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CONTENTS:

THE ONTARIO
NATURAL SCIENCE BULLETIN

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WELLINGTON FIELD NATURALISTS' CLUB,
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The Birds of Wellington County, Ontario.

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BY A. B. KLUGH.

Wellington County is situated almost exactly in the centre of the peninsular of Ontario formed by Lakes Ontario, Erie and Huron. Its greatest length from north-west to south-east, is about 60 miles, its greatest breadth about 27 miles. The general slope is toward the south. The county is for the most part under cultivation.

The Avifauna of the county is interesting because of the fact that the difference between the northern and southern portions is very marked, and because its southern boundary appears to form the southern breeding limit for several birds of the Canadian zone.

Zoogeographically the fauna is Alleghanian, strongly inclined towards Canadian.

Having no beaches our fauna is poor in Limicolae. Most of the Anatidae recorded were seen at Puslinch Lake, a body of water about $1\frac{1}{4}$ miles by $\frac{3}{4}$ mile at the south-west corner of the county, or at Pike Lake, a sheet some 1 mile by $\frac{1}{2}$ mile, near Mount Forest.

The nomenclature and classification used in this list is that of Coues' *"Key to North American Birds,"* (fifth edition), with a few modifications, namely, that the sequence is that of the A.O.U. Checklist, the original spelling of names is preserved and a few sub-species are not recognized, in which last case a note is made of the fact.

The "Key" is used instead of the latest A.O.U. Checklist, because the latter sets forth a nomenclature too fleeting in its nature, and graces too many insignificant variations with a name. That every slight variation should be recorded, is certainly of importance, but the naming of them is quite another matter.

The writer is greatly indebted to Mr. Allan Brooks, now of Comox, B.C., for a list of the birds observed by him during a three years' residence at Mount Forest, at the extreme north of the county, and to Mr. P. A. Taverner, of Detroit, Mich., for a list compiled during a two years' stay at Guelph, also to the members of the Wellington Field Naturalists' Club, for numerous notes furnished.

1. *Colymbus holboellii.* Holboell's Grebe. Scarce migrant. Most often seen in spring.

2. *C. auritus.* Horned Grebe. Common migrant, commonest in fall. One taken at Guelph, Dec. 30, 1904

3. *Podilymbus podiceps.* Pied-billed Grebe. Common migrant.

4. *Gavia imber.* Loon. Scarce migrant.

5. *G. lumme.* Red-throated Loon. Rare migrant.

6. *Larus marinus.* Great Black-backed Gull. 3 observed by Mr. Allan Brooks in April, 1893.

7. *L. argentatus.* Herring Gull. Frequent migrant and scarce winter visitor.

8. *Sterna hirundo.* Common Tern. Scarce migrant.

9. *Merganser americanus.* American Merganser. Frequent migrant, sometimes spending the winter on open water on the River Speed.

10. *M. serrator.* Red-breasted Merganser. Rare migrant.

11. *Lophodytes cucullatus.* Hooded Merganser. Scarce migrant.

12. *Anas boschas.* Mallard. Scarce migrant.

13. *A. obscura.* Black Duck. Frequent migrant.

14. *Nettion carolinensis.* Green-winged Teal. Scarce migrant.

15. *Spatula clypeata.* Shoveller. One seen by Mr. Allan Brooks.

16. *Dafila acuta.* Pintail. Twice observed by Mr. Allan Brooks.

17. *Aix sponsa.* Wood Duck. Rare migrant. Used to breed.

18. *Aythyia americana.* Red-head. Frequent migrant.

19. *Fuligula marila.* Scaup Duck. Common migrant; the commonest of our Anatidae.

20. *F. affinis,* Lesser Scaup Duck. Frequent migrant at Mount Forest.

21. *F. collaris.* Ring-necked Duck. Frequent migrant at Mount Forest.

22. *Clangula clangula americana.* American Golden-eye. Frequent migrant and scarce winter resident.

23. *C. albeola.* Buffle-head. Frequent migrant.

24. *Harelda hyemalis.* Old-squaw. Scarce migrant.

25. *Oidemia deglandi.* White-winged Scoter. Scarce migrant.

26. *O. perspicillata.* Surf Scoter. Scarce migrant. A small flock seen at Puslinch Lake, Sept. 22, 1904, and one taken Sept. 23, by the writer.

27. *Erismatura jamaicensis.* Ruddy Duck. Frequent migrant.

28. *Branta canadensis.* Canada Goose. Frequent migrant.

29. *Botaurus lentiginosus.* American Bittern. Frequent summer resident.

30. *Ardetta exilis.* Least Bittern. Rare summer resident.

31. *Ardea herodias.* Great Blue Heron. Frequent summer resident. Two colonies near Guelph, the second begun in 1903.

32. *Butorides virescens.* Green Heron. Rare summer resident. Two remained all summer at Puslinch Lake in 1904.

33. *Grus mexicana.* Sandhill Crane. One seen by Mr. Allan Brooks in April, 1893, migrating in company with 3 Great Black-backed Gulls.

34. *Rallus virginianus.* Virginia Rail. Rare summer resident.

35. *Porzana carolina.* Sora. Rare summer resident in the southern portion of county., common in the northern.

36. *P. noveboracensis.* Yellow Rail. One taken by Mr. S. Walker.

37. *Ionornis martinica.* Purple Gallinule. One taken by Mr. Holliday near Guelph, about 1894.

38. *Fulica americana.* American Coot. Scarce migrant at Mount Forest.

39. *Philohela minor.* American Woodcock. Scarce summer resident.

40. *Gallinago delicata.* Wilson's Snipe. Scarce migrant at Guelph. Scarce summer resident at Mount Forest.

41. *Marorhamphus griseus.* Dowitcher. One taken by Mr. Holliday at Guelph.

42. *Actodromas maculata.* Pectoral Sandpiper. Rare migrant, taken by Mr. Holliday at Guelph.

43. *A. bairdii.* Baird's Sandpiper. Rare migrant, taken by Mr. Holliday at Guelph.

44. *A. minutilla.* Least Sandpiper. Rare migrant. Taken by Mr. Holliday at Guelph, May 19, 1895.

45. *Ereunetes pusillus.* Semipalmated Sandpiper. Rare migrant, taken by Mr. Holliday at Guelph.

46. *Totanus melanoleucus.* Greater Yellow-legs. Scarce migrant.

47. *T. flavipes.* Yellow-legs. Scarce migrant.

48. *Helodromas solitarius.* Solitary Sandpiper. Scarce migrant. Common near Guelph from July 19 to Sept. 1, 1903.

49. *Actitis macularia.* Spotted Sandpiper. Common summer resident.

50. *Charadius dominicus.* American Golden Plover. Rare migrant.

51. *Aegialitis vocifera.* Killdeer. Common summer resident.

52. *A. semipalmata.* Semipalmated Plover. Scarce migrant, taken by Mr. Holliday at Guelph.

53. *Colinus virginianus.* Bob-white. Once seen by Mr. Allan Brooks.

54. *Canachites canadensis.* Canada Grouse. One taken near Guelph, Nov. 25, 1898.

55. *Bonasa umbellus.* Ruffed Grouse. Frequent resident.

56. *Ectopistes migratorius.* Passenger Pigeon. Once abundant. now extinct.

57. *Zenaidura macroura.* Morning Dove. Frequent summer resident at Guelph. Rare at Mount Forest.

58. *Cathartes aura.* Turkey Vulture. One taken Sept., 1901.

59. *Circus hudsonius.* Marsh Hawk. Frequent summer resident at Guelph, scarce at Mount Forest.

60. *Accipiter velox.* Sharp-shinned Hawk. Scarce summer resident at Guelph, common at Mount Forest.

61. *A. cooperi.* Cooper's. Hawk. Scarce summer resident Sometimes remains over winter.

62. *Astur atricapillus.* American Goshawk. Scarce winter visitor.

63. *Buteo borealis.* Red-tailed Hawk. Scarce migrant at Guelph, common summer resident at Mount Forest.

64. *B. lineatus.* Red-shouldered Hawk. Common summer resident at Guelph, very rare at Mount Forest.

65. *B. latissimus.* Broad-winged Hawk. Frequent migrant.

66. *Haliaetus leucocephalus.* Bald Eagle. Rare migrant.

67. *Archibuteo lagopus sancti-johannis.* American Rough-legged Hawk. Rare migrant.

68. *Falco rusticolus gyrfalco.* Gyrfalcon. One seen by Mr. Allan Brooks, Feb., 1893.

69. *F. columbarius.* Pigeon Hawk. Scarce migrant.

70. *F. sparverius.* American Sparrow Hawk. Frequent summer resident.

71. *Pandion haliaetus carolinensis.* American Osprey. Frequent migrant.

72. *Asio wilsonianus.* American Long-eared Owl. Rare resident.

73. *A. accipitrinus.* Short-eared Owl. Rare migrant.

74. *Strix nebulosa.* Barred Owl. Rare resident at Guelph. scarce at Mount Forest.

75. *Nyctala tengmalmi richardsoni.* Richardson's Owl. One taken by Mr. Allan Brooks.

76. *N. acadica.* Saw-whet Owl. Scarce resident.

77. *Megascops asio.* Screech Owl. Frequent resident. Sometimes common in late fall. The gray phase predominates at Guelph, the red at Elora (about the middle of the county), and the gray at Mount Forest.

78. *Bubo virginianus.* Great Horned Owl. Frequent resident.

79. *Nyctea nyctea.* Snowy Owl. Scarce winter visitant.

80. *Surnia ulula caparoch.* American Hawk Owl. Rare winter visitant at Mount Forest.

81. *Coccyzus americanus.* Yellow-billed Cuckoo. Scarce summer resident.

82. *C. erythrophthalmus.* Black-billed Cuckoo. Frequent summer resident.

83. *Ceryle alcyon.* Belted Kingfisher. Frequent summer resident, occasionaly seen at Guelph in winter.

84. *Dryobates villosus.* Hairy Woodpecker. Frequent resident, commonest in fall and winter.

85. *D. pubescens.* Downy Woodpecker. Frequent resident, commonest in spring. This is *D. p. medianus* of those who choose to recognize every variation as a sub-species.

86. *Picoides arcticus.* Arctic Three-toed Woodpecker. Rare visitor during migrations at Guelph, 1 taken May 2, 1904, by the writer, one taken at Mount Forest in Oct., 1893, by Mr. Allan Brooks, and others seen there.

87. *Sphyrapicus varius.* Yellow-bellied Sapsucker. Common migrant, and scarce summer resident at Guelph. Common summer resident at Mount Forest.

88. *Ceophlocus pileatus.* Pileatel Woodpecker. Rare resident This is *C. p. abieticola,* if this unnecessary sub-species is recognized.

89. *Melanerpes erythrocephalus.* Red-headed Woodpecker. Frequent summer resident, becoming scarcer. In February, 1899, Mr. A. A. Davidson found 26 in a swamp at Elora.

90. *Colaptes auratus.* Flicker. Common summer resident. Occasionally seen in winter. This is *C. a. luteus* if this sub-species is regarded as worth anything.

91. *Antrostomus vociferus.* Whip-poor-will. Frequent summer resident.

92. *Chordeiles virginianus.* Nighthawk. Common summer resident.

93. *Chaetura pelagica.* Chimney Swift. Common summer resident.

94. *Trochilus colubris.* Ruby-throated Humming Bird. Frequent summer resident.

95. *Tyrannus tyrannus.* Kingbird. Common summer resident.

96. *Myiarchus crinitus.* Crested Flycatcher. Common summer resident.

97. *Sayornis phoebe.* Phoebe. Common summer resident.

98. *Contopus borealis.* Olive-sided Flycatcher. Rare migrant at Guelph, frequent summer resident at Mount Forest.

99. *C. virens* Wood Pewee. Common summer resident.

100. *Empidonax flaviventris.* Yellow-bellied Flycatcher. So far unknown at Guelph. Common summer resident at Mount Forest.

101. *E. minimus.* Least Flycatcher. Common summer resident.

102. *E. traillii.* Traill's Flycatcher. Scarce summer resident at Mount Forest. Specimens were sent by Mr. Allan Brooks to Mr. Wm. Brewster, who pronounced them ultra-typical of the species. Mr. Brooks says that this is a bird of the dry upland copses of small maple, beech, etc., while *E. t. alnorum* inhabits the swales. The notes are also quite distinct from those of *alnorum.*

103. *E. t. alnorum.* Alder Flycatcher. Scarce summer resident.

104. *Otocoris alpestris praticola.* Common summer resident; abundant in spring, common in early summer, scarce in late summer, common in fall and absent only from about Nov. 10 to Feb. 20.

105. *Cyanocitta cristata.* Blue Jay. Common resident, commonest in fall.

106. *Perisoreus canadensis.* Canada Jay. Frequent from Oct. 24 to Nov. 17, 1904.

107. *Corvus americanus.* American Crow. Common summer resident. Scarce in winter.

108. *Dolichonyx oryzivorus.* Bobolink Common summer resident at Guelph. Scarce at Mount Forest in 1892, but becoming commoner.

109. *Molothrus ater.* Cowbird. Common summer resident. One seen in Dec., 1903.

110. *Agelaius phoeniceus.* Red-winged Blackbird. Frequent summer resident.

111. *Sturnella magna.* Meadowlark. Common summer resident. Occasionally seen in winter.

112. *Icterus galbula.* Baltimore Oriole. Frequent summer resident.

113. *Scolecophagus carolinus.* Rusty Blackbird. Common fall migrant.

114. *Quiscalus quiscula aeneus.* Bronzed Grackle. Common summer resident.

115. *Hesperiphona vespertina.* Evening Grosbeak. Rare winter visitor. Seen in considerable numbers during February, 1902, a flock of 75 being seen on the 6th of that month by Prof. M. W. Doherty.

116. *Pinicola enucleator canadensis.* Canadian Pine Grosbeak. Irrregular winter visitor. Winter resident in winter 1903-4, arriving Nov. 5, 1903, leaving March 24, 1904.

117. *Carpodacus purpureus.* Purple Finch. Common spring migrant,, scarce summer resident, and occasional in winter.

118. *Loxia curvirostra minor.* American Crossbill. Irregular winter visitant.

119. *L. leucoptera.* White-winged Crossbill. Irregular winter visitant.

120. *Acanthis hornemanni exilipes.* Hoary Redpoll. One taken from a flock of *A. linaria,* Dec. 8, and another Dec. 26, 1903, by the writer.

121. *A. linaria.* Redpoll. Common winter visitant. Winter resident winter 1903-4.

122. *Astragalinus tristis.* American Goldfinch. Common summer resident. Scarce winter resident.

123. *Spinus pinus.* Pine Siskin. Common but irregular winter resident.

124. *Passerina nivalis.* Snowflake. Common winter visitor, often winter resident.

125. *Calcarius lapponicus.* Lapland Longspur. Rare winter visitant.

126. *Pooecetes gramineus.* Vesper Sparrow. Common summer resident.

127. *Passerculus sandwichensis savanna.* Savanna Sparrow. Common but local summer resident.

128. *Zonotrichia leucophrys.* White-crowned Sparrow. Frequent migrant, commonest in spring.

129. *Z. albicollis.* White-throated Sparrow. Common summer resident.

130. *Spizella monticola.* Tree Sparrow. Common winter resident.

131. *S. socialis.* Chipping Sparrow. Common summer resident.

132. *Junco hyemalis.* Slate-colored Junco. Abundant migrant, scarce summer resident and scarce winter resident.

133. *Melospiza melodia.* Song Sparrow. Abundant summer resident. Occasionally seen in winter.

134. *M. georgiana.* Swamp Sparrow. Common summer resident.

135. *Passerella iliaca.* Fox Sparrow. Scarce migrant, most frequent in fall.

136. *Pipilo erythrophthalmus.* Towhee. Frequent summer resident; common locally.

137. *Cardinalis cardinalis.* Cardinal. One taken at Salem (near middle of the county), Jan. 3rd, 1898. One seen at Guelph, Dec. 20, 22 and 27, 1898, by Mr. F. N. Beattie.

138. *Zamelodia ludoviciana.* Rose-breasted Grosbeak. Frequent summer resident.

139. *Cyanospiza cyanea.* Indigo Bunting. Common summer resident.

140. *Piranga erythromelas.* Scarlet Tanager. Frequent summer resident.

141. *Progne subis.* Purple Martin. Rare summer resident, a few breed in Guelph and Mount Forest.

142. *Petrochelidon lunifrons.* Cliff Swallow. Frequent summer resident. Very local.

143. *Hirundo erythrogastra.* Barn Swallow. Common summer resident.

144. *Tachycineta bicolor.* Tree Swallow. Common summer resident.

145. *Clivicola riparia.* Bank Swallow. Frequent summer resident. Local.

146. *Stelgidopteryx serripennis.* Rough-winged Swallow. Scarce summer resident at Mount Forest.

147. *Ampelis cedrorum.* Cedar Waxwing. Common summer resident.

148. *Lanius borealis.* Northern Shrike. Scarce winter visitant.

149. *L. ludovicianus excubitorides.* White-rumped Shrike. Scarce summer resident. Prior to 1901 it was common, but has become scarcer every year since then.

150. *Vireo olivaceus.* Red-eyed Vireo. Common summer resident.

151. *V. philadelphicus.* Philadelphia Vireo. Rare migrant.

One taken by Mr. Allan Brooks in May, 1894, one by the writer, Aug. 27, 1903, and another Sept. 6, 1904.

152. *V. gilvus.* Warbling Vireo. Common summer resident.

153. *V. flavifrons.* Yellow-throated Vireo. One taken May 12, 1903, and another May 11, 1904, by the writer.

154. *V. solitarius.* Blue-headed Vireo. Scarce migrant.

155. *V. noveboracensis.* White-eyed Vireo. One taken at Mount Forest, Sept. 28, 1902, by Mr. Howard Skales.

156. *Mniotilta varia.* Black and White Warbler. Abundant migrant and common summer resident.

157. *Helminthophila rubricapilla.* Nashville Warbler. Abundant migrant and scarce summer resident.

158. *H. peregrina.* Tennessee Warbler. Scarce migrant.

159. *Compsothlypis americana.* Parula Warbler. Common migrant. This is *C. a. usneae* if this rather weak sub-species is recognized.

160. *Dendroica tigrina.* Cape May Warbler. Rare migrant. Three taken by the writer in the fall of 1904.

161. *D. aestiva.* Yellow Warbler. Common summer resident.

162. *D. coronata.* Myrtle Warbler. Abundant migrant, and rare summer resident.

164. *D. masculosa.* Magnolia Warbler. Common migrant and scarce summer resident.

165. *D. pensylvanica.* Chestnut-sided Warbler. Common migrant and frequent summer resident.

166. *D. castanea.* Bay-breasted Warbler. Scarce migrant in spring, common in fall.

167. *D. striata.* Black-poll Warbler. Rare migrant in spring, common in fall.

168. *D. blackburniae.* Blackburnian Warbler. Common migrant, scarce summer resident.

169. *D. virens.* Black-throated Green Warbler. Abundant migrant, common summer resident. By far the commonest breeding Warbler at Guelph.

170. *D. vigorsii.* Pine Warbler. Rare migrant. Seen April 28, 1896, by Mr. P. A. Taverner.

171. *D. palmarum.* Palm Warbler. Scarce migrant.

172. *Seiurus aurocapillus.* Oven-bird. Common summer resident.

173. *S. naevius.* Water-thrush. Frequent summer resident.

174. *Geothlypis agilis.* Connecticut Warbler. Rare migrant One taken by the writer Sept. 9, 1904.

175. *G. philadelphia.* Mourning Warbler. Frequent migrant and scarce summer resident.

176. *G. trichas.* Maryland Yellow-throat. Common summer resident.

177. *Wilsonia pusilla.* Wilson's Warbler. Frequent migrant.

178. *W. canadensis.* Canadian Warbler. Frequent summer resident.

179. *Setophaga ruticilla.* American Redstart. Frequent summer resident.

180. *Anthus pensilvanicus.* American Pipit. Scarce migrant in spring, common in fall.

181. *Galeoscoptes carolinensis.* Catbird. Common summer resident.

182. *Harporhynchus rufus.* Brown Thrasher. Scarce summer resident, becoming rarer every year.

183. *Troglodytes aedon.* House Wren. Common summer resident.

184. *Anorthura hiemalis.* Winter Wren. Common summer resident.

185. *Certhia familiaris americana.* Brown Creeper. Resident; common during migrations, frequent in winter, scarce in summer.

186. *Sitta carolinensis.* White-breasted Nuthatch. Common resident.

187. *S. canadensis.* Red-breasted Nuthatch. Frequent migrant. Pair noted breeding in 1901 at Guelph, by Mr. F. N. Beattie.

188. *Parus atricapillus.* Chickadee. Common resident.

189. *Regulus satrapa.* Golden-crowned Kinglet. Resident. Common during migrations, frequent in winter. A pair noted breeding south of Guelph by the writer in 1904.

190. *R. calendula.* Ruby-crowned Kinglet. Common migrant.

191. *Hylocichla mustelina.* Wood Thrush. Frequent summer resident.

192. *H. fuscescens.* Wilson's Thrush. Common summer resident. One seen by Mr. F. N. Beattie, Feb. 22, 1899.

193. *H. aliciae.* Gray-cheeked Thrush. Frequent migrant.

194. *H. ustulata swainsonii.* Olive-backed Thrush. Frequent migrant.

195. *H. aonalaschkae pallasii.* Hermit Thrush. Frequent migrant at Guelph, common summer resident at Mount Forest.

196. *Merula migratoria.* American Robin. Common summer resident. Sometimes seen in winter.

197. *Sialia sialis.* Bluebird. Common summer resident.

An Unusual Migration of the Canada Jay.

—o—

BY J. H. FLEMING.

In Ontario, the Canada Jay has hitherto kept within certain well defined boundaries, which it seldom exceeds, even in winter. North of Muskoka it is a regular resident, and in winter rarely passes south of the Muskoka Lakes.

In October, 1904, a general migration of Canada Jays into the southern parts of Ontario occurred. The first reports came from Madoc, Hastings County, where they were seen by the Rev. C. J. Young, on October 7, where they remained through November. At Toronto the first were recorded at Fisherman's Island, a part of the eastern sandbar, on October 15th, by Mr. C. Pickering, and by the 17th were reported from various parts of the city going about in small flocks of from three to eight, those that escaped destruction remained about the outskirts of the city till late in November. That the Jays should first appear on the lake shore is peculiar, and unless the wide extent of marsh in Ashbridge's Bay afforded animal food not to be found in the woods, is hard to account for, though it is possible the migration followed the lake shore.

At Wellington, in Prince Edward County, a large flock was reported on October 21st, and about the same time at Belleville.

At Penetanguishene, on the Georgian Bay, Mr. A. F. Young gives the following dates, October 25th-30th, November 12th and 26th; also January 9th and 20th, 1905.

In Wellington County, at Hillsburg, on October 24th, at Puslinch Lake on the 31st and again on November 16th, by Mr. A. B. Klugh; Guelph, November 3rd and 12th, by Mr. E. J. Colgate; and at Rockwood on the 17th.

Mr. S. Hunter saw them at Millbrook, Durham County, December 31st. Two were reported at Galt, and Dr. C. K. Clarke found them in the vicinity of Kingston.

It will be seen by these few records how general the migration was, and though first noticed early in October, the movement must have continued on through November.

At the head of Lake Joseph, in Muskoka, I found the birds abundant in the last week of October, and they had been there all month, if not earlier. About the middle of November they disappeared and were absent during the winter.

It is difficult to assign a cause for so unusual a migration. It has been suggested that the presence of enemies, such as Owls, has had something to do with it, but the present winter has been noticeable in Toronto for the absence of Owls, only a few of the larger ones being reported; and in Muskoka, during October and November, Hawks and Owls were very scarce. The food question is likely the real explanation, though why the Canada Jay did not migrate south of Muskoka during the exceptional winter of the previous year, which was preceded by a failure of the usual food supply, such as seeds and nuts in all the country south of the main line of the C.P.R., resulting in great destruction to the Red Squirrels in many parts of Muskoka and Parry Sound, is hard to say. In the Autumn of 1904 food of all kinds was abundant in all these districts, though it is likely the migration originated far north of the Muskoka country, some cause as yet unexplained, forcing the birds out of their regular winter range.

In Toronto we have to go very far back for a parallel to the migration of 1904, in the Canadian Journal, Vol. I., 1852-3, the late Hon. G. W. Allen, one of our earliest naturalists, says: "They appeared in great numbers in the autumn of 1839 and 40, flying about the woods and fields in flocks of fifteen or twenty." I have two skins from this migration, and it is curious to think that a period of sixty-five years should elapse before any more Toronto records were added.

The only other unusual record I am aware of is of a specimen taken at Aylmer, Ontario, November 18, 1901, recorded by Mr. J. H. Ames ('Auk, XIX., 1902, p. 94.)

The Canada Jay is an exceedingly hardy bird, breeding very early in March, a persistent searcher for food, visiting the lumber camps, or following the hunter or surveyor, ready to steal any food, no matter how unknown or how risky to get, neglecting nothing in its search, but seldom found away from the bush country or out of its regular bounds.

Mr. A. B. Klugh has furnished me with many of the records quoted.

The Origin of the Kirtland's Warbler.

—o—

BY P. A. TAVERNER.

Just as a non-essential character in an organic being often forms a better clue to its true affinities and lines of descent than more fundamental structures; so, the study of a rare and economically unimportant species may be more productive of results than that of wide spreading, dominant forms. In the latter case the very multiplicity of data may be confusing and render it difficult to separate the pertinent from the impertinent, the local phenomena from the general. In following out and determining exact migration routes this is particularly true, and when we attempt to reconstruct the past history of a race the more narrowly we confine our attention, the more promise we have of arriving at approximately correct conclusions. Dr. Conan Doyle has made his hero, Sherlock Holmes, say words to this effect, that the more outre and uncommon the conditions are surrounding a discovered crime, the more easily should the sleuth find out the committer of the deed. This, if the reasoning is sound, should apply as well to scientific as to criminal investigation. In this light it appears that Kirtland's Warbler (*Dendroica kirtlandi*), affords peculiar opportunities for investigation and perhaps a little speculation along these lines may be of some value, even if the only result that comes therefrom is vigorous attack and final denial. A questionable, or even false, theory, honestly advanced, may be of benefit, for the subsequent discussion and final refutation it may bring forth, if for nothing more.

The records of Kirtland's Warbler are few and mostly far between. The first specimen was likely taken about 1840, though it was not finally described until 1852, from another bird taken by Mr. Chas. Pease, near Cleveland, Ohio, the year before. From time to time various specimens have been taken up and down the Mississippi Valley, and at isolated points in the East, including one record from Toronto, Ont. The winter habitat was found in the Bahama Islands, where it proves to be fairly common, but though Ohio and Michigan were the States accredited with the greatest number of records, it was not until

1903 that its breeding grounds were found by Mr. Norman A. Wood (Bull. Mich. Ornith. Club, Vol. V., pp. 1-13), in Crawford and Oscoda Counties, Mich., where it seems to be a not uncommon summer resident. In the same issue Mr. Adams traced out the probable migration route of the species and followed it from the time it left the island home in the southern seas until it reached its northern breeding area in the Jack Pine plains of Michigan. Some of the theories Mr. Adams founded his argument upon have been challenged by no less an authority than Prof. W. W. Cooke (An Untenable Theory of Migration), but the conclusions of the present route which he mapped out has not been questioned. According to this the bird under discussion crosses to the West Florida coast and passes on to the valley of the Mississippi by way of the Pine Barrens of the South. Thence up that great highway. The Michigan individuals branch off from this and enter Michigan along the Ohio River and its branches and reach the breeding grounds by journeying up the eastern side of the State. There may be other breeding grounds not yet discovered, and there probably are such, but this is the sum total of our knowledge of the species at present. The birds do not seem to be a weak race, for at either end of their range they are fairly common and seem to hold their own successfully with the competing forms about them. The extreme localness of their distribution demands explanation and incidentally raises other questions. All life tends towards increase and will do so until some destructive influence prevails to counteract the natural prolificacy of the race. There are always adaptations and influences working both for and against each species. As the population increases the harmful ones increase in greater proportion than the other, until the time comes when the two antagonistic powers are in equilibrium, when for the time being we have a stationary population. The abundance of a bird can be regarded as represented by the sum of a long sequence of plus and minus quantities of unknown value.

As far as our knowledge goes there is no bar to the increase of Kirtland's Warbler at the northern end of its range. It is common in certain restricted localities and we can see no reason why it should not be equally common in like situations, of which there are many, elsewhere. That it is not so shows either

that we do not understand the required conditions, which is probable, or else that the check comes at some other point of its range, which is more probable still.

Up and down the migration route our knowledge of the bird and its needs is too fragmentary to afford us any clue, nor is it likely that in its transitory stops at various points it would meet any enemy that would seriously affect its numbers. In the Bahamas, however, the case is different, and we see from the very nature of the situation that the size of its range is very limited. In any certain area but a limited number of individuals of a species can exist. The food supply alone would be sufficient to support but a certain definite number. Add to this other hostile elements of the environment which inevitably occur and the number capable of existing there is still further reduced. The conditions may vary at times, and with them the population, but in each and every case, under a certain given set of surroundings, but a certain number of individuals can survive and the question of population becomes one less of how many are born than how many can survive.

If, then, the Bahama Islands are the only winter quarters of the bird, it follows that however many birds are successfully raised during the breeding season, but a limited number can survive the winter for the return migration in the spring, and the number can never permanently increase unless the area of the winter quarters increases, or the conditions prevalent there become modified so as to support a denser population of the species.

It seems highly improbable that the species could ever have originated under these conditions. Isolation produces specialization, but it must be during the breeding season to have any great effect. At other times incipient species may freely intermingle with the original stock without losing their entity. In a case like Kirtland's Warbler, any decided departure from type would occur to the species as a whole and not to the small group of them separated from the rest during the non-breeding season. The insular habitat then could not have been the cause of differentiation in this species, and we must look elsewhere, probably upon the adjoining Continent for the original range of this family.

The Pine Warbler (*Dendroica vigorsi*), is a very near relation of *D. kirtlandi,* and its range, as given in the A.O.U. Check list is suggestive. Eastern N. America to the Plains. South in winter to the Gulf States and the Bahamas. Imagine the ancestors of our Kirtland's Warblers as having a similar range, and suppose that some of the changes continually taking place in environments render the southern continental parts unhabitable to this particular species, we have then, as a result, just the peculiar distribution that we are now investigating. It seems likely that individuals inhabiting adjoining localities in the winter habitat would migrate to approximately the same territory in the summer one. This would account for the limited area and comparatively dense population of the breeding grounds. There being but slight competition within the species they would spread out over no more ground than was absolutely necessary for securing a comfortable existence. On the other hand, supposing that the Bahaman birds scattered all over the northern breeding grounds in summer, the result would likely be the same. Some localities would raise birds slightly stronger and finer than the rest, and when the whole species returned to the southern regions and were subjected to the strict selective process, caused by the struggles between the season's natural increase and the finally surviving number, the weaker ones raised in the less favored localities, would be the ones eliminated and the tendency would be towards the localization of breeding communities in the most favored of the summer stations.. It seems probable, then, from our present knowledge, that Kirtland's Warbler is what remains of a once far more widely distributed species wintering along the Gulf States and spread from thence to the Bahama Islands. They migrated up the Mississippi Valley and perhaps also up the Eastern States, which would account for our records at Washington and elsewhere along that line. The breeding grounds then likely covered the greater part of the Alleghanian Transition Zone. Changed conditions rendered this continental portion of the southern habitat untenable for a permanent winter residence, and the species became extinct there, leaving the Bahaman individuals the only surviving representatives of the race. These continued to follow their old route, passing rapidly, and perhaps, at the most favorable time

of the year, over the now hostile territory to the grounds where we now find them.

Thus, if the foregoing reasoning is reasonably correct, unless man, or some other agency steps in and exterminates the little isolated breeding colonies, the future of Kirtland's Warbler depends upon the conditions prevalent upon the southern habitat, and unless the hostile influences in the surrounding territory then moderate to allow them to extend their present winter range or re-inhabit their old one, the species can never become a common one again. The greatest danger to them lies, of course, in the Bahama Islands, each bird destroyed there after the economic equilibrium has been established, means one less breeding bird for the next spring, while beyond a certain point the destruction of a few individuals here will do no injury to the species. But care must be exercised in the case of so small a race that the number killed does not exceed that of the natural surplus, and to guard against this the attitude of protection that the Game Warden of Michigan has taken in regard to this bird is perfectly justifiable and commendable.

The Thrushes of Eastern Ontario.

—o—

BY C. J. YOUNG.

The birds of this genus are not known or appreciated as much as they should be. Their haunts are our swamps and woodlands. The bright summer foliage shelters them and they delight in seclusion and solitude. Only two Thrushes are common in Eastern Ontario; the Wilson's Thrush, and the Hermit Thrush, the former being the most abundant. The Wood Thrush is occasionally met with and the Olive-backed on migrations. To a student of birds the distinguishing of the various species is not difficult, and their nesting habits are somewhat disimilar.

The first of these birds to arrive in spring is the Hermit Thrush. He is a splendid songster, and makes his presence known soon after his arrival. I have met with him in the Counties of Renfrew, Leeds and Frontenac. Not only does his song distinguish him, but the coloration of his back and tail, the for-

mer olive, the latter evidently rufous. A number of the birds we see in April and early May pass northward and eastward to breed. Comparatively few do so with us. In the middle of May I have seen this bird not uncommonly in the second growth bush through which the road that leads from Clarendon to Ardoch in North Frontenac, passes. Several were perched on the topmost boughs of a small tree, noticeable songsters in that dreary section of country. Mr. Saunders says this species prefers dry ground as a rule, and an elevation. My observations agree with this statement, but I find the eggs are distinguishable from the Wilson's. In June, 1888, I found a nest near Renfrew, on the ground on a bank, sheltered by a gooseberry bush. It contained two eggs. They were a trifle larger than the Wilson's, and almost as light in color as a bluebird's. Two eggs taken from a nest in the side of a rotten stump in a cedar swamp near Ompah, Frontenac County, were similar in color, and both these sets agreed with a set taken in S. Labrador, from a nest located under a scrubby Spruce. I have only seen a few sets, and do not consider the bird a particularly common breeder here.

The next Thrush to arrive is the Olive-backed. I have only met with it on migration. The colors are very uniform, an olive brown from head to tail. I am only sure of having seen one in Ontario. That one I picked up by the roadside, near Lansdowne, Ont., it having probably struck a telegraph wire and been killed. It does not appear to breed with us, at least I never saw or heard of a nest. Its breeding habits are so characteristic and different from the other Thrushes, as to the eggs, which are freckled, not plain blue alone, that one could not overlook them. Not even in N. Frontenac does it appear to breed. It does so in New Brunswick, in the Magdalene Islands, and abundantly on the north shore of the Gulf of St. Lawrence, from whence I have seen the eggs. Wilson's Thrush comes next on our list. I am not sure whether this species or the Wood Thrush is first to arrive, but I think they do so at about the same date, both a little later than the Hermit. It is a common bird, frequenting moist woods, swales and sometimes willow swamps. Neither is it at all local, being equally at home in Ontario and Quebec, as in the Maritime Provinces; in the Magdalene Islands, and along the north shore of the Gulf. Its plumage is very uniform, a tawny brown from head to tail,

while the spots on the breast are smaller than in the case of the Hermit or the Wood Thrush. This Thrush commences to build its nest the second week in May. I have found many of their nests, generally in damp woods, but not always. Last summer (1904), I found one placed on a fallen bough in a very dry place. The bird was sitting and I approached within two feet of her before she left the nest. Another I found in thick raspberry canes, one in a bunch of Ferns (*Osmunda claytoniana*), others on the ground, still another in a willow thicket among the sprouts of a thick willow. Most of the nests I have found have been slightly raised above the ground, but never more than eighteen inches, or at most two feet. The eggs are darker in color than either the Hermit's or the Wood Thrush's. Some I have seen almost as dark as a Catbird's. I have noticed too that they vary much in size. The set I found in the willow thicket were scarcely larger than Song Sparrows', the majority about the size of Bluebirds'. None as large as the lighter colored Hermit's. The usual number of eggs is four, but very often three complete the set. Once only did I find five in a nest, and I think this number is exceedingly unusual.

To those who ramble through the woods this bird will always be an interesting friend, it is comparatively tame and confiding, is easily identified, and frequently met with. Though not in a hurry to take up its summer abode with us, it is loath to leave. I have seen it occasionally in the woods in the late fall as late as October, when our other bird friends have left us. At that season, when on the point of leaving, it sometimes visits our gardens, and the neighborhood of houses, regretfully leaving the woods, then rich with autumn tints. That large and handsome bird, the Wood Thrush, is not common in Eastern Ontario. It is larger than the other Thrushes, its plumage is brightest on the head, and this mark and the large spots on its white breast will readily identify it. I have only met with it the last few years, in woods near Lansdowne, chiefly second growth, but with a few large trees; in a similar wood near the St. Lawrence, where I saw a nest in a small beech tree; and in Frontenac county, where in 1903 I met with another nest built on a horizontal bough of a Hemlock, about eight feet from the ground.

This Thrush is a fine songster, it delights to sing in some remote corner of the woods on a summer's evening, and its notes are readily recognized. Its nest is peculiar and also helps to distinguish the species, for it never builds on the ground, always locating it at an elevation of six feet or upwards. There is one peculiarity in the nest which I have noticed, that seems to distinguish it from the other Thrushes—that is, that as well as using mud in its construction, a lining of black fibrous roots is introduced, on which the eggs are laid. The latter are exactly the color of a Robin's, but decidedly smaller, hardly as dark as the Wilson's, and might be described as resembling very small Robin's. I think the bird but seldom breeds in these counties; it is more at home in Western Ontario and further south, and the nest I met with in N. Frontenac I considered an unusual occurrence.

So much for our four Eastern Ontario Thrushes; they are all interesting, and their arrival should be looked forward to, as speaking of respite from frosts and cold, and bidding us with them rejoice in the bright hours of the Canadian summer..

MIGRATION REPORT.

GUELPH, ONTARIO.

March 1, 1904—March 1, 1905.

[NOTE.—All remarks below apply to this year only. When a species is enumerated twice, the first line refers to the Spring migration, the second to the Fall. C—common; F—frequent; S—scarce; R—rare.]

NAME OF BIRD.	First Seen.	Last Seen.	Abundance	REMARKS.
Prairie Horned Lark		Nov. 8	C	
Prairie Horned Lark	Feb. 27		C	
Pine Grosbeak		Mar. 24	C	Very C. winter, '03-'04
Am. Merganser		Mar. 10	F	Wintered on the Speed, '03-'04
Am. Merganser	Nov. 3		S	Wintered on the Speed, '04-'05
Am. Goldeneye		May 2	S	Wintered on the Speed
Am. Goldeneye	Nov. 8	Nov. 16	R	
Am. Goshawk		Mar. 7	S	
Tree Sparrow		Ap'l 26	C	
Tree Sparrow	Oct. 25		C	
Red-shouldered Hawk	Mar. 17	Sept. 28	C	
Killdeer	Mar. 22	Oct. 20	C	
Bluebird	Mar. 22	Oct. 20	C	
Snowflake		Mar. 29	C	
Snowflake	Nov. 15		S	
American Robin	Mar 23	Dec. 4	C	
Song Sparrow	Mar. 23	Oct. 20	C	
Marsh Hawk	Mar. 23	Nov. 6	F	
Meadowlark	Mar. 23	Dec. 3	C	
Red-tailed Hawk	Mar 23	Mar. 23	R	
Red-tailed Hawk	Sept. 25	Oct. 16	S	
Red-winged Blackbird	Mar. 24	Sept. 15	C	
Phoebe	Mar. 24	Sept. 27	C	
Cowbird	Mar. 24	Sept. 20	C	
Mourning Dove	Mar. 25	Nov. 3	F	
Bronzed Grackle	Mar. 28		C	
Purple Finch	Mar. 29		C	C in spring, and wintered in
Pine Siskin	Mar. 29		S	[large numbers, '04-'05
Pine Siskin	Nov. 1		C	
Great Blue Heron	Mar. 29	Nov. 6	F	
White-rumped Shrike	Mar. 29		S	Very Scarce
Canada Goose	Mar. 30		F	
Cooper's Hawk	Mar. 30		S	
Herring Gull	Ap'l 1	May 10	C	
Herring Gull	Sept. 21	Sept. 21	S	
Vesper Sparrow	Ap'l 5	Oct. 20	C	
Flicker	Ap'l 5	Oct. 13	C	
Savanna Sparrow	Ap'l 6	Sept. 20	F	
Kingfisher	Ap'l 6	Oct. 20	F	

NAME OF BIRD.	First Seen	Last Seen.	Abundance	REMARKS
Yellow-bellied Sapsucker.	Ap'l 6	Sept 27	F	C during spring mgr.
Hermit Thrush	Ap'l 6	Ap'l 26	S	
Hermit Thrush	Sept 27	Oct. 14	C	
Am. Sparrow Hawk	Ap'l 6		F	
Winter Wren	Ap'l 8	Oct. 20	C	
Sharp-shinned Hawk	Ap'l 14	Sept 21	S	
White-throated Sparrow	Ap'l 15	Oct. 20	C	
Hooded Merganser	Ap'l 16	Ap'l 16	S	
Hooded Merganser	Oct. 31	Oct. 31	S	
Am. Woodcock	Ap'l 16		S	
Towhee	Ap'l 18	Oct. 14	F	
Am. Osprey	Ap'l 22	Sept 28	S	
Fox Sparrow	Ap'l 23	Ap'l 23	R	
Fox Sparrow	Oct. 28	Nov. 5	F	
Barn Swallow	Ap'l 23	Sept 7	C	
Chipping Sparrow	Ap'l 24	Oct. 14	C	
Chimney Swift	Ap'l 24	Aug. 27	C	
Baltimore Oriole	Ap'l 24	Aug. 27	F	
Broad-winged Hawk	Ap'l 24	Ap'l 24	S	
Broad-winged Hawk	Sept 17	Sept 17	S	
Tree Swallow	Ap'l 26	Sept 7	C	
Black-th'd Green Warbler	Ap'l 26	Sept 27	C	
Ruby-crowned Kinglet	Ap'l 26	May 7	C	The commonest breeding [Warbler
Ruby-crowned Kinglet	Sept 13	Oct. 28	C	
Spotted Sandpiper	Ap'l 29		C	
Myrtle Warbler	Ap'l 29	Oct. 14	C	3 prs. bred
Black and White Warbler	Ap'l 29	Sept 22	C	
Wilson's Thrush	Ap'l 30	Sept 5	C	
Wood Duck	Ap'l 30	May 1	R	
Arctic 3-toed Woodpecker	May 1	May 2	R	
Wood Thrush	May 1	Sept 6	F	
Water-thrush	May 2	Sept 10	C	
Red-breasted Nuthatch	May 2	May 27	S	
Swamp Sparrow	May 2	Oct. 13	C	
Black Duck	May 2	May 2	S	
Black Duck	Aug. 17	Oct. 31	F	
Buffle-head	May 2	May 14	F	
Buffle-head	Oct. 31	Nov. 8	S	
Scaup Duck	May 2	June 26	C	
Scaup Duck	Oct. 28	Nov 16	C	
Holboell's Grebe	May 2	May 24	S	
Horned Grebe	May 2	May 2	S	
Horned Grebe	Sept 20	Nov. 16	C	
Black-th'd Blue Warbler	May 2	Sept 20	C	S breeder; C during fall, mgr.
Bald Eagle	May 2	May 2	R	
Bobolink	May 3	Sept 7	C	
Oven-bird	May 4	Sept 13	C	
Cliff Swallow	May 4	Aug. 14	F	Locally distributed
Loon	May 4	June 20	S	
Purple Martin	May 5		S	A few pairs breed in Guelph [and Mt. Forest
Yellow Warbler	May 5	Aug. 17	F	

NAME OF BIRD.	First Seen.	Last Seen.	Abundance	REMARKS.
Am. Bittern	May 5	Sept. 26	F	
White-crowned Sparrow	May 5	May 11	F	
White-crowned Sparrow	Sept 22	Sept. 22	F	
Warbling Vireo	May 5		C	
Palm Warbler	May 5	May 5	R	
Palm Warbler	Sept 10	Sept. 20	S	
Kingbird	May 5	Sept. 8	C	
Red-eyed Vireo	May 6	Sept. 22	C	
Rose-breasted Grosbeak.	May 6		F	
House Wren	May 6	Oct. 3	C	
Nashville Warbler	May 6	Sept. 30	C	Abundant, migrant; S breeder
Bank Swallow	May 6		S	Very local
Crested Flycatcher	May 7	Sept. 18	C	
Red-headed Woodpecker.	May 7		S	Scarcer than usual
Catbird	May 7	Sept. 20	C	
Maryland Yellow-throat	May 7	Sept. 20	F	
White-winged Scoter	May 7	May 10	S	
White-winged Scoter	Sept 22	Sept. 22	R	
Whip-poor-will	May 7	Sept. 6	F	
Brown Thrasher	May 8		S	Very scarce
Blackburnian Warbler	May 8	Sept. 9	C	C migrant; S breeder
Chestnut-sided Warbler.	May 8	Sept. 17	C	C migrant; F breeder
Scarlet Tanager	May 9	Sept. 13	S	
Am. Redstart	May 9	Sept. 19	C	C migrant; F breeder
Canadian Warbler	May 9	Sept. 8	C	
Old Squaw Duck	May 10		R	
Ruddy Duck	May 10	May 15	S	
Ruddy Duck	Sept 22	Nov. 8	F	
Ruby-th'd Humming Bird	May 10	Sept. 20	F	
Magnolia Warbler	May 10	Sept. 21	F	F migrant; S breeder
Yellow-throated Vireo	May 11	May 11	R	
Yellow-billed Cuckoo	May 12		S	
American Pipit	May 12	May 12	S	
American Pipit	Sept 22		F	
Bay-breasted Warbler	May 12	May 15	S	
Bay-breasted Warbler	Aug. 31	Sept. 16	C	
Indigo Bunting	May 13	Sept. 4	C	
Blue-headed Vireo	May 15	May 15	R	
Blue-headed Vireo	Sept 7	Sept. 27	S	
Parula Warbler	May 16	May 16	S	
Parula Warbler	Sept 6	Sept. 9	F	
Green Heron	May 16	Sept. 14	S	Two remained all summer
Wood Pewee	May 17	Sept. 6	C	
Solitary Sandpiper	May 17	May 17	R	
Pied-billed Grebe	May 17	May 24	S	
Pied-billed Grebe	Sept 3	Oct. 31	C	
Least Flycatcher	May 23		F	
Red-head	May 24	May 24	S	
Red-head	Oct. 1	Oct. 31	F	
Alder Flycatcher	May 24	Aug. 29	F	
Mourning Warbler	May 24	Aug. 21	S	

NAME OF BIRD.	First Seen.	Last Seen.	Abundance	REMARKS.
Common Tern	May 24	June 8	S	
Black-billed Cuckoo	May 24	Aug. 23	F	
Cedar Waxwing	May 26	Sept. 21	C	2 seen Feb. 1
Black-poll Warbler	May 28	May 28	R	
Black-poll Warbler	Aug. 30	Sept. 27	C	
Nighthawk	June 3	Sept. 4	S	
Tennessee Warbler	Aug. 19	Sept. 10	S	
Cape May Warbler	Aug. 23	Sept. 19	R	
Philadelphia Vireo	Sept. 6	Sept. 6	R	
Connecticut Warbler	Sept. 9	Sept. 9	R	
Olive-backed Thrush	Sept. 12	Sept. 12	S	
Gray-cheeked Thrush	Sept. 15	Sept. 15	S	
Rusty Blackbird	Sept. 22	Oct. 20	C	
Surf Scoter	Sept. 22	Sept. 23	S	
Green-winged Teal	Oct. 4	Oct. 4	S	
Pigeon Hawk	Oct. 15	Oct. 15	R	
Wilson's Snipe	Oct. 15	Nov. 14	S	
Canada Jay	Oct. 24	Nov. 17	F	
Red-breasted Merganser	Oct. 31	Nov. 8	S	
Am. Rough-legged Hawk	Oct. 31	Oct. 31	R	
Northern Shrike	Nov. 3	Nov. 13	S	
Mallard	Nov. 5	Nov. 8	S	
Redpoll	Nov. 6		S	
White-winged Crossbill	Jan. 2		R	

Cooper's Lemming Mouse.

—o—

BY W. E. SAUNDERS, LONDON, ONT.

This Mouse has been long overlooked by most students of Natural History in Eastern North America, owing, doubtless, to the fact of its great resemblance to the common Meadow Mouse. When one has once become acquainted with its recognition is instant, not so much on account of the moderate difference in pelage as on account of the extreme shortness of tail. The fur is a little brighter, lighter and coarser, but the tail is really the only ready means of distinction by one not well acquainted with the animal.

Its habitat in this locality, as far as my personal knowledge goes, consists of Sphagnum Swamps, although it will doubtless be found in moderately open wooded country, where the dampness encourages the growth of other mosses than Sphagnum,

Both this little mammal and the Pine Mouse were unknown in this district until 1902, when the late Robert Elliott found a Lemming Mouse dead in a ditch on March 31st. This led him to make a search for these animals, and his success was so speedy and complete, that in the course of a few weeks he reported to me that he had taken several specimens of the Lemming and that the Pine Mouse was "common." At the next opportunity I did a little trapping myself and succeeded in catching the Lemming Mouse, although I have not yet taken the other species.

Cooper's Lemming Mouse uses the same runs in the swamp as the Vole does, and doubtless it meets the Deer Mouse in the same places, as I have trapped the two species within a short distance of each other, though the two former are the more usual companions.

This little mammal has been reported from widely different geographical positions between North Bay and Southern Pennsylvania, and from some of the States West of the Great Lakes, east to those on the Atlantic, and I doubt not that when it is better known it will be recognized as fairly common in suitable localities through most of its range.

The Mammalia of Northern Wellington.

—o—

BY ALLAN BROOKS, SUMAS, B. C.

[Reprinted from "Notes from Thicket and Swamp," predecessor to the Ont. Nat. Sc. Bulletin.]

Lepus nuttalli mallurus—Cotton-tail. In the fall of 1894 the Cotton tail had extended its range some miles north of Fergus.

Lepus americanus—Northern Hare.

Erethizon dorsatus—Porcupine.

Zapus hudsonius—Jumping Mouse.

Fiber zibethicus—Muskrat.

Microtus pennsylvanicus—Meadow Mouse.

Evotomys gapperi—Red-backed Vole.

Peromyscus leucopus noveboracensis—White-footed Mouse.

Arctomys monax—Groundhog.

Tamias striatus lysteri—Chipmunk.

Sciurus hudsonicus—Red Spuirrel.

Sciurus carolinensis leucotis—Gray Squirrel. The melanistic phase of this species, or "Black Squirrel," is sometimes fairly common, and I have once taken the gray, or normal phase, at Mount Forest.

Sciuropterus sabrinus—Northern Flying Squirrel.

Sorex fumeus—Sooty Shrew.

Sorex personatus—Masked Shrew.

Blarina brevicauda—Short-tailed Shrew.

Condylura cristata—Star-nosed Mole.

Myotis lucifugus—Common Bat.

Lasionycteris noctivagans—Silvery Black Bat.

Odocoileus americanus borealis—Northern Deer. Occasional. near Mount Forest.

Procyon lotor—Raccoon.

Ursus americanus—Black Bear. Rare.

Lutra canadensis—Otter.

Mephitis mephitica—Skunk.

Lutreola vison—Mink.

Puturius cicognani—Bonaparte's Weasel.

Vulpes rubricosa—Northern Red Fox. Abundant. The "cross" and "Silver" varieties occasionally seen.

Lynx rufus—Wild Cat. Scarce.

Some New or Little Known Canadian Plants.

—o—

BY W. HERRIOT.

Of late years the close investigation of many previously considered variable species of plants, has shown that these really included two or more distinct species, while a more thorough exploration of Southern Ontario has extended the range of several more commonly occurring species north and east to within our limits. Also a number of adventive species from Europe and the western prairie region have recently become established.

The valley of the Grand River and adjacent country around Galt is a very rich and varied one in plant life, due to its great diversity of soil and the numerous ponds and marshes that follow the contour of the river valley back some distance from its richly wooded slopes. A striking feature of the plant distribution in this region is the apparent merging of the south-western Ontario flora and a more boreal one within a comparatively

small area south of the town, as is shown by the great number of plants that find their northern limit between Galt and Paris. The Chestnut and Sassafras, both common to the south of us, cut off abruptly a mile or two below town, the former extending sparingly a few miles north-eastward into Wellington County. The Walnut, still found in some quantity along the river at Paris, finds its northern limit a few miles below Galt, accompanied by a few stray trees of the Sycamore. Throughout this Chestnut region many plants that are typically southern, find shelter, such as *Dioscorea villosa,* L., *Arisaema Draecontium,* Schott, *Desmodium Marylandicum,* Boott, *Jeffsonia diphylla,* Pers., *Frasera Carolinensis,* Watt, and *Scirpus lineatus,* Michx., while the Oaks and Hickories, abundant to the south of us, gradually diminish in number and species, a few miles northward. One of the rarest plants in Ontario, *Glycyrrhiza lepidota,* Nutt, only previously reported from Fort Erie, grows in some quantity on an island in the Grand River below town. During a careful scrutiny of the flora of this region covering fifteen years, the writer has collected 1,100 species of plants, including the Ferns and their allies, within a radius of ten miles, extending the range northward of quite a number of south-western Ontario plants, while not a few species new to Ontario have been collected. Because of the difficulty of access to bogs and marshes many collectors pass them by, and it is among the bog species that I am able to record the greatest number of new species. Around one of these ponds I find *Utricularia minor,* L., and I believe this is the only known station in Ontario for this species. *Drosera intermedia,* Hayne,*Hypericum boreale,* Bicknell, and *Juncus Dudleyi,* Wiegand, are other late additions to the province, all growing around these ponds. *Solidago uniligulata,* Porter, hardly distinct from *S. neglecta,* is also plentiful, and *Rumex persicarioides,* L., apparently little known in Ontario, is abundant around the muddy margin of a small lake. Amongst the Sedges, which form a large percentage of marsh plants, there is one, *Eleocharis olivacea,* Torr, that must be very local in its distribution, or is generally overlooked, as it grows in abundance around the muddy shores of ponds throughout the south-western portion of our area. Specimens sent to Prof. Macoun, a few years ago, were, he informed me, the first he had seen from Canada, as were also those of *Carex lupuliformis,*

Sartwell, a somewhat rare species here. Other late Ontario additions to the *Cyperaceae* collected around Galt are *Eleocharis rostellata,* Torr, *Carex Jamesii,* Schwein, *Carex canescens disjunta,* Fernald, and *Carex laxiflora varians,* Bailey. Amongst the Grasses, the genus *Panicum* of late years has given rise to an almost infinite number of so-called new species. *Panicum linearifolium,* Scrib, replaces many previous references to *P. depauperatum,* Muhl, in Ontario, and is a good species. *P. macrocarpon,* Le Conte, is common, but often confused with *P. latifolium,* Walt. *P. pubescens,* Lam, is a widely distributed species and belongs to a section of the genus that is now extremely complicated because of the minute segregation that is being followed by a number of experts in Agrostology, and between the different forms submitted to experts and named *P. lanuginosum,* Ell,*P. implicatum,* Scrib, *P. Columbianum* and *P. puliescens,* Lam, I am unable to distinguish any specific difference. *Panicularia borealis,* Nash, is more common than the closely allied *P. fluitans,* Kuntze, but is hardly distinct. The type specimen of *Bromus ciliatus laeviglumis,* Scrib, was collected by the writer near Galt, and sent to Washington in 1898. It is a frequent grass here on wooded hillsides. A few years ago the genus *Antenaria* was represented in Ontario by one described species *A. plantaginifolia,* Richards, but we are told by late workers on this genus, that this species does not grow in Canada, but now find several in its place. Whether this minute segregation is warranted or not is a question, but specimens submitted to authorities lately for determination, have resulted as follows: *A. fallax,* Greene, *A. neglecta,* Greene, *A neodioica,* Greene, and *A. petaloidea,* Fernald. As a species producer *A. plantaginifolia* has been very prolific.

The genus *Sanicula* is now represented in N. E. America by four quite distinct species, and all of these, *S. Marylandica,* L., *S. gregaria,* Bicknell, *S. Canadensis,* L., and *S. trifoliata,* Bicknell, are found within a mile or two of Galt. In the genus *Agrimonia, A. hirsuta,* Bicknell, and *A. mollis,* Britton, replace in this locality what was formerly considered *A. Eupatoria,* L., the latter not being American and differing markedly in foliage and fruit from any of our species. All our rough pubescent flat-top corymbed Joe-Pye-Weed is referable to *Eupatorium maculatum,* L., which is the common form here. *E. purpureum,* L.,

is smooth, or nearly so, with elongated inflorescence, and is rather rare. *Lechea intermedia*, Leggett, appears to be the common Pinweed, and replaces most previous references to *L. minor*, Lam, throughout this portion of Ontario, the latter not being found in this locality. *Amelanchier spicata*, Dec, is common and distinct, with creeping rootstocks, growing in beds, from one to three feet high, and its discovery here much extends its range northwards, as it is not credited to Canada.

The different forms of *Amelanchier*, some flowering before the leaves appear, some with well developed leaves, different forms of leaf, and fruit which varies greatly in time of ripening, would indicate that this genus is as yet little understood and may include several distinct species yet undescribed, as is the case with the genus *Crataegus*.

Vaccinium nigrum, Britton, *Linum medium*, Britton, and *Rubus setosus*, Bigel, I may record as new Ontario species, having been seperated recently from closely allied species with which they have been confused.

Arisaema pusillum, Peck, found in deep cedar swamps, is much smaller than the common *A. triphyllum*, bearing only a single leaf and flowers a month later. It may be distinct in its extreme form, but certainly intergrades with the common species. It is fairly common in this locality. *Anemone riparia*, Fernald, is a new species separated from *A. Virginiana, L.*, an addition to Canada, with much larger white flowers, the latter being small and greenish. The two species are about equally distributed in this locality.

One of the most important and distinct new species that has been separated for some years is *Salix serissima*, Fernald, and only the neglect shown to this genus by botanists generally, explains why it remained in obscurity so long. The writer's attention was attracted to it some years ago and a complete series of specimens collected and observations recorded a little over a year ago, but were anticipated by Dr. Fernald's description of the species. It differs from *S. lucida*, Muhl, with which it has been confused, chiefly in its much narrower leaves, which are glaucous beneath, catkins appearing two weeks later, and capsules remaining persistent till late in autumn, usually dehiscent in this locality about Nov. 15th, while those of *S. lucida* open about the middle of June. It is rather plentiful about

ponds and marshes throughout Ontario, and in its late fruiting character is easily distinguished from all other species. *Salix sericea,* Marsh, and *S. amygdaloides,* Anders, the former not credited to Ontario, and the latter considered rare, are amongst the commonest of our local species.

The Hawthorns and Violets are as yet only undergoing careful analysis, which will enlarge greatly our knowledge of these perplexing genera, the species of which it has been almost impossible to determine satisfactorily. Of the lately adventive plants that have not been recorded as growing in Ontario the following European species have been collected: *Leontodon hispidus, L.,* abundant in a meadow where it has flourished for a score of years or more. Specimens sent to Dr. Britton were, he informed me, the first and only ones he had seen from an American station. *Senecio campestris,* L., has also appeared here sparingly and is a new European arrival. *Centauria Calcitrapa,* L., rare in fields, *Crepis virens,* L.,*Lamium purpueum,* L., *Lysimachia vulgaris,* L., a garden escape, *Sida spinosa, L.,* rare in waste places along the river, *Trifolium dubium,* Sibth, *Amaranthus lividus, L., Prunus Mahaleb, L.,* escaped from cultivation to roadsides, *Bromus sterilis, L., Poa trivialis, L.,* and *Bromus arvensis, L.,* are also recent arrivals. The following species have lately migrated eastward from the prairie region, appearing in waste places around Galt: *Artemisia frigida,* Willd, along the C. P. R. track, *Plantago aristata,* Michx, *Sisymbrium altissimum,* L., and *Festuca scabrella,* Torr.

The Genus Aster at Puslinch Lake.

—o—

BY A. B. KLUGH, GUELPH, ONT.

Puslinch Lake is a body of water about 1¼ miles long by ¾ miles wide, situated in the south-western corner of Wellington County. The district in which the following Asters were found is a rectangle, 2½ miles north and south by 1¼ miles, east and west, with the lake in the centre of the northern half. The country surrounding the lake is broken up into a multitude of hills and valleys, with numerous pockets in the bottoms of the valleys which constitute bogs or ponds, and is fairly well wooded.

I wish here to thank Dr. M. L. Fernald for his careful examination of the forms which I submitted to him.

Aster macrophyllus—Common in open woods and thickets. In anthesis, July 25, 1904.

A. cordifolius—Abundant in open woods and thickets and along roadsides. Very handsome and extremely variable as to size of panicle. In anthesis Aug. 8.

A. lindleyanus—Common on the large island in the middle of the lake, but not found elsewhere. This is true also of three other plants. In anthesis Sept. 26.

A. sagittifolius urophyllus—A few plants found at the extreme south-western corner of the county. This is the first record for the sub-species *urophyllus* in Ontario, though I believe that many of our specimens will be found to belong here. In anthesis Sept. 11.

A. puniceus—Abundant in swales. In anthesis Aug. 20.

A. junceus—Common in bogs. In anthesis Aug. 9.

A. longifolius—Common along the bay at the west end of the Lake. This is the second record for Ontario. In anthesis Sept. 15.

A. *paniculatus*—Abundant in damp situations. Rays nearly always white, but in some specimens blue. In anthesis Aug. 15.

A. paniculatus lanatus—Scarce, found only in one locality. A very distinct variety with very broad leaves, large heads and wooly-pubescent stems. This is the first record for Ontario. In anthesis Sept. 8.

A. diffusus—Abundant in both maist and dry situations. In anthesis Aug. 15.

The Orchidaceæ of Peel County.

—o—

BY J. WHITE, SNELGROVE, ONT.

Arethusa bulbosa—Rare amongst sphagnum moss in bogs.

Calopogon pulchellus—Very common amongst sphagnum in bogs.

Corallorhiza innata—Rare in swamps.

Corallorhiza multiflora—Fairly common in rich low woods.

Corallorhiza striata—Fairly common at base of hills in rich damp woods.

Cypripedium pubescens—Rather rare in cedar swamps.

Cypripedium spectabile—Very rare on margins of lakes in peat.

Goodyera repens—Very rare on shady hillsides in woods.

Habenaria hyperborea—Common in wet swamps and woods.

Habenaria lacera—Rare on the outer margin of bogs in swamps.

Habenaria psycodes—Common in swampy soil near lakes.

Habenaria tridentata—Locally common amongst sphagnum in bogs.

Habenaria virescens—Locally common in very wet peaty swamps.

Liparis loeselii—Very rare on margin of boggy lakes in swamps.

Microstylis monophyllos—Very rare on margin of boggy lakes in swamps.

Orchis spectabilis—Rare in low rich woods.

Pogonia ophioglossoides—Very common amongst sphagnum in bogs.

The Orchidaceæ of Wellington County.

—o—

BY E. J. COLGATE, GUELPH, ONT.

Cypripedium acaule—Fairly common in half shady bogs.

C. spectabile—Common in half shady bogs.

C. pubescens—Scarce in half shady bogs.

C. paviflorum—Rare in swamps and damp woods.

Orchis spectabilis—Rare in woods.

O. rotundifolia—Rare in shady bogs.

Habenaria orbiculata—Rare in swamps.

H. hyperborea—Common in bogs and swales

H. dilatata—Fairly common in bogs.

H. bracteata—Rare in woods.

H. tridentata—Scarce in open bogs.

H. lacera—Scarce in open bogs.

H. psycodes—Scarce in wet meadows.

Pogonia ophioglossoides—Scarce in open bogs.

Arethusa bulbosa—Scarce in open bogs.

Spiranthes romanzoffiana—Fairly common in bogs, and in one case growing in crevices of damp rocks.

Goodyera repens—Scarce in shady bogs.

G. pubescens—Fairly common in woods.

Liparis loeselii—Scarce in half shady bogs and swales.

Corallorhiza innata—Fairly common in swamps.

C. multiflora—Common in woods.

Calopogon pulchellus—Common in open bogs.

The Orchidaceæ of Middlesex County.

—o—

BY J. DEARNESS, LONDON, ONT.

Several diligent and acute observers have explored the woods and swamps convenient to London City, with attention alert to anything that looked like an Orchid. When Dr. E. E. White reported the presence of *Epipactis* well established and taking care of itself within the sound of the chimes of St. James', (Toronto), it made some of us cautious who had been wont to say that we knew every Orchid in our range. The following species, all of which I have seen in their native situations, except two, probably complete the entire list of Middlesex Orchidaceae.

Microstylis monophyllos—in sphagnous swamps near London; sandy swamps near Komoka and Dorchester Township.

Liparis loeselii—in similar situations; more common than *Microstylis*. London Township, Delaware Township, Dorchester Township.

Aplectrum hyemale—in rich spots in beech and maple woods in every township in the eastern and northern ridings of Middlesex. Extremely local.

Corallorhiza innata—I have this from three three situations in the county, but it must be very rare.

C. odontorhiza—I have one specimen and one location, near Hyde Park Junction.

C. multiflora—common.

C. striata—Dr. Burgess found this near London. I do not know of any other report of it.

Listera cordata—near London.

Spiranthes latifolia—flats of the River Thames, London Township and Dorchester.

S. romanzoffiana—Dorchester Township.

S. cernua—Dorchester and London.

S. praecox—near Mud Lake in Dorchester Township.

Goodyera repens—not rare in mixed conferous woods.

G. pubescens—common for an Orchid, in dry woods.

Calopogon pulchellus—was common in sphagnous bogs near London.

Arethusa bulbosa—this was found by Mrs. Saunders and Dr. Burgess, south of London, in the Westminster ponds. It does not seem to be there now. I saw a number of specimens in a cold bog (black Spruce margin), west of London.

Pogonia ophioglossoides—companion plant of *Calopogon*. Not rare.

P. verticillata—Dr. Burgess found this near Komoka. I think this is the only Canadian record. At a subsequent season he, Mr. Bowman, Mr. Balkwill and I carefully explored the locality, but without the satisfaction of finding another specimen.

Orchis spectabilis—Here and there in rich woods throughout the county.

Habenaria tridentata—near London.

H. virescens—Spruce swamp near Hyde Park.

H. bracteata—not rare.

H. hyperborea—commonest.

H. dilatata—Delaware Township.

H. hookerii—Delaware Township.

H. orbiculta—not so rare as last.

H. psycodes—common.

H. blephariglottis—near Strathroy.

H. leucophaea—near London.

Cypripedium parviflorum—Coniferous woods—low ground.

C. pubescens—mixed woods, Delaware, London, Dorchester.

C. spectabile—mossy and sandy swamps.

C. acaule—in bogs.

"New Species" of Plants.

—o—

BY THEO. HOLM, WASHINGTON, D.C.

[Reprinted from "Notes from Thicket and Swamp," the Club's column in the Guelph Herald, predecessor to the O. N. S. B.]

In late years the multiplication of "new species" seems to have passed all bounds, and the systematist engaged in determining collections finds it a most difficult task to consult the literature of the subject. And that for two reasons: First, because the literature has grown so enormously, and second, because many of the modern plant descriptions are incomplete. The rapid increase in the number of "new species" is mainly due to the failure of many writers to appreciate what is really meant by a species, and also their incompetence to understand the botanical terms applied in scientific Botany. Last, but not least, the careless publication of anything "new," in no order whatever, and with no information as to the affinity of the said

new species, is a stumbling block to students of systematic Botany. Let us illustrate this by a few examples.

It is not unusual, nowadays, to come across diagnoses, which are so incomplete that one does not gain any idea of how the plant looks, and such statements as "flowers not seen," "fruit not known," are far from uncommon. Moreover the parts underground, the roots and rhizomes, are seldom described, and if described, they are often misunderstood. To make a description complete involves the consideration of all the different organs of the plant, besides a comparison of its nearest allies. But to describe the organs of the plant is by no means an easy matter; this implies a thorough knowledge of botanical terminology, seldom possessed by authors, whose names figure most prominently among the so-called "species makers." Because if these authors were familiar with that branch of Botany which is called terminology, they would be more scrupulous in establishing their many species, and they would not detect so many "supposed undescribed." Then it is a common case that authors of new species disregard the conception of a species. Of course this is a most difficult problem to discuss, and might give rise to endless dispute, but so much is sure, that all plants do possess some amount of individuality, expressed by their ability to adapt themselves to different environment as to climate and soil. The field naturalist is well familiar with such problems as the variation of plants, how they change their foliage, their color, hairyness, etc., when growing under various conditions, in the sunlight and in the shade, in dry or moist places, etc. Some plants otherwise glabrous, become hairy in shaded places; some that are naturally rigid and stout, become lax and weak when found in the woods or dense thickets. It is a question of exposure to sunlight or shade that governs the development of such variations, and much more so than the differentiation into new and undescribed species. That such local variations may be the very outset for the formation of varieties is a well-known fact, but we know, also, that such plants regain their former stature when grown under proper conditions to which they are naturally adapted. Cultivation has taught us so.

Another point, which is very often ignored, is that many plants show a wide geographical distribution. Many of our

Rocky Mountain species occur, also, in the mountains of Europe and Asia, and it would be very unwise not to consult the foreign floras before establishing "new species." It may seem very discouraging, but the truth is, that if our modern systematists would consider the geographical distribution of plants, if they would study the laws of phytography and, last, but not least, consider the plants as living beings, the number of new species would become much more limited, and we should gain a more correct idea of the vegetation, of its components, the genera and species.

There is still another point which often evades the attention of botanists, the selection of a name for the "new species." This is by no means unimportant, and we regret to say that not only are so very many of the lately published genera and new species poorly founded, but they are often so badly named, that botanists must shrink from recording such names. It is an old law that a name must be either in Greek or in Latin, and there seems no excuse for introducing such linguistic atrocities as: Yellowstonense, pseudo-repens, pendocarpa, Galeorchis, Rubacer and the like. Names that are so badly composed must necessarily give us the impression that the author is not very well versed in Latin, hence that he is unable to read a diagnosis in Latin with any profit.

When we finally mention the manner of publishing new species regardless of arrangement and without offering any clue to the systematic position of the new species, we believe to have demonstrated the most apparent difficulties involved by establishing too many new species. Systematic Botany requires systematic treatment from beginning to end; we must treat the plants as living organisms, we must study the classical works on descriptive Botany and on plant geography whenever we wish to deal with "new species." And the more fully that experience teaches us the difficulties in controlling these broad chapters of botanical science, the less we feel ourselves justified in undertaking too much of such hazardous work as that of establishing "new species."

The Gramineae of the Vicinity of Guelph.

—o—

BY TENNYSON D. JARVIS, GUELPH, ONT.

Andropogon furcatus—Scarce on dry banks.

Panicum glabrum—Common along roadsides.

P. crus-galli—Common.

P. latifolium—Rare in thickets.

P. depauperatum—Scarce in thickets.

P. capillare—Common.

Setaria glauca—Scarce.

S. viridis—Common.

Zizania aquatica—Scarce in shallow water.

Leersia oryzoides—Common in swales and ditches.

Phalaris arundinacea—Common in wet situations.

P. canariensis—Scarce.

Oryzopsis asperifolia—Common in woods.

Milium effusum—Scarce in damp situations.

Muhlenbergia mexicana—Fairly common in both damp and dry situations.

M. glomerata—Common in bogs and wet situations.

M. sylvatica—Fairly common in damp situations.

Phleum pratense—Common.

Alopecurus geniculatus aristulatus—Scarce in water.

A. pratensis—Roadsides near the Ontario Agr. College.

Sporobolus vaginaeflorus—Common along roadsides.

Cinna pendula—Fairly common in damp situations.

Agrostis alba—Abundant.

A. scabra—Scarce in bogs.

Calamagrostis canadensis—Common in wet situations.

Avena striata—Fairly common in woods.

Arrhenatherum avenaceum—Roadsides near the Ont. Agri. College.

Danthonia spicata—Fairly common in dry soil.

Eatonia pennsylvanica—Fairly common in damp situations.

Dactylis glomerata—Common.

Eragrotis minor—Ont. Agr. College barnyard.

Poa annua—Common.

P. compressa—Common.

P. pratensis—Common.

P. serotina—Fairly common in damp situations.

P. alsodes—Scarce in woods.

Glyceria canadensis—Scarce in bogs.
G. nervata—Abundant in damp and wet situations.
G. grandis—Fairly common in ditches.
G. fluitans—Common in water.
Puccinellia distans—Roadside near Guelph. Scarce.
Festuca elatior—Roadsides near the Ont. Agr. College.
F. nutans—Scarce in woods.
Bromus ciliatus—Fairly common in damp situations.
B. secalinus—In some wheat fields.
Lolium perenne—Rare on roadsides.
Agropyrum repens—Common.
A. caninum—Fairly common in woods and thickets.
Elymus virginicus—Common along streams.
Asprella hystrix—Fairly common in woods.

NOTES.

A Black-crowned Night Heron in Ontario in Winter.

—o—

On Dec. 24, 1904, an adult female Black-crowned Night Heron (*Nycticorax nycticorax naevius*), was shot in an orchard near Woodstock, Ont., and given to me. It is now in my collection.

W. D. HOBSON.

Woodstock, Ont.

* * *

Bird Notes From Penetanguishene, Ontario.

—o—

Canada Jays have been with us throughout the winter.

On Dec. 3rd an Arctic Three-toed Woodpecker, a rather rare visitor here, was noted.

On Dec. 5 I examined a female Scamp Duck (*A. marila*), which was taken here. These birds winter on the Muskoka and Swim rivers during mild winters, and occasionally come into the Bay here and feed at the openings at the mouths of the creeks.

On Dec. 8 I saw 2 Black Ducks at the mouth of one of these creeks. Redpolls and Snowflakes have been seen nearly every day.

On Jan. 21 I saw four Crows feeding along the road on the ice near North-west Basin.

February 17 I saw another Arctic Three-toed Woodpecker.

The same day I observed four Purple Finches I came upon them suddenly in a thicket at the edge of a small lake.

A. F. YOUNG.

Penetanguishene, Ont.

* * *

The Female Purple Finch a Songster.

—o—

Having seen it denied that the female Purple Finch sings, I wish to record the following occurrence: On May 9, 1904, I heard an unfamiliar song. It was somewhat like the usual song of the Purple Finch, but higher, and more piping than warbling. I approached the singer and saw it to be a dull Purple Finch. On taking the bird it proved to be a female.

A. B. KLUGH.

Guelph, Ont.

* * *

A Flicker Tragedy.

—o—

Occasionally the Naturalist is likely to have his most cherished theories receive a severe jolt, especially when the unexpected happens. Such was the case a few seasons ago, when the following pathetic incident came before my notice.

A pair of Flickers built their nest in a hollow stub near the Hatwood gate, and when the young were almost ready to fly, one of the female patients at Rockwood took them out of the nest and carried them in her apron to my office. I had the fledglings returned to the stub at once, but Flicker pride had been outraged and wounded and the parent birds refused to accept their progeny.

During the day several young Flickers were found dead about the grounds, all wounded in the head. I took one lively youngster up to my house, with the intention of saving it, if possible. My wife was interested in the problem and took the bird to the lawn, while I turned over stones in a neighboring copse, with the hope of finding ant's eggs for the hungry nestling. Suddenly I heard the angry cries of

the old birds and Mrs. C. called to me to come quickly, as the Flickers were killing the young bird. I thought she must be mistaken, but alas the statement was true. The male bird was scolding noisily in a tree, while the female was deliberately killing the little one by stabbing its head through and through with her bill. She was in a perfect transport of rage and fury and almost refused to fly when I came to the rescue.

The baby Flicker died in a few moments from more than a dozen wounds. The whole tragedy was at variance with my theories, although in accord with popular belief in regard to the young of some birds taken from their parents.

C. K. CLARKE, M.D.

Kingston, Ont..

* * *

The Woodcock's Notes

—o—

A little experience I once had with the American Woodcock comes back to me and I am minded to jot down a few notes describing the well known towering habit and flight song of this bird.

On the evening of the 29th of April, 1901, as I was on my way home after a day's tramp, I heard a peculiar harsh "pake," which I guessed was a Woodcock's note. I ran along the side of a clearing covered with logs and stumps, towards a large second-growth swale, till I got close to the "pake," whereupon the bird flew and commenced its towering "twitter." I lay beside a stump and kept perfectly still and ere long the twittering came closer and then suddenly ceased. A moment later there was a rush of wings overhead and a Woodcock dropped in a little open space, not far from my stump.

It was moonlight and I could see it plainly, as it toddled around among the logs and brush. It made a queer clucking noise, a low, double-syllable "qui-r-r-ut." Suddenly it uttered its "pake" immediately after one of its "qui-r-r-ut" notes, and so close was I and so intense the sound that I was fairly startled.

Several more birds had by this time appeared and there must have been six or eight in that little clearing.

Every little while one would fly and "tower," uttering a rather low sweet twittering noise, which I cannot attempt to describe. This twitter did not start for some seconds after the bird rose, and each

performance lasted but a short time, about 30 seconds I should judge. Towards the end the sound came nearer and then suddenly ceased. A moment after the bird could be seen alighting with short rapid beats of the wings. It always came back close to the spot from which it had flown.

For two hours I lay cramped up against that stump, watching those birds in the moonlight. Before the time was up they had ceased "towering" and were sitting around in the swale uttering their "qui-r-r-ut——pake." One sat a few yards from me and kept it up for half an hour, during which time I came to the conclusion, that although every "qui-r-r-ut" was not followed by a "pake," every "pake" was preceded by a "qui-r-r-ut." Only once did I fail to catch the "qui-r-r-ut," and that time it was probably uttered, although I failed to hear it. The "qui-r-r-ut" note is very low and audible only for a short distance, while the "pake" is a harsh and extremely intense sound and seems to possess ventriloquial qualities.

By ten o'clock they were mostly silent, and before long the last one, alarmed by some slight movement on my part, flew up over the swale and disappeared, so I stretched my cramped limbs and tramped the four miles between me and home, not sorry for my little glimpse into the midnight life of the woods.

F. NORMAN BEATTIE.

Guelph, Ont.

* * *

The Call of the American Bittern.

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The manner in which the American Bittern utters its "pumping" call has been observed, but apparently not very often. Very early on the morning of May 6, 1902, I had an opportunity of observing the performance at the distance of only a few yards.

A gurgling sound was first heard, apparently beginning low down in the throat and ascending, then a series of "ker-plunks" was thrown out, each "ker-plunk" being emitted with a vomiting motion.

A. B. KLUGH.

Guelph, Ont.

Putorius noveboracensis in Wellington County.

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As illustrating the difference in fauna between the northern and southern portions of Wellington County, the occurrence of *Putorius noveboracensis*, the New York Weasel, at Guelph, is interesting. As will be seen by reference to another page, Mr. Allan Brooks found only *P. cicognani*, Bonaparte's Weasel, at Mount Forest. Here we have both, *P. cicognani*, however, appearing to be much the commoner.

A. A. DAVIDSON.

Guelph, Ont.

A Foreign Mammal at Guelph.

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In April, 1904, a large Musteline mammal was killed at the Guelph watch-box on the G.T.R. The specimen was sent to Dr. C. Hart. Merriam for identification, and he pronounced it to be apparently *Putorius eversmanni*, Eversmann's Ferret, whose native home is in Russia. Owing to the skull having been completely pulverized and the pieces consequently removed, absolutely positive identification was impossible.

L. BEATTIE.

Guelph, Ont.

Phegopteris polypodioides in South-Western Ontario.

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Last season (1904), I found *Phegopteris polypodioides* near Innerkip, Ont. This is the first record for South-western Ontario.

F. MITCHELL.

Innerkip, Ont.

A Cyperus New to Canada.

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On the logs of an old boom beside a sawmill at the east end of the city of Kingston, I find *Cyperus engelmanni* to be abundant. This is, I believe, the first record, with locality, for Canada.

JAMES FOWLER.

Queen's University, Kingston, Ont.

A Carex New to Ontario.

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Carex crawfordii, first described by Dr. Fernald in 1902, has been examined, under various names, by him from Newfoundland, Prince Edward Island, New Brunswick, Quebec, Manitoba, Assiniboia, Saskatchewan and Athabaska. Last fall I found it in the vicinity of Guelph, this being the first Ontario record. The perigynia of this species are very different to those of any other of the *Ovales*, being subulate, less than $\frac{1}{3}$ as broad as long and very plump. I expect that upon careful examination the species will prove to be fairly common throughout Ontario.

A. B. KLUGH.

Guelph, Ont.

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A New Station for a Rare Ontario Fern.

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During the summer of 1904 I found *Nephrodium boottii* in the vicinity of Innerkip, Ont. It was well distributed, but was nowhere plentiful. Mr. A. B. Klugh informs me that this is the seventh station for this fern in Ontario, the others being Kemptville, Belleville, Hamilton, London, Guelph and Snelgrove.

F. MITCHELL.

Innerkip, Ont.

Publications Received.

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Some New Facts About the Migration of Birds. By Wells W. Cooke, Year Book, U.S. Dept Agric., 1903.

In this valuable paper Prof. Cooke gives us some of the results of his extensive investigation of the subject of bird migration. Some of the most important conclusions reached are, that birds do not follow closely such landmarks as rivers or mountain-chains, that the average speed for all species during spring migration from New Orleans to the Great Lakes is 23 miles per day, that when a species goes diagonally north-westward it immensely increases its speed, that the great majority of species outstrip the advancing season in their

migration, that during spring migration at least two transposals of colonies of individuals of a species occur, and that with most species the fall migration is a synchronous southward movement.

A. B. K.

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Distribution and Migration of North American Warblers. By Wells W. Cooke, U.S. Dept. Agric., Div. Bio. Sur. Bull. No. 18.

This excellent bulletin is probably the most important contribution to the life-history of N. American Warblers ever published. The breeding range, winter range, migration route and dates of arrival and departure at various stations is given for each species. Speaking from Ontario there is one suggestion we would make; that in future citations of Ontario birds the terms Southern Ontario, Central Ontario, etc., etc., be more carefully applied. A locality whose avifauna is pretty strongly tinged with Canadian faunal characteristics is certainly not in Southern Ontario.

A. B. K.

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Catalogue of Canadian Birds. By John Macoun, M.A. Pt. III.

This part brings to a conclusion this most valuable work in which Prof. Macoun has brought together all available references to Canadian birds.

A. B. K.

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The Economic Value of the Bob-white. By Sylvester D. Judd. Year Book, U.S. Dept. Agric., 1903.

This is the latest of the immensely valuable studies of the food of birds which have been made by the economic ornithologists of the Biological Survey. Dr. Judd, the writer of the present paper, and many previous ones, and Dr. Beal, the writer of many previous economic papers, deserve the thanks of ornithologists the world over for their excellent work.

A. B. K.

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Cassinia. A Bird Annual. Proceedings of the Delaware Valley Ornithological Club. No. VIII.

This handsomely got up annual well reflects the good work done by the club of which it is the journal.

A. B. K.

The Wilson Bulletin. A Quarterly Journal of Ornithology. Nos. 46-49.

This progressive quarterly, under the able editorship of Mr. Lynds Jones, has during the past year given us much valuable information on the birds of Ohio. Mr. Jones' idea of frequent bird censi as an aid in the compiling of reliable faunal lists, deserves the highest praise. The results of these censi and other good material make the Wilson Bulletin an interesting publication.

A. B. K.

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The Bulletin of the Michigan Ornithological Club. Vol. V., Nos. 1-4.

In No. I. this quarterly published one of the most important, if not the most important, contribution to American ornithology of the year, viz.: "The Discovery of the Breeding Area of Kirtland's Warbler," by Mr. Norman A. Wood. No. 2 sees the completion of Mr. Bradshaw H. Swale's excellent faunal list of the land birds of Southwestern Michigan, and in Nos. 3 and 4, Prof. W. B. Barrows writes of the avifauna of the Beaver Islands, a group of islands in Northern Lake Michigan. Each number contains other good articles and interesting notes.

A. B. K.

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The Journal of the Maine Ornithological Society. Vol. VI., Mos. 2, 3, 4; Vol. VII., No. I.

The Journal has during the past year done valuable work for the advancement of the Ornithology of Maine. In Vol. VI., No. 3, Mr. A. H. Norton concludes his excellent paper, "Notes on the Finches Found in Maine." In each number there appears a part of "Notes on the Warblers Found in Maine," which are being writen by Prof. O. W. Knight, Mr. J. M. Swain, Capt. H. Spinney and Prof. W. S. Powers.

A. B. K.

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Bird Lore. Vol. VI., Nos. 2-6; Vol. VII., No. I.

An important feature of this bi-monthly magazine for the past year has been the production of the most excellent Warbler pictures by Bruce Horsfall and L. A. Fuertes. These are unquestionably the best colored plates of North American birds ever issued and

their most valuable feature is the illustrating of the plumages of females and young, as well as the adult males, as this has heretofore been the weak point of all illustrations of birds and of all keys for their identification. Until we know a bird in all its plumages—at least after the juvenal—we only one-quarter or one-half know it, as the case may be. These plates should be in the hands of every bird student throughout the land.

A. B. K.

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Rhodora. The Journal of the New England Botanical Club. Vol. 6, Nos. 70-72; Vol. 7, Nos. 73 and 74.

In No. 70, Dr. M. L. Fernald writes on "American Representatives of Pyrola rotundifolia" and shows our plant to be really *P. americana,* Sweet. In No. 71 Pres'td Ezra Brainerd deals with "Hybridism in the Genus Viola," and in No. 73, gives "Notes on New England Violets, No. II.," in which specimens of *Viola nephrophylla* from Puslinch Lake, Wellington County, are shown to be the first from Ontario. In No. 73, L. H. Dewey shows our Prickly Lettuce to be *Lactuca scariola integrata* and not *L. scariola,* which is very rare in America, except in the Central Ohio Valley. In the same number Dr. R. G. Leavitt begins an article on "The Translocation of Characters in Plants," which he completes in No. 74. These and other articles and notes render Rhodora a publication which no Ontario botanist should be without.

A. B. K.

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The Fern Bulletin. Vol. XII., Nos. 1-4.

During the past year this quarterly, the only publication in the world devoted exclusively to *Pteridophyta,* has published numerous articles of great value. The fern-floras of one or more States, written by the most eminent fern-student in that State, apear in each issue. In No. I., Mr. W. N. Clute writes on "The Measurement of Variation in Equisetum," and describes a new species of this genus. In No. 2, Mr. A. A. Eaton concludes his important paper on "The Genus Equisetum in North America." These and other papers and notes make up an excellent volume.

A. B. K.

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The Mammal and Bird Fauna of Beaver County, Pennsylvania. By W. E. Clyde Todd. (Reprint from "History of Beaver Co., Penn.")

Fungi of Nova Scotia. A Provisional List. By A. H. MacKay, Ll.D. (Reprint from Proc. N.S. Inst. Sc. Vol. XI. Pt. I.)

A Biological Reconnaissance of the Base of the Alaska Peninsula. By Wilfred H. Osgood. N. Am. Fauna, No. 24, U.S. Dept. Agric.; Div. Bio. Sur.

The Apteryx. Vol. I., No. I.

Report of the Botanical Club of Canada, 1903. By A. H. MacKay, Ll.D.

Wellington Field Naturalists' Club.

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The Wellington Field Naturalists' Club was founded at Guelph, Ont., in March, 1900. Its object is to encourage biological research in Ontario. During the past four years a great deal of work along these lines has been done, some of which forms the present Bulletin, and more of which will appear in future numbers. Official meetings are held every two weeks, from the middle of October to the middle of April, and after that date informal meetings are held. At the official meetings current observations are reported, papers read and business transacted. At the informal meetings current observations are discussed. One open meeting, to which the public are invited, is held during the winter.

T. D. J.

Hon. President—Prof. M. W. Doherty, Guelph, Ont.

President—T. D. Jarvis, O.A.C., Guelph, Ont.

Secy.-Treas.—A. B. Klugh, Guelph, Ont.