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March, 1889.

THE
* OTTAWA NATURALIST *

VOLUME II. No. 12.

The
TRANSACTIONS.

Of the
* Ottawa Field-Naturalists' Club *

(Organized March, 1879. Incorporated March, 1884.)

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OTTAWA, CANADA:
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1889.

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NOTICE.—The Treasurer begs to call the attention of members to the advertisements.

MONDAY AFTERNOON LECTURES.

The course of Elementary Monday Afternoon Lectures has been unusually successful during the past season, the attendance and after-discussion being particularly satisfactory. The first of these delivered upon January 7th was by Mr. F. R. Latchford upon Conchology. Owing to a serious illness, Prof. Macoun was unable to deliver a lecture on this day upon the subject of Ornithology. Mr. Latchford kindly consented to take charge of the class and delivered a most instructive address, in which he gave the club the benefit of his experience in collecting shells and preserving them for the cabinet. The second lecture, on the 21st of January, was upon the subject of Geology by Dr. Ells. This was so highly appreciated that the publishing committee was requested to print it *in extenso*, which was done in the January number of the OTTAWA NATURALIST.

The second lecture on Geology proved no less interesting than the last, as Mr. Henry M. Ami dwelt with the practical side of the science, Applied Geology. In a clear and concise manner Mr. Ami sketched the history of Ottawa from the earliest times up to the present, and arranged the various formations or sub-divisions of strata into three grand natural divisions, viz.: *The Laurentian or Archæan; the Palæozoic; the Post-Tertiary*. Each of these was treated separately, and the characters of each described in such a manner as to be easily recognized. Specimens of the formations comprised in these three great systems were passed round and examined. Interesting localities to visit and study, worthy of careful examination, were pointed out, and an earnest appeal made on behalf of geological research and enquiry, urging the members to devote some attention to geology, as the field was most inviting and the work promising. Special stress was laid upon the economic value of the several formations discussed and the occurrence of such minerals as iron, mica, graphite, apatite, galena, and many others in this district, besides the cement stones and marls with fine building stones which show how important a study geology is. A lengthy and animated discussion followed Mr. Ami's remarks.

Mr. John Stewart thought that the long ridges of boulders, &c., which occurred at Hull, Que., near Lake Flora were of glacial origin,

and pointed to a second period of glaciation, as he had observed the *debris* of these resting directly upon stratified marine deposits, which are themselves underlaid by glacial "till" or clay.

Mr. Ami had examined the region mentioned, and believed those deposits to be much more recent. They were correlated with the "Ottawa gravels," which are met with at Britannia, Rochesterville, Lansdowne Park, Gilmour's Mills, &c., and which mark a period of time subsequent to the "Leda Clay" formation, a period of lake basins and wide river expansion, which has since been gradually diminishing until the present river flows.

Dr. Ells had also seen them, and believed they were formed along the shores of rivers and pointed to similar ridges in process of formation in the St. Lawrence below Quebec. Dr. Ells, Dr. Small, Messrs. J. Balfantyne, and R. B. Whyte, besides the lecturer, took part in the discussion.

The fourth lecture, on February 4th, was by Mr. J. Fletcher upon Entomology. The value of the study as a practical branch of agriculture was shown; the different classes of injurious and beneficial insects were described, and the mode of application of some of the remedies for injurious kinds was explained. The fifth lecture, on January 11th, was given by Mr. W. H. Harrington upon the same subject. The structure and classification of insects were dealt with and the reasons for dividing insects into the different orders were explained in a clear and intelligible manner. Mr. Harrington also gave some valuable suggestions as to the best way to collect and study insects. The animated discussion at the termination of the lecture showed the high appreciation by the audience of Mr. Harrington's address.

Of our Monday afternoon lectures the one looked forward to with perhaps the most interest was that of the 18th of February, on Zoology by the Rev. G. W. Taylor, of Billings Bridge, late of Victoria, B. C. Mr. Taylor has been a member of the club since 1884, and although so far beyond the field of its operations, has always taken a deep interest in its work and welfare. He is an ardent lover of Nature and an authority in several sciences, particularly in Entomology and Conchology. He has lately removed to Ottawa, and the council recognizes in him a valuable acquisition to our list of active members.

The lecturer began by defining the limits of his subject and by showing the lines which separated the animal kingdom from the mineral and vegetable kingdoms. He said that while it was an easy matter to distinguish between animals and vegetables of the higher orders, it was exceedingly difficult, if not impossible, when we descend to the protozoic forms of animals and the correspondingly low forms of plant life. He stated that, apart from what could be seen in the more highly organized, the essential difference between plants and animals is that the former absorb from the air carbonic acid and give off oxygen, while the latter do the opposite, a most beautiful illustration of the mutual dependence of the different orders of created beings upon one another.

The lecturer explained briefly the classifications of zoology from the vertebrata down to the protozoa. His explanations were of the most lucid and concise nature, and so clear that his hearers could not fail to understand.

In conclusion he advised and urged on his hearers to take up the study of Nature, if it was only for the benefit of their health, and advised them, if they wanted to study any branch of natural history, to begin with some branch of zoology, as it was impossible to acquire a thorough knowledge of geology or any of the other branches without some knowledge of the animal kingdom. That he knew of no place so favorable to the study of science as Ottawa, with its free libraries, museums, and masters of science, who were always willing to help beginners. For anyone who wanted to study zoology he recommended the hand book on that subject by Sir William Dawson, and closed his excellent lecture with an appeal to the members present to undertake some original work in some particular direction. Mr. Taylor concluded by stating that he believed it one of our duties as well as of our privilege to study the great diversity of the animal creation, and that after the study of God's Word should come the study of God's works.

The president alluded animatedly to the fact that no effort had been made on the part of any member of the club to acquire a knowledge or even to give a list of the vertebrate animals of this vicinity, and thought that it was a pity that a subject which was of such importance, as Mr. Taylor had shown this to be, should be left untouched

for so long a time, when so much good work was being done in almost every other department.

Mr. Ami bore testimony to the excellence of the lecture, considering the vastness of the field it covered, and thought that the animals of this district could be worked up with comparative ease.

Dr. Ells moved a vote of thanks, and stated that he, as a member of the staff of the geological survey, would be glad to assist any one who took up the study of any branch that he knew anything of, by either taking them to the field with him or by showing them anything he could at the museum.

The vote of thanks was seconded by Mr. Lees.

Mr. Taylor, in replying to the vote of thanks, said he had just been reading in a scientific paper that there were only seven species of reptiles in Canada, which showed the utter ignorance which existed on the subject, and ventured to say that at least that number of species could be found within a radius of one mile from where they were standing.

The sixth lecture, on the 25th of February, was to have been upon Botany, by Prof. Macoun, but he was much too ill to attend the meeting. At the request of the president, Rev. G. W. Taylor delivered a lecture upon Conchology, in which he showed himself to be a thorough master of his subject.

The seventh lecture, on March 4th, was by Mr. J. Fletcher upon Botany. The possibility of studying botany at all times of the year was claimed, and the investigations which could be most advantageously carried on during the winter months dwelt upon at some length. The different forms of buds were referred to, and some specimens of buds of Lilac were exhibited, which had been made to expand by placing the twigs in water inside the house. The life of a plant was sketched and the uses of the different organs indicated.

The eighth and last lecture of the course was delivered by the president, Mr. Robert Whyte, upon the afternoon of March 11th. "The best way to study Botany" was explained in a lucid and attractive manner. Where, when, and how to collect and preserve specimens were described, and the delights of the study dwelt upon in such a

manner as to make the audience wish they could at once go to the woods and put the president's precepts into practice. The germination of seeds and the important part played by the cotyledons was illustrated by a good supply of young plants of turnips, peas and wheat, which had all been grown specially for the purpose.

The interest shown in the subjects presented by the full attendance at these afternoon lectures is a source of great encouragement to the council, who trust that a lasting result will be shown by increased efforts during the coming season to work up the natural history of the district.

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REPORT OF THE ORNITHOLOGICAL AND COLOGICAL BRANCH FOR THE YEAR 1888.

—
READ ON THE EVENING OF 28TH FEBRUARY.
—

To the President and Council of the Ottawa Field Naturalists' Club.

GENTLEMEN,—In making up the report of this branch for the past year the leaders have adopted a new plan, and instead of publishing the usual list of arrivals and departures of the birds they have thought it advisable to substitute the following synopsis of the year's work :—

There were five observers at work who made reports of their observations, viz. : the leaders (Prof. Macoun and Mr. Geo. R. White), Mr. J. F. Bowerman, Mr. N. Ballantyne and Mr. W. Lees. Prof. Macoun's list of 106 species (most of which were shot) was made during the months of April and May. Mr. White's list of 98 species extends from 28th Jan. to 28th May, and was published in the spring report of the Club in the July number of the NATURALIST. Mr. Bowerman shot at Ottawa, between 2nd April and 19th June, 47 species, besides 20 others in Prince Edward County not included in this report. The skins of these were, however, not preserved. The observations of Messrs. Ballantyne and Lees, who worked together, and whose lists of 101 each are almost identical, began with February and

extended over the remainder of the year. They were made altogether without the aid of a gun, the birds being observed by means of field glasses.

In all there were observed here during the year 142 species, of which 33 were noted by all five observers, 39 by four of them, 25 by three, 13 by two and 32 by one only. The result of these observations is the addition of seven new species (two of which await further confirmation) to the Club list, bringing the total number recorded by the Club up to 222. The additions are as follows :—

1. *Hydrochelidon nigra surinamensis*. Black Tern ; already noted by Mr. White in Spring Report.

2. *Buteo lineatus*. Red-shouldered Hawk : one shot at the Quarries on the Montreal Road on 24th Sept. by Mr. White.

3. *Otocoris alpestris praticola*. Prairie Horned Lark : this sub-species should have been recorded before, as it is a summer resident, whilst *O. alpestris* is a winter visitor. The present sub-species is rather common from about the beginning of March. Mr. White questions this.

4. *Acanthis linaria rostrata*. Greater Redpoll : Mr. White reports this species as having been taken here some years since, but for some reason it has never been recorded by the Club.

5. *Geothlypis agilis*. Connecticut Warbler : this species was observed by Messrs. Ballantyne and Lees : by the latter in the Mer Bleue at Eastman's Springs, July 21, and at Clark's Bush July 22, and by both at Dow's Swamps Aug. 5 and Sept. 2. As this species was only identified with the glass it is inserted as doubtful, pending further investigation.

6. *Cistothorus palustris*. Long-billed Marsh Wren : one specimen shot by Mr. Edwards, Taxidermist, on 21st May, and now in the Museum of the Geological Survey.

7. *Turdus Aliciæ*. Gray-cheeked Thrush : several reported shot here and in Prince Edward County, Bowerman. We see no reason why this bird should not have been observed here before, but as there is also doubt as to the identification of this species, it is held under query as in the case of No. 5.

Mr. Bowerman also reported *Dendroica Dominica*. Yellow-throated Warbler, as shot here by him on 24th May. This is a bird of the Southern States, and as it was not identified by a professional ornithologist and unfortunately the skin was not preserved the leaders do not feel justified in assuming the responsibility of recording it for the first time in Canada. It may be stated that there is a specimen of this bird in the Geological Survey Museum, but the locality of its capture is unknown.

The following birds were observed at somewhat unexpected times :

Larus argentatus smithsonianus—American Herring Gull—June 5. Usually appears here in April.

Corvus Americanus—American Crow—A few individuals remain here all winter feeding on the refuse from slaughter-houses.

Acanthis linaria—Redpoll—June 3. A winter bird, seldom observed later than March.

Spinus tristis—American Goldfinch—Has remained with us all this winter in large numbers; probably induced to do so by the unusual abundance of white cedar cones, of the seeds of which they seem fond.

Spinus pinus—Pine Siskin—May 2. Usually appears in winter only.

Amongst the new birds observed were :

Ectopistes migratorius—Passenger Pigeon.

Haliaeetus leucocephalus—Bald Eagle.

Falco columbarius—Pigeon Hawk.

Syrnium nebulosum—Barred Owl.

Picoides arcticus—Arctic three-toed Woodpecker.

Picoides Americanus—American three-toed Woodpecker.

Empidonax pusillus Traillii—Traill's Flycatcher.

Spizella pusilla—Field Sparrow.

Passerina cyanea—Indigo Bunting.

Lanius Ludovicianus excubitorides—White-rumped Shrike.

Vireo flavifrons—Yellow-throated Vireo.

Helminthophila peregrina—Tennessee Warbler.

Dendroica tigrina—Cape May Warbler.

“ *vigorsii*—Pine Warbler.

“ *palmarum hypochrysea*—Yellow Palm Warbler.

Sylvania pusilla—Wilson's Warbler.

Parus Hudsonicus—Hudsonian Chickadee.

The following birds, not yet on the Club list, we think might reasonably be expected to occur here. Our readers should therefore be on the alert and endeavour to add them to the list during the present year :

Falco peregrinus anatum—Duck Hawk—Follows the migration of water-fowl, and should be looked for in spring and fall. Rev. Mr. Young reports having seen it in Renfrew Country.

Megascops Asio—Screech Owl—Should be found in barns in the country in winter.

Calcarius Laponicus—Lapland Longspur—Said to accompany the flocks of snow-flakes—*Plectrophenax nivalis*—seen here at the beginning and end of winter.

In conclusion, the leaders think that they may fairly congratulate the Club on the character of the work done in this branch during the year. At the same time they would direct the attention of the members to the great importance of having carried on by as many as possible of them during the coming summer a series of careful observations on the migration, food, breeding and other habits of the birds of this locality.

JOHN MACCOUN,
GEORGE R. WHITE,

Ottawa, 26th February, 1889.

Leaders.

—:o:—

REPORT OF THE BOTANICAL BRANCH FOR 1888-9.

During the past season the amount of work done in this section has been decidedly less satisfactory than in recent years.

The number of additions to the list, too, is smaller than in any previous year. The leaders, however, do not feel discouraged, and hope next year by extra efforts to stir up more enthusiasm amongst the younger members. The local flora now being published in the OTTAWA NATURALIST will be a great help to students, and the leaders trust that the members will organize early in the spring and make an effort to increase considerably the list of plants now recorded from this locality. Special mention, however, must be made of the work done by Mr.

W. Soett, the Science Master of the Normal School, who has not only collected assiduously himself right through the season, but has delivered a series of lectures in the Normal School, in which each student was provided with a specimen of a fresh plant—an innovation of a most valuable character. Good results cannot but follow from this method of teaching.

Professor Macoun still continues his unceasing labours with results of incalculable value. His researches amongst the mosses may fairly be said to have revolutionised our knowledge of these difficult plants. In connection with Dr. Kindberg of Linköping (Sweden), Mons. Cardot of Steiny (France), and Prof. Venturi of Nice (Italy), he is making a systematic re-examination of all the Canadian Musci, with the remarkable results that fully fifty species will be added to the North American moss flora, over forty of which are new to science. Seven of these have been found in this locality and are new to science. Two of these are named with characteristic names, i.e., *Pylaisia Selwyni*, named in honor of Dr. A. R. C. Selwyn, the Director of the Geological and Natural History Survey of Canada, who, although not himself specially a botanist, has always given Prof. Macoun every opportunity to use to the best advantage his great talents in this line, for the benefit both of the Dominion of Canada and for the scientific world at large. *Bryum Ontariense*, of interest from having been confounded for many years with *Bryum roseum*, is named in honor of our own fair province.

An interesting re-discovery was made last spring in the form of a parasitic fungus, which was found very effective in materially diminishing the numbers of one of our injurious cutworms (*Agrotis fennica*). This fungus was named *Empusa (Entomophthora) virescens*, by Mr. Roland Thaxter, a high authority upon these forms. This species was discovered at Ottawa in 1884, when it almost annihilated a remarkable occurrence of the cutworms mentioned. A well-known example of these fungi is the *Empusa muscæ*, which causes the death of house flies in autumn, when they may be found attached to walls or windows by their probosces and surrounded by a white cloud of the spores of the fungus which has destroyed them. As the new additions to the local plants will appear in the *Flora Ottawaensis* now being published, it would be useless to give a list of them here. The new species of

mosses discovered in this locality by Prof. Macoun are described below and appended to this report. The growing for observation and study of rare plants from other parts of the Dominion has been continued by the leaders, and as the Botanic Garden at the Experimental Farm is to be begun in the spring, the leaders beg to urge upon the members of the club the importance of assisting in the collection of native plants from this locality. A special feature of the garden is to be the collection and cultivation of as complete a series of Canadian plants as possible, and they have no doubt that important botanical results will follow this opportunity for botanists to study in a state of nature and in large numbers many of our rare and local plants. Already large collections of seeds have been sent in by Prof. Macoun and Dr. Dawson, of the Geological Survey, and donations from many others have been received from remote and inaccessible localities. There is much that our local botanists can do in this line to assist this important work, which will give another opportunity for showing that the Ottawa Field-Naturalists Club is a practical and useful organization. In conclusion, the leaders have to express their great indebtedness to the president, Mr. R. B. Whyte, for his unceasing labours on behalf of the branch. This has been particularly the case with regard to the Saturday afternoon sub-excursions, nearly all of which he attended, and when the leaders, as was frequently the case, were absent, he undertook the direction of the party and delivered the elementary lectures which form so important a feature of these out-door classes.

JAMES FLETCHER. } Leaders.
H. B. SMALL, M.D. }

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DESCRIPTIONS OF NEW SPECIES OF MOSSES FOUND AT
OTTAWA.

By Nils Conrad Kindberg, Ph. D. (Linköping, Sweden.)

DICRANUM SCOPARIFORME. Kindb. N. sp.

Intermediate between *D. scoparium* and *D. fuscescens*. Dioecious.

Leaves greenish-yellow, flexuous, lanceolate, subulate with a short and flat subula; margins nearly flat or slightly incurved, densely and sharply serrate to $\frac{1}{3}$; cell-walls not interrupted by pores; upper cells oblong-oval, lower not much narrower, inner basal light brown; costa thick, percurrent with two serrate ridges at

the back in the upper part. Capsule curved, not striate. Pedicel red, short. Described from specimens found by Dr. G. M. Dawson at bottom of canyon below the bridge, Elk River, Rocky Mountains, but also found in McKay's woods, Ottawa, at the base of trees: also in Nova Scotia and Prince Edward Island.

D. STENODICTYON, Kindb. N. sp.

Allied to the last species. Dioecious. Tufts very dense, blackish brown, only the top leaves straw yellow, 2-3 c.m. high. Leaves flexuous, not undulate or crispate, short ovate—lanceolate, short—acuminate and blunt; margins flat above the middle, densely serrate above, more or less denticulate below; cell walls not prose; upper cells oblong, lower sublinear, alar hyaline, faintly brown; costa narrow, not percurrent, simply dentate at back. Barren. The colour of the plant resembles *Hypnum sarmentosum*. In damp woods at Ironsides, P.Q. October 1884.

BRYUM (*Rhodobryum*) **ONTARIENSE**, Kindb. N. sp.

Intermediate between *Bryum roseum* and *Bryum Beyrichii* (Hersch.) C. Müller.

Comal leaves very numerous, lingulate, abruptly and short-acuminate, revolute to $\frac{2}{3}$ or $\frac{3}{4}$, yellow-margined above with great confluent teeth; costa stout, excurrent. Capsule pale, with a distinct curved and doubly shorter collum; teeth papillose and hyaline above; archegonia numerous; lid convex, short apiculate, not *oblique*.

Hitherto confounded with *Bryum roseum*, and quite common throughout Ontario, generally in a barren state. On old logs in all maple woods around Ottawa. Barren.

LESKEA NIGRESCENS, Kindb., N. sp.

Plants very small, densely tufted, blackish-green, stems short, creeping, pinnate. Stem leaves close, appressed when dry, open erect when moist, at base broadly ovate and scarcely reflexed, acuminate, entire, obscurely but faintly papillose, branchlet leaves erect, very much smaller and looser, blunt at the short acumen; cells round-oval, costa obsolete rarely reaching to the middle. Dioecious. Only barren specimens found.

This species could possibly be referred to the genus *Heterocladium* but the costa is not furcate.

On flat boulders in McKay's woods. Oct. 12, 1885.

PLATYGYRIUM REFENS, *Bruch & Schimp.*

VAR. *ORTHOCLADOS*, Kindb. (N. var.)

Branches elongate and not curved. All basal leaf-cells orange. Peristome orange, segments linear, not completely free at base, smooth or denticulate at one side, not shorter than the teeth.

The European species has the teeth of the peristome pale, ordinarily longer than the linear subuliform, hyaline-bordered and free segments; the branches of the stem are shorter and curved, only the alar leaf-cells orange. The figure given by Schimper (Lesq. & James,) representing the peristome is not corresponding.

The description of *Neckera brachyclada*, C. Müll. (in syn. muscor. omn. frond.) found in Pennsylvania and Massachusetts, but not mentioned by Lesquireux & James, could be referred to our plant, except that it is indicated as monœcious. On old logs at Ottawa; probably common. Oct. 12, 1885.

PYLAISIA SELWYNI, Kindb., N. sp.

Differs from *P. intricata* in the denser, darker green tufts, the leaves broader, short-acuminate, reflexed to the acumen at one border or at both, the short alar and marginal cells more numerous, the capsule short oval, the segments adhering to two-thirds of the teeth. Very abundant on old fences, Richmond Road, Ottawa. May 15, 1885.

HOMALOTHECIUM CORTICOLUM. Kindb. N. sp.

Monœcious; tufts dense, glossy; stems radiculose, pinnate; branches densely crowded, curved; stem leaves ovate, abruptly narrowed to the recurved or straight acumen; branch leaves ovate-oblong, acute or short-acuminate, straight; all leaves more or less denticulate and reflexed all around; alar cells quadrate, not numerous; the marginal also quadrate, the other oblong-rhomboidal; perichetial leaves entire, long-acuminate; capsule cylindrical-oblong, slightly curved; teeth yellow, segments with a high basilar membrane; lid short-apiculate; pedicel rough; l.c.m., long. Greater than *Homalothecium subcapillatum*. On bark of trees in woods at Ottawa, Ont. Oct. 24th, 1887.

CHECK LIST OF CANADIAN PLANTS—By J. M. Macoun. 8vo. Ottawa, 1889. 50c.

A very useful pamphlet has just been issued by our fellow member, Mr. J. M. Macoun, in his complete (and corrected up to date) check list of all the plants which have ever been found in Canada. Mr. Macoun has had exceptional advantages in the preparation of this list. As assistant to his father, Prof. John Macoun, he has had the magnificent collection of the Geological Survey to examine as to doubtful species. The museum has now acquired most of the collections of the early botanists of the beginning of the century. He has also had the benefit of his father's assistance and advice. The use of check lists for all collectors and explorers is very great. With a complete check list all that is necessary, when a new locality is visited, is to put a tick or a date against the name of each species observed during the day, and thus a great labour is saved at a time when the traveller is tired out and disinclined for the tedious work of writing a long list of names. We advise every botanist in the club to secure copies while they are to be had.

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A NEW CRUSTACEAN.

In the Bulletin de la Société Zoologique de France for June, 1883, S. A. Poppe, of Vegesack, Germany, describes a new species of Diaptomus, a genus of fresh-water Copepoda, under the name, *D. Tyrrelli*. It is a small red crustacean, or "water-flea," about a twentieth of an inch in length, with large oar-like antennæ and one eye in the middle of the head in front, but unlike the genus Cyclops, to which it is closely allied; the female carries but one lateral egg-sac. It occurs in great abundance in Summit Lake, near Stephen, in the Rocky Mountains, often coloring the water around the shore a brilliant red. From this lake it was collected by our member, Mr. Tyrrell, of the Geological and Natural History Survey, in the summer of 1883, and in whose honour it is named.

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FLORA * OTTAWAENSIS

BY

JAMES FLETCHER, F.R.S.C., F.L.S.

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BY JAMES FLETCHER, F.R.S.C., F.L.S.

It is now eight years since my first list of the plants of this district was prepared for the members of the club. This was merely a bare list of the names of 810 species collected by the writer during the summer of 1879. "This district" was then understood to mean a radius of about twelve miles from the City of Ottawa, and was defined as the country lying between the following points:—Meech's Lake, in the Chelsea Mountains, on the one side, and the Mer Bleue on the other; down the Ottawa River East Templeton and Green's Creek were included, and up the river Britannia and the islands above Aylmer. Latterly, however, by general consent of the botanists of the club, this radius has been extended to about thirty miles, so as to include Casselman on the one side and Wakefield on the other, and up the river as far as the Chats Rapids and down to Buckingham.

Previous to the appearance of the above-mentioned list there had been printed by the Ottawa Natural History Society a "List of plants collected by Mr. B. Billings in the vicinity of the City of Ottawa during the summer of 1866." This contained the names of 404 species, with the dates of their inflorescence, which appear in the present list marked (B).

The following collections had also been made previous to 1879:—By Mr. B. Billings (1866-7) which is now in the museum of the Ottawa Literary and Scientific Society; by Mr. A. H. Moore, an energetic collector, and one who added largely to our knowledge of the flora of the vicinity (1870-78.) Through the generosity of the last named gentleman this collection now forms part of my own herbarium. By Mr. Robert Whyte and Dr. H. B. Small, who began to collect about 1875, and are still active members of the botanical branch of the club. The present list contains every species up to this time found in the district and identified with certainty. Further additions will be published annually as they are reported. It has been prepared at the request of the Council, more especially as an aid for those beginning to study our flora.

The 1879 list gave merely the names of all species at that time known to have been found at Ottawa, but gave no information upon some of the most important points the local botanist requires to know

about, such as the prevalence of any species in the locality, whether it be indigenous or introduced, plentiful or scarce.

Certain plants common in some localities are rare here, and *vice versa*; again, plants indigenous to Canada but not to the Ottawa district have been introduced either by accident or have escaped from cultivation. All of these facts should be made known to students or they may fall into error. It was therefore thought well, this time, to add short notes under each species, giving the general habitat, special localities and approximately the date in the year when collectors may expect to find the different species in flower.

With the exception of two or three species, all have been found by the writer in the localities mentioned, and in every case the actual specimens recorded have been carefully examined by him.

A general habitat is given for each species, and in the case of rarities exact localities are mentioned. When no special locality is given it is intended to show that the species is of common occurrence.

When no collector's name is given after a locality or the initials (J. F.) appear the writer is responsible for the record. When a plant of interest is recorded from other localities than those where the writer has found it the name of the collector is given in parentheses. In instances where a person's name is followed by an asterisk (*) it is to show that this was the first record of the plant having been discovered in the Ottawa district.

In indicating the time of the year when the plant may be looked for in flower the months have been divided into four quarters, so that when the name of a month is followed by the numbers 1, 2, 3 or 4 it shows that the plant may be expected to flower in the 1st, 2nd, 3rd or 4th quarter of the month.

Synonyms have been, for the most part, omitted, except in cases where plants appear in the list under other names than those given in Dr. Gray's "Manual." These, as well as introduced plants (whether into this district or into Canada) are printed in italics.

In compiling this new list Prof. Macoun's Catalogue, issued by the Geological and Natural History Survey of Canada, 1883, *et seq.*, has been followed, and as Canadian botanists now arrange their collections by that excellent catalogue I have thought it well to give before each species Prof. Macoun's number.

POLYPETALOUS EXOGENS.

RANUNCULACEÆ—Crow-foot Family.

CLEMATIS, L. Traveller's Joy. Virgin's Bower.

1. C. VERTICILLARIS, D.C. (Mauve-flowered Clematis).

Atragene Americana. Sims.

Creeping over rocks and low shrubs. King's and other mountains, Chelsea, P.Q. Not uncommon. May—4.

2. C. VIRGINIANA. (Common Virgin's-Bower.)

Borders of streams. Aug.—1.

ANEMONE, L. Wind Flower.

12. A. CYLINDRICA, Gray (Long-fruited Anemone).

Dry pastures. Ju.—2.

13. VIRGINIANA, L.

Rocky, open woods. There are two forms of this plant: (i) with greenish flowers like the preceding, but always with much shorter heads of fruit; and (ii) with white flowers almost as large as those of No. 15. From this latter, however, it is easily distinguished by the woolly seeds. (i) Common; (ii) on the rocks round Lake Flora, Hull, P.Q. Ju.—2. (B.)

15. A. DICHOTOMA, L. (Round-headed Anemone).

A. Pennsylvanica, L.

Along river margins and in low meadows. Ju.—2. (B.)

17. A. HEPATICA, L. (Liverwort. Blue May-flower).

Hepatica triloba, Chaix.

Dry, rocky woods. One of our earliest flowers; not quite as common as No. 18. Ap.—3 (B.)

18. A. ACUTILOBA, Lawson ("May-flower").

Dry, shady woods. Ap.—3 (B.)

THALICTRUM, Tourn. Meadow-rue.

20. T. DIOICUM, L. (Early Meadow-rue).

River banks and low woods. Ju.—1. (B.)

21. *T. PURPURASCENS* (Purplish Meadow-rue).

Templeton and along the Ottawa below the city (H. M. Ami*), Hull (J. F.) This species is distinguishable from *T. Cornuti* by having the anthers drooping on capillary filaments and the flowers greenish purple. On the other hand, *T. Cornuti* has white flowers, short filaments and anthers not drooping.

22. *T. CORNUTI*, L. (White-flowered Meadow-rue).

Islands and wet meadows and swamps; a tall, handsome plant. July—1. (B.)

RANUNCULUS, L. Crow-foot. Buttercup.

28. *R. AQUATILIS*, L. *v.* *TRICHOPHYLLUS*, Chaix (White Water Crow-foot).

Stagnant and slow-flowing waters. Ju.—1.

29. *R. MULTIFIDUS*, Pursh (Yellow Water-Crow-foot).

In shallow water, and creeping over mud, Malloch's Bay, Dow's Swamp and Kettle Island (J. F.), Billings Bridge (R. B. Whyte). Ju.—2.

Var. *y.* *REPENS*, Watson.

Leaves all round-reniform, palmately, 3—9 cleft; stems creeping in mud, Casselman and Gatineau Point (Prof. Macoun). Ju.—2.

31. *R. FLAMMULA*, L. *var.* *REPTANS*, Meyer (Smaller Creeping Crow-foot).

Mud-flats and river margins. July—1.

32. *R. CYMBALARIA*, Pursh (Salt-water Crow-foot).

In a low, wet meadow at Thurso, P.Q. Ju.—2.

37. *R. ABORTIVUS*, L. *var.* *MICRANTHUS*, Gray (Small-flowered Buttercup).

Woods and Meadows. From "Macoun's Catalogue," Part III., p. 480, it would appear that our Ottawa plant is not the type of *R. abortivus*, L. May—2. (B.)

30. *R. RECURVATUS*, Poir (Downy Wood-Buttercup).

Woods. An attractive species with large leaves and small flowers. May—2. (B.)

45. *R. acris*, L. (Meadow Buttercup).

Introduced from Europe. Very abundant in meadows. June (B.)

47. *R. PENNSYLVANICUS*, L. (Bristly Buttercup).

River flats and swampy woods. July—2. (B.)

48. *R. repens*, L. (Creeping Crow-foot).

Introduced from Europe. Governor-General's Bay, New Edinburgh. I have not succeeded in finding the native form of this species at Ottawa.

CALTHA, L. Marsh Marigold.54. *C. PALUSTRIS*, L. (Water-Cowslip).

Margins of streams and in swamps. May—2. (B.)

COPTIS, Salisb. Gold-thread.57. *C. TRIFOLIA*, Salisb. (Three-leaved Gold-thread).

Low woods and on hummocks in swamps. A lovely little plant with shining leaves and white, starry flowers. May—1. (B.)

AQUILEGIA, Tourn. Columbine.59. *A. CANADENSIS*, L. (Wild Columbine. "Honey suckle").

Rocky woods. A beautiful plant well worth cultivation for its red and yellow flowers. May—3. (B.)

DELPHINIUM, Tourn. Larkspur.65. *D. Consolida*, L. (Blue Field Larkspur).

Introduced from Europe in seed grain and escaped from gardens. Flowers sometimes pink or white. June—4.

ACTÆA, L. Baneberry.73. *A. ALBA*, Bigelow (White-berried Cohosh).

Woods and river banks. The spikes of flowers longer and blooming a week later than those of No. 74. The conspicuous waxy white berries on their thick red pedicels render this one of our most notable berry-bearing plants. May—4. (B.)

74. *A. SPICATA*, L. *var. RUBRA*, Ait. (Red-berried Cohosh).

Rich woods. The flowers in a more compact head than the preceding, on longer pedicels and of a clearer white. A white-berried variety of this species frequently occurs; but it may be readily distinguished from the preceding not only by the shape of the raceme, but by the slender pedicels. May—3.

MENISPERMACEÆ.—Moonseed Family.

MENISPERMUM, L. Moonseed.

81. *M. CANADENSE*, L. (Canada Moonseed.)

River banks and along streams, generally in woods or thickets.
July—2. (B.)

BERBERIDACEÆ.—Barberry Family.

BERBERIS, L. Barberry.

82. *B. Vulgaris*, L. (Common Barberry.)

Introduced from Europe. Occasionally found in woods, as at New
Edinburgh, where the seeds were probably dropped by birds.

CAULOPHYLLUM, Michx. Blue Cohosh.

86. *C. THALICTROIDES*, Michx. (Papoose Root.)

Rich woods. An interesting plant with the parts of the flowers in
sixes and of the same colour as the purplish foliage. These are
followed by large dry berries with a beautiful blue bloom upon
them. May—1. (B.)

All our plants are of a dull purple, not yellowish green, as they
are stated to be west of Lake Erie.

NYMPHÆACEÆ.—Water-lily Family.

BRASENIA, Schreber.

91. *B. PELTATA*, Pursh, (Water-shield.)

In lakes and rocky pools.

Rideau River at Black Rapids and McLaurin's Bay, East Temple-
ton (J. F.), Lake Winedago, (*Dr. H. B. Small*).

NYMPHÆA, Tourn. Water-lily.

93. *N. TUBEROSA*, Paine, (Tuber-bearing Water-lily.)

Rivers and Lakes. This is the common white water-lily of this
locality. The flowers are less double and have much less scent
than the next. July.

94. *N. ODORATA*, Ait. (Sweet-scented Water-lily.)

Slow streams and lakes. Rideau River. Meech's Lake.

Flowers generally smaller than in No. 93. Rare. July (B.)

NUPHAR, Smith. Yellow Pond-lily.

95. *N. ADVENA*, Ait. (Common Yellow Pond-lily.)

Streams and lakes. Ju.—1. (B.)

97. *N. ADVENA* + *KALMIANA*, Caspary.

N. rubrodiscum, Morong.

This is a very beautiful hybrid between *N. advena* and *N. Kalmiana*. It is intermediate in size and appearance between *advena* and *Kalmiana*. The floating leaves are purple beneath with slender petioles. The submerged membranaceous leaves were freely produced and like those of *N. Kalmiana*. The flowers expand $1\frac{1}{2}$ inches, have 6 sepals and a bright velvety crimson—10-15 rayed stigmatic disk. The perfect fruit, which is seldom produced, bears a closer resemblance to that of *N. Kalmiana* than to that of *N. advena*, being almost globose with a constriction beneath the stigma.

Leamy's Lake and Gilmour's Piling-grounds. July—1.

98. *N. KALMIANA*, Ait. (Least Yellow Pond-lily.)

N. luteum, var *pumilum*. Gray's Manual, 57.

Streams and lakes. Leamy's Lake, Gilmour's Piling-grounds (J.F.).

Green's Creek. (B. Billings.) July—1. (B.)

A charming little species. Quite distinct. I believe, from the European *N. luteum*, var *pumilum*.

SARRACENIACEÆ.—Pitcher-Plants.

SARRACENIA, Tourn.

99. *S. PURPUREA*, L. (Side-saddle Flower).

Peat bogs. Lake Flora, Hull, and Mer Bleue, abundant. A few plants in the Race-course Swamp, Bank Street Road. One of our most interesting Canadian plants. Ju.—2.

Used in Lower Canada as a remedy for small-pox.

———— var *HETEROPHYLLA*, Torrey.

This, I think, is merely an albino form of *S. purpurea*. I have found three plants at Lake Flora, Hull. The leaves are pale green without red veins, and the flowers yellowish white. Ju.—2.

PAPAVERACEÆ.—Poppy Family.

PAPAVÉR, L. Poppy.

100. *P. somniferum*, L. Opium Poppy.

An escape from cultivation occasionally found in wheat-fields and upon rubbish heaps. July—2.

101. *P. Rhæus*, L.

Introduced with seed wheat at Billings Bridge. Occasionally found by road-sides, but nowhere permanently introduced. July.

SANGUINARIA, L. Blood-root.

104. *S. CANADENSIS*, L. (Blood-root.)

Roads and clearings. One of our earliest and most beautiful spring flowers. Largely used by the Indians both as a dye-plant and medicinally. April—4.

CHELIDONIUM, L. Celandine.

105. *C. majus*, L. (Celandine.)

Introduced. Occasionally found by way-sides as at Stewarton and New Edinburg. June.

FUMARIACEÆ.—Fumitory Family.

ADLUMIA, Raf. Climbing Fumitory.

106. *A. CIRRHOSA*, Raf. (Cypress Vine.)

Rocky woods. Common. A most beautiful creeper with delicate foliage and a profusion of pink pendent blossoms, flowering all the summer. Sometimes creeping over bushes 10 or 12 feet high. Ju.—2.

DICENTRA, Bork.

107. *D. CUCULLARIA*, DC. (Dutchman's Breeches.)

Rich woods. May—1. (B.)

108. *D. CANADENSIS*, DC. (Squirrel Corn, "Wood Hyacinth.")

Rich woods. May—2. (B.)

CORYDALIS, Vent.

110. *C. GLAUCA*, Pursh. (Pale Corydalis.)

Hill sides and amongst rocks. May—2. Flowering all the summer. B.

111. *C. AUREA*, Willd. (Golden Corydalis.)
Hill sides and rocky woods. May—2. (B.)

CRUCIFERÆ.—Mustard Family.

NASTURTIUM, R. Br. Cress.

114. *N. officinale*, R. Br. (Water cress.)
Springs and brooks. Billings Bridge. Chelsea. New Edinburgh,
&c. June. (B.)
115. *N. PALUSTRE*, DC. (Marsh-cress.)
Low ground. A smooth species with pods more than twice as
long as broad. Ju.—2. (B.)
——— var. *HISPIDUM*, Fisch. & Mey.
Low ground. A rougher plant than the above with round pods.
Ju.—2.

116. *N. AMPHIBIUM*, R. Br.

Low ground. A coarser and larger plant than the above, the
stem generally decumbent and rooting at the base, Biennial or
perennial with pods shaped like those of *N. palustre*. Ju.—2.

119. *N. LACUSTRE*, Gray. (River-cress.)

Margins of rivers. Malloch's Bay, Ottawa, and abundant in the
Nation river at Casselman. An interesting plant with the
submerged leaves much lacinated. The flowers and fruit are
not very freely produced; but when mature the leaves fall off,
throw out roots and become new plants. Ju.—2.

120. *N. Armoracia*, Fries. (Horse Radish.)

An escape from cultivation. Occasionally found on waste places
in the suburbs of the city.

DENTARIA, L. Tooth-wort.

121. *D. DIPHYLLIA*, Michx. (Crinkle-root.)

Rich woods. May—2. (B.)

122. *D. LACINIATA*, Muhl. (Cut-leaved Tooth-wort.)

Rich woods. A very local species, so far only found at Beech-
wood, near the S.W. corner of the cemetery. May 1. (B.)

CARDAMINE, L. Bitter Cress.

124. *C. RHOMBOIDEA*, DC.

River bank, Hull, P.Q. May—2. The plant I have referred
here is an erect species with almost sessile leaves up the stem

125. *C. ROTUNDIFOLIA*, Michx.

Springy wood. Billings Bridge. This is a weak-stemmed few-flowered plant with angular root leaves upon long petioles. Stem fleshy at the base. May—3.

129. *C. PRATENSIS*, L. (Ladies' smock. "Cuckoo-pint.")

Peat-bogs and wet meadows. Dow's swamp. Billings Bridge. Beechwood. Lake Flora, (J. F.); Janeville, (R. B Whyte). The Canadian plant, as noticed in Macoun's catalogue, is more slender than the European, and also white-flowered. Young plants are produced in great abundance from the leaflets which fall off and float on the top of the water. May—2. (B.)

130. *C. HIRSUTA*, L. (Small Bitter cress.)

Low ground and springy woods. An inconspicuous plant with a very inappropriate name, being almost glabrous. June—2.

ARABIS, L. Rock-Cress.

135. *A. HIRSUTA*, Scot. (Hairy Rock-cress.)

Rocky open woods and pastures. Little Chaudiere. Britannia. Hull. Aylmer. Chelsea, &c. May—4.

138. *A. DRUMMONDII*, Gray. (Tower-mustard.)

Rocky pastures. A large distinct species. May—4. (B.)

140. *A. PERFOLIATA*, Lav. (Smooth Tower-mustard.)

Sandy woods and pastures. A tall slender plant with yellowish flowers and leaves only apparently, not really, perfoliate. June —2.

141. *A. LÆVIGATA*, Poir.

Mountain side. King's Mountain, Chelsea, P.Q. June.

BARBARÆA, R. Br. Winter-cress.

145. *B. VULGARIS*, R. Br. (Yellow Rocket.)

On rocks and by waysides. Lovers' Walk. New Edinburgh. Billings Bridge. Ju.—3.

——— var. *STRICTA*, Regel (Native winter-cress.)

Swampy woods. Beechwood. A much less conspicuous plant than the type, with slender stem and small flowers. Ju.—2.

ERYSIMUM, L. Treacle Mustard.

146. *E. CHEIRANTHOIDES*, L. (Worm-seed Mustard.)

Everywhere. June. (B.)

SISYMBRIUM, L. Hedge Mustard.

150. *S. officinale*, Scop.

Roadsides. July—1. (B.)

BRASSICA. Tourn. Cabbage. Mustard.

159. *B. Sinapistrum*, Boiss. (Wild Mustard. "Charlock.")

Cultivated ground. A most troublesome and persistent weed in many parts of Canada. Pods knotty, smooth, one-third consisting of a stout two-edged and one-seeded beak. Seeds reddish black. June. (B.)

160. *B. alba*, Gray. (Garden Mustard.)

A garden escape. Easily known by its bristly pods, more than half of which consist of the one-seeded beak. Seeds yellow. July—1.

161. *B. nigra*, Koch. (Black Mustard.)

Roadsides. Scarce at Ottawa. Pods smooth, four-cornered, erect on appressed pedicels. Seeds dark brown. June.

CAMELINA, Crantz. False Flax.

191. *C. sativa*, Crantz.

An occasional weed in fields of grain. Ju.—2.

NESLIA, L.

2107. *N. paniculata*, L.

Rarely introduced with bird seed. A small plant with sparse stellate-pubescent, small bright yellow flowers and round pods. Ju.—3.

CAPSELLA, Vent. Shepherd's Purse.

197. *C. Bursa-pastoris*, Moench.

Everywhere around inhabited localities. May. (B.)

THLASPI, Tourn. Penny-cress.

199. *T. arvense*, L. (Mithridate Mustard.)

Waste places. Ju.—1.

LEPIDIUM, L. Pepper-wort.

202. *L. sativum*, L. (Garden-cress.)

A garden escape frequently found in waste places. Ju.—2.

207. *L. VIRGINICUM*, L.

Rocky pastures. Ju.—1. (B.)

RAPHANUS, L. Radish.

213. *R. sativus*, L. (Garden Radish.)

Introduced. Borders of fields and way sides. Ju.—1.

VIOLACEÆ—Violet Family.

VIOLA, L. Heart's-Ease. Pansy.

229. *V. BLANDA*, Willd. (Small Sweet White Violet)

Damp woods. May—1. (B.)

230. *V. RENIFOLIA*, Gray. (Kidney-leaved Violet.)

Damp woods and swamps. Sometimes confounded with the above. The leaves, however are pubescent and more or less kidney-shaped, one always decidedly so, and the flowers are scentless. May—2.

234. *V. SELKIRKII*, Pursh. (Large-spurred Violet.)

Damp, shaded rocks. Our earliest Blue Violet. A very distinct species, easily recognized by the leaves being smooth beneath and sparsely hairy above, and by the large blunt spur. Hemlock Lake, Beechwood, Chelsea. May—1.

235. *V. CUCULLATA*, Ait. (Hooded Violet.)

Damp woods or meadows. A most variable species, both as to flowers and foliage. There are, however, two very distinct forms: (1) A large plant with blue flowers and very pubescent leaves; and (2) a smaller plant growing in meadows or beside water, with large violet flowers and almost smooth leaves. May—3. (B.)

240. *V. CANINA*, L., var. *SYLVESTRIS*, Regel. (Dog Violet.)

Woods and pastures. May—2. (B.)

241. *V. ROSTRATA*, Muhl. (Long-spurred Violet.)

Governor-General's Bay, New Edinburgh. Ju.—1.

242. *V. CANADENSIS*, L. (Canada Violet.)

Rich woods. A charming species, flowering in May and November. (B.)

243. *V. PUBESCENS*, Ait. (Down Yellow Violet.)

Rich woods. A lovely plant, with golden yellow flowers and fine foliage. There are two forms.

var. *eriocarpa*, Nutt, has the pods covered with woolly white pubescence. This is probably the type of the species. May—3. (B.)

———var. *SCABRIUSCULA*, T. & G.

In this the pods are perfectly smooth and the leaves almost so. Some forms of this variety resemble closely the western *V. glabella*, Nutt. May—3.

247. *V. tricolor*, L., var. *arvensis*, Ging. (Wild Pansy.)

Cultivated ground. Billings Bridge. Hintonburgh. Ju.—1.

POLYGALACEÆ—Milk-wort Family.

POLYGALA. Milk-wort.

251. *P. SENEGA*, L. (Seneca Snake-root.)

Rocky banks. Not uncommon. Ju.—1. (B.)

253. *P. PAUCIFOLIA*, Willd. (Fringed Polygala.)

Dry, open woods. A lovely little flower. Ironsides (J. F.), near St. Louis Dam (H. M. Ami*). May—3. (B.)

CARYOPHYLLACEÆ—Pink Family.

SILENE, L. Catchfly. Campion.

255. *S. inflata*, Smith. (Bladder Campion.)

Introduced. Waysides and grain fields. July—2. (B.)

258. *S. ANTIRRHINA*, L. (Sleepy Catchfly.)

Sandy and rocky banks. Ju.—1.

560. *S. Armeria*, L. (Sweet-William Catchfly.)

A garden escape. Billings Bridge, and occasional in waste places. July. (B.)

261. *S. noctiflora*, L. (Night-flowering Cathfly.)

Introduced. An abundant weed in fields and gardens. Ju.—3. (B.)

LYCHNIS, Tourn. Lychnis, Cockle.

268. *L. Githago*, Lam. (Corn-Cockle.)

Introduced. Grain fields. July—2.

269. *L. Vespertina*, Sibth. Evening Lychnis.

Introduced with grass seed. July.



SUMMARY

— OF —

Canadian Mining Regulations.

NOTICE.

THE following is a summary of the Regulations with respect to the manner of recording claims for *Mineral Lands*, other than *Coal Lands*, and the conditions governing the purchase of the same.

Any person may explore vacant Dominion Lands not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting, for mineral deposits, with a view to obtaining a mining location for the same, but no mining location shall be granted until actual discovery has been made of the vein, lode or deposit of mineral or metal within the limits of the location of claim.

A location for mining, except for *Iron* or *Petroleum*, shall not be more than 1500 feet in length, nor more than 600 feet in breadth. A location for mining *Iron* or *Petroleum* shall not exceed 160 acres in area.

On discovering a mineral deposit any person may obtain a mining location, upon marking out his location on the ground, in accordance with the regulations in that behalf, and filing with the Agent of Dominion Lands for the district, within sixty days from discovery, an affidavit in form prescribed by Mining Regulations, and paying at the same time an office fee of five dollars, which will entitle the person so recording his claim to enter into possession of the location applied for.

At any time before the expiration of five years from the date of recording his claim, the claimant may, upon filing proof with the Local Agent that he has expended \$500.00 in actual mining operations on the claim, by paying to the Local Agent therefor \$5 per acre cash and a further sum of \$50 to cover the cost of survey, obtain a patent for said claim as provided in the said Mining Regulations.

Copies of the Regulations may be obtained upon application to the Department of the Interior.

A. M. BURGESS,

Deputy of the Minister of the Interior.

DEPARTMENT OF THE INTERIOR,
Ottawa, Canada, December 19th, 1887. }

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