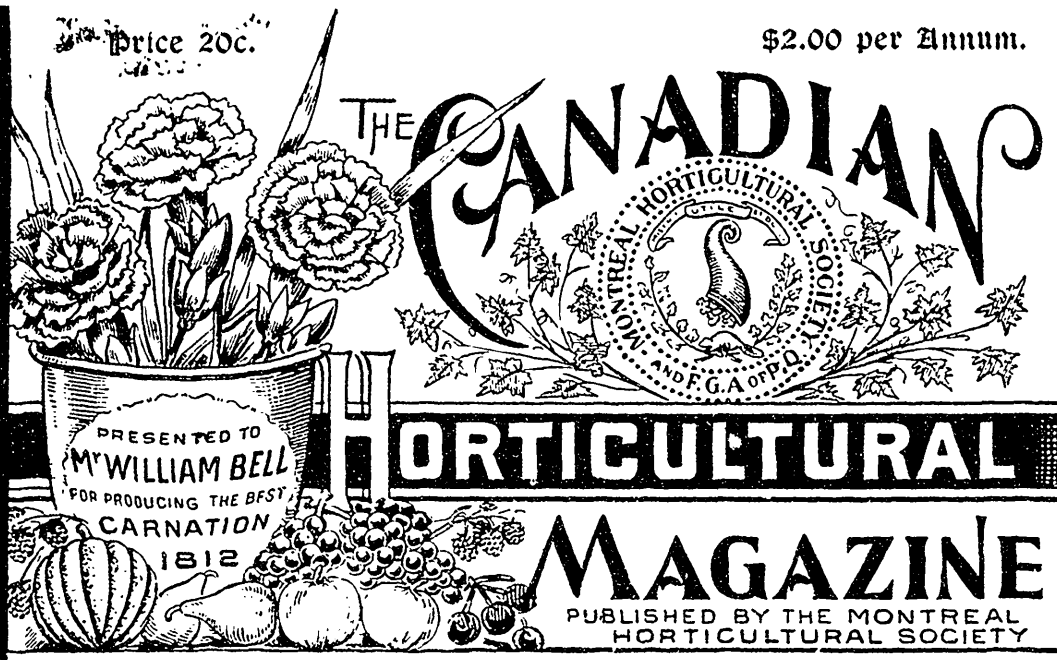
Additional comments:/
Commentaires supplémentaires:

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.



Nov., 1898.

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

Vol. II. No. 8

OFFICE BEARERS -1897-98.

Honorary President, W. W. OGILVIE. Honorary Vice-Pres., ROBERT MACKAY.
 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 IV.—Cystopteris.....	183
REV. ROBERT CAMPBELL, D.D., MONTREAL.	
The Late Mr. Frank Roy.....	193
Notes From Cornell University.....	197
Monocotyledones—Some Garden Flowers—Part II.—Arums, Roots, Buds, Stems, Leaves.....	200
MRS. G. W. SIMPSON, MONTREAL.	
Lilies of Japan.....	204
Pruning Roses.....	208

PROPERTY OF LIBRARY
DEPARTMENT OF AGRICULTURE, OTTAWA

Lent to *PR 1 1/2*
 Date *Nov 1914* PLEASE RETURN
 AL 32

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.

HEAD OFFICE FOR CANADA

LIMITED

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,

0%

A RECORD WITHOUT A
PARALLEL.

Head Office for Canada,

Chairman, RIGHT HONORABLE

Cor. St. James & Place d'Armes,

LORD STRATHCONA AND MOUNT ROYAL

MONTREAL

B. HAL. BROWN,

J. L. KERR,

Gen. Manager.

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.

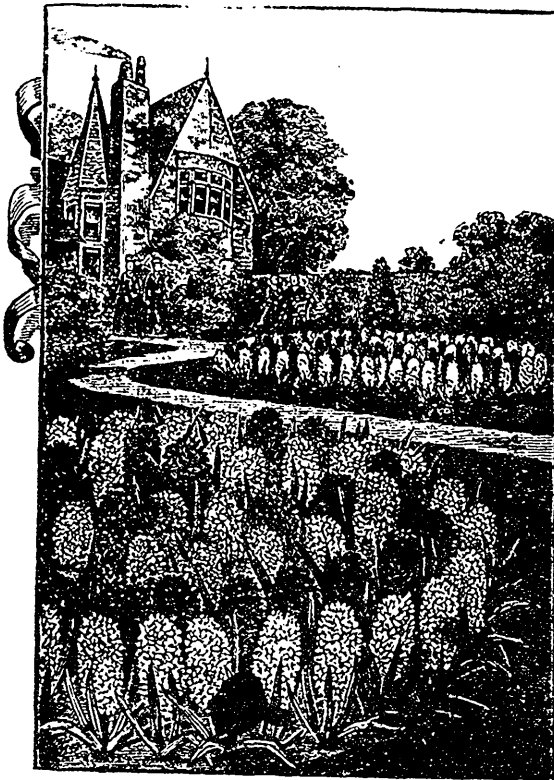
W. M. RAMSAY, Manager.

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.

November. 1898.

No. 8

CANADIAN FERNS.

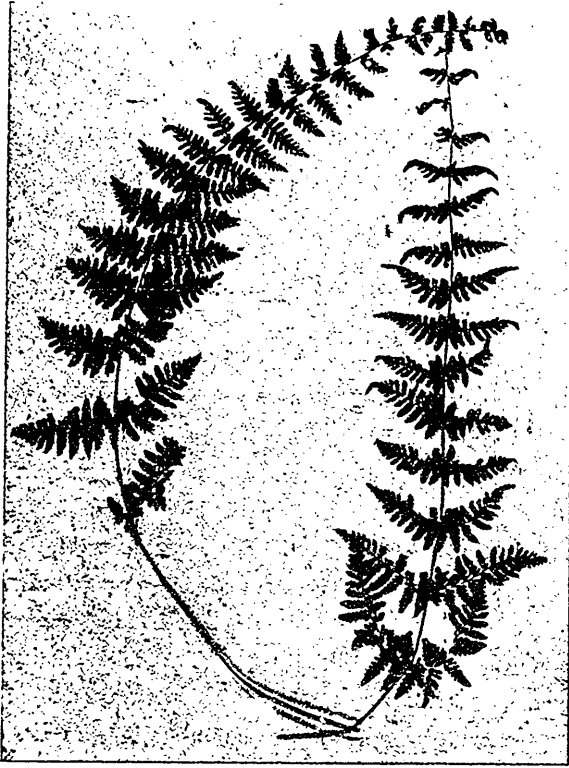
BY REV. ROBERT CAMPBELL, D.D., MONTREAL.

PART IV.—CYSTOPTERIS.

1. CYSTOPTERIS BULBIFERA (L.) BERN.—*Bulblet Cystopteris*.

This is one of the most common and best known of our ferns. It may be looked for at the foot of wet rocks in the woods and in moist ravines. The stem is slender, and so, if it has not stones or brushwood to climb over, it trails along the ground, sometimes attaining a length of two or three feet. When it has an object to rear itself on it has a graceful drooping form, as one of the specimens in the illustration shows. But its characteristic, by which it is generally recognized, is the bulblet or bladder, which grows in the axils of some of the pinnæ, and which in due time drop off and propagate the plant. These bulblets may be detected in the specimen on the right hand, shown in the illustration. This fern obtains its *folk-name* from this bulblet or bladder, being often called the bladder fern. Its generic name, CYSTOPTERIS, means bladder wing, because the covering of the sori in all the species is in the form of a bulb or bladder. This interesting fern grows abundantly at the foot of the crest of the mountain at "Ravenscrag."

2. CYSTOPTERIS FRAGILIS (L.) BERN.—*Brittle Fern*. This is one of the most graceful ferns we have. Although it is usually found growing in the crevices of moist rocks, specimens are occasionally seen on low springy ground, at the foot of small boulders. It is a small fern, very variable in appearance, as well as in height, and is



(1) BLADDER FERN. *Cystopteris Bulbifera* (L.) Bern.



(2) BRITTLE FERN. *Cystopteris Fragilis* (L.) Bern.

a native of nearly every quarter of the globe. Its stipe is of a chestnut colour, smooth and shining. The lower pinnæ are usually smaller than the next pair above them, and separated by a wide space. The remaining pinnæ are closer to one another, and they all have a central space in their irregular segments. Like those of the other members of the genus, the sporanges are provided with the bladder arrangement which gives them their name. This *Cystopteris* is very tender, and the specimens when collected need gentle handling, they break so easily,—hence, the folk-name, *Brittle Fern*.

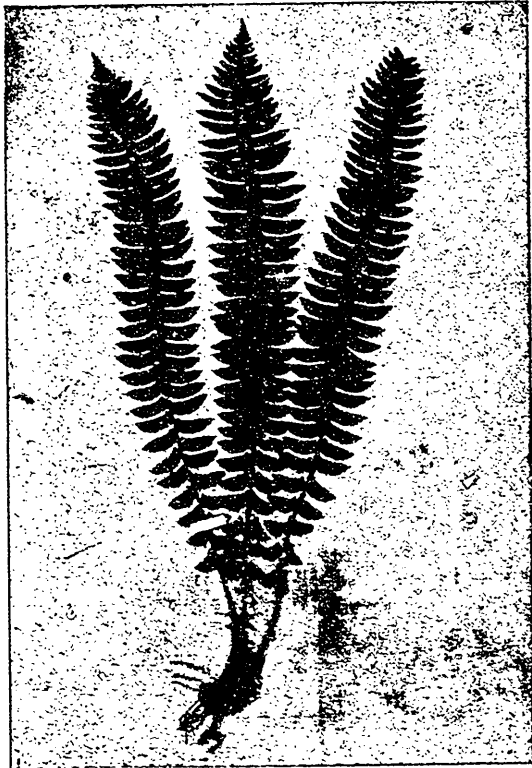
3. *CYSTOPTERIS MONTANA* (LAM.) BERN.—*Mountain Cystopteris*. This *CYSTOPTERIS* is differentiated from *Cystopteris fragilis* by several distinctive marks. There is not the same wide space between the lowest pair of pinnules and the pair next above. The segments are deeply and regularly divided into oblong lobes, deeply toothed, whereas the segments of the “Brittle Fern” are irregularly pinnatifid, with a broad central space and segments decurrent along the winged rachis. Then the outline of the “Mountain Cystopteris” is deltoid-ovate, with the lowest pinnæ deltoid-lanceolate, and much larger than the upper. This feature is not so noticeable in the specimen here used for illustration as it ought to be, on account of the plants not having been carefully extended in the drying. This fern is somewhat rare in Eastern Canada. The specimens from which the photogravure is taken was obtained on a hillside near the River Rouge, Quebec.

DRYOPTERIS.

Britton and Brown restore the name *DRYOPTERIS* given to this genus by Adams in 1763, although it has been generally known since the publication of Schrader's *Journal of Botany*, in 1800, as “*Aspidium*,” on account of the shield-shape of the covering of the spores which characterizes the family. “*Dryopteris*” signifies Oak-Fern, because most of the species embraced in the *genus* are found where the oak tree abounds. By Linnæus this *genus* was included in that of *Polypodium*, with which it has a close affinity. Fifty years ago, Asa Gray designated it *Dryopteris*, thus early using his influence to



(3) MOUNTAIN CYSTOPTERIS. *Cystopteris Montana* (Lam.) Bern.

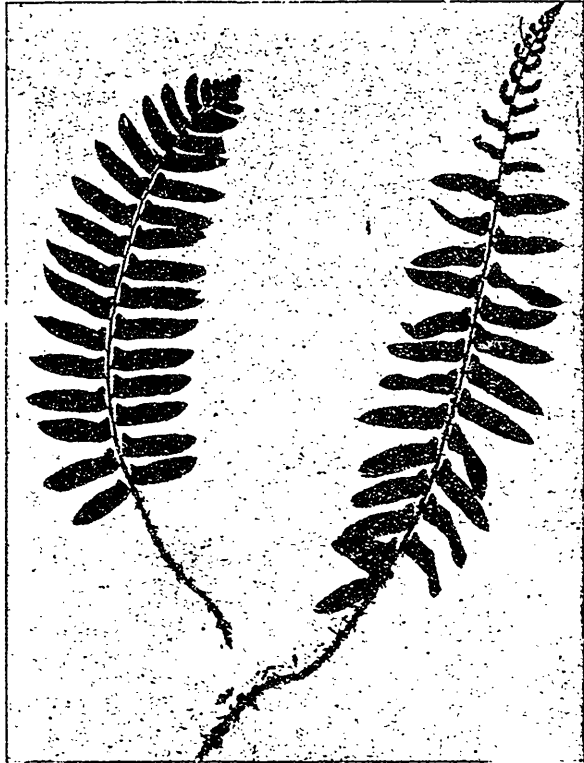


(4) HOLLY FERN. *Dryopteris Lonicifolia* (L.) Kuntze.

restore the earliest name given to the distinctive *genus*, although he afterwards fell in with the prevailing usage, calling it *Aspidium*. Some of the species are also ranked in Europe variously under the generic names of *Nephrodium*, *Lastrea* and *Polystichum*.

1. *DRYOPTERIS LONCHITIS* (L.) KUNTZE.—*Holly Fern*. The accompanying illustration conveys a good idea of this fern. The stock is short and thick, and the fronds, once pinnate, are leafy from the base and form a stiff upright figure. The segments are scythe-shaped, prickly-toothed, enlarged at the base on the upper side into a toothed lobe, and the plant is covered with pale, golden-brown scales and hairs. The sori are circular, rather small and numerous, the fruit dots close to one another and near the margin. It is a widely spread fern, being found all over Europe and Asia, although it is confined mainly to mountain regions. It is rare in Eastern Canada, and grows in tufts on shaded, rocky places. The specimen used for illustration is a very fine one, kindly lent by Prof. Penhallow for the purpose, and was collected at Owen Sound. It gets its name "Holly Fern" from its dark green colour and the spiny character of its frond.

2. *DRYOPTERIS ACROSTICHOIDES* (MICHX.) KUNTZE.—*Christmas Fern*. This is one of our most striking ferns, both from its colour and outline. It is deep green, with a glossy surface, and it preserves its colour throughout the winter, even in the forest,—hence one of its folk-names, "Evergreen Rock Fern." It is, however, the scythe-shaped pinnæ that will specially attract attention. They have an ear on the upper side of the base, while the margin all around is covered with fine silvery hairs, developing into a bristle at the point. The fruit dots are confined to a few of the pinnæ at the top. These pinnæ are turned in at the edges, and this gives the upper portion of the frond a contracted appearance, which is one of the noticeable features of this fern. The sori run together, and the fruiting pinnules look as if covered with light brown felt. The fruiting fronds are much taller than the barren ones. The *Christmas Fern* grows in rocky woods. It is rather rare about Montreal, being found only in one confined space above Ravenscrag; but it is



(5) CHRISTMAS FERN. *Dryopteris acrostichoides* (Michx.) Kuntze.



(6) SCALLOPED CHRISTMAS FERN.

Dryopteris acrostichoides (Michx.) Schweinitzii Kuntze.

abundant in Eastern Ontario, and in the adjoining State of New York. It is hardy and easily transplanted, and is one of the most ornamental of our ferns.

3. *DRYOPTERIS ACROSTICHOIDES* (MICHX.) SCHWEINITZII KUNTZE.—*Scalloped Christmas Fern*. This fern differs from the one last described only in having cut-lobed pinnules. It is, therefore, not counted a species by itself, but only a variety of *Dryopteris acrostichoides*. It is somewhat rare in comparison with the typical "Christmas Fern." But it is found on our mountain side, in the near neighbourhood of the *Dryopteris acrostichoides*, and should have a separate place assigned it in any assortment of our native ferns.

ROBERT CAMPBELL.



MR. FRANK ROY.

“ Flowers have their time to fade,
And leaves to wither at the north wind's breath,
But thou hast all seasons for thine own,
O! Death.”

Requiescat in pace. The close of his life was full of suffering.

Mr. Roy passed away in the General Hospital on the last day of October. His painful illness was borne patiently and with hope, while hope could endure; patiently and with resignation when he knew that his suffering could only terminate with his life.

He was born at Houston, Renfrewshire, Scotland, in 1841. From Scotland he brought with him to Canada, in 1869, an exceptionally rare knowledge of the practice and science of horticulture, acquired at Barochan, one of the most ancient and picturesque estates in Renfrewshire; at Milliken House, the property of Sir James Napier, Bart; at Corsall, then in the possession of a descendant of Sir John Moore, the hero of Corunna; at Gordon Castle, the seat of the Duke of Richmond and Gordon; as head gardener for Sir William MacKenzie, Bart, of Coul, Ross-shire; in some of the largest nurseries in Scotland, and at the Royal Botanic Gardens, Edinburgh.

He came to this country as Manager of the Montreal Floral Nurseries, and was later for some years with the late Mr. Alfred Brown, of Bel-Air, Dorval. Subsequently he was Manager for Mr. William Evans of his nurseries at Broadlands, and in 1890 became Superintendent of Mount Royal Cemetery.

Mr. Roy's high intelligence, his close observation and keen interest, made him one of the best known and most highly esteemed horticulturists in Canada. A monument to his practical knowledge and excellent taste in landscape gardening may be seen at the Forest and Stream Club, Dorval. These grounds were laid out by Mr. Roy, while the property was in the possession of its original proprietor, Mr. Alfred Brown, and are to-day one of the best examples



THE LATE MR. FRANK ROY.

(From a photograph taken many years ago.)

in this neighborhood of good taste and skilful design. His name has long been prominent at horticultural exhibitions, and many of the most beautiful exhibits seen at recurring flower shows have been of his production.

Much of his leisure was devoted to the promotion of horticulture. His faculty of initiation, his executive energy and tact, and his generosity when occasion arose, have been invaluable to the Montreal Horticultural Society, in whose work he has performed an active and leading share for a long series of years, as one of its directors, and as a past president. The juvenile section of the Society, which was devised with the object of imbuing the youth of the city with a love for flowers, and conveying to them some practical knowledge of their cultivation, by furnishing the children attending the public schools with plants in the spring, and creating a spirit of rivalry by offering rewards for the best results in the autumn, was of Mr. Roy's initiation, furthered by a lion's share of the incidental labor and expense at his own hands to bring the project to a successful issue. If "imitation is the sincerest form of flattery," then Mr. Roy's practical ideas for the advancement of horticulture received well merited compliment by the subsequent adoption in Toronto, London, and some of the other cities throughout Canada, of methods of arousing an interest in and imparting a knowledge of horticulture amongst the young in those centres of population, on the lines devised by Mr. Roy.

A paper which he was invited to read before the Central Canada Stock Association a few years ago incidently deplored the bare, ugly environment of our country schools, and in his practical way he suggested ways and means of creating more tasteful surroundings. In the result the Association adopted a resolution embodying the sense of his advice, which was presented to the Provincial Government.

Mr. Roy was also an active promoter of this Magazine, as a medium for the dissemination of a better knowledge of horticulture throughout the city and country, and was himself, until attacked by the illness which carried him away, a frequent and instructive con-

tributor to its pages. His invariable generosity when required was here made manifest, inasmuch as he was one of the original guarantors who stood between the risk of financial loss through the publication and the impairment of the Society's funds as a consequence.

To the amateur and those seeking information he was a willing helper ; and his ready and intelligent advice smoothed away many a difficulty.

Although perhaps not generally known Mr. Roy was a Fellow of the Royal Horticultural Society,—indeed, one of the very few Fellows of the British Society on this side of the Atlantic.

His sterling integrity, high intelligence and unassuming modesty brought to him a greater share of esteem and liking than fall to the lot of many.

We would fain linger over recollections of some of the lovable traits in his practical nature, but one that had in it so much that was sympathetic and poetical. His patriotism was intense, and his talks on old impressions were always most interesting. To hear him recall, with the enthusiasm of a boy, the flitting water-wagtail by the grassy bank of some wimping streamlet,—the scream of the magpie in the woods,—the song of the skylark, as it rang above the heather,—or the more distant echo of the whaup's cry over the moorland, showed how keen had been his powers of observation.

It was safe always to expect him to end up such conversations by moulding them into a song of praise for his much-loved native land.

Whether at its business councils, or at the lighter and more social events of the Society, his presence will be sadly missed, and there will be a vacant chair which it will be hard to fill.

NOTES FROM CORNELL UNIVERSITY.

It gives me pleasure to accede to the request of the Secretary, and in response to send some jottings respecting doings in the Horticultural Department of the University. I need not explain that this division is presided over by the foremost horticultural authority in America, Prof. Liberty Hyde Bailey. I shall not speak of his work as a teacher, the influence of his enthusiasm upon the student, nor of the fertility of his resources in the field of scientific research. I should, however, like to draw attention to one feature which adds much to the happiness and information of the student of horticulture at Cornell. This is the Lazy Club. The Horticulturists' Lazy Club was described as follows in a recent number of *American Gardening*:

"It is the creature of the horticultural students of the university. It is not an organization. It has no constitution, no by-laws, no rules, no dues, no officers. But every Monday night in the year, at 7.30 the Club meets, term time or vacation time, rain or snow, wind or calm. There is only one formality, the register book goes the round at each meeting and each one signs it, and the subject of the evening is placed at the head. At each meeting some one is selected to talk the week following, and another is asked to give the gist of the horticultural news of the world. It is perfectly democratic. Although the professor is in attendance he takes the repartée and the criticism with the others. Every one is in for a "scrap," and the speaker must be ready for a rigid cross-examination and to have his statements challenged. The Club has a room of its own. There are incandescent lights, a stereopticon and a blackboard. There is a large central table, and on a rack, at the side, are files of about fifty horticultural periodicals in various languages, nearly all of which are donated by the publishers; there is a growing reference library. In this little room the students gather in close quarters from ten to sixty. Everything is free and spontaneous. No student is asked to attend, and none is refused. The meetings are never advertised; the thing runs itself, and it keeps the track clear. The

name of the Club was given by Prof. Bailey in celebration of his own leading characteristic! The club room is now the centre about which much of the best teaching work of the department revolves, and the Lazy Club is said to be the liveliest club in the university."

One of the latest pieces of work undertaken by the Club is the revision of the present code of Pomological nomenclature. The *American Gardening* has the following to say, editorially, regarding this matter (in issue of Oct. 15):

A PROPOSED NOMENCLATURE CODE.

In our report of the proceedings of the Lazy Club of Cornell University appears an important proposed code for pomological nomenclature to which we would call the particular attention of all earnest and thinking horticulturists. Here is a conscientious effort to produce cosmos out of chaos. The publishing of this code means that Prof. Bailey, Prof. Waugh, Prof. Craig, Mr. Taylor and the Lazy Club offer these *suggestions* as looking toward a more systematic usage in pomological nomenclature, that after discussion in periodicals and elsewhere, they may be made the basis of a permanent code to be first adopted by some prominent pomological organization. Here follows the code:

PROPOSED CODE FOR POMOLOGICAL NOMENCLATURE.

FORM OF NAMES.

1. The names of a variety of fruit shall consist of one word, or at most of two words.

(a) In selecting names, simplicity, distinctiveness and convenience are of paramount importance. Pitmaston Green Gage and Louise Bonne de Jersey are neither simple nor convenient. Gold, Golden, Golden Drop, Golden Beauty and Golden Prune, all given to different varieties of plums are not distinctive.

(b) The use of such general terms as seedling, hybrid, pippin, beurre, damson, etc., is not admissible.

(c) Nouns must not be used in the possessive form. McIntosh's Red, Crawford's Early, Bubach's No. 5, must be written McIntosh Red, Crawford Early and Bubach.

The name of no living horticulturist should be applied to a variety without his consent.

(d) Numbers are to be considered only as temporary expedients, to be used while the variety is under trial.

(e) An author publishing a new variety should use the name given by the originator, or by the introducer, or else should choose

the oldest discoverable local name, providing such name may be conformed to these rules without loss of identity.

2. In the full and formal citation of a variety name, the name of the author who first published it shall also be given.

(a) Names would then take such forms as the following: Summer Queen, *Coxe*, or Sophie (J. W. Kerr, Cat., 1894); or America, Burbank, *New Creations*, 1898, p. 5.

(b) It is expected that such citations of names will be used only in elaborate works on pomology, in scientific publications, or in cases where they are necessary for clear discrimination of synonyms.

PRIORITY.

3. No two varieties in the same group shall have the same name, and the name first published for a variety must always be used to designate it. All names subsequently published must stand as synonyms.

(a) The term "group" as here used shall be held to designate the large general groups specified by words in common language, such as raspberry, plum, apricot.

PUBLICATION.

4. Publication consists in the public distribution of a printed name and description, the latter giving distinguishing characters of fruit, tree, etc., or in the publication of a new name for a variety properly described elsewhere.

(a) Such a publication may be made in any book, bulletin, report, trade catalogue or periodical, providing the issue bears the date of its publication, and is generally distributed among nursery-men, fruit growers and horticulturists.

REVISION.

5. No one is authorized to change a name for any reason except when it conflicts with these rules.

The question is now open for discussion, suggestions and criticisms are in order. I trust that among the readers of the "Horticultural Magazine" there are those who will be sufficiently interested to criticise or commend.

JOHN CRAIG.

Ithaca, N.Y.

MONOCOTYLEDONES.

PART II.—ARUMS, ROOTS, BUDS, STEMS, LEAVES.

BY MRS. G. W. SIMPSON, MONTREAL.

On the border land which parts the two great classes of flowering plants, I think we may place the Arums. Sometimes, and perhaps most frequently, they show relationship to the *one-seed-leaf* class; but in a few important particulars they exhibit features characteristic of the *two-seed-leaf* class.

We have already seen, in former papers, that Nature does not encourage an over-particular classification of her wealth. She likes to leave room for expansion and variety. She seems to say to us: "Each generation of students learns a little about me, but there is plenty more to come; do not ticket and put me away in pigeon-holes, as if you had exhausted knowledge!"

We will try not to offend in this matter, but content ourselves with the most self-evident limitations.

It may perhaps be as well at once to say that Arums are found with leaves characteristic of both the great classes of flowering plants, so that it is not always easy to determine whether to place a particular specimen amongst monocotyledones or dicotyledones, judging by foliage alone. The Araceæ or Arum family, however, are so uncommon in general appearance, that the very sight of them stimulates curiosity. In wet low-lying woods, from one end of the Dominion of Canada to the other, strange hooded plants without leaves may be seen as soon as the snow melts. These are the inflorescence or flower spikes of the Skunk Cabbage. These brownish-green, uncanny, ill-smelling flowers lead the grand procession of the flowering plants of the summer season. Following close, in like localities, is another Arum popularly called Jack-in-the-pulpit; and close by, in a stream, yet another, more inviting both in name and colour, for the flower is white, and it is called the Calla Lily or Wild Calla.

Now we must allow ourselves a digression. This Canada Calla is, according to the Botanists, the Calla proper. Its name signifies *good* and *beautiful*, and very pretty it is. Why its name has been transferred to the Calla Lily of the conservatories is not clear, unless because both are beautiful. The right name of the foreign flower is *Richardia Africana*, the Egyptian or Nile Lily. Its name is full of historical and classical associations. We are taken at once to the decorations of the old Egyptian palaces. We think of Pharaoh's throne, and Cleopatra's beauty, and better still, we are taken to the riverside—to Moses in his ark of bulrushes fanned and shaded by the white spathes and great arrow-shaped leaves of the Nile Lily.

The Araceæ are chiefly remarkable for their inflorescence—a spadix with a spathe.

The spathe is a hood-like body ; and the prolongation of the stem is the spadix. The monocotyledones, whose habit is to send up leaf after leaf, each bearing a bud in its embrace, seem to make little distinction at first between leaf bud and flower bud. As the buds advance towards maturity, a flower bud will show a difference in length of stem, and present itself in due time, altered and glorified for special service. In the Nile Lily the green leaf-like spathe turns to a pure white, and as it expands discloses a golden spadix. From the base of the spadix to half way up, this receptacle is crowded with triangular pistils, of three carpels each. Each pistil must be regarded as a separate flower, and, of course, female ; the upper half of the receptacle is covered with golden stamens, so close together as to form a golden spike. Each tiny stamen must also be considered a separate flower, and, of course, male. Keeping a specimen on your table, or better still, a plant in your window, you may see these stamens mature, a few at a time, dropping their delicate white pollen to the base of the protecting spathe. The spathe is open, and the fertilizing insects can run in and out at their pleasure, feeding on the pollen and dragging it here and there all over the pistils, which are always mature in advance, to receive it.

Of our native Arums, the Skunk Cabbage, and more especially the Jack, otherwise called the Indian Turnip, wear their hoods drawn

over their faces, as it were. In the case of the Jack the pollinating flies are said to be detained within the cup for some time. They enter the holes at the sides, formed by the over-lapping spathe, and alighting on the smooth, bare, brown tip of the spadix glide or fall down to the bottom of the cup. There they remain, prisoners, till the spathe withers; fed by the pollen and some honey secreted by the pistils. The whole work of pollination accomplished, the spathe fades and shrinks, and the insects, free once more, fly off to another flower to repeat the operation.

In Groom's Botany, a book recently introduced into the schools of Montreal, the type selected to represent the Arum Family is the Cuckoo Pint, *Arum Maculatum*, a flower common enough in the old world, but not found in Canada, so far as I know. It reminds us strongly of our Jack-in-the-pulpit. It will be interesting next spring to compare the one flower with the description of the other, and show, as well as may be, the differences between them. For there are differences. *Arum Maculatum* used to be given a place in medical botany in the early part of this century, but I believe its value is now questioned; and as, in common with most Arums it is poisonous, it is not desirable to experiment with it. The late Abbé Provancher, in his *Flore Canadienne*, tells us that the Indians used the corm of our *Arum Triphyllum* (Jack-in-the-pulpit) as a medicine, but just how they prepared it, he does not say. Corms and rhizomes are common amongst Arums. For reasons presently to be given these must not be thought of as roots, but as stems. The corm is a store-room or chest, wherein the plant lays up food for future use. It generally contains much starch, pure, or allied with other food material. The monocotyledones are famous for such store-rooms. In Hyacinths and Lilies they are called bulbs; in the Arums and Crocus family they are corms; in orchids they are tubers; in grasses, and also in many Arums they are rhizomes, or creeping stems.

The corm is a thick round body easily seen both in the English and Canada Arum; and it may be studied also in the Crocus and the Cyclamen, both of which can be found in blossom at the Florist's

during the winter season. Some botanists consider the corm a modification of tuber, and for elementary purposes, they may well be studied together.

With the general appearance of a tuber we are all familiar in the Potato. A growing potato plant sends out stems near the ground. When the stem is long enough to reach the ground it enters, and there, in the dark earth, carries out the special purpose for which it has forsaken its usual duties of leaf and bud-forming in the upper air. When the stems in the air have flowered and fruited and the stems in the ground have matured their tubers, the parent plant withers and dies. The seeds may be sown and they will produce new individual plants, but the tubers are not quite in the same case. The seedlings, so to speak, are the children of the parent plant, but the tubers are limbs or members of the parent itself. We said just now that the parent plant was dead, but that, though a generally understood popular statement, was not actually correct. The tubers are underground stems of the parent plant, and these bear leaves and buds, as well as those in the air. Their shoots are resting during winter, and as soon as the warmth of spring invites, they will seek the light and air also; and thus the parent itself may be said to live again in the upper air. If I have expressed myself properly it will be perceived that the tubers are limbs of the parent, cut off for special purpose, and not the offspring of the parent, as in the case of seeds. The tuber will in all respects reproduce the plant from which it is a piece cut off. The "eye" which is the bud or growing point, will be found in the axil of a bract, just as in the green stem the bud is found in the axil of a leaf. The tuber then is a stem and not a root. Stems bear leaves; roots bear none.

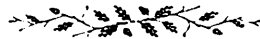
The simplest form which a plant can take is that of a cell, a tiny round body without parts; as in red snow. The next stage is the rod-like form with two ends, which we will call *apex* and *base*. In a plant the base is used for attaching itself to some object in order to gain what we may call a firm footing; while the apex tries to stretch itself upwards into the air or out into the water, as the case may be. These simplest of plant forms have cellular tissue only

and are called Algae. In flowering plants they have their counterpart in the embryo which lies within the seed-coat. This embryo, easily seen in the seed of a bean or pea, when stretched out to its full length, is found to have a rod-like form, of which the apex is a bud, and the base a root. Beneath the bud are the Cotyledones; and beneath the cotyledones the *hypocotyl*, as the word itself teaches us. The hypocotyl divides the ascending axis, or shoot, from the descending axis or root.

The apex of the shoot is the *growing point*, which travels on and on till the branch attains its full length. Then it sometimes flowers and fruits, sometimes produces leaves, and sometimes withers and falls off. As the growing point makes its way towards maturity it throws out just beneath itself lateral or side buds. The newest bud is always next the growing point, and the oldest nearest the hypocotyl. The place where the bud pierces the stem is called the *node* or knot, and the stretch of stem between the nodes is called the internode.

Each bud is subtended by a leaf, bract, or scale. To subtend is to stretch under, as the base of a leaf stretches across the stem, and under the bud.

LUCY SIMPSON.



LILIES OF JAPAN.

Although lilies flourish in every known country, sharing the same habits of growth, Japan, the land of flowers, surpasses all for manifoldness of species and exquisite beauty of varieties. Greatest and best known of all is the *Lilium auratum*, and this species has five more well defined sub-species, viz: *L. auratum pictum*, so called for the bright crimson spots which cover its petals instead of the brown colored ones of the type; *L. auratum virginale alba*, which is pure white as to petals, except that through the centre of each runs a golden yellow band; *L. auratum Wittei*, differing from *virginale alba* only in having raised white spots on the petals; *L. aura-*

tum macranthum, the foliage of which is oval instead of lanceolate, the flowers enormous and the petals covered with bright golden yellow dots; and *L. auratum rubrum vittatum*, which is the queen of beauty in this sextet, through whose snowy petals runs a band of blood red.

In Japan the auratum varieties were found growing wild in the forests, the stalks attaining a great height and often bearing as many as forty to fifty flowers each. They are now cultivated in fields for export. The soil in the whole island of Japan is of a volcanic nature (this may be a hint to growers), the same in the fields invariably a heavy clay with substratum of gravelly substance. All manuring is done throughout Japan with nightsoil, chemical preparations being comparatively unknown. The time of flowering being past, the stalks dried off, the bulbs are dug and brought by the farmers to the various purchasers, to be prepared for export. Bulbs are bought from the grower, not by the thousand or more, but by measure, all sizes being mixed. The measure is a "picul," a weight of about 133 pounds.

The auratum bulb so far having foiled all attempts to export without covering or protection against atmospheric influences, the work connected with making it ready for export is laborious. Hill-side clay and water is generally used in preparing a mixture the thickness of mortar. The bulbs are graded in sizes either before or after the process of covering them with a rather thick coat of the clay. This work is generally done by women and children, who receive from four to six cents per day. The bulbs, after being well covered with the clay, are laid on trays to dry, not in the sun, but in long sheds, as evaporation must not take place quickly, sufficient moisture being necessary to keep the bulb cool and plump while in transit. This process terminated, each size is packed in the well-known export cases. Each layer is covered with dry, finely pulverized clay, and the top being reached, the cover is nailed fast, the respective consignee's mark put on with stencil, and the case is ready for transport to the "Hatoba," the shipping place for foreign steamers.

We have found, in long experience, that the roots of the auratum love to twist around moss and have invariably placed in the bottom of pots or boxes a generous layer of some rich forest moss. They love heavy soil and are impatient of too much moisture, which easily induces decay of the scales. Bulbs of the earliest importations are not as good as those coming in later and which are better ripened.

Other beautiful lilies of Japan are the *L. speciosum* or *lancifolium* types, *speciosum album*, *speciosum rubrum* and *Melpomene*, the latter a velvety dark sub-form of *rubrum*. All *speciosum* sorts have come more to the front in latter years, having been found well paying investments; moreover the bulbs do well for years, flowering every season, not being much subject to decay.

Another valuable species is *L. elegans* or *Thunbergi*. These all have upright calyxes, stiff stems and are very easy of cultivation, adapting themselves to any surroundings and growing and multiplying rapidly. The best known varieties are: *L. elegans*, red; *L. atropurpureum*, or *atrosanguineum*, with velvety, dark crimson petals, incomparable, beautiful shade of red with deep orange base; *L. elegans semiflore pleno*, so called on account of its stamens forming a feathery white inside, which makes the flower appear semi-double; *L. elegans*, orange, or *Dahuricum*, a brilliant shade of orange yellow; and *L. elegans Alice Wilson*, the rarest and most choice, with petals a very delicate lemon yellow.

Other valuable species are *L. Batemanni*, which grows anywhere and everywhere and lifts its tall spikes, crowned with six to eight bright apricot-colored flowers; the tiger species, *L. splendens* and *flore pleno*, single and double; *L. Leichtlinii* in two sorts, one canary yellow, the other scarlet, both with purplish spots; *L. Kramerii*, that exquisite pale rose trumpet lily; *L. Hansonii*, with thick, golden yellow petals, spotted brown, the flowers of which keep for weeks in water; *L. Brownii*, a long trumpet, creamy inside and flushed lemon to pale purple on the outside; *L. coridion* and *L. concolor*, liliputians with delicate stalks but a foot in height, star-like flowers, yellow or scarlet, gemmed with tiny dark dots, exquisite

fer floral work and well adapted for small plots or borders ; *L. cordifolium giganteum*, with heart-shaped foliage and gigantic in proportion, a rider on horseback barely towering over their stems when entering a mass of them ; *L. Kamtshatkense* (also found in Siberia), the black lily, with its delicate bell-like bloom of a velvety blackish purple ; *L. callosum*, bell-shaped, scarlet ; and last, but not least, *L. longiflorum*, the familiar Easter lily, whose only drawback is that it is not co-equal with its transplanted relative, *L. Harrisii*, in blooming time. Over a million *longiflorum* bulbs are exported yearly, the larger part finding their way to Europe. They are merely packed in dry soil or in rice chaff mixed with soil.

A few new species have lately been found and a few samples exported : *L. Uke-Yuri*, flowers similar to *longiflorum*, with shorter trumpet and dark stamens, foliage like the *speciosum* type, forces well, but is as yet rare and expensive ; *L. Alexandria*, a pale pink species, whose counterpart is found in the high latitudes of the state of California and the north Pacific coast and known under the name of *L. Washingtonianum* ; also a sub-species of *Lilium longiflorum*, with curious dark purplish stem, the trumpet white on the inside, but a deep purplish outside, which seems almost like a cross between *Lilium Brownii* and the pure *longiflorum* type ; bulb and habit same as *longiflorum*.

The greatest success in the culture of lily bulbs is surely attained by following as closely as possible in the footsteps of Mother Nature, trying to give these children of the forest as much as possible the requirements of their native element, the rich, moist soil, the partial shade and above all, loving care.—H. H. BERGER, in *Gardening*.

PRUNING ROSES.

In the case of climbing or running or pillar roses, the end desired is as great an amount of bloom as the plants are capable of bearing. Such plants are, as a rule, strong growers, and if the soil fertility is kept up they are capable of producing an immense number of good blooms. Perfection of form and large size of bloom is not a direct object, as in the case of hybrid perpetuals, hybrid teas and tea roses, where close pruning is practiced to attain such results. However, the gardener or pruner must use his judgment in regard to the capacity of the plant. Knowing the plant to be of a vigorous variety, and in good condition, as shown by the growth of wood of the previous year, it is safe to assume that it will be able to carry nearly as much bloom as can set on the strong canes and shoots of the last year's growth. It is always to be understood that the soil fertility is maintained in the highest condition by the use of stable manure or artificial fertilizers. The essential pruning, therefore, of climbing roses, in the condition mentioned, consists in shortening in the long canes by removing some of the smaller growth at their tips, which was made late in the season, and also shortening in the last year's growth from the older canes, allowing as many buds to each shoot as, in the judgment of the pruner, may be well developed the coming season. Thus it will be seen that the work of pruning roses demands the exercise of the judgment of the pruner, based on a knowledge of the plant. But to formulate pruning directions as closely as possible, the following statements may be observed:

1. Cut away entirely all dead wood and all old canes that are no longer serviceable, and all weak shoots.
2. Leave as many principal canes as the plant appears capable of supporting.
3. Shorten the principal canes to strong, sound wood.
4. Shorten the shoots of last year's growth to a few buds (four to six) from which the plant will be able to produce new shoots sufficient to cover the whole space of the trellis, or that occupied by the main canes.—*Vick's Magazine.*



A vintage black and white advertisement for Bovril. The central illustration depicts a woman with long braided hair, wearing a large, ornate hat and a dark, long-sleeved dress. She is holding a white tray with both hands, upon which sits a small bottle of Bovril and a white cup with the word 'BOVRIL' printed on it. The woman's expression is serene. The background behind her consists of stylized, swirling lines that suggest clouds or smoke. The entire scene is framed by a double-line border. Below the illustration, the word 'BOVRIL' is written in a large, bold, serif font. Underneath this, the words 'for Health and Strength' are written in a smaller, elegant script font. The background of the text area is filled with fine vertical lines.

BOVRIL
for Health and Strength

10 Standard Works on Agriculture and Horticulture

Practical Floriculture, by Peter Henderson	\$1.50	Cook's Manual of the Aplyry	\$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	2.50
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 Specialty.
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 Revolvers...

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,

129 1/2 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**

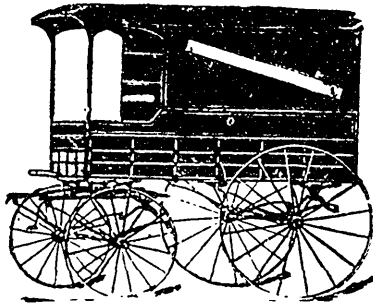
BOUND BY.....

Plow & Sully,

General Bookbinders,

448 ST. JAMES STREET.

The "Horticultural Magazine" neatly
bound for 60 cents. Tel. 406.



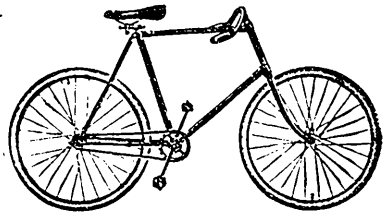
Express . .
 and Delivery **Wagons**
 • **Phaetons, Buggies,**
Carts, Farm Carts and Wagons
 FARM IMPLEMENTS OF ALL KINDS.

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,

Sedsman,

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, St. Catherine St.
 Table Ferns, Etc., Etc.

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