NOTES ON THE MOUTH-PARTS OF BOMBUS.

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We have lately studied the mouth-parts of a number of species of *Bombus*, both American and European, and adding our results to those obtained by Radoszkowski (1877) we find as follows:—

(1) Taking the first joint of the labial palpus of the ♀ as an index of the length of the mouth-parts (it is especially convenient for accurate measurement), we find that the longest-mouthed species is *B. Gerstackeri*, from the European Alps (our examples were collected by Fries at Engelberg), a species known to be the exclusive visitor of *Aconitum lycoctonum* in that region. The *Aconitum* (Knuth, Blütenbiologie, Vol. II., p. 53, fig. 20) has the hood enormously produced, and is adapted only to bees with extremely long tongues.

(2) No Rocky Mountain or other American *Bombus* examined by us has nearly such long palpi (or tongue) as *B. Gerstackeri*, nor have we such an Aconite as *A. lycoctonum*. Our longest-tongued type seems to be *B. Nevadensis*, which visits *Delphinium*.

(3) The species with shortest mouths are mostly high-alpine or arctic: *proximus*, *melanopygus*, *lapponicus*, *viduus*. *B. terrestris* also ranks with these as one of the shortest-mouthed; it is remarkable that the species which superficially looks exactly like *B. terrestris*, namely, *B. hortorum*, is one of the longest-mouthed of all, having the first joint of labial palpus about $6\frac{1}{2}$ mm. long. We have both *terrestris* and *hortorum* from Innsbruck, collected by Fries.

(4) *B. ligusticus*, *ruferatus* and *ussurensis* rank with the longest-mouthed species, and probably, like *Gerstackeri* and *hortorum*, are adapted to *Aconitum*.

(5) The commonest length for the first joint of the labial palpi is from 4 to $4\frac{1}{2}$ mm. Here come *B. juxta*, *Morrisoni*, *rajellus*, *muscorum*, *senilis*, *fragrans*, *equestris*, *sylvarum*, *Stewenii*, *Latreillelus*, *Mlocozewiczi*, *calidus*. The American *virginicus* and *Kincaidii* fall short of this by a small amount, although they are large bees.

(6) The second joint of the labial palpi does not usually enlarge in proportion to the first, hence the longest-mouthed species have the greatest difference between the joints. In such species as *ruferatus*, *ussurensis*, etc., the first joint is from $5\frac{1}{2}$ to 6 times as long as the second. In nearly half the species, the first joint is from 4 to $4\frac{1}{2}$ times as long as the second; in *proximus* it is only $2\frac{1}{2}$ to 3 times as long. In *Gerstackeri* the

second joint has lengthened in proportion to the first, so that the average proportions are preserved, although the palpi are extremely long. In *B. sonorus* the first joint is relatively short (about as long as in *pratorum*, *hypnorum*, etc.), but it is nevertheless over $4\frac{1}{2}$ times as long as the second.

(7) It seems probable that the only oligotropic bumble-bees are those with extremely long tongues, adapted to certain species of aconite. The American species probably all visit miscellaneous flowers, and this must be especially true of the Arctic species, which have nearly a monopoly (so far as bees are concerned) of the flowers of their region. Thus, *B. Kincaidii* is the only bee on the Pribiloff Islands, where brightly-coloured flowers abound.

NOTE ON PITYOPHTHORUS CONIPERDA, SCHWARZ.

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This species was described in the Proceedings of the Entomological Society of Washington, Vol. III., p. 144, 1895, and the author stated: "I offer herewith a description of this species, being solely tempted thereto by the interest attached to its life-history; for, as far as I am aware, there is no other Scolytid known which normally develops within the cones of pine trees." Possibly since that time a similar habit may have been observed in regard to other members of the Scolytidæ, but I cannot recall any reference to such observations. The beetle in question was first collected by me on May 24, 1884, and its capture was quite accidental. Mr. Fletcher and myself had that day visited a grove of white pines on the Gatineau, a few miles north of Ottawa, with the special object of collecting the somewhat rare little butterfly, *Thecla Nippon*, of which we succeeded in capturing several good specimens. Having climbed up into one of the pine trees, to try and net a butterfly which had settled up aloft, I noticed that the young buds at the tips of the twigs were injured by some insect. Investigation showed that one of the bark-boring beetles was at work, and a few specimens were collected. These were determined for me as *Dryocates affaber*, and were referred to by me under that name in notes on Canadian Rhyncophora in the CANADIAN ENTOMOLOGIST, 1891, Vol. XXIII., p. 26. At Aylmer, Que., about eight miles above the city, on the Ottawa River, on June 25, 1887, while seeking, with my friend Fletcher, upon red pines for *Podapion gallicola*, we found the shoots and cones seriously infested by a Scolytid, which appeared