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THE OTTAWA NATURALIST.

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ON THE GENUS *PANENKA*, BARRANDE, WITH A DESCRIPTION OF A SECOND SPECIES OF THAT GENUS FROM THE DEVONIAN ROCKS OF ONTARIO.

By J. F. WHITEAVES.*

(With one Plate.)

In the sixth volume of the "Système Silurien de la Bohême," which was published in two parts in 1881, Barrande proposed the name *Panenka* for a genus of lamellibranchiate bivalves from the Silurian rocks of Bohemia, and described and figured no less than 231 species of that genus. These species are all ornamented with radiating ribs, which give them a certain general but superficial resemblance to recent shells of the genus *Cardium*. But, upon closer examination it will be seen that in many of the Panenkas the ribs are unequal in size and irregular in their distribution, and that their valves are usually longer than high. Their test, also, is said to be thin, and their hinge line to be entirely devoid of teeth properly so called. On the other hand, in the typical species of *Cardium* the ribs are exquisitely regular in their size and arrangement; their valves are higher than long; their test comparatively thick, and their hinge line provided with both cardinal and lateral teeth. Dr. Paul Fischer, in his "Manuel de Conchyliologie," places the genus *Panenka* in Rudolph Hoernes' family *Præcardiidæ*, which consists exclusively of palæozoic genera and species.

Four years later, in 1885, Professor James Hall described and figured, or enumerated, seventeen species of *Panenka* from the Devonian rocks at several localities in the United States, in volume V, part I, Lamellibranchiata II, of the "Palæontology of the State of New York." And, in 1891, the present writer described and figured an unusually large and coarsely ribbed species of the genus, from the Corniferous limestone at St.

*Communicated by permission of the Acting Director of the Geological Survey Department.

Mary's, Ontario, under the name *Panenka grandis*, in the fourth volume of the "Canadian Record of Science."

The generic name *Panenka*, as stated by Barrande, is a Czech or Bohemian word, with the same significance as *puella* in Latin. But, although the seventeen species of *Panenka* enumerated by Hall are included by S. A. Miller in the list of "North American Palæozoic Fossils" in the first edition of his "North American Geology and Palæontology," published in 1889, yet in the First Appendix to that list, published in 1892, he says that the name *Panenka* is "not formed according to the rules of nomenclature and should be discarded." It had, however, as already explained, come into use by palæontologists on both sides of the Atlantic, so that its rejection would probably be attended with more inconvenience than its retention.

Quite recently, in November and December, 1901, the Rev. Thomas Nattress, of Amherstburg, Ontario, kindly sent to the writer, for identification, a few specimens of a fossil lamellibranchiate bivalve from the immediate vicinity of Amherstburg. These, he writes, were collected by Mr. Harry Hodgman from pieces of solid rock blasted and dredged out of the bed of the Detroit River, at the Old Lime Kiln Crossing, Anderdon township, Essex county, a "few hundred yards only within the Canadian boundary, in thecourse of deepening the channel." They clearly belong to the genus *Panenka* and are obviously quite distinct from *P. grandis*. So far as the writer can see, they cannot be satisfactorily identified with any of the known species of *Panenka* from the American Devonian. Two of them as much more perfect than the rest, and both of these are represented on Plate XV. The original of figure 1 on that Plate represents a specimen with a subcircular marginal outline, which is somewhat similar in form to *P. multiradiata*, Hall, but which has broader and more oblique umbones, and a much longer hinge line posteriorly. Figure 2 represents a specimen with an elongate subovate marginal outline, which comes nearer to *P. robusta* and *P. dichotoma* of Hall, but which is more regularly and longitudinally subovate than either. In *P. robusta*, also, the ribs are much fewer and coarser, and in *P. dichotoma* the anterior end is represented as produced and subangular above. Under these circumstances it seems desirable to distinguish the

specimens from the Detroit River by a new specific name, and they may therefore be provisionally named and described as follows.

PANENKA CANADENSIS (sp. nov.).

Shell, or rather cast of the interior of the shell, of about the average size, valves regularly and rather strongly convex, varying in outline in different specimens from subcircular to longitudinally subovate, but always at least a little longer than high. Posterior side rather broader and much longer than the anterior, umbones broad, tumid, prominent, very oblique and placed considerably in advance of the midlength, beaks curved inward and forward; hinge line straight, horizontal, considerably prolonged behind in some specimens but apparently not so much so in others.

Test unknown; surface of the cast marked by numerous (about sixty) narrow but prominent ribs, with concave grooves between them. In the original of figure 1 on Plate XV, the ribs are slightly unequal in size. Most of them are simple but they occasionally bifurcate, and here and there a few shorter ribs are intercalated between the longer ones, that radiate from the umbones. In the original of figure 2 on the same Plate, the ribs are more regularly disposed, and they are all a little larger posteriorly than anteriorly.

Muscular impressions and hinge dentition unknown.

Dimensions of a comparatively high and short specimen (fig. 1); maximum length 74 mm., greatest height (inclusive of the umbo) 67 mm.: do. of a more elongate specimen (fig. 2) that is narrower in the direction of its height, length 77 mm.; greatest height, which happens to be behind the umbo, 60 mm.

Corniferous formation, Anderdon township, Essex county, Ontario: a few specimens collected by Mr. Harry Hodgman, U. S. Inspector, in October and December, 1901. According to Mr. Nattress they are from a brown dolomite which underlies the true Corniferous limestone in that neighbourhood.

Explanation of Plate XV.

PANENKA CANADENSIS.

Fig. 1.—Side view, natural size, of a right valve of a specimen with subcircular marginal outline, and comparatively long hinge line behind.

Fig. 2.—Similar view of the right valve of a longitudinally subovate specimen, with a comparatively short hinge line.

Both of these specimens are in Mr. Hodgman's collections.

Ottawa, Feb. 15th, 1902.

BIRD NOTES.

By W. T. MACOUN.

Winter birds were not numerous at Ottawa this year with the exception of the house sparrow, which is always here in large numbers. Some interesting notes, however, have been taken and these should be recorded.

The snowy owl has been much commoner than usual. Three live specimens in a store on Sparks street attracted much attention during the month of January.

The first pine grosbeaks of which I have a record were seen by me on Jan. 26th at the Normal School, when two males were observed, and on the following day a flock of from eight to ten birds were noted none of which, however, was highly coloured. The birds may have been here earlier than these dates but no notes were sent in. They have been quite common ever since and were seen to-day, Feb. 18th.

On Feb. 6th I noticed two white-breasted nuthatches on a shed near Concession street.

The following notes were supplied by Mr. W. A. D. Lees and are of special interest:

"On 18th December, 1901, I saw, near my house in Ottawa East, a bird which I took to be a meadowlark (*Sturnella magna*). I was not quite certain of my identification as the bird rose suddenly from near the open end of a street drain and flew some distance off and took refuge under some old lumber where I had not the time to follow it. Again, yesterday, 9th January, 1902, I saw the same bird flitting from place to place along the railway embankment near the round-house in Ottawa East, and this time I satisfied myself beyond a doubt that my first guess as to the species had been correct. So far as I know this is the first winter record of this bird here, and it may interest the readers of THE OTTAWA NATURALIST to know of it."

On Feb. 6th Mr. Lees, in company with another person, saw a robin at the Normal School grounds feeding with a flock of pine grosbeaks. It seemed plump and in good health.

On Dec. 15th I saw a specimen of the bohemian chatterer feeding on the berries of the mountain ash on Somerset street, and I carefully noted the markings of the bird.

CONTRIBUTIONS TO CANADIAN BOTANY.[1]

By JAMES M. MACOUN, Assistant Naturalist, Geological Survey of Canada.

XV.

ANEMONE HUDSONIANA, Rich.

Frenchman's Bay, near Southampton, Ont. Aug. 28th, 1901. (*John Macoun.*) Southern limit in Ontario.

AQUILEGIA COCCINEA, Small.

Niagara, Ont.; Câche Lake, Algonquin Park, Ont.; Otterburne, Man.; Brandon, Man. (*John Macoun.*) Wingham, Ont. (*J. A. Morton.*) Grindstone Point, Lake Winnipeg. (*J. M. Macoun.*) Our only specimens of *A. Canadensis* are from Ottawa, Belleville and Red Rock, Ont. *A. coccinea* is easily separable from *A. Canadensis* either in flower or fruit. In flower by its stout spur which is more than twice the length of that of *A. Canadensis* and abruptly narrowed near the apex. The follicles of *A. coccinea* are straight and much longer than the spreading follicles of *A. Canadensis.*

AQUILEGIA VULGARIS, L.

Roadside, Wyoming near Petrolia, Ont. (*John Macoun.*)

LESQUERELLA NODOSA, Green, Pittonia, VOL. IV, p. 309.

On sand, Castellated Rocks, Milk River, Assa., July 13th, 1895. Herb. No. 10,313.[2] (*John Macoun.*)

LESQUERELLA VERSICOLOR, Greene, Pittonia, VOL. IV, p. 310.

On rocky slopes, Stony Mt., Man., June 4th, 1896. Herb. No. 12,401. (*John Macoun.*)

LESQUERELLA MACOUNII, Greene, Pittonia, VOL. IV, p. 310.

On prairies at the police barracks, Medicine Hat, Assa., Aug. 9th, 1895. Herb. No. 10,308. (*John Macoun.*)

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[1] Published by permission of the Director of the Geological Survey of Canada.

[2] These numbers are those under which specimens have been distributed from the Herbarium of the Geological Survey of Canada.

LESQUERELLA ROSEA, Greene, Pittonia, VOL. IV, p. 310.

On prairies at Old Wives' Creek, Assa., June 2nd, 1895. Herb. No. 10,309. (*John Macoun.*)

BRASSICA JUNCEA, Cass.

Montrose, near Niagara, Ont. (*R. Cameron.*) Burnside Road, near Victoria, Vancouver Island. (*A. J. Pineo.*)

VIOLA FLETCHERI, Greene, Pittonia, vol. IV, p. 296.

Acaulescent, small, the simple ascending rootstock rather small for the plant, closely jointed: leaves few, small, from ovate-reniform to subcordate-ovate, ¾ to 1 inch long at time of petaliferous flowering, the undeveloped ones cucullate, all very regularly crenate, glabrous and shining above, mostly sparse-hirsutulous beneath and on the petioles, these in the earliest not longer than the blade, in the later more than twice as long: flowers very few, often 1 only; peduncles hirsute, minutely bracted below the middle: sepals small, lanceolate, veinless, serrate-ciliolate: corolla large, more than ¾ inch broad, rich purple; the upper pair of petals much the largest, obovate, the middle pair narrower in proportion and strongly bearded with long cylindric hairs, the odd one as long as these and a trifle broader.

Growing with *V. blanda* under trees north of the road running from Rockcliffe to Beechwood. The plants grow singly and are generally one-flowered. Collected in the spring of 1901 and in fruit in September by Dr. J. Fletcher and J. M. Macoun.

VIOLA SUBVISCOSA, Greene, Pittonia, VOL. IV, p. 293.

Rootstocks not much branched, slender, short-jointed and knotted; plant 4 to 6 inches high at time of petaliferous flowering: leaves thin, deep-green, shining and slightly clammy, very sparsely appressed-hairy above, somewhat hirsute beneath along the veins and sparsely ciliate, in outline from cordate-reniform to broadly cordate with deep and often almost closed sinus, subserrately crenate, the more strictly cordate ones about 2 inches in diameter and little longer than broad: peduncles about equalling the leaves, bibracteolate

below the middle, more or less strongly hirsutulous, as are also some of the petioles: sepals oblong, obtuse, strongly and closely ciliate with spreading or somewhat retrorse hairs: corolla violet, large, about 1¼ inches wide, the petals not very dissimiliar, rather broadly obovate, the keel as broad as the others and very obtuse.

Described from specimens collected by Dr. Jas. Fletcher, in open spaces among woods at Aylmer, Que. This species has also been collected on Prince Edward Island, by Mr. L. W. Watson and in Vermont. In general appearance *V. subviscosa* resembles *V. septentrionalis* but this latter species "has a heavier foliage, of a light green shade, wholly devoid of clamminess, each leaf with a broad open sinus and each branch of its stout rootstock produces a considerable cluster of leaves and flowers."

VIOLA CARDAMINEFOLIA, Greene, Pittonia, vol. IV, p. 289.

Caulescent, the numerous slender decumbent or more depressed stems 3 to 5 inches long: leaves small, the subcordate-ovate obtuse minutely crenate blade often merely ½ inch, seldom ¾ inch long, of firm texture, obscurely pulverulent-puberulent, the slender petioles about 1 inch long; stipules lanceolate, the lowest serrate-ciliate, the upper nearly entire except toward the base: slender peduncles little more than an inch long, bibracteolate much above the middle: sepals subulate-lanceolate, glabrous: corolla small, deep-blue; spur elongated, oblique.

In rocky woodland near Aylmer, Quebec, Canada, 6 June, 1901, Dr. J. Fletcher. Allied to the common *V. Muhlenbergiana* of the U. S. (now rightly or wrongly called *V. Labradorica*), but easily distinct by its small, thick and somewhat fleshy foliage always of ovate outline and obtuse; the flowers not half as large, much more deeply coloured, with a different spur.

VIOLA FULCRATA, Greene, Pittonia, vol. IV, p. 285.

Cowichan River, Vancouver Island, 2 June, 1898. Herb. No. 19,912. (*J. R Anderson.*)

VIOLA PETROPHILA, Greene, Pittonia, vol. IV, p. 286.

Crevices of rocks, Shawnigan Lake, Vancouver Island, 9 May, 1897. (*J. R. Anderson.*)

VIOLA COMPACTA, Greene, Pittonia, vol. IV, p. 286.

Crevices of rocks, Shawnigan Lake, Vancouver Island. Herb. No. 19,910. (*J. R. Anderson.*)

VIOLA ANDERSONII, Greene, Pittonia, VOL. IV, p. 287.

Thetis Lake, B. C., 29th April, 1900. (*J. R. Anderson.*)

VIOLA ORECALLIS, Greene, Pittonia, VOL. IV, p. 288.

Mill Hill, B. C., 28th April, 1900. (*J. R. Anderson*)

VIOLA ALBERTINA, Greene, Pittonia, VOL. IV, p. 289.

Described from specimens collected by W. Spreadborough east of McLeod River, northern Alberta, but a common species everywhere in the foot-hills of the Rocky Mountains.

CERASTIUM ANGUSTATUM, Greene, Pittonia, vol. IV, p. 300.

Open prairies in the sandhills north of Prince Albert, Saskatchewan, July, 1896. Herb. No. 12,459. (*John Macoun.*) Only known station.

CERASTIUM CAMPESTRE, Greene, Pittonia, vol. IV, p. 301.

The common species on the Canadian prairies. Our specimens are from Stonewall, Man. (*John Macoun.*) Indian Head, Assa. (*W. Spreadborough*) Cypress Hills, Assa. (*J. M. Macoun.*)

CERASTIUM VESTITUM, Greene, Pittonia, vol. IV, p. 302.

Dry banks at Ste. Anne, west of Edmonton, Alberta, June 9th, 1898. Herb. No. 19,285. (*W. Spreadborough.*) A well-marked species known only from Mr. Spreadborough's specimens.

CERASTIUM CONFERTUM, Greene, Pittonia, vol. IV, p. 302.

Described from specimens collected by Prof. John Macoun along the old telegraph trail in Lat. 54°, British Columbia, June 24th, 1875, and at Stewart Lake, B.C., June 20th. Not since collected.

CERASTIUM TOMENTOSUM, L.

There are specimens of this species in the herbarium of the Geological Survey, labelled "Brant Co., Ont." but without the collectors' name. It is here recorded in the hope that some further information relating to it may be secured as this is the first American record known to us.

MENTZELIA TENERRIMA, Rydberg.

Waneter, B.C. 1901. (*R. H. Jamieson.*) New to Canada.

STENOTUS LYALLII, (Gray.)

On nearly all the higher mountains on both sides of the Chilliwack Valley, Coast Range, B.C., at about 6,000 ft. alt. Always found with *Solidago multiradiata*, var. *scopulorum*. (*J. M. Macoun.*)

SOLIDAGO VIRGAUREA, L., var. GILLMANI, (A. Gr.) Porter.

On rocks at the extreme end of the Bruce Peninsula, Tobermory, Ont., Aug. 23rd, 1901. Herb. No. 26,719. (*John Macoun.*) Known previously only from the south shore of Lake Superior. Probably a good species.

SOLIDAGO JUNCEA, Ait., var. SCABRELLA, A. Gray.

Thickets at Leamington, Ont. 1901. (*John Macoun.*) New to Canada.

ASTER ANGUSTUS, T. & G.

At the "round house" in the M. C. Ry. yard at Montrose near Niagara, Ont. (*R. Cameron.*) Introduced from the prairies.

ASTER LONGIFOLIUS, Lam., var. VILLICAULIS, Gray.

On earth along the St. John River at Woodstock, N.B. Herb. No. 22,505. (*John Macoun.*) Our only Canadian specimens.

ASTER KENTUCKYENSIS, Britt.

Toronto Island, Ont., Sept. 6th, 1901. Herb. No. 26,358. (*John Macoun.*) New to Canada. Determined by Dr. Britton.

ASTER VIMINEUS, Lam., var. SAXATILIS, Fernald, Rhodora, vol. 1, p. 188.

Paugan Falls, Que.; banks of the Nation River at Casselman, Ont. (*John Macoun.*)

ERIGERON BRANDEGEI, Greene.

Aplopappus Brandegii, Gray.

On mountains north of Chilliwack Lake, Coast Range, B. C., alt. 6,500 to 7,500 ft., 1901. (*J. M. Macoun.*) Not recorded west of Selkirk Mts.[1]

GNAPHALIUM ULIGINOSUM, L.

Abundant along ditches, Chilliwack, B. C., 1901. (*J. M. Macoun.*) Our only specimens from British Columbia.

XANTHIUM PENNSYLVANICUM, Wallr.

Common at Humber Bay in front of High Park, Toronto, Ont., 1901. Herb. No. 26,807. (*John Macoun.*)

XANTHIUM COMMUNE, Britt.

From Quebec to Manitoba. Our specimens are from Casselman, Ottawa and Napanee, Ont., and Brandon and Killarney, Man.

XANTHIUM MACOUNII, Britt.

Goose Island, Lake Winnipeg, Man., 1884. The type. (*J. M. Macoun.*) Only known station.

XANTHIUM GLANDULIFERUM, Greene.

Police Point, Medecine Hat, Assa. Herb. No. 10,911; Walsh, Assa. Herb. No. 10,910, the type; east of Hand Hills, Alta. (*John Macoun.*)

X. echinatum and *X. Canadense* are not known to occur in Canada, but as they grow in the Northern States they will probably be found in Southern Ontario.

SILPHIUM PERFOLIATUM, L.

Not rare at Chatham, Ont. (*John Macoun.*)

[1] The geographical limits given in these papers refer to Canada only.

SILPHIUM TEREBINTHINACEUM, L.

Walpole Island, St. Clair River, Ont. (*C. K. Dodge.*) In thickets at Sandwich and Windsor, Ont. (*John Macoun.*)

HELIANTHUS PETIOLARIS, Nutt.

Along the C. P. Ry. at Câche Lake, Ont. 1900. (*John Macoun.*) Introduced from the west.

HELIANTHUS ANNUUS, L.

Head of Queen street, near High Park, Toronto, Ont. 1901. (*John Macoun.*)

CHRYSANTHEMUM SEGETUM, L.

Near the tannery at Tilsonburg, Ont. 1901. (*Macoun.*) A garden escape. Not recorded from Ontario.

CHRYSANTHEMUM CORONARIUM, L.

A garden escape at Tilsonburg, Norfolk Co., Ont. (*John Macoun.*)

ARTEMISIA CAUDATA, Michx.

Abundant in sandy fields at Sarnia, Lambton Co., Ont. Collected in recent years by C. K. Dodge and by Prof. Macoun in 1901. Herb. No. 26,339. The plants from Manitoba referred here in Macoun's Catalogue of Canadian Plants, vol. 1, p. 256, are *A. Canadensis.*

ARTEMISIA ABROTANUM, L.

Roadsides at Allenford between Southampton and Owen Sound, Ont. 1901. (*Macoun.*) Not before recorded in these papers.

SENECIO PLATTENSIS, Nutt.

Woods at Sandwich, Ont. Herb. No. 26,673, and at Camlachie, seven miles from Sarnia, Ont. Herb. No. 26,674, 1901. (*John Macoun.*) New to Canada.

CARDUUS HILLII, (Canby.) Porter.

On shingle, Little Eagle Harbour, Lake Huron. Aug. 23rd, 1901. Herb. No. 26,454. (*John Macoun.*) Specimens referred to *Cnicus pumilus*, Macoun, Cat. Can. Plants, VOL. 1, p. 555 are this species.

SAUSSUREA MONTICOLA, Rich., App. Frank. Journ., ed. 2, 29.

Lumped with *S. alpina* by Gray and others, but it presents so little resemblance to that species that the most casual observer would at once know it to be distinct. Easily separated from *S. alpina* by its "narrower, more rigid entire leaves and very hairy involucre." Collected by Dr. Richardson in grassy plains on the Copper Mountains, lat. 67°, and along the arctic coast between the Mackenzie and Coppermine rivers. The specimens in the herbarium of the Geological Survey are from Herschell Island, west of the mouth of the Mackenzie, 1893. (*Rev. J. I. Stringer.*) West shore of Great Bear Lake, lat. 65° 30′ to lat. 66° 30′. 1900. (*J. M. Bell.*) Lat. 62° 17′, long. 103° 07′, 1893; on Stony Island, Great Slave Lake, 1900. (*J. W. Tyrrell.*)

HIERACIUM PILOSELLA, L.

St. John and Charlos, Restigouche River, N.B. (*Philip Cox.*) New to New Brunswick.

HIERACIUM LONGIPILUM, Torr.

A single specimen collected in woods 5 miles from Sarnia. Ont. 1901. (*John Macoun.*) A very rare species in western Ontario. Seldom collected.

MENTHA ROTUNDIFOLIA, (L.) Huds.

In a gravelly ravine running into the Thames near London, Ont., 1901. (*J. Dearness.*) New to Canada.

CLINOPODIUM ACINOS, (L.) Kuntze.

Our herbarium specimens of this plant are from sandy and grassy roadsides north of London, Ont. (*J. Dearness*) and near Galt, Ont. (*W. Herriot.*)

RUMEX FENESTRATUS, Greene, Pittonia, VOL. IV, p. 306.

Described from specimens collected by Prof. John Macoun in salt marshes at Comox, Vancouver Island, June 23rd, 1893. Herb. No. 1,570. Also collected in 1887 by Prof. Macoun at Chase River, near Nanaimo, Vancouver Island. Herb. No. 23,723. The common large *Rumex* on the east coast of Vancouver Island.

CALAMOVILFA LONGIFOLIA, (Hook.) Hack.

Ammophila longifolia, Macoun, Cat. Can. Plants, VOL. II, p. 208.

Sand-dunes at Point Edward, Lake Huron, Ont. 1901. Herb. No. 26,047. (*John Macoun.*)

DANTHONIA AMERICANA, Scrib. U.S. Dept. Agric. Div. Agros., Circular 30, p. 5.

Wellington Mines, Nanaimo, Vancouver Island. June 13th, 1887. (*John Macoun.*) Among a score or more of sheets of *Danthonia* from the west coast of British Columbia, our herbarium contains but this one of *D. Americana*.

NOTES ON THE WILLOWS OF THE CHILLIWACK VALLEY, B.C.

By J. M. MACOUN.

The number of species of *Salix* in the Chilliwack Valley is remarkably small for that region, only four species having been seen in 1901 in the valley itself and five on the mountains on either side of it. In the valley *S. Sitchensis* is common everwhere, and was the only willow growing along the river between Chilliwack Lake and the point at which the river enters the Fraser Valley with the exception of one clump of *S. pseudomyrsinites* Anders., which grew on a gravel bar in the river. This species was also found by a rivulet at an altitude of 5,000 feet. The other valley species were *S. caudata* (Nutt.), collected at Chilliwack village, and *S. Lyallii*, Heller, at Sumas Lake and by a stream flowing into Chilliwack Lake.

The only common species on the mountains was *S. commutata*, Bebb., always by rivulets at about 5,000 feet altitude, where snow has lain late in the spring. *S. conjuncta*, Bebb., was found on one mountain in a similiar habitat. *S. nivalis*, Hook., which might be expected to be common, was seen only on Tami Hy Mountain at an altitude of 5,500 feet. *S. subcordata* covered a large boulder at 5,600 feet and *S. crassijulis*, Trautv , was abundant on a rocky slope on Tami Hy Mt. but seen nowhere else.

Specimens of all the above were examined by Dr. P. A. Rydberg who has verified my determinations and named the species about which I was uncertain.

TARAXACUM IN CANADA.

About a year ago Dr. Edw. L. Greene described several new species of Taraxacum from Canada.* Several sheets of specimens have been added to the Geological Survey collection since our material was examined by Dr. Greene, but these are all referrable to one or other of the species enumerated below. In his introductory note Dr. Greene says: "Indigenous species will probably be found sufficiently numerous though perhaps only upon western mountain territory." It is probably true that the number of indigenous species in eastern and northeastern Canada is small, perhaps, indeed, there is only one species which ranges from the mountains of eastern Quebec through Labrador and Ungava to Hudson Bay, but that there is at least one indigenous species in eastern Canada no one who has travelled through the unsettled

*Pittonia, Vol. IV, pp. 227-233.

parts of the country can doubt. Not only is *Taraxacum* not rare on the banks of lakes and streams, but the writer has often found it in bogs and swamps several hundred miles from settlement of any kind.

TARAXACUM CHAMISSONIS, Greene, Pittonia, vol. IV, p. 228.

Very common on the shores and islands of Behring Sea and south along the Alaskan coast. Will probably be found in British Columbia.

TARAXACUM RUPESTRE, Greene, Pittonia, vol. IV, p. 229.

Crevices of rocks, alt. 6,000 ft., Mt. Queest, Shuswap Lake, B C. Herb. No. 15,111; Avalanche Mt., Selkirk Mountains, B.C., alt. 8,000 ft. (*J. M. Macoun.*) Kicking Horse Lake, Rocky Mountains. (*John Macoun.*)

TARAXACUM OVINUM, Greene, Pittonia, vol. IV., p. 229.

On Sheep Mountain, Waterton Lake, lat. 49° 05′, Rocky Mountains. Herb. No. 11,711. (*John Macoun.*)

TARAXACUM LACERUM, Greene, Pittonia, vol IV, p. 230.

Canyon of the Upper Liard River, Yukon, lat. 60° 26′. June, 1887. Herb. No. 15,119. (*John Macoun.*)

TARAXACUM DUMETORUM, Greene, Pittonia, vol IV, p. 230.

A common species from Assiniboia westward to British Columbia.

TARAXACUM ERYTHROSPERMUM, Andrz.

The red-seeded dandelion is probably common throughout eastern Canada, but has been seldom separated from *Taraxacum Taraxacum*. Our specimens are from Ottawa, Niagara Falls and Hamilton, Ont.

J. M. M.

SOME NEW NORTHWESTERN COMPOSITÆ.

By EDWD. L. GREENE.

ASTER MICROLONCHUS. Stems about two feet high, very erect, divested of all lower leaves at flowering time, parted from below the middle into numerous leafy and flowering branches forming a somewhat contracted and subpyramidal panicle; the reddened bark of stem and branches glabrous or obscurely pubescent: leaves of the panicle narrowly lance-linear, two inches long more or less, entire, sessile by a broad more or less perceptibly auricled base, thin, delicately scaberulous above, scabrous on the margin, glabrous beneath, marked by a delicate midnerve only, spreading or slightly deflexed: heads few and subracemose on the branches, or solitary at the ends of them, nearly an inch broad measuring the rays, the involucre short-campanulate, its bracts in about three series, narrowly spatulate-lanceolate, scaberulous, at least marginally, and spreading or recurved at tip: rays many and showy, apparently pale violet.

The types of this strikingly handsome new Aster are Mr. Macoun's numbers 26,384 and 26,385 from the Chilliwack Valley, B.C., collected 18 Aug., 1901. Its immediate allies are *A. longifolius*, Lam., *A. hesperius*, Gray, and *A. ensatus*, Greene. From all of these it differs not only in aspect, but in its foliage which, though sensibly roughened above, is yet of a texture so delicate that all the lower and properly cauline ones fade and fall before the time of flowering. It is perhaps more elegant and beautiful than any of its near relations, and rather smaller in stature, though growing in generous soil, and a climate abundantly moist and not severe.

GNAPHALIUM MACOUNII. Apparently biennial, the stems rigidly erect, about two feet high, rather loosely leafy and clothed with a somewhat hirsute and viscid glandular-pubescence: leaves narrowly oblanceolate, acute, 3 inches long, the upper decurrent, all white-woolly beneath, light green and merely glandular-pubescent above; branches of the subpyramidal close panicle and the main stem for some distance below it densely white-woolly: involucres of middle size, their pearly scarious bracts all ovate, very acute: flower and fruit not seen.

Collected in the Chilliwack Valley, B.C., 29 July, by Mr. Jas. M. Macoun, No. 26,847; also earlier at Revelstoke, No. 11,334, and again from the Warm Springs, Kootenay Lake, both in British Columbia, in the year 1890. No. 34,053 from Salmon Arm, J. R. Anderson, 1899, is also the same. The species is related to *G. decurrens*, yet very distinct in habit and inflorescence, the dense white-woolly pubescence of the upper part of stems and branches of the panicle being very peculiar.

GNAPHALIUM PROXIMUM. Annual, erect, rather slender, a foot high, rather amply leafy, even up to the subsessile leafy-bracted clusters of heads: leaves thin, equally hoary on both faces, about 1½ inches long, from ovate-lanceolate to oblong-lanceolate, broadest at the sessile and subcordate-clasping base, somewhat cuspidately acute: small plants simple and with but a terminal cyme; larger ones with many short but strict branches, each with its cyme: bracts of the rather smallish involucres greenish-white, the outer broadly triangular lanceolate and acute, the inner very obtuse: pappus rather scanty, dull-white.

In moist ground in the vicinity of the Mammoth Hot Springs, Yellowstone Park, Messrs. A. and E. Nelson, 1899, distributed under No. 6,036 for *G. Sprengelii*, from which the species differs widely in habit, form of foliage, etc.

ARNICA LÆVIGATA. Near *A. latifolia* and as large, the herbage of a deeper green and of much more thin and delicate texture: radical leaves from round-ovate and cordate to lance-ovate and subcordate, 2 to 3 inches long, on slender petioles as long, the 2 or 3 cauline pairs broad and sessile, glabrous on both faces and coarsely, incisely, often doubly serrate-toothed, the larger 3 inches long and more than 2 in breadth: peduncles about 3, slender, puberulent under their narrowly turbinate involucres, the bracts of these uniserial, lanceolate, acuminate, scarcely pubescent except as to the villous-ciliolate margins; rays light-yellow, long and narrow; disk-corollas narrow-funnelform, the very short and hirtellous tube passing gradually into the limb, which much exceeds it in length: pappus white; achenes glabrous.

By springs in woods of the Chilliwack Valley, B.C., 5 Aug., 1901, J. M. Macoun, No. 26,926. However much like *A. latifolia* in general habit and leaf-outline this may be, it must needs be distinguished specifically by its total lack of pubescence, thin texture, narrow involucres, funnelform corollas, etc. In true *A. latifolia* the bracts are glandular-hairy throughout, and not at all ciliate; and its disk-corollas are much larger and not funnelform, the throat and limb swelling out abruptly from the short tube. Mr. Macoun writes that this species was collected in 1901 on Mt. Cheam by Mr. J. R. Anderson and Dr. Jas. Fletcher.

ARNICA APRICA. Also akin to *A. latifolia* and like it commonly more or less pubescent, but the hairs less rigid, and obviously jointed; the whole plant much smaller in all its parts, and the heads more numerous: radical leaves long-petioled and broadly or narrowly cordate-ovate, the cauline oval, sessile, all serrate or dentate, the teeth callous-tipped: bracts of turbinate involucre few, thin, oblanceolate, acute or acuminate, often purple-tipped, nearly glabrous: rays few, rather deep-yellow, not deeply toothed, the teeth short and broad: disk-corollas with slender tube about as long as the subcylindric but abrupt limb: pappus firm, white; achenes long and slender, glabrous except a few obscure bristly very short hairs and as few minute glands about the summit.

This is represented by Mr. James Macoun's numbers 26,284 and 26,285 from the Chilliwack Valley. It is said to be a plant not of the woods, but of open ground along streamlets. It is readily distinguishable from *A. latifolia* not only by its smaller size and more numerous flowers, but by the character of its pubescence, and especially by its short merely tridentate rays; these last, in the real *A. latifolia*, being elongated, and very deeply cut at summit into narrow almost ligulate teeth or segments.

ARNICA MACOUNII, Greene, Pitt. iv., 160. This species, hitherto known to me only from Vancouver Island, was copiously collected by Mr. James Macoun in the Chilliwack Valley, last season, the specimens bearing the numbers 26,927, 26,928 and 26,929 of the Geol. Surv. Herb.

ARNICA AURANTIACA, Greene, Torreya i, 42, founded on a plant of Oregon collected only by Mr. Cusick until now, must be credited to British Columbia, Mr. Macoun's No. 26,934 from the Chilliwack region matching perfectly the originals of the species.

ARNICA CONFINIS. Less than a foot high, monocephalous, or else with also a pair of monocephalous peduncles from the axils of the uppermost pair of leaves, these surpassing the terminal one; herbage of a light green, viscid-puberulent as to the foliage, the stem with a sparse hairiness: lowest leaves obovate to oblanceolate, an inch long or more and petiolate, the cauline in about three pairs, ovate to lanceolate, 1 to 2 inches long, callous-denticulate, or serrate-dentate, or even subentire, acutish; heads of middle size, the involucral bracts biserial, acuminate, sparsely hirsute: rays deep-yellow, not large; disk-corollas with hirsute tube and naked limb about equal; achenes with a few hirsute hairs; pappus tawny, subplumose.

Chilliwack Valley, B.C., Mr. Macoun, No. 26,933. In characters of pubescence, flower and fruit this approaches *A. ovata*, Greene, but in foliage and habit it differs widely.

ARNICA ASPERA. Stems clustered, often 2 feet high, equably leafy to the corymbose summit, loosely hirsute, more strongly and quite retrorsely so toward the base: leaves about 2 inches long, ovate-lanceolate, sessile by a broad base, the upper longer, the lower shorter than the internodes, rough-hairy on both faces, saliently callous-dentate: peduncles several, slender; involucres small for the plant, campanulate, their bracts uniserial, hispidulous with pustulate hairs; rays very obtuse and only minutely tridentate; disk-corollas with very short tube and rather longer limb about equally and very sparsely setose-hairy: achenes setose-hairy; pappus tawny, subplumose.

The type of this species is a plant found by myself on Mt. Rainier, 19 Aug., 1889, and then supposed to be *A. amplexicaulis*, which I have now for some time known to be a very different plant. *A. aspera* has also been collected by Mr. Piper at Snoqualmie Falls, Washington, and again in the Olympic Mountains. Mr. M. W. Gorman obtained it in 1897 among his plants of the Washington Forest Reserve.

ARNICA CANA is a name needed to replace that of *A. incana*, Greene, Pitt., iv, 169; there being an *Arnica incana* of Persoon of much earlier date.

ARNICA CROCINA, Greene, Torreya, i. 42, first published in Pittonia, iv, 159, by the untenable name of *A. crocea*, is now in hand from two additional stations. It is Mr. James Macoun's No. 26,931 from dry slopes north of Chilliwack Lake, 26th July, 1901; also No. 34,074 of the Canad. Geol. Surv., collected by J. R. Anderson, 1901, from Mt. Cheam, north of Chilliwack River, B.C.

THE SPOTS ON THE EGGS OF THE GREAT BLUE HERON.

By W. E. SAUNDERS.

Some ten years ago I was surprised to receive from Frank L. Farley, then at St. Thomas, but now ranching in Alberta, a set of eggs of the Great Blue Heron which bore a goodly number of jet black spots, and as these spots would not wash off, it was manifest that they were a part of the egg! Although this conclusion was easily arrived at, it was not a satisfying one, as I well knew that all (?) herons' eggs were normally unspotted. In 1900 Mr. Robertson, Aylmer West, Ont., sent me a fine set of five of this species, all of which show more or less of this peculiar spotting. At intervals this problem would recur to my mind, until at last, one day it dawned on me that these herons, at St. Thomas and Aylmer, were within ten or twelve miles of Lake Erie, and I knew that the pound-nets set by the fishermen for sturgeon, etc., were a favourite feeding ground for these birds; and, moreover, that the fishermen soak their nets with a compound of pitch. This solved the problem. Clearly the birds got pitch on their feet, off the nets, and carried it home for the sole purpose (?) of beautifying their eggs. But if this were the case, then a solvent of this pitch compound, such as ether or carbon bisulphide, would dissolve and remove these spots. This theory proved to be correct, and a diligent application of ether to one of the spots removed it. It is plain, therefore, that the spotted eggs would belong to birds who fished in the lake, and that those who fed entirely at smaller

waters would have eggs of clear blue. This conclusion puts one in a position to theorize about the inhabitants of an individual heronry, and lends much interest to the following extracts from Mr. Farley's letter of Feb. 1st, 1891, in which he says:

"On the 24th May, 1889, Ben and I went to the heronry nine miles northwest from here, but did not get there till late in the day, about six o'clock. I did not want to go up as I had walked the country since four o'clock that morning and was tired, but Ben went up one tree with six nests in it, and took two sets, one of 4 spotted, and one of 5 plain ones. Then when he came down I went up another with five nests in it. It was nearly too late, about seven o'clock, when I got up, and I did not want to be caught in the top of a black ash with dead branches after dark, so I did not get any eggs but saw into several nests and could see one set of 5 spotted ones and two plain sets. I went down and we tried Ben's to see if they were fresh, but found that one of the set of 5 was broken, and it was about 18 days set on out of the 21 days; and the bird was all formed. We got the eight eggs home all right and by persistent work for two weeks they were fit for the cabinet, and he now has them in his collection in British Columbia.

"The heronry is in a big forest of black ash and soft maple trees, and was nearly flooded beneath. There were about 100 nests in the place. Some of the trees had as many as eight nests in them, but the majority only had four or five, and some only one. We concluded that we were about ten days too late, and in 1890 we would visit it. Accordingly, on the 12th May, 1890, we left home at 3.30 a.m. and got there shortly after daybreak. We each chose our tree as we both had a pair of irons. I took one with five nests and Ben one with seven. As soon as I got up I yelled out to him that I had a set of five spotted ones, but they were pipped so I left them and went on up to the other nests. From that tree I took two sets of spotted eggs and one of plain ones. No. 1 spotted contained four eggs and No. 2 contained three eggs. No. 2 is the set I send you. During the day I took three sets of spotted, one of five, one of four and one of three. I could only make the set of three fit for my cabinet, although I have the rest laid aside. During the day Ben took three nests of

spotted ones and seven of the others. All told, the two of us took about fifty eggs during the day. This date we also found too late, and this year we will visit it on the 1st or 2nd May, and I hope you will prepare for it and have a good day up the ashes about 70 to 90 feet above *terra firma*."

From this extract it is clearly a lawful conclusion that some of the herons in that colony confined their feeding to smaller waters, while others, nesting in the same tree, visited Lake Erie as well, or possibly did the whole of their hunting on its waters.

On a careful examination of the set taken by Mr. Anderson in May, 1899, I find that although the eggs were fresh, yet every one is spotted, varying from two to three small spots on what was probably the most recent egg, up to several dozen spots of various sizes on the earlier specimens. Therefore it is manifest that the eggs become spotted very soon indeed after they are laid, and point strongly to the conclusion that the unspotted ones belong to birds that confine their hunting exclusively to the smaller waters.

As a rule it is very difficult, if not impossible, to establish that there is any fixed difference in the habits of individual birds of a breeding colony, and a hint of individuality such as these spotted eggs gives, is a gratifying discovery to the student of bird life.

THE AMERICAN SCOTER IN MIDDLESEX.

(Read before the Ornithological Section of the Entomological Society of Ontario.)

By W. E. SAUNDERS.

At the last meeting I presented for inspection a specimen of the Surf Scoter, which was one of a flock of three, two of which had been shot on the Thames River, eight miles west, by Messrs. Murdock and Bridgeman. Only a single record had previously existed for the county, and no other Scoter had been recorded at all.

In the early morning of Nov. 13th, while walking up from the waterworks, I saw a duck on the river and after making the usual sneak along the bank, I got a good rifle-shot at it and missed. It flew, but only about a hundred yards, when it lit

again. A passing car caused it to go a little farther and soon after, by a careful sneak, I got another shot, this time with success. In a moment or two the duck revived and began to swim vigorously for the shore. When it lagged, I dropped a bullet from a smokeless cartridge just outside of the duck, which then made a fresh start for the shore, which after several such spurts was reached, and my prey hid among the irregular sods at edge of the water, out of my sight. To kill it was then the problem, but after carefully searching the shore from several points, I managed so badly as to appear right above it and it started for mid stream in hot haste. Before long it was dead, but the wind being almost directly up stream refused to bring it within reach, nor would the current, but the latter, on the contrary, neutralized the effect of bullet after bullet, which I dropped carefully from the rifle, just beyond the dead bird. Eventually the wind drifted it up stream past a point which was my last hope, and from which, standing barefooted in the icy water, I was unable to reach it with a long stick, and I realized that I must get it from the other shore. This meant walking three-quarters of a mile to the bridge, and then back again. By the time this was accomplished the duck had nearly reached the shore and in a few minutes I had the pleasure of handling an unknown specimen which I guessed was a Scoter. Without staying to plug its mouth, I started in hot haste for business, the time being about 9.30, and in a few minutes was disgusted to notice that the old adage, "more haste and less speed" was being proved once more by the numerous splashes of blood on my trousers. This necessitated a stop to wash them in the river, and once more I started for town, this time without further mishap.

On examining the bird with the aid of Ridgway's Manual it was easily seen to be the American Scoter (*Oidemia Americana*), a bird not hitherto recorded for the county although it is a regular visitant, probably in restricted numbers, to the great lakes.

SOIRÉES.

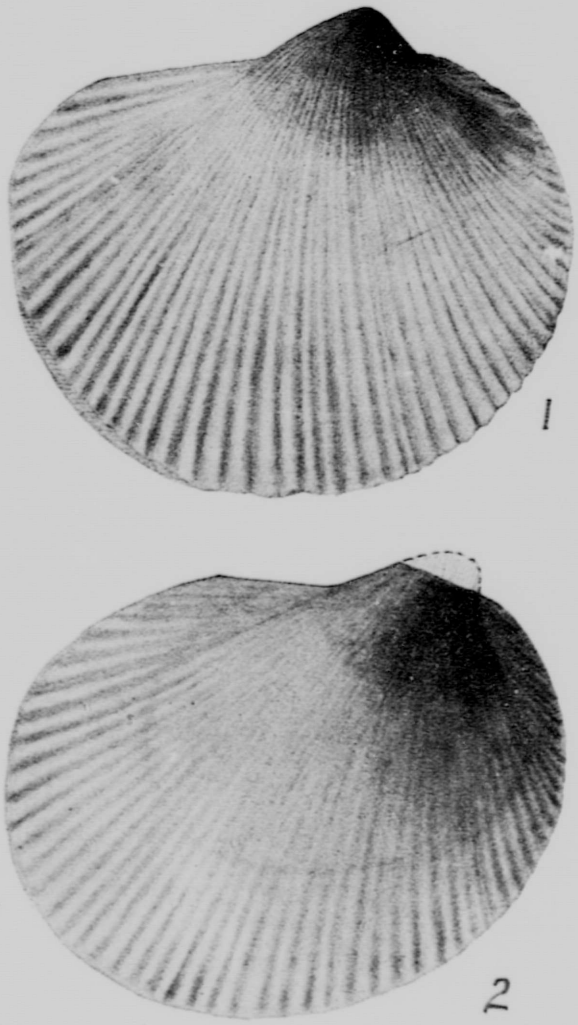
The fourth soirée of the Ottawa Field-Naturalists' Club was held in the Y. M. C. A. lecture room on the evening of July 11th, when the Rev. Robert Campbell, D.D., lectured on "The Ferns of Canada." The lecture was illustrated by lantern slides showing the various kinds of fern structure and fructification and with the exception of a few western species, the large series of slides shown included nearly every form found in Canada. In his introductory remarks the lecturer defined the terms used in describing the various parts of a fern and as each picture was thrown on the screen the differences between genera and species of the same genus were pointed out. The slides were all good, but those made from photographs of mounted specimens were much truer to nature than the reproductions of drawings. In addition to the slides Dr. Campbell exhibited a very complete and finely mounted collection of the ferns of Canada. The lecture was of great interest not only to the botanist but to the many lovers of ferns who, though not botanists, are lovers of Nature.

REVIEW.

MATTHEW, G. F.—ARE THE SAINT JOHN BEDS CARBONIFEROUS? Amer. Geol. Vol. XXVII, No. 6, pp. 383-386, Minneapolis, Minn., U.S.A., June, 1901.

This brief paper is an attempt to give the evidence upon which the plant-bearing beds of the St. John district rest regarding their reference to the Devonian and Silurian systems as held by Dr. Matthew. Correlations with the "Millstone Grit" of England and the "Mauch Chunk" of Pennsylvania are given for different portions of New Brunswick. Two distant series exist, says Dr. Matthew, one in which the sandstones occur as "free stones," the other in which the "sandstones are strongly cemented with silica and some calcite, the shales converted into slates, the limestones are more crystalline and the beds usually tilted at high angles." An unconformity exists at the point of division. Dr. Matthew holds with discordance of dip &c. The *Mispec* and the *Little River* terranes, the latter constituting the fern beds in question, according to Dr. Matthew, lie beneath the unconformity. Dr. Bailey, Dr. Ells, Sir Wm. Dawson, Dr. T. Sterry Hunt, and Dr. Selwyn are given as authorities for the view that the stratigraphical sequence is as given by Dr. Matthew. The latter claims that recent discoveries serve to prove that types which are usually referred to this "flora have been gathered from the lower horizons of the Carboniferous. Dr. Matthew also adds that many genera of plants have a wide vertical range citing a recent genus supposed to be found in the Dretaceous. Dr. Matthew makes the so-called "Millstone Grit" the equivalent of the "Pottsville Conglomerate.

H. M. A.



C. F. King del.

To illustrate paper by Dr. Whiteaves on a Species of Panenka.

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