

Holarctic Elements Among the Ichneumoninae of Canada

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The following records represent a supplement to my former publication "Holarctic Elements among the Ichneumoninae of Maine" (Jour. Wash. Acad. Science 43, May, 1953, p. 148-50). They are based mainly on material obtained by the Northern Insect Survey, which is a co-operative project of the Canada Department of Agriculture and the Defence Research Board, Canada Department of National Defence.

This contribution presents several species and two palaearctic genera not recorded before from America. I am indebted to Prof. H. K. Townes for sending me his material belonging to the mentioned two genera, thus enabling me to separate and describe a second Canadian species of one of these genera (*Hybophorellus* Schulz). I also have to thank Dr. W. R. M. Mason for his kind assistance in the preparation of this paper.

Trogus lapidator F.

One male specimen of this species was reared by J. E. H. Martin from a pupa of *Papilio machaon*, the typical host of *T. lapidator* F. in the Palaearctic. The pupa was collected at Rampart House, Yukon Territory, Canada, July 15th, 1951.

This is the first record of the species from the New World and the first proof that a parasite of the subfamily Ichneumoninae Asian. happened to follow its genuine host from one continent to the other.

Intermedichneumon calcatorius Thunb., ♀ ♂

Syn. *Ichneumon otiosus* Say ♀ 1829 (new Syn.)

Ichneumon sylvanus Hgn. ♀ 1880

Ichneumon burkei Viereck ♂ 1910 (new Syn.)

The Canadian National Collection contains 16 ♀ ♀ and 9 ♂ ♂ from Canada (Quebec, Ontario, New Brunswick and Nova Scotia), all reared from the

¹In the author's previous publication "A Report on Some North American Arctic and Subarctic Ichneumoninae", Can. Entom. 88, 1956, a printing error has to be corrected:

In the diagnosis of the genus *Eulimnoria* Cam. on p. 478 only the first paragraph of characters given under the heading "Male" concerns this sex while the second paragraph, beginning "Hypopygium with a bunch or fringe", erroneously was joined with the former by omitting the heading "Female".

Liparidae *Hemerocampa antiqua* L. and *Hemerocampa leucostigma* A. & S. There are also 9 ♀♀ collected hibernating near Ithaca, N.Y.

Females of the series mentioned above belong to the species regarded in literature and collections as *I. otiosus* Say. They are also specifically identical with the specimens I recorded from Maine as *Coelich. calcatorius* Thunb., which I had compared with a specimen of the latter species from European Alps.

W. R. M. Mason compared the male sex with the holotype of *I. burkei* Viereck and stated identity.

The generic position of this species is somewhat problematic as proves a glance into its literature where it changed between *Ichneumon*, *Craticheumon*, *Stenicheumon* and *Coelicheumon*. H. Townes placed *otiosus* Say into *Coelicheumon* Thoms. as I did loc. cit. with *calcatorius* Thunb. However, this placement is only partially satisfactory. The propodeum of *calcatorius* Thunb. is not so much rounded downwards as it should be in a true *Coelicheumon*-species, and its aerolation is of a peculiar type. There is a biological character also differing from *Coelicheumon*: the series collected at Ithaca, N.Y., proves that this species hibernates. None of the true *Coelicheumon* do.

It seems to me that the species fits quite easily into *Intermediheumon* Heinr. erected originally for some oriental species as a subgenus of *Melichneumon* with deep gastrocoeli like *Coelicheumon*, non-punctured postpetiole and somewhat convex scutellum. (Cf. Mitt. Zool. Mus. Berlin, 1934, p. 194 and 207).

***Ichneumon computatorius* Müll
nearctivernus ssp. nov. ♀**

Type Locality:—Smoky Falls, Maragani River, Northern Ontario, Canada.

Holotype:—♀, G. S. Walley, 12.VI.1934, C.N.C. No. 6408.

Paratypes:—3 ♀♀, Smoky Falls, Ontario, G. S. Walley, 13.VI. and 5.VII.1935; 1 ♀, Norman Wells, Northwest Territories, C. D. Bird, 19.V.53; 1 ♀, Mt. Murray, Alberta, G. E. Pall, 3.VII.53; 1 ♀, Rampart House, Yukon Territory, J. E. H. Martin, 29.V.51; 1 ♀, Christopher Lake, Sask., A. R. Brooks, 3.VII.39; 1 ♀, Fairbanks, Alaska, W. R. M. Mason, 25.VI.52; in the Canadian National Collection. 2 ♀♀, Dryden, Maine, U.S.A., G. H. Heinrich, in collection of Gerd H. Heinrich.

The species *computatorius* Müll. is uniquely characterized among all others of the genus *Ichneumon* of the Palaearctic by morphology of flagellum. The latter is short, extremely broadened and extraordinarily flattened beneath beyond middle and then attenuated, the first joint being less than twice as long as wide at the apex, the broadest about three times broader than long.

The colour of the species is black including legs, with white marks on sixth and seventh tergite and redd. a inner orbits.

The North American specimens agree exactly with series from Germany in colour as well as in morphology. They are constantly different, however, in sculpture of coxae III, which are glossy with few, scattered punctures and no scopula, while the coxae III of palaearctic specimens are densely punctured and have a distinct scopula. Considering the identical structure of both series in every other regard, I can evaluate the difference in sculpture of coxae as a subspecific character only.

***Aoplus ruficeps* Grav. ♀**

This species is uniquely characterized by the short, extremely stout antennae which are absolutely filiform, tapering slightly towards the base but not a bit at the apex.

Among known American species of the genus only *A. velox* Cress has a rather strong and stout flagellum though not nearly as stout as *ruficeps* Grav. Both species may easily be distinguished by difference in relative length of first joint of flagellum, which is 1.75 times longer than wide at the apex in *ruficeps* Grav., 2.30 times longer in *velox* Cress.

European specimens of the species are mainly red, often mutating to some black and always with a whitish mark on the seventh tergite.

All 5 American specimens I have seen are red except a black flagellum with white annulus, a yellowish end of scutellum and seventh tergite and usually some more or less extended dark marks of propicura, mesopleura and mesosternum. This coloration fits into the scheme of mutation of European populations.

Recorded as follows: 1 ♀, Dryden, Maine, G. H. Heinrich; 1 ♀, Merivale, Ontario, J. J. de Gryse; 1 ♀, Gracefield, Quebec, O. Peck; 1 ♀, Jacquet River, New Brunswick, G. S. Walley; 1 ♀, Shediac, New Brunswick, G. S. Walley.

Genus *Hybophorellus* Schulz

This genus was till now known only from Europe and not recorded before from the New World. It is a distinct genus easily recognized by the following characters:

♀ ♂

Clypeus convex as in the *Platylabini*. Mandibles strongly narrowed with small, nearly even teeth. Temples broad. Mesonotum and scutellum strongly convex, the latter considerably elevated above postscutellum. Propodeum fairly short with blunt, short apophyses (sometimes rather indistinct). Postpetiole irregularly, sometimes indistinctly, reticulated coriaceous. Gastrocoeli small and shallow.

Female

Apex of abdomen amblypygous, the hypopygium without bristles. Flagellum attenuated.

Male

Thyloides very broad, short oval to almost circular, occupying the basal part of joints of flagellum.

The morphology of the head of this genus reminds one of the *Platylabini*, the characters of the flagellum of both sexes, however, exclude the possibility of placing it into this tribe. To me it seems to be a link between the *Ichnemouini* and the *Hoplismenus* group. Nothing is known about the hosts.

Two North American forms will be described below, one considered to be a subspecies of a palaearctic species, the other to be a new species. A single male from Baffin Island evidently belongs to a third form which, however, cannot be identified and placed before further material is available.

Key for the American *Hybophorellus* species

♀ ♂

1. Cheeks obliquely striated. (Flagellum of female considerably broadened beyond middle. Abdomen red and black) *injeundius* Wesm.
nearcticus ssp. nov. ♀ ♂
(Northwest Territories)
2. Cheeks not striated 2
2. Abdomen and mesonotum red (Flagellum of female not broadened beyond middle) *townesi* sp. nov. ♀ ♂ (Saskatchewan)
- Whole body including flagellum black, except legs which are vivid red. Thyloides white single ♂ specimen (Baffin Island)

Hybophorellus townesi spec. nov. ♀ ♂

Type Locality:—Scereran, Saskatchewan, Canada.

Holotype:—♀, J. G. Rempel, 15.VII.44, in collection H. Townes.

Allotype:—♂, Swift Current, Sask., Canada, R. H. Sparrow, 21.VI.37, in collection H. Townes.

Paratype:—♀, (Locality and dates as in holotype), in collection G. Heinrich, Dryden, Maine.

This species differs from *H. injucundus nearcticus* Heinr. distinctly by the non-striated cheeks, the much more slender flagellum, the less pronounced teeth of propodeum, which are only slightly indicated, and the narrower cheeks.

Female

Red. Lower margin of metapleuræ narrowly and a middle stripe of mesos sternum blackish. Flagellum somewhat infuscated towards apex. Length: 10 mm.

Male

Black colour more extended than in female. Black are: whole propodeum, pleura, sternæ, greatest part of coxæ, trochanters, face except middle field, clypeus, frons including ocellar field but excluding inner orbits, cheeks, base of mandibles, and flagellum above in the basal part. Length: 12 mm.

Female

Head transverse. Temples broad, their profile hardly narrowed behind eyes. Temples and occiput roundly and not abruptly sloping behind eyes and ocelli. Occiput deeply and almost angularly emarginated behind. Check profile strongly and in nearly straight line narrowed towards mandible base. Middle field of face strongly elevated, clypeus distinctly separated by a transverse depression, convex, with oblique angles.

Mandibles narrow, the upper tooth but a little longer than the lower.

Flagellum long, slender, very strongly attenuated, not broadened but flattened below beyond middle, with 42 joints, the first joint 2.35 times longer than wide at the apex, about the tenth joint seen from the side as long as wide, the broadest seen from the flat side hardly as long as broad, reddish, somewhat infuscated towards the apex.

Mesonotum distinctly longer than wide, strongly convex, almost without indication of notaulices. Scutellum strongly convex and elevated above post-scutellum, roundly sloping down to the latter, shiny with scattered fine punctures.

Propodeum densely reticulate punctured with feeble areolation. Costulae obsolete or almost so. Area supermedia transverse, front angles rounded. Hind edges of areae dentiparæ shortly and bluntly projecting. Metapleura transversely striated.

Postpetiole with indistinctly limited middle field, finely and irregularly reticulated, smoother toward the end.

Gastrocoeli hardly impressed.

Coxæ III finely and fairly densely punctured all over.

Hybophorellus injucundus Wesm. *nearcticus* sp. nov. ♀♂

Type Locality:—Bernard Harbour, Northwest Territories, Canada.

Holotype:—♀, Canad. Arct. Exped., 12.VII.1915, C.N.C. No. 6467.

Allotype:—♂, Chesterfield, Northwest Territories, J. R. Vockeroth, I.VIII.1950, in Canadian National Collection, Ottawa.

Until now this species was known only from Europe: England, Sweden and Germany (Thüringen). Several years ago I recorded it from different high mountain tops of the Bavarian Alps where it had been collected at altitudes of about 6000 feet.

The nearctic specimens agree with the alpine in all essential morphological characters and especially in the unique obliquely striated sculpture of cheeks. The area supermedia is, however, considerably larger and broader compared with the alpine specimens, the carinae of propodeum are less distinct and elevated, and the costulae absent. The flagellum of the female is a little more broadened, the broadest joint seen from the flat side being 1.8 times wider than long in the nearctic female, only 1.55 times wider in alpine specimens.

Female

Red colour more extended than in the palaearctic subspecies, covering in the holotype the whole mesonotum, scutellum, surface of propodeum, mesopleura, mesosternum, coxae I and II, upper and lower third of pronotum, occiput and sides of face and frons. Antennae and abdomen as in the nominate subspecies: the former black with white semi-annulus, the latter with tergites 1-3 and sides of 4 red, the rest black.

Male

The allotype differs from alpine males by the red colour of mesonotum, scutellum and postscutellum, the rest of the thorax being black as in the nominate form. The flagellum is black with the short oval thyloides being yellowish and showing up strikingly from the dark ground colour. Femora, tibiae and tarsi red, only basal half of femora III black. Otherwise coloured like the alpine specimens, the head and tergites 4-7 being black, tergites 1-3 almost entirely red.

Ctenamblyteles homocerus Wesm. ♀♂

The genus *Ctenamblyteles* Heiar., based on this species, is closely related to *Patocelus* Cress. It differs from the latter by the strong and regular, long pectination of the whole length of shafts of all claws. It seems not yet to be recorded from the American Continent.

The species *homocerus* Wesm. turns out to be widespread over North America, with a boreo-alpine distribution transcontinental in the North from Alaska to Quebec and also occurring in the mountains of Colorado and Wyoming. I examined 8 specimens from 6 Canadian and Alaskan localities in the Canadian National Collection and 3 specimens from Steamboat Springs, Colorado collected by H. Townes. I compared them with a series of European specimens from the Bavarian Alps, and found all to be identical except that the population from Colorado has slightly darker wings. One ♂ from G. Teton Nat. Park, Wyoming in the collection of H. Townes has the 2nd and 3rd tergites red.

The species was found at the following localities in North America: 1 ♀, Anchorage, Alaska, R. S. Bigelow, 11.VII.51; 1 ♀, Ft. Nelson, British Columbia, W. R. M. Mason, 13.VI.48; 1 ♀, Samota Mines, Northwest Territories, J. G. Chillcott, 22.VI.53; 1 ♀, Coppermine, Northwest Territories, S. D. Hicks, 2.VII.51; 1 ♂, Rupert House, Quebec, D. P. Gray, 7.VIII.49; 1 ♂, Rampart House, Yukon Territory, J. E. H. Martin, 11.VII.51; 2 ♀♀, Macdiarmid, Lake Nipigon, Ontario, N. K. Bigelow, 7.VI.21, 25.VI.23; 3 ♂♂, 1 ♀, Steamboat Springs, Colorado, H. M. S. D. & J. Townes, 6.VIII.48; 1 ♂, S. Teton Nat. Park, Wyoming, D. T. & J. N. Knull, 14.VII.39.

Ectopius exhortator Thunb.

ssp. thuracicus Cress ♂♀ (new comb.)

Female

(Description based on 4 specimens from Ontario, Canada)

Agrees in colour with the male except that the flagellum is tricoloured: red in the basal third, black at the end with a broad white annulus in the middle.

Ssp. thoracicus Cress. agrees with the palaeartic nominate subspecies in all essential characters of morphology and colour. It differs as follows:

Female

Black colour includes the mesonotum which is almost always red in European specimens.

Male

Black colour in average of 25 specimens from Ontario, Canada, less extended than in males of the nominate subspecies: Coxae constantly red (usually partially black in European specimens), mesosternum and mesopleura black only in 4 specimens, while these parts in the nominate subspecies are black as a rule.

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