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New Halictine Bees from Chile

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Thorax short and broad, square, flat, densely gray pollinose on black ground, with distinct, close punctures which are not arranged in rows and bear only minute hairs, giving the mesonotum a bare appearance; the lateral setæ very short but stout; scutellum a little elongated, flat, punctured and concolorous with dorsum, with only one pair of apical setæ of noticeable size; pleuræ black, gray-pollinose except in the depressions above the front and hind coxæ; postnotum shining black; halteres yellow.

Abdomen subshining black above, indistinctly paler basally, opaque black below.

Legs including coxæ opaque black, the knees vaguely, the tibiæ except a broad, median ring on middle and hind ones, and all the tarsi yellow.

Wings subhyaline, veins blackish, the costal segment before the tip of second vein less than double the one beyond it.

Length 1.3 to 1.5 mm.

Thirteen specimens, both sexes: ten from Treesbank, Manitoba, May 6, 1916, including the type, a female; two Aweme, Manitoba, Sept. 12 and Oct. 13, 1916; one Estevan, Saskatchewan, May 20, 1916. All collected by Norman Criddle.

NEW HALICTINE BEES FROM CHILE.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

The Chilean bee-fauna is one of the most remarkable in the world, many of the species having a facies quite distinct from those of other parts of South America. Many species were long ago described by Spinola; others have been made known at intervals since, but there can be no doubt that very many remain to be discovered.

Agapostemon (Pseudagapostemon) xanthorhinus, sp. n.

♂.—Length about 7.5 mm.; anterior wing 5.5; bluish-green; clypeus (except two dots and narrow lateral margins), labrum and mandibles (except black basal spot and ferruginous apex) yellow; a yellow stripe across tubercles; legs bright yellow, with the coxæ, trochanters, anterior femora basally, middle and hind femora

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largely behind (but not apically), piceous; clypeus produced, but ordinary; sides of face with dense, appressed, very pale yellowish hair; front dull and granular; antennæ long, the scape and two following joints yellow, the others pale ferruginous, the flagellum more or less dusky above, especially at base; fourth antennal joint about as long as second and third together; mesothorax and scutellum densely punctured but shining, with thin, rather long, pale hair; basal area of metathorax covered with coarse, vermiform rugæ; tegulæ pale, with a yellow spot; wings hyaline, stigma pale ferruginous, nervures testaceous; first recurrent nervure joining second submarginal cell beyond the middle; hind legs not modified; abdomen closely punctured but shining, with thin hair, but no bands; apical segment pale reddish, emarginate; venter mainly yellow, hind margin of fourth segment broadly W-like, the margins of the notch ferruginous.

Chile (E. C. Reed), U. S. Nat. Museum. Closely related to *A. citricarnis* (*Halictus citricarnis* Vachal), but that species differs by the somewhat greater size, the presence of yellow depressed hair on abdomen, the granular area of metathorax, the yellow antennæ, and the slightly emarginate fourth ventral segment. Also related to *A. paulista* (*Pseudagapostemon paulista* Schrott.), but differs in being smaller, with yellow mandibles. It has the clypeus yellow with two dots, as in *A. paulista*, not as in *A. nasua* (*Pseudagapostemon nasua* Schrott.). It does not seem advisable to regard *Pseudagapostemon* as more than a subgenus.

***Rhopalictus corinogaster chilöensis*, subsp. n.**

♀.—Wings dusky, nervures pale fuscous; tegulæ black, anteriorly margined with testaceous; legs and antennæ darker; abdomen darker red, first segment black except the broad, apical margin.

Island of Chilöe, Dec., 1894. Collector unknown. Type in my collection.

***Rhopalictus callicladurus*, sp. n.**

♂.—Length about or nearly 9 mm.; head and thorax metallic green, with abundant white pubescence; labrum, mandibles and apex of clypeus pale testaceous; eyes deeply emarginate and

strongly converging below; antennæ very long, the rather swollen scape black; the flagellum ferruginous, dusky above, strongly crenulate; front, sides of thorax and metathorax blue-green, but face, mesothorax and scutellum yellowish green; mesothorax finely punctured but moderately shining; area of metathorax with radiating plicæ, more or less connected by cross-ridges; tegulæ pale testaceous; wings ample, hyaline, stigma and nervures sepia; first recurrent nervure joining second submarginal cell very near end; tibiæ and tarsi, and much of apical part of femora, bright ferruginous, but femora otherwise green; abdomen clavate, long and slender, first segment swollen dorsally; first segment practically black above, second and third very bright ferruginous, fourth and fifth deep metallic green with hind margin red, apex red.

Chile (*E. C. Reed*), U. S. Nat. Museum. Easily known by the peculiarly coloured abdomen, but nearest to *R. corinogaster* (Spinola).

***Rhopalictus melanocladus*, sp. n.**

♂.—Length about 8.5 mm.; head and thorax black, with white hair, the entirely dull and granular front, vertex, mesothorax and scutellum with a faint greenish tint; clypeus and labrum black, mandibles dark reddish beyond middle; eyes deeply marginate and strongly converging below; antennæ extremely long, black, the flagellum dark coffee-colour below, and strongly crenulate; area of metathorax strongly reticulate; tegulæ dark rufo-fuscous; wings brownish-hyaline, stigma and nervures dusky-ferruginous; second submarginal cell not very broad, receiving first recurrent nervure a short distance from its end; legs black, with the long tarsi; pale ferruginous; abdomen elongate, clavate, first segment swollen dorsally, but its apical part in a straight line with second (which is not true of *R. callicladurus*); abdomen black, with a very faint greenish tint, hind margins of segments obscurely reddish; apex pale ferruginous.

Chile (*E. C. Reed*), U. S. National Museum. Related to *R. chilensis* (Spin.), the type of the genus, but readily distinguished by the dark abdomen and the shape of the second submarginal cell.

AFRICAN BUPRESTIDÆ (COL.) OF THE GENUS STERNOCERA.

BY RICHARD T. GARNETT, BERKELEY, CAL.

The following table will separate the various forms of *Sternocera interrupta* Olivier:

- I. Impressions of elytra present.
 - A. Foveæ of thorax and elytra with white pilosity.
 - B. Beneath dull bronze, above black; elytra black or dull castaneous, lighter punctured.....*S. interrupta* Olivier.
 - BB. Entirely dull bronze; elytra rugose.....var. *reticulata* Kerremans.
 - AA. Foveæ of thorax and elytra golden.
 - B. Entirely bronze; base of abdominal segments metallic purple.....var. *klugi* J. Thomson.
 - BB. Below golden green; elytra castaneous.....var. *mephisto* J. Thomson.
 - AAA. Fovea of elytra red.....var. *vandykei*, subsp. nov.
- II. Impressions of elytra absent.....var. *immaculata* Kerremans.

S. interrupta Olivier. Thorax entirely covered with irregular pits, smaller towards the middle and filled with white pubescence; beneath sombre bronze, above black, elytra black or sombre castaneous, more smoothly punctured. Elytra with 2 vittae at base on each side filled with white pilosity, the inner one small and short, the outer one long and broader and another on the elytral fold beneath the humeral umbone; posterior half of elytra with long vitta on each side filled with whitish pilosity, this vitta often broken up. Beneath rugose, entirely covered with the same white pubescence, except the median line where the pubescence is scanty or lacking altogether. Length: 27-42 mm. Width: 10-15 mm. Habitat: Damaraland; Senegal; Zambesi; Dakar.

Var. **reticulata** Kerremans. Entirely sombre bronze, metallic, with the elytra very strongly reticulate. Length: 26-35 mm. Width: 10-13.5 mm. Habitat: Senegal; Guinee.

Var. **klugi** Thompson. Fovea of thorax and elytra golden; entirely bronze; base of abdominal segments metallic purple. Length: 34 mm. Width: 13 mm. Habitat: White Nile; Senegal.

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Var. **mephisto** Thomson. Fovea of thorax and elytra golden; Beneath golden green, shining; elytra castaneous.

Habitat: White Nile; Senegal; Benue; Niger.

Var. **vandykei** subsp. nov. The form, size, and punctuation are as in *S. interrupta* Olivier but the colouring is radically different from that of other varieties. Head and thorax the same as *interrupta*. Differs by having all the elytral impressions filled with red pilosity including the one below the humeral umbone; also by having a row of semi-triangular red spots on each side of the abdominal segments, those on the fourth and fifth segments largest, that on fifth running from top to bottom and from margin inwards from each side for $\frac{1}{3}$ the width of the segment; segment 4 also has 2 extremely small more rounded spots in centre, not spaced evenly; the pilosity being otherwise normal and white. This variety is remarkable in that both red and white pilosity is present and the hairs of each colour are equally dense on the ventral surface of the abdomen. Length: 36 mm. Width: $14\frac{1}{2}$ mm. Habitat: Bafulabe (Senegal). One specimen. Type in my collection.

Taken by W. F. Blakeslee. The specimen was sent to me loose and as a result it has lost $2\frac{3}{5}$ tarsi and 1 joint of an antenna. I take great pleasure in naming this after my friend and former teacher, Dr. Edwin C. Van Dyke of Berkeley, California.

Var. **immaculata** Kerremans. Impressions of elytra absent.

Stevensii and its one good variety may be separated as follows:

- A. Thorax black; elytra castaneous.....*S. stevensii* Waterhouse.
AA. Thorax brassy; elytra very dark brown, with blue reflections.....var. *waterhousei*, subsp. nov.

S. stevensii Waterhouse. For description of this and its variety I will quote Mr. Waterhouse in toto. "Resembles and is closely allied with *S. interrupta*, but it differs in the sculpture and ornamentation of the abdomen. Head and thorax black, with numerous moderately strong punctures and a median impressed line, all filled with whitish pubescence, as in *interrupta*. Each elytron with a small dirty white spot near the scutellum, an elongate spot in the middle of the base, a longer one below the shoulder, and a line behind the middle (near the side). Body beneath dark aeneous. Abdomen marked with punctures, each puncture bearing an obscurely brassy hair. These punctures are placed in

groups of 2 or 3 or in undulating lines at the sides of the segments. On the 3rd and 4th segments these punctures are crowded together so as to form an undulating band, leaving a smooth shining spot on each side at the base, and a wide, triangular, sparingly punctured area in the middle. Punctures in the apical segment crowded together so as to form triangular patches on each side, leaving the middle space sparingly punctured." Length: 35 mm. Width: 13 mm. Habitat: West Africa; N. Nigeria.

Var. **waterhousei** subsp. nov. "Thorax brassy. Elytra very dark brown, with blue reflections." Habitat: Damaraland. Mr. C. O. Waterhouse in Ann. Mag. Nat. Hist. No. 82, p. 248 gave this variety without a name, and I have taken the liberty of affixing one to it, the characters given seeming sufficient to warrant it.

A GROUP OF AMERICAN HALICTINE BEES SIMULATING THE OLD-WORLD GENUS NOMIOIDES.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

The gaily-marked little Halictine bees of the genus *Nomioides* are widely distributed over the Old World, even extending to Australia (*N. perditellus* Ckll.). They are extraordinarily like our American species of *Perdita*, but structurally are so distinct that we can hardly suppose that there is any particular affinity. More recently, however, there has been found in South America a group of *Nomioides*-like insects which might almost be referred to the Old World genus, did they not possess a sharply pointed marginal cell as in *Halictus*. This affords another instance of similarity between neotropical and Old World insects, which may be due to common descent or to "convergent evolution," or to both. The group referred to, with ten described species, has been found in the Andean region, but it now appears that it extends northward to Panama. The following new species has been collected by Mr. Busck.

***Halictus xanthinus*, n. sp.**

♀.—Length 5 mm. or a little over; head and thorax brilliant emerald green; mandibles pale yellow; clypeus ferruginous in middle and dusky reddish apically, but above and at sides green; October, 1918

sides of face shining; inner orbits concave but not abruptly emarginate; scape long, black; flagellum dark above and ferruginous beneath; mesothorax dull and granular, with fine, very short, pale pruinose pubescence; tubercles yellow; tegulae light fulvous; wings hyaline, nervures fuscous, outer nervures not weakened; first recurrent nervure joining extreme apex of second submarginal cell; area of metathorax large, microscopically reticulate, not plicate; legs pale yellowish or fulvous, the middle and hind tibiae and tarsi fuscous, the middle tibiae pale in front; hind spur with three very long spines; abdomen broad, smooth and shining, reddish fuscous and fulvous marked with lemon yellow; first segment broadly yellow basally and at sides except apically, where it is dark brown, but otherwise the segment is pale fulvous; second and third segments with a broad, yellow basal band, widest sublaterally, the segments otherwise fulvous in middle and dark brown laterally; fourth and fifth segments reddish-fuscous, with basal yellow bands; venter pale yellow, with the last three segments fuscous.

Porto Bello, Panama, March 13, 1911. (*Aug. Busck*), U. S. Nat. Museum. Nearest to the Brazilian *H. callichroma* (Ckll.), but with entire yellow bands on abdomen. The structure of the metathoracic enclosure is quite the same, with fine reticulations, the lines mostly transverse. Of the other species of the group, I possess *H. ephelix* Vach., from Marcapata, Peru; *H. phacodes* Vach., from Mapiri, Bolivia; and a cotype of *H. maculiventris* (Crawford), described under *Augochlora*. Crawford's species seems doubtfully distinct from *H. trinax* Vach., but I have no authentic material of the latter. Crawford and I, describing species of this group, have referred them to *Augochlora*. Vachal referred all the species to *Halictus*, but he included *Augochlora* in *Halictus*. Schrottky in 1910 placed the species in his genus *Nescorynura*. They are certainly not genuine *Augochlora*, nor do they agree well with typical *Nescorynura* or *Halictus*. They may be considered a distinct subgenus of *Halictus*, or even a separate genus. I do not propose a name, because it is possible that *Ctenocarynura* Schrottky (Deutsch. Ent. Zeit., 1914) is applicable. I have not been able to procure Schrottky's description, and there is no reference to the genus in the Zoological Record.

RECENT CANADIAN PUBLICATIONS.

Under this heading we propose to present notices from time to time of entomological publications by writers residing in Canada, or such as appear in Canadian periodicals, whether by Canadians or not. Exceptions will be made in the case of papers published in the Annual Reports of the Entomological Society of Ontario and the present journal. Short articles or those of a popular character will, as a rule, be merely listed.

Authors will greatly assist the Editor by sending him copies of their publications for notice in this section.

The following papers were all published during the present year:

PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF NOVA SCOTIA FOR 1917. No. 3. Truro, January, 1918. Pp. 1-96.

This excellent report gives ample evidence of the vigorous condition of the youngest branch of our Society, and is a most creditable production. It contains no less than sixteen papers by ten contributors, dealing with a variety of subjects, both economic and faunistic, and these are illustrated by 15 plates, most of them half-tones of fine quality.

The following papers are mainly of economic interest:

Work of the Dominion Entomological Laboratory in Nova Scotia. By G. E. Sanders. An outline of the results of experiments testing the effects of different combinations of insecticides and fungicides in apple spraying.

Notes on the Yellow Leaf Hopper of the Birch (Oncopsis sobrius Walk.). By W. H. Brittain. The life-history is given in detail and is illustrated by two plates, showing all the stages, and the hymenopterous parasite, *Polynema striaticorne* Gir.

Miscellaneous Notes on the Apple Maggot. By W. H. Brittain.

The Zebra Caterpillar. By H. G. Payne.

The Fall Cankerworm. By H. G. Payne.

The Rusty Tussock Moth. By H. G. Payne.

The White-marked Tussock Moth. By H. G. Payne.

Detailed life-histories of these four species are given, based on original data. They are illustrated by 5 excellent photographic plates.

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