

FEBRUARY, 1913

VOL. XXVI, No. 11

THE OTTAWA NATURALIST

Published by The Ottawa Field-Naturalists' Club.

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THE OTTAWA NATURALIST

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SOME CHANGES IN THE NAMES OF GENERA OF TRILOBITES.

BY PERCY E. RAYMOND.

The writer had viewed with some complaisance the recent signs of revolt against the rules regarding priority and pre-occupation as laid down by the International Zoological Congress, believing that among paleontologists, the English speaking ones at least, there was a general agreement to follow the rules. At the recent meeting of the Paleontological Society, however, I was surprised to find that many of the American paleontologists were following the rules in a half-hearted manner; that is, that they were willing that the names of unknown or relatively inconspicuous genera should be corrected if necessary, but if the name were at all well known, they preferred to adhere to the long established although incorrect name. Now the arguments in favour of accepting the first name given to a genus, provided that the name is accompanied by a satisfactory diagnosis enabling one to recognize the organism indicated, are too well known to require repeating, and I can add nothing to what has already been said. In discussing one of the cases cited below, that of *Cryptolithus* versus *Trinucleus*, a paleontologist who protested strongly against giving up *Trinucleus* admitted that if he himself had proposed *Cryptolithus*, and if, seven years later a more distinguished man had proposed *Trinucleus* to take its place, he would have objected to the adoption of the later name. In these days, we are very careful not to say "I want credit for my work," but it is a popular saying, "Give credit where credit is due," and as we say it, we are more apt to slap our own chest than our neighbour's back. Why not be true sportsmen, and do to our predecessors what we would like done to us? Incidentally, it simplifies matters for the systematist.

In regard to preoccupation, it does seem as though the rule requiring that there should be no duplication of generic names within the confines of the whole animal kingdom were a little unjust. In former days, when there were naturalists, it probably was a little trying to read a paper on *Amphion*, and not

find till halfway through that the writer was dealing with a moth, while the reader was searching for information about a trilobite. As specialization goes on, we paleontologists will probably forget that moths exist, so why not let each group have its own set of names? But such a thought immediately suggests the confusion that would inevitably result, and one is driven back to the present rules. That the following of the rules works a certain hardship, I am fully aware, but that it produces confusion, I deny. We all dislike a change, and we hate to see well known things travelling under unfamiliar names. But it is remarkable how quickly we assimilate new names, and, after we once get them, how pleased we are with our new possessions. The very fact that they are new and arouse antagonism in us, fixes them in our memory, and they are further emphasized, because we make it a point to tell everyone what a mess Blank is making of our old familiar genera.

As an illustration of how quickly new names are adopted, one may cite the cases of *Orthis*, *Strophomena*, and *Leptaena*. From 1847 to 1892, those names were constantly on the tongue of every American paleontologist. Between 1892 and the end of the century we had learned a new meaning for each of these names, and had also learned some two dozen new generic names for some of the species formerly known by the names cited. It is quite certain that if we of this generation would straighten out our system of names, the next generation would never realize that it had meant any struggle.

In preparing a review of some of the genera of trilobites for a publication soon to be issued, I have tried to eliminate some of the names, which, according to the rules, do not have a lawful standing. As the changes have affected some very well known names, I have been asked to prepare a statement showing the grounds on which the alterations were made.

Some of the cases are very simple and they may be presented first. Jaekel¹ has recently proposed ten new genera among the Agnostida, but six of the names have to be rejected, because he did not recognize prior workers in the field. He proposed *Paragnostus*, with *Aagnostus rex* as the type, but this same species is the type of *Condylopyge*, Corda,² which must of course remain the proper name for this group. He further proposed *Dichagnostus* with *A. granulatus* as the type, thus duplicating Corda's *Pleuroctenium*, which must stand. Jaekel proposed *Mesagnostus*, with *A. integer*, Beyrich, as the type, but Corda had already used this species as the type of *Peronopsis*. *Miag-*

¹ Zeit. d. Deutch. Geol. Ges., vol. 61, pp. 380-401, 1909.

² Prodrum einer Monographie der bohemischen Trilobiten, 1847.

nostus, Jaekel, has the same type-species, *A. lævigatus*, Dalman, as *Lejopyge*, Corda. In none of these cases can there be any reason for accepting the new names proposed by Jaekel. Two of the other new genera founded by Jaekel were based on new species, but they seem, nevertheless, to be synonyms of two of Corda's genera. Jaekel proposed to found the new *Leiagnostus* on his species, *L. erraticus*, associating with it *Agnostus nudus*, and others. Corda's genus *Phalacroma*, with *A. bibullatus*, Barrande, as the type, includes *A. nudus*, and Jaekel's *L. erraticus* has the same generic characters, so that there is no reason to displace Corda's old name. *Metagnostus*, Jaekel, was founded on another new species, named by him *M. erraticus*. This species differs in very minor characters from *A. glabratus*, Angelin. *Metagnostus erraticus* and *A. glabratus* have the same short glabella with faint basal lobes, and the same type of pygidium, as *Agnostus tardus*, Barrande, which is the type of *Arthrorhachis*, Corda, and *Metagnostus* therefore seems superfluous. Unfortunately, *Paragnostus*, *Metagnostus*, and *Leiagnostus* are the genera which Jaekel considered typical of three of his new families, and their rejection forces the rejection of the family names derived from them. Corda's family name *Phalacromidae* would apply to the *lævigati*, and, using the same types as Jaekel the *Paragnostidae* would become the *Condylopygidae*, and the *Metagnostidae* would be transformed into the *Arthrorhachidae*.

Barrande,³ Walcott,⁴ and Lake⁵ have pointed out that *Microdiscus*, Emmons, was founded on an immature specimen of *Cryptolithus* (*Trinuclaus*), and is not, therefore, at all the *Microdiscus* of Salter, Walcott, and authors generally. Walcott has suggested that *Pemphigaspis*, Hall,⁶ may be the same as what is generally meant by *Microdiscus*, and so take its place, but he has not followed this course himself. The writer has recently examined the type of *Pemphigaspis bullata* in the American Museum in New York, and is unable to connect it with what we usually call *Microdiscus*. It therefore seems best to rehabilitate *Eodiscus*, as defined by Matthew,⁷ to include a part, at least, of the species now known as *Microdiscus*. *Eodiscus schucherti*, Matthew, from the Lower Cambrian of Troy, N.Y., thus becomes the type. The name *Eodiscus* was first used in manuscript by Professor Hart, and mentioned by Walcott,⁸

³ Bull. Geol. Soc. France, ser. 2, vol. 18, p. 280, 1861.

⁴ Bull. U.S. Geol. Survey, No. 30, p. 152, 1886.

⁵ Paleontographical Society, vol. 61, p. 30, 1907.

⁶ 16th Ann. Rept. N.Y. State Cab. Nat. Hist., p. 221, 1863.

⁷ American Geologist, vol. 18, 1896.

⁸ U. S. Geol. Survey, Bull. No. 10, p. 24, 1882.

but was not used in any definite sense until Matthew's publication.

The case of *Cryptolithus* versus *Trinuclaus* has been reviewed recently by Foerste,⁹ who comes to the only possible conclusion, which is, that the use of *Trinuclaus* is unjustified. The present habit of dating *Trinuclaus* back to Lhwydd (1698) can not be upheld, as he was a pre-Linnaean writer, and his use of *Trinuclaus* was not at all in a modern generic sense. Murchison was the first describer of *Trinuclaus*, which thus dates from 1839 (Silurian System). In 1832, two names were given to the trilobite which we usually call *Trinuclaus*, *Cryptolithus* by Green in the monthly "American Journal of Geology and Natural Science," and *Nuttainia* by Eaton in the second edition of his text book. Both names appeared in the latter half of the same year, and it is not absolutely clear which appeared first. Dr. Foerste has stated the circumstances in detail, and shows that the evidence rather favours Green's name. Green certainly claimed priority, and we have no evidence that Eaton insisted that his name was published first. It is worthy of note that *Cryptolithus* was adopted by Bronn, Goldfuss, Emmrich, and Angelin, while Eaton's name was never again used by anyone for this genus.

In cases of priority, where the same species was not used as the type by both authors, it is of course necessary to proceed with caution, for further investigation may show that the two type-species really belong to different genera, as has proven the case with *Cheirurus* and *Ceraurus*, genera which have long been considered identical. In the present case the two types seem to be congeneric. Green's *Cryptolithus tessellatus* was founded on a specimen found in the shale at Waterford, New York. Murchison's first species was *Trinuclaus caractaci*, which must be taken as the type of *Trinuclaus*. Green's species differs from Murchison's in lacking the genal spines, and in having three instead of six rows of punctures on the border. The presence or absence of the genal spines is a condition of preservation, as the genal spines are on the free cheeks, and the number of rows of punctures varies within the limits of a single species, so it seems unlikely that these two species will ever require separate generic names.

The *Ogygia*, *Ogygites*, *Ogygiocaris* tangle is complicated but yields a satisfactory solution, as I have briefly shown recently.¹⁰ *Ogygia* was proposed by Brongniart,¹¹ who cited two species.

⁹ Bull. Denison Univ., p. 78, 1910.

¹⁰ Trans. Roy. Soc. Canada, ser. 3, vol. 5, sect. 4, p. 116, 1912.

¹¹ Histoire Naturelle des Crustacés Fossiles, p. 7, 1822.

Ogygia de Guettard and *O. de Desmarest*, which appear to be congeneric. The type of *O. guettardi*, which is still in the collections at the Sorbonne, in Paris, has recently been redescribed and figured by Ehlert in the first fasciculus of the *Paleontologia Universalis*. It is evident that this trilobite is not at all related to the familiar *Ogygias* of Wales and Scandinavia. Barrande was the first to point this out, and Tromelin and Lebesconte stated it long ago. These latter authors also noted that *Ogygia* was a preoccupied name, having been used by Hubner in 1816 for a genus of *Lepidoptera*, and they proposed *Ogygites* to replace it.¹² Goldfuss, in 1843, without giving any special reason, transferred Brongniart's *Asaphus de Buch* to the genus *Ogygia*, and this species has, in time, thanks to Salter's description, come to be considered the type of the genus *Ogygia*. Now that we know what the original type of that genus is, this later position can not be defended except on the general plea "That everyone knows what an *Ogygia* is, and it will make trouble to change now."¹³ *Ogygia buchi* was not one of the original species of *Ogygia*, is not generically the same as the species originally assigned to that genus, and yet is, by the law of tradition, made the type of *Ogygia*, thus ousting the original species! Truly scientists must venerate tradition! To be logical we must now propose a new generic name for the original species of *Ogygia*! But Sweden has produced a man who was not afraid to look things squarely in the face and defy tradition, and in his *Paleontologia Scandinavica*, Angelin proposed *Ogygiocaris* to replace *Ogygia* in the sense used by authors generally, but not by Brongniart, selecting the Scandinavian *O. dilatata* as the type. Therefore, *Ogygia* disappears, being preoccupied, *Ogygites* takes its place for primitive Asaphinæ with annulated pygidia and forked hypostomata, and *Ogygiocaris* stands for trilobites of the type of *Ogygiocaris dilatata* and *O. buchi*.

Another familiar name which must go, merely because it is preoccupied, is *Bronteus*. Goldfuss¹⁴ described this as *Brontes* in 1839. De Koninck¹⁵ saw that this name had already been used by Fabricius for an insect, and therefore proposed to change the name to *Goldius*, a contraction of *Goldfussius*. This did not appeal to Goldfuss, evidently, for he slightly modified his original term in 1843, making it *Bronteus*. If we can use a name only once in the animal kingdom, we must adopt *Goldius*. Here

¹² Assc. Fr. Avanc. Sci. Cong. Nantes, p. 631, 1876.

¹³ See Schmidt, Revis, Ostbalt. Sil. Trilobiten, Abt. 5, lief. 3, p. 37.

¹⁴ Nov. Act. Acad. Cæs. Leop. Carol., vol. 19, pt. 1, 1839.

¹⁵ Nouv. Mem. de l'Acad. de Brux., vol. 14, p. 6, 1841.

again, the change in a generic name involves a change in the family name, and we have to use *Goldida* in place of *Bronteida*.

Reed¹⁶ has shown that the *Acaste* of Goldfuss¹⁷ was used by Leach in 1811 for a genus of Cirripedes, and he has proposed *Phacopidella* to take its place, with *Ph. glockeri*, Barrande as the type.

Arges, Goldfuss,¹⁸ was used by de Haan¹⁹ in 1835 for a subgenus of *Brachyura*, and it has therefore been replaced by Gurich²⁰ with *Ceratarges*.

Arethusa was used by Barrande²¹ in 1846, but it had already been used in 1808 by Montfort (Conch. Syst.) for a mollusk. Corda therefore proposed *Aulacopleura* to replace the preoccupied name,²² and this name must be used in place of Barrande's later modification *Arethusina*.

To the names *Amphion*, *Harpina*, and *Platymetopus*, the writer called attention not long ago, and for them substituted *Pliomera*,²³ Angelin, and the new names *Eoharpes* and *Amphilichas*. *Pliomera* was at once accepted by Reed and by Schmidt, (Holm had previously called attention to the fact that this was the proper course, and Wiman had used *Pliomera*), *Amphilichas* has been used by Reed, and *Eoharpes* by Ruedemann, showing that the changes are readily adopted in certain quarters, at least.

LINCOLN'S SPARROW NESTING IN BRUCE COUNTY, ONTARIO.

During the nesting season of 1912, my friend, Mr. W. D. Hobson, Woodstock, was driving in the Bruce Peninsula, and when near Pike Bay, about twenty miles north-west of Wiarton, heard a very peculiar song. On looking up at the bird, he found it to be so much like a song sparrow that he accepted it as such, but on comparing notes with him as to the character of the song we both feel positive that the bird was a Lincoln's Sparrow, but as he was not acquainted with this species he did not recognize it.

The occurrence is worthy of record on account of the very scanty details of this bird nesting in Ontario, and this is the first

¹⁶ Geol. Mag. n. s. dec. 5, vol. 2, p. 173, 1905.

¹⁷ Opus cit. 1839.

¹⁸ Opus cit. p. 355, 1839.

¹⁹ Fauna Japan, vol. 5, p. 21, 1835.

²⁰ Neues Jahr. Beilage-Band 14, p. 531, 1901.

²¹ Not. prelim. Tril. Bohem., p. 48, 1846.

²² Prodrum einer Mon. etc., p. 84, 1847.

²³ American Jour. Sci., vol. 19, p. 377, 1905.

one reported south of the Georgian Bay, although in the east it is stated, in Macoun's "Birds of Canada," that several nests were found by the Rev. C. J. Young, in Leeds County, and one was shot by Mr. Spreadborough at Cache Lake, Algonquin Park, in July, 1910. These are the only records I can locate at present with regard to the nesting of this bird in the longitude of Ontario, which goes to show that our knowledge of the northern distribution of a few of our migrants is, as yet, very incomplete.

W. E. SAUNDERS.

ADDITIONS TO THE FLORA OF VANCOUVER ISLAND.*

By J. I. MACOUN, Assistant Naturalist,
Geological Survey of Canada.

For nearly twenty years after the publication of Part V of the Catalogue of Canadian Plants, in 1890, very little systematic botanical work was done on Vancouver Island, except in 1893 when Prof. John Macoun spent the collecting season there. Notes on the new species and additions to the flora of Vancouver Island made in that year were published in "Contributions from the Herbarium of the Geological Survey," printed in the *Canadian Record of Science* and *The Ottawa Naturalist*.

The need of a thorough study of the flora of Vancouver Island was so pressing that in 1908 Prof. John Macoun was instructed to undertake it, and that year he worked in the vicinity of Victoria and north to Nanaimo, and the following season, 1909, on the west coast, chiefly about Ucluelet. He was assisted both years by Mr. William Spreadborough, who had also collected at Nootka in 1906. Prof. Macoun, being otherwise employed in 1910 and 1911, Mr. Spreadborough continued the work of collecting in these years, spending part of the season of 1910 on Queen Charlotte Islands and part of 1911 in the interior of Vancouver Island. In 1912 both the writer and Prof. Macoun collected on Vancouver Island, the former on the islands in the Gulf of Georgia and in Strathcona Park, the latter chiefly in the vicinity of Sidney. The manuscript for a flora of Vancouver Island is now almost ready for the press, but so many additions to the known flora have been made in the years referred to and so many are now interested in the Vancouver Island flora that it seems advisable to publish for their information a preliminary list of the additions that have been made to the flora in recent years. Where not otherwise stated, all the

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citations refer to collections made by members of the Geological Survey staff, and the specimens are in our herbarium.

The list that follows is by no means complete and will be supplemented by the descriptions of new species.

1. *Asplenium viride*, Huds.
Ucluelet; Strathcona Park.
2. *Asplenium cyclosorum*, Ruprt.
Common; not separated from *A. Filix-foemina* in earlier publications.
3. *Polystichum munitum* var. *imbricatum* (D. C. Eaton) Maxon.
Mount Finlayson; Skirt Mountain.
4. *Polystichum Andersoni*, Hopkins. N. sp. in ed.
Strathcona Park. (W. B. Anderson).
5. *Polystichum oreopteris*, Swartz.
Shawnigan Lake. (J. R. Anderson).
6. *Woodwardia spinulosa*, Mart. and Gal.
Texada Island. (J. R. Anderson).
7. *Woodsia oregana*, D. C. Eaton.
Cowichan River, alt. 4,000 ft.
8. *Equisetum litorale*, Kuhnlewein.
Shawnigan Lake.
9. *Lycopodium inundatum*, L.
Ucluelet.
10. *Selaginella Wallacei*, Hieron.
Common, recorded as *S. rupestris*.
11. *Selaginella densa*, Rydb.
Jansen's Island, Ucluelet.
12. *Selaginella selaginoides*, (L.) Link.
Ucluelet.
13. *Sparganium minimum*, Fries.
San Juan Lake. (Rosendahl).
15. *Potamogeton zosterifolius*, Schumacher.
Langford Lake.
16. *Scheuchzeria palustris* L.
Cowichan Lake.
17. *Panicum pacificum*, Hitchc. and Chase.
Renfrew district. (Rosendahl). Bear Lake; Strathcona Park.
18. *Hierochloa odorata*, (L.) Wahl.
Courtenay River near Comox.
19. *Alopecurus californicus*, Vasey.
Head of Ucluelet Inlet.
20. *Agrostis oregonensis*, Vasey.
Renfrew district. (Rosendahl). Rare at Ucluelet.

21. *Agrostis longiligula*, Hitchc.
Departure Bay; Bear Lake.
22. *Agrostis inflata*, Scribner.
Esquimault.
23. *Agrostis aequalvis*, Trin.
District of Renfrew. (Rosendahl).
Colquitz River; Ucluelet.
24. *Calamagrostis canadensis* var. *acuminata*, Vasey.
Comox; Departure Bay.
25. *Koeleria cristata*, (L.) Pers.
Burnside Road, Victoria; Bear Lake.
26. *Trisetum Nutkensis*, (Presl.) Scribn. and Merrill.
Renfrew district. (Rosendahl).
27. *Deschampsia caespitosa*, Beauv.
Comox; Strathcona Park.
28. *Deschampsia atropurpurea* (Wahl.) Scheele.
Mount Benson; Strathcona Park.
29. *Avena fatua* var. *glabrata*, Peter.
Sooke; Victoria; Departure Bay.
30. *Beckmannia erucæformis*, (L.) Host.
Colquitz River.
31. *Distichlis spicata*, Beauv.
Ucluelet. Introduced from east with cranberry
plants.
32. *Cynosurus echinatus*, L.
Oak Bay, Victoria; Nanaimo.
33. *Poa trivalis* L. var. *filiculmis*, Scribn.
Comox.
34. *Poa eminens*, Presl.
West shore, Vancouver Island. (J. R. Anderson).
Long Beach below Clayoquot.
35. *Festuca subulata*, Bong.
Bear Lake; Nanaimo.
36. *Festuca elatior*, L.
Comox.
37. *Bromus commutatus*, Schrad.
Victoria; Cowichan Lake.
38. *Bromus pacificus*, Shear.
Renfrew district. (Rosendahl).
39. *Bromus sterilis*, L.
Near Victoria.
40. *Bromus rubens*, L.
Nanaimo.
41. *Hordeum boreale*, Scribn.
Renfrew district. (Rosendahl).

42. *Elymus glaucus* var. *hirsutus*, M. O. Malte in ed.
Bear Lake, Cowichan Lake.
43. *Elymus glaucus* var. *robustus*, Davy.
Victoria; Ucluelet; Beacon Hill.
44. *Elymus borealis*, Scribn.
Renfrew district. (Rosendahl).
Ucluelet.

NOTE.—The names of many grasses have been changed since the publication of the Catalogue of Canadian Plants. The above are all additions.

45. *Scirpus riparius*, (R. Br.) Spreng.
Victoria; Comox; Departure Bay; Ucluelet.
46. *Scirpus validus*, Vahl.
Wellington; Sidney; Beaver Lake near Victoria.
47. *Carex scoparia*, Schk.
Ucluelet. Introduced with cranberry plants from the east.
48. *Carex pratensis*, Drej.
Victoria; Mount Benson; Departure Bay; Comox.
49. *Carex anea*, Fernald.
Departure Bay.
50. *Carex stellulata* var. *cephalantha*, Bail.
Wellington; Ucluelet.
51. *Carex Deweyana*, Schwein.
Renfrew district; Victoria.
52. *Carex pseudo-Deweyana*, Kukenthal.
Comox.
53. *Carex globosa*, Boott.
Bear Lake, Cowichan.
54. *Carex limosa*, Linn.
Near Comox.
55. *Carex flexilis*, Rudge.
Ucluelet. Introduced from the east with cranberry plants.
56. *Carex aurea*, Nutt.
Cadboro Bay; Comox.
57. *Carex vesicaria* var. *major*, Boott.
Near Victoria; Wellington.
58. *Carex physocarpa*, Presl.
Kennedy Lake near Ucluelet.
59. *Carex Bonplandii*, Kunth.
Comox; Cedar Hill.
60. *Spirodela polyrhiza* (L.) Schleid.
Victoria.

61. *Juncus balticus*, Willd.
Renfrew district. (Rosendahl). Ucluelet; Departure Bay.
62. *Juncus effusus* var. *compactus* L. and C.
Ucluelet. Introduced with cranberry plants from the east.
63. *Juncus alpinus* var. *fuscescens*, Fernald.
Strathcona Park.
64. *Juncus orthophyllus*, Coville.
Koksalah River.
65. *Juncus effusus*, L. var. *bruneus*, Engelm.
Ucluelet; Departure Bay.
66. *Juncus effusus*, L. var. *pacificus*, F. and W.
Victoria; Nanaimo; Ucluelet.
67. *Juncus effusus* var. *gracilis*, Hooker.
Sidney.
68. *Juncus falcatus* var. *alascensis*, Coville.
Renfrew district. (Rosendahl). Kennedy Lake near Ucluelet; Strathcona Park.
69. *Juncus brevicaudatus*, (Englem.) Fernald.
Ucluelet. Introduced with cranberry plants from the east.
70. *Juncus Mertensianus*, Bong.
Ucluelet; Strathcona Park.
71. *Luzula comosa*, E. Meyer.
Victoria. Only record for typical *L. comosa*.
72. *Erythronium Howellii*, Wats.?
Barklay Sound. (Hillier). Cowichan Lake. First collected by Anderson.
73. *Erythronium montanum*, Wats.?
Grand Central Lake. (Fraser).
74. *Lloydia serotina*, (L.) Swert.
Strathcona Park.
75. *Disporum Smithii*, (Hook.) Piper.
Gordon River. (Rosendahl). Cowichan Lake.
76. *Streptopus curvipes*, Vail.
Cowichan River; Strathcona Park.
77. *Clintonia uniflora*, Menzies.
Cowichan Lake; Strathcona Park.
78. *Iris versicolor*, L.
Ucluelet. Introduced with cranberry plants from the east.
79. *Sisyrinchium idahoense*, Bicknell.
Renfrew district. (Rosendahl). Victoria; Nanaimo; Shawnigan Lake; Ucluelet.

80. *Sisyrinchium littorale*, Greene.
Victoria; Ucluelet; Nootka.
81. *Sisyrinchium birameum*, Piper.
Ucluelet.
82. *Sisyrinchium Macounii*, Bicknell.
Comox; Nanaimo; Beaver Hill; Ucluelet.
83. *Listera caurina*, Piper.
Cameron Lake; Mount Benson; Ucluelet.
84. *Salix macrostachya*, Nutt.
Koksilah River.
85. *Salix* sp.
A common species around Victoria. Not yet described but heretofore referred to *S. cordata*.
86. *Comandra Richardsoniana*, Fernald.
Langford Plains near Goldstream.
87. *Rumex occidentalis*, S. Wats.
Esquimault; Sidney; Nanaimo; Ucluelet.
88. *Rumex conglomeratus*, Murr.
Departure Bay.
89. *Rumex salicifolius*, Weinm.
Nanaimo; Ucluelet; Cowichan Lake.
90. *Polygonum aviculare* var. *vegetum*, Ledeb.
Near Comox; Nanaimo.
91. *Polygonum Douglasii*, Greene.
Near Duncan's.
92. *Polygonum spergulariæforme*, Meisn.
Beacon Hill; Nanaimo; Cowichan River; Campbell River.
93. *Polygonum tomentosum*, Schrank.
Near Victoria.
94. *Polygonum amphibum* var. *Hartwrightii*, (Gray) Bissell.
Colquitz River.
95. *Polygonum hydropiperoides*, Michx.
Elk Lake near Victoria.
96. *Amaranthus græcizans*, L.
Departure Bay.
97. *Amaranthus blitoides*, Wats.
Departure Bay.
98. *Abronia umbellata*, Lam.
Pachene Bay. (Geo. Fraser).

MEETINGS OF THE BOTANICAL BRANCH.

Dec. 21st, 1912, at the home of Mr. Geo. H. Clark. The following gentlemen were present: Geo. H. Clark, R. B. Whyte, E. D. Eddy, J. W. Eastham, A. Eastham, H. A. Honeyman, C. J. Tulley, W. Dreher, A. E. Attwood, Dr. M. O. Malte, L. H. Newman, J. J. Carter and H. Groh.

The subject of the evening, which was presented by Dr. M. O. Malte, was as follows: "The nature study of plants in relation to their identification." The speaker showed by means of specimens, that certain plants vary in form to a remarkable extent under different conditions of life. Attention must therefore be paid when identifying plants to the conditions under which the plants are grown, otherwise certain modified specimens of a given species may be regarded as belonging to quite another species. The confusion which the young botanist meets with on account of variations in the post-floral development of certain species was also pointed out and illustrated by specimens of the Ground Cherry (*Physalis grandiflora*), Madwort (*Asperugo procumbens*), Bitter Dock (*Rumex obtusifolius*) and certain species of Rosaceae.

The difficulties associated with the identification of species of the genus *Salix*, (willows) due to variations which appear at different periods of their development were pointed out and illustrated. It was shown to be imperative that species of this genus be studied at different stages throughout the season. Without such a study the student could have little idea of the variations within the species.

From the discussion there emanated the conclusion that a collection of plants should not be restricted to *single individuals* within the species, but rather should include typical variations which arise at different stages of development or under different conditions of life. To get a clear idea of a given species, moreover, the plants must be studied in the field. The facilities for doing this, as provided by the excursions of the club during the spring and early summer, were referred to. The speaker believed, however, that plants should not be pulled, taken to the platform of a railway station—as is often the case—and then studied, but rather should the study be made of the undisturbed specimens in their natural habitat.

The new "Flora" which is being prepared of plants of the Ottawa Valley is likely to materially facilitate the proper study of plant life.

A general discussion followed the presentation of the above paper in which such interesting phenomena as the development

of awns in oats when grown under different conditions was discussed.

L. H. N.

January 4th, 1913, at the home of Mr. A. E. Attwood, Present, in addition to the host, Messrs. Buck, Brown, Malte, Whyte, J. M. Macoun, W. T. Macoun, Newman, Dreher, Blackader, Dymond, Tully and Honeyman. The subject for the evening was the Ecology of the Ottawa Flora, the discussion being opened by Mr. J. M. Macoun, who gave some interesting information. At the outset Mr. Macoun made the announcement that "The Flora of the Ottawa District," originally begun by the late Dr. James Fletcher and completed by Prof. John Macoun, so far as the names and localities were concerned, would soon be ready for publication. In addition to the list of plants there will be a key by which the species can be readily identified. This key, which has been prepared by Dr. Malte, assisted by Mr. Macoun, will apply only to the local flora, and in this respect will be different from all other keys which have been published, and on account of the relatively few plants on the list it should prove a very simple matter to identify a species.

Mr. Macoun said that while the definition of Ecology was sometimes given as "Plants in their Relation to Environment" the proper definition was "Adaptation of Plants to Their Environment."

Plants have been classified from an ecological standpoint according to their environment; such as, those growing entirely under water, those having only their leaves above water and through various other gradations until all the plant except the roots was out of water.

Another group are those plants which grow in very dry soils. In this group is included all those that grow on dry rock as distinguished from those growing in crevices or on loose soil over rock.

Another are those on very saline soil, of which we have none in this district.

The last group includes all plants which are moisture-loving (hygrophytes) during some favourable part of the year, and dry (xerophytes) during the rest of the year; as, deciduous trees and shrubs, deciduous herbaceous plants with underground perennating organs, and annuals. This group was first called mesophytes, but afterwards changed to tropophytes.

Mr. Macoun drew attention to the fact that in these groupings the great bulk of our Ottawa Flora is thrown into the last group. One member objected strongly to a classification which included deciduous trees and bulbous plants in the same group.

E. H. B.

THE MILKWEED AND INSECTS.

In connection with Mr. Sladen's note in the December number of THE NATURALIST telling of the bee with the pollinia of *Asclepia* attached to its feet, and describing the remarkable method of cross fertilization adopted by this plant, it may be of interest to remark that *Asclepia*'s device to ensure the effective dissemination of its pollen causes—in the case of our native *A. syriaca* at least—the death of large numbers of insects. The pollinia are so difficult, comparatively, to withdraw, that they can be removed from their cells only by strong insects like the larger species of bees. Less sturdy seekers after nectar which get their feet caught in the clips, as recounted by Mr. Sladen, are not able to pull out the pollen masses. Their struggles seem only to wedge their legs more firmly in the narrow fissures of the corolla, and unable to free themselves, these hapless guests at the Caesar Borgia feast spread by the plant, die a lingering death.

Many different kinds of insects, such as flies, beetles, gnats, wasps, bees, and small butterflies and moths, come thus to an untimely end, but in my experience, by far the most frequent victims are ants. An examination of the blossoms of *A. syriaca* growing in the vicinity of ant colonies never fails to discover some of these exemplars of Solomon caught fast in the manner described, some still vainly struggling for freedom, others hanging dead like gibbeted malefactors.

This destruction of insect life is apparently merely accidental, and seems to be of no particular use to the plant. For, of course, *Asclepia* is entirely devoid of any such digestive apparatus as is found in the sundews and pitcher plants, and cannot utilize the dead insects in any way as food. Doubtless, cross fertilization is much better accomplished by the stronger flying insects, which are capable of carrying the pollinia farther and safer than the weaker flyers or the crawlers, but death seems a rather severe discipline of the latter for their undesired visit.

CHARLES MACNAMARA, Arnprior, Ont.

BOOK NOTICES.

HARDY ROSES: THEIR CULTURE IN CANADA, by W. T. Macoun, Dominion Horticulturist; Pamphlet, No. 9, Dominion Experimental Farms.

Lovers of flowers will welcome the appearance of this pamphlet of 12 pages, which may be obtained free of charge

from the author, Central Experimental Farm, Ottawa. The titles of the paragraphs will give an idea of the scope of the publication, viz.: "Site and Soil"; "Plants and Planting"; "Cultivation and Watering"; "Manuring"; "Pruning"; "Winter Protection"; "Insects and Fungous Enemies and How to Treat Them," and pages 7 to 12 are occupied in listing the "Best Varieties of Roses." Ottawa growers will find the information on pages 11 and 12 of much value as we have here reliable data on the successful growing of many choice varieties at Ottawa. During the past 21 years very many varieties have been tested on the Central Experimental Farm.

A. G.

CORRESPONDENCE.

The Editor, OTTAWA NATURALIST:

Many of your readers know of the bird nesting boxes made in Germany after the pattern of Baron von Berlepsch, and some would doubtless like to get them, if available at a reasonable figure, but importation from Europe is of course expensive. To meet this need I have just brought out a few dozen assorted sizes and will turn these over to any nature lover at actual cost as long as they last. The sizes are:

- A1. For Wrens.
- A. Tree Swallows and Wrens, etc.
- B. Blue Bird, Crested Fly Catcher.
- C. Flicker.
- D. Screech Owl, Sparrow Hawk, Flicker.

The first two sizes cost 40c., B. 50c.,
and C. and D. \$1.15.

The packing in London will cost 15c. for one and 5c. for each additional one. Remittances should, of course, be made with the order. It is quite probable that several Ottawa people would want to buy these, and it might be advisable to have the orders collected by your secretary and shipped in one lot, which would economize in packing and freight. The boxes are not here at this writing, but are expected by February 15th, and it would be well to have them in advance so that they may be put in place by the time the birds arrive.

In 1912 the first Flicker I saw was the one in the nesting box within twenty feet of my bedside, where they nested last year, which goes to show that they do not waste any time in looking over the ground.

W. E. SAUNDERS.

London, Ont., January 31st, 1913.

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