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OBSERVATIONS ON THE STUDY OF BEETLES IN BRITISH COLUMBIA

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The study of the beetles or any other group of organisms in an area like British Columbia that was originally peripheral to the world centres of scientific study falls somewhat naturally into several periods. First there is a period of exploration, during which specimens are collected by itinerant scientific collectors and brought back to the centres of scientific activity where they are studied and reported upon. Eventually, however, itinerant collectors give way to resident collectors and the endemic study of the fauna gets under way. For long, however, the endemic collectors remain dependent on outside aid, and it is only gradually that fully endemic studies backed up by fully equipped museum and library facilities become established.

In British Columbia the first of the three periods in the study of the beetles was unusually transitory. The first beetles were not collected until about twenty-five years after the first specimens had been collected in the Oregon Country to the immediate south. In British Columbia, the first specimens to be taken seem to have been collected about the year 1859 to 1861 by the naturalists attached to the Anglo-American Northwest Boundary Commission. Dr. John L. LeConte of Philadelphia, the leading American

student of the Coleoptera in the third quarter of the last century, records *Cicindela longilabris* Say and *Cupes serrata* LeC. in 1861 from "Camp Kootenay."¹ With lack of precision that is characteristic of the coleopterological work of the period, he failed to notice whether the "Camp Kootenay" referred to was the east crossing of the international border by the Kootenay River in Montana or its west crossing in Idaho. In either event, the specimens were as likely to have been taken on one side of the boundary line as on the other.

John Keast Lord, the British naturalist with the Commission in his *Naturalist in Vancouver Island and British Columbia*, 1866, refers to collecting beetles at least twice: once (Vol. II, p. 109) near Palouse-Falls in Washington, once (Vol. II, p. 123) along Slesse (Selece) Creek, a tributary of the Chilliwack River near Chilliwack. His list of 94 species of beetles published in an appendix² to his book, contains no intimation of localities. While some of the species listed probably were collected in British Columbia, others were not, and Lord is known to have travelled overland all the way from San Francisco to the Canadian border. His book shows him, moreover, to have been preoccupied with the vertebrates.

The real beginning of the scientific study of British Columbian beetles began with a collection made probably

¹ New species of Coleoptera inhabiting the Pacific district of the United States. *Proc. Acad. Nat. Sci. of Philadelphia* 1861, pp. 338-359.

in the late sixties in "Vancouver Island and British Columbia" by Henry and Joseph B. Matthews, brothers of the Rev. Andrew Matthews, the British microlepidopterist. The collection which Henry Matthews, who was likewise a clergyman, brought back to England with him in 1869, was submitted by Andrew Matthews to LeConte. LeConte published a list of 186 species in the *Annals and Magazine of Natural History* in the same year. He considered British Columbia and Vancouver Island to be at that time the least explored portions of North America.³ Notable among the new species described here was our famous ground beetle, *Zacotus matthewsii*. Three years later Andrew Matthews described two species of Amphizoa from the same source.⁴

Though George Robert Crotch collected beetles about Victoria and along the Fraser River in 1873, these remained the only significant publications on British Columbian beetles for fifteen years.

What I would call the period of resident collectors extends in British Columbia from about 1882, when George W. Taylor settled on Vancouver Island, to about 1919, when Ralph Hopping was called to Vernon. The principal Coleoptera literature, pertaining to the Province, that appeared during this forty year period consisted of about a dozen or fifteen separate short lists plus an annual listing, beginning in 1902, of 25 or 30 or more species in the Annual Report of the Entomological Society of Ontario.

The first endemic beetle work in the Province was Taylor's 1886 list in

the *Canadian Entomologist* of 76 species of Cicindelidae and Carabidae from the vicinity of Victoria, named for him by Henry Ulke of New York. Lists by Brodie (1888) and Wickham (1893) represent the work of itinerant collectors. The most ambitious paper was the list of 241 species from Massett collected by the Rev. J. H. Keen, published in the *Canadian Entomologist* in 1895. The identification of Keen's specimens was arranged for by James Fletcher of Ottawa, Dominion Entomologist, who solicited the aid of numerous coleopterists in the eastern United States and Europe. A beginning at a Provincial list was made in 1906-1907 in the abortive Bulletin of the British Columbia Entomological Society, 154 species in Cicindelidae, Buprestidae, Coccinellidae, and Cerambycidae being listed. The status of the knowledge of the beetle fauna as a whole is suggested by the 800 species which in 1906, were stated by the Secretary of the Society, R. V. Harvey of Queen's School, Vancouver, to be in the provisional unpublished list of the Society.⁵

The local collectors were completely dependent on coleopterists residing for the most part in eastern Canada and northeastern United States for their determinations, and the westerners' contribution consisted almost exclusively in collecting material and transcribing the names assigned to it by others. There was no attempt at independent study because, as W. Downes explained to me some years ago, of the almost complete lack of basic literature. This was a lack which neither the public nor the private financial resources of the region was able to make good. In this connection, one notes the acknowledgment of A. H. Bush, in a 1914 list of 106 species from Mount Cheam, of the help in identification of Dr. E. C. Van Dyke of San Francisco. The endemic centres of beetle-study were beginning to close in on the Pacific Northwest.

Turning to the economic bases of the beetle studies of this period, one notes

² List of Coleoptera, Vol. II, pp. 309-334. The list was prepared by Francis Walker (1809-1874), entomologist at the British Museum, whose authorship is attested to on p. 290. For comments on this publication see LeConte, *Ann. Mag. Nat. Hist.* 4 (6), 1870, pp. 395, 399-402.

Another similar publication is LeConte, *List of Coleoptera*, *Geol. Surv. Can. Rept. of Prog.* 1875-76, 1877, pp. 107-109. 145 species are listed; but there is nothing to indicate which of the species were taken in British Columbia and where, and which, if any, were secured in Alberta or even further east!

³ See selected bibliography at end of paper for citation of this and other papers mentioned.

⁴ Descriptions of two new species of Amphizoa from Vancouver's Island: A. Josephi, A. Lecontei, *Cistula Entom.* 1, 1872, pp. 119-122. See likewise A. Matthews' obituary notice of the Rev. H. Matthews (d. 1874) in *Ent. Mo. Mag.* XIV, 1877, pp. 38-39.

with interest that the two first resident workers, Taylor and Keen, were clergymen. This is evidence of the British influence, for during the 19th century several of the most important British coleopterists were clergymen. One searches in vain for a clergyman advancing the study of beetles at this time in the United States. A. W. Hanham, who was contributing heavily to "The Entomological Record" during this period, was manager of the Bank of British North America in Duncan. R. V. Harvey, who was working on a Provincial list, was a school teacher. E. P. Venables was a farmer in the vicinity of Vernon. E. M. Anderson was connected with the Provincial Museum in Victoria. J. B. Wallis, public school teacher of Winnipeg, collected extensively at Peachland in 1909. A. H. Bush was an engineer on the Canadian Pacific Railroad. W. H. Brittain, who published a list of 73 species of Coleoptera from the Okanagan district in 1904 was employed in economic entomology.

In these tentative "Observations on the Study of Beetles in British Columbia," I should like to suggest that a new period in the study of the beetles of the Province dates from about 1920. The University of British Columbia was established in 1915. Entomology was first taught there in 1919, and Professor G. J. Spencer joined the staff of the institution as entomologist in 1924. Professor Spencer is not a coleopterist, and his beetle-studies have been confined to some of the household species. He has, however, laid the foundations for a Provincial collection, and the institution which he serves seems to furnish the condition under which we can expect that fully endemic beetle-studies can be carried on.

More important than the University of British Columbia as a centre of

beetle-study, especially during the late twenties, is the Provincial Museum at Victoria, where G. A. Hardy has published a number of reports on the Elateridae, Buprestidae, and Cerambycidae of Vancouver Island. Mr. Hardy, however, serves the Museum as Botanist as well as Entomologist. While the Museum's beetle collection is extensive, as late as 1949, at any rate, it is badly in need of consolidation in modern insect boxes or drawers.

The most important beetle-studies to have been conducted in British Columbia in the past thirty years were those under the leadership of Ralph Hopping, 1868-1941, from 1919 entomologist in charge of the Dominion Forest Insect Laboratory at Vernon. Beginning in 1925, Mr. Hopping was assisted at the Vernon laboratory by his son, George R. Hopping, and beginning in 1930, by Hugh B. Leech, both of whom became interested in the taxonomy of the Coleoptera and both of whom remained connected with the Vernon laboratory for eight or nine years following Ralph Hopping's retirement in 1939. The Hoppings concentrated on the Cerambycidae, in which family they produced an important series of monographs,⁶ but Ralph Hopping's studies in particular extended over the beetles as a whole. On September 1, 1938, his unpublished card index of British Columbia beetles numbered 2070 species, a figure to be compared with the 1906 figure cited above of 800 species, and indicating the growth of knowledge in the intervening period. The collection at Vernon came to number about 10,000 species in about 97,000 specimens, including large amounts of British Columbia material. In accordance with Ralph Hopping's own desire, his collection was sold for a nominal sum by his widow to the California Academy of Sciences in 1948, making that institution one of the most important repositories of British Columbia beetles.

⁵ Bull. Ent. Soc. B.C., No. 1, March 1906, p. 2. From 1901-1933 about 800 species of beetles were listed in the Coleoptera section of "The Entomological Record" which was published annually in the Annual Reports of the Entomological Society of Ontario from the 32nd Report for 1901, published in 1903, through the 61st Report of the Quebec Society for the Protection of Plants, published in 1934.

Hugh Leech specialized at first in both the Staphylinidae and the aquatic Coleoptera, later exclusively in the aquatic families. He has published a very extensive series of excellent short papers. In 1947, in order to secure the opportunity to concentrate on his taxonomic studies, he accepted the position of Associate Curator of Insects at the California Academy of Sciences, taking with him his collection of about 130 boxes of water beetles. With George Hopping's removal to Calgary the following year, the Vernon Group of coleopterists was dissolved.

A collector of beetles of some note in the vicinity of Terrace and Massett, in part some of the country formerly worked by the Rev. J. H. Keen, is Mrs. M. E. Clark of Terrace. As Mrs. W. W. Hippisley, she published some *Notes on Northern British Columbia Coleoptera* in the Canadian Entomologist (XLIV, pp. 63-66) in 1922. In 1948 and 1949 she published a list of 420 species of Cicindelidae through Coccinellidae in the Proceedings of our Society—the most extensive single list of species so far to have been published in British Columbia. Her specimens were named for her by C. A. Frost of Framingham, Mass., who retained samples of most of her species, and she has recently deposited the residue of her collection at the University of British Columbia.

The leading presently active student of British Columbia beetles is Gordon Stace Smith, a mining foreman, now retired, of Creston. In 1929 and 1930, Stace Smith published a list of 323 species from Copper Mountain near

Princeton, and he has one of the finest collections of the beetles of the Province ever assembled. Stace Smith represents the earlier collector-type of investigator, and he represents this type at its very best. An expert and indefatigable collector, he insists on the most precise preparation and labeling of every specimen. Each specimen, moreover, carries the names of the various coleopterists who have seen it and the names—not always congruent—that they have assigned to it. Stace Smith confines himself to the beetles of the Province, which he has represented in his collection in series up to 20 or 25 specimens of a species. At the end of 1950 he figured that he had representatives of a few over 2000 species of British Columbia beetles in his collection. He is, moreover, being of the utmost possible assistance to me in my work on *The Beetles of the Pacific Northwest*.

Finally, I have to mention Richard Guppy, of Wellington, near Nanaimo. Mr. Guppy confines his collection to Vancouver Island, and is proving very helpful in supplying material from that locality.

I now give some comparative figures on five collections of British Columbia beetles. In part I of my book, I recognize about 675 species of Northwestern beetles in the suborder Adephaga, which includes Carabidae, Dytiscidae, and related families. Of these 675 species, 511 are listed from British Columbia. Of these 511 species, I have found examples of 373 species in the collection of the California Academy of Sciences, 359 species in the collection of G. Stace Smith, 294 species in my collection at the University of Washington, 256 species in the collection of the University of British Columbia, and 157 species in the collections of the Provincial Museum at Victoria.*

6 Hopping, Ralph. A review of the genus *Monochamus* Serv. (Cerambycidae, Coleoptera). Can. Ent. 53, 1922, pp. 252-258; pl. xi.
—(with J. M. Swaine) The *Lepturini* of America north of Mexico. Part I. Nat. Mus. Can. Bull. 52, 1927, 97 pp., xii pl.
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*Ed. Note.—Over 250 named species of this group are in the collection of the Vernon Forest Insect Laboratory.

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