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SOME PARASITIC BEES (*COELIOXYS*).

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Coelioxys moesta Cresson.—Peachland, B. C., Aug. 9, 1909 (J. B. Wallis, a53). ♀.

Coelioxys deplanata Cresson.—Wawawai, Wash., Aug. 30, 1908 (W. M. Mann). Both sexes.

Coelioxys rufitarsis Smith.—Four females, Wawawai, Wash., Aug. 30 and Sept. 6, 1908 (W. M. Mann).

Coelioxys immaculata, n. sp.—Male; Miners, Indiana, July; collector unknown, but there is a label bearing the number 1525.

Length a little over 10 mm., robust, black, with rather dull white hair, faintly creamy on upper part of head; eyes pale green, with abundant quite long hair; antennæ and mandibles entirely black; tegulæ bright apricot colour; femora except the lower side, and tibiæ and tarsi entirely, bright ferruginous, as also are the tibial spurs; hair on inner side of basitarsi creamy; head and thorax with dense, large punctures, those of vertex larger than those on mesothorax; lower part of cheeks with a broad bevelled space, which is shining and punctured; thorax above without the usual white hair patches; scutellum broadly rounded behind, without any median projection; lateral teeth thick, not curved; abdomen shining, but well punctured, the second and third segments with deep transverse constrictions; fourth ventral segment with a weak emargination; sides of fifth segment with very short spines; sides of sixth with large thick spines; end of sixth with four teeth, the upper ones short, and directed obliquely upwards, the lower large and unusually broad. In Robertson's table (Trans. Amer. Ent. Soc., XXIX, p. 174), this runs out at 3, because of the red legs, punctured bevelled space, etc. Robertson says of male *octodentata*, "disc of abdomen opaque, densely punctured"; *immaculata* has the abdomen very conspicuously shining, except the sublateral region of the second segment just beyond the sulcus, which is dull and very densely covered with minute punctures, in complete contrast with the corresponding areas on the first and third, and with the sparsely-punctured middle of the second.

Coelioxys grindeliæ denverensis, n. subsp.—Four males; Denver, Colorado, Aug. 6 to 25, 1908 (Mrs. C. Bennett). Eyes light red (green in *C. grindeliæ* Ckll,); fourth ventral segment strongly emarginate (entire in *grindeliæ).* Otherwise they seem about the same. Face densely covered with white hair; antennæ entirely black; bevelled space on cheeks rugose but shining; anterior coxæ with large flattened spines; tegulæ black, the margin sometimes dark reddish; legs black, including tarsi; spurs dark; second abdominal segment on each side sublaterally with a more or less evident but small shining raised area; teeth on each side of scutellum long; teeth at sides of sixth abdominal segment long; lower apical teeth of abdomen not broad. In Robertson's table this runs out at 3, although the first abdominal segment is very hairy at sides, and sublaterally has distinct indications of a basal band. The anterior part of the mesothorax is conspicuously but diffusedly hairy, instead of having well-defined spots as in *C. deplanata.*

Coelioxys angelica Cockerell.—The male, previously unknown, has been taken by Mr. F. Grinnell, jr., in Strawberry Valley, San Jacinto Mts., California, alt. 6,000 ft., July 18. By its small size and general appearance, it closely resembles *C. deani* Ckll., but the sulcus on the last abdominal segment is much broader. It agrees with the female *angelica* in having a series of large pits along the basal margin of the mesothorax. The anterior coxæ have short spines.

Coelioxys texana vegana, n. subsp.—Beulah, New Mexico, 8,000 ft., August, (Cockerell). I had erroneously placed this with *C. moesta.* It differs from *C. texana* as shown in the table; by the black legs, with red only at the apices of the joints, it resembles *C. alternata* Say. It differs from Say's description of *alternata* by the dark chestnut-red tegulæ, and the total absence of any white hair band bordering the mesothorax, though there is a little tuft of hair just before the axillæ. The abdomen is sparsely punctured, as in *texana;* the fourth ventral segment has slender apical spines.

Coelioxys erysimi, n. sp.—Male at flowers of *Erysimum parviflorum;* Rifle, Colorado, July 3 to 8 (S. A. Rohwer).

Length about 10 mm.; black, with white hair, abundant on head and thorax; tegulæ black; legs entirely black; hind spurs red; eyes pale green, with long hair; antennæ and mandibles black; cheeks hairy all over; vertex, mesothorax and scutellum with large, quite dense, punctures; scutellum rounded behind; axillar spines moderately long, obtuse; wings

strongly dusky at apex; nervures dark; anterior tibiæ, and all the tarsi, with short fulvous hair on inner side; abdomen shining, strongly, not densely, punctured; apical hair-band on first segment dense and entire, the other apical bands successively thinner, except at sides, beyond the second segment hardly appreciable dorsally; transverse sulci on second segment oblique; a short white subbasal band at sides of second segment; on segments 3 to 5 very strong subbasal hair-bands, broadly interrupted in the middle; sixth segment deeply excavated in middle, the upper apical margin with seven short teeth, a broadly triangular median one, and three on each side; at the lower apical level are the usual two teeth, long and sharp, about one mm. apart; at the sides of the sixth segment the teeth are very long and sharp, but at the sides of the fifth are no teeth, although very minute tubercles can with difficulty be seen; fourth ventral bidentate.

Coelioxys quercina, n. sp.—Male; Oak Creek Cañon, Arizona, 6,000 ft., August (F. H. Snow, 1974).

Length, 11 mm. or rather over; black, with white hair; tegulæ clear red; mandibles black; antennæ black, the flagellum faintly brownish beneath; anterior femora above, in front and at apex, middle and hind femora at apex, tibiæ (the hind ones broadly suffused with blackish on outer side) and tarsi bright ferruginous; spurs red; eyes light green, with short hair (about half as long as in *C. erysimi*); thorax above with the usual large punctures; scutellum rounded behind; axillar spines long and straight; pits at base of metathorax minute and obscure; abdomen with a strong apical hair band on first segment, the others successively weaker, as in *C. erysimi;* first segment with a basal band; the others with interrupted basal or subbasal bands, becoming successively stronger, broader and less interrupted, that on the fifth almost entire; fifth segment not toothed at sides, sixth with well-developed sharp lateral teeth; apex formed as in *C. erysimi*, but the teeth are smaller; fourth ventral bidentate.

Coelioxys fragariæ, n. sp.—Male; Strawberry Valley, San Jacinto Mts., California, 6,000 ft., July 17 (F. Grinnell, jr.).

Length about 10½ mm. (abdomen extended); black, with white hair; tegulæ bright red, with a tuft of white hair in front; mandibles and antennæ black; legs black, the tarsi and spots at apices of femora and tibiæ rather dark red; eyes pale greenish-ochreous, the hair short, as in *C. quercina;* head and thorax above with the usual large punctures;

anterior border of mesothorax with the two hair patches distinct; scutellum not tuberculate in middle; axillar spines large, slightly curved; base of mesothorax without conspicuous pits; wings darkened apically; first r. n. meeting first t. c.; abdomen with hair bands as in *C. quercina;* apical structures of the same type as in *C. quercina*, but the median spine large; fourth ventral bidentate.

Coelioxys hirsutissima, n. sp.—Male; Kenworthy, San Jacinto Mts., Calif., 5,000 ft., June 8 (F. Grinnell, jr.).

Length about 8½ mm. (abdomen retracted); black, with white hair, abundant on head and thorax, and forming entire apical bands (but no subbasal ones) on all the abdominal segments; eyes light green, with long hair, as in *C. erysimi;* antennæ black; apical half of mandibles red; tegulæ red; legs red, with white hair; cheeks hairy; scutellum not tuberculate in middle; axillar teeth rather short; fifth abdominal segment without lateral spines, sixth with slender lateral spines; apex quadridentate, the two lower teeth broad, hardly so far apart as the length of one, slightly curved inwards; ventral hair bands very dense; ventral segments with numerous fine punctures, producing a rather rugose effect, wholly different from the smooth surface, with scattered strong punctures, of the venter of *C. erysimi*, *quercina* and *fragariæ*.

The following table compares the above-described species with various other male *Coelioxys:*

Abdominal bands bright orange-ferruginous, confined to the apices of the segments; no median tooth in apical emargination of abdomen (Assam) ..... *turneri* Ckll.

Abdominal bands not orange or red ..... 1.

1. Apex of abdomen red, each apical lobe strongly tridentate; anterior coxæ without spines (Willowmore, Cape Colony; *(Brauns)*..... *afra* Lepeletier.

Apex of abdomen not red ..... 2.

2 Apex of abdomen multidentate, each lobe with more than two teeth. 3.

Apex of abdomen quadridentate, or quinquedentate by reason of a small median tooth ..... 8.

3. Segments 2 to 5 with hair bands at apex only; mandibles red (Willowmore, Cape Colony; *Brauns*)..... *difformis* Friese.

Segments 2 to 5 with basal or subbasal hair bands, interrupted in middle; mandibles black; fourth ventral segment strongly bidentate apically; anterior coxæ with conical, stout, rather short spines; hind spurs red ..... 4.

4. Tegulæ black; lower part of cheeks covered with hair; axillary spines rather long (Colorado) ..... *erysimi* Ckll.
Tegulæ red ..... 5.
5. Sides of middle of mesothorax very densely punctured; lower part of cheeks covered with hair ..... 6.
Sides of middle of mesothorax with well-separated punctures; lower part of cheeks bare, bounded behind by a very strong keel; axillary spines very short ..... 7.
6. Face broader; anterior tibiæ, all the tarsi, and other parts of legs bright ferruginous; median apical spine of abdomen very small (Arizona) ..... *quercina* Ckll.
Face narrower; legs black, with the small joints of tarsi and apices of femora and tibiæ dark red; median apical spine of abdomen very long (California) ..... *fragariæ* Ckll.
7. Fifth abdominal segment with small lateral spines; hair of face white (New Mexico) ..... *texana*, subsp. *vegana* Ckll.
Fifth abdominal segment without lateral spines; hair of face with a yellowish tint (Washington Co., Wis.; *Graenicher*). *texana* Cresson.
8. Tegulæ entirely bright red; leg red ..... 9.
Tegulæ black, or dull and dark red ..... 12.
9. Lower apical teeth of abdomen long and slender ..... 10.
Lower apical teeth of abdomen broadened; thorax above without hair spots ..... 11.
10. Ventral surface of abdomen densely and very coarsely punctured (Boulder, Colorado) ..... *edita* Cresson.
Ventral surface of abdomen shining, with widely-separated punctures (Falls Church, Va.; *Banks*) ..... *sayi* Robertson.
11. Larger; lower apical teeth of abdomen more widely separated; second s. m. receiving recurrent nervures about equally distant from base and apex ..... *immaculata* Ckll.
Smaller; lower apical teeth of abdomen less widely separated; first r. n. joining second s. m. very near base, very much nearer than second r. n. to apex (California) ..... *hirsutissima* Ckll.
12. End of abdomen narrow and elongated, with a deep parallel-sided sulcus above; lower apical teeth very sharp; hind spurs red; very small species (Boulder, Colorado) ..... *deani* Ckll.
End of abdomen broader, the median sulcus broadened ..... 13.
13. Legs bright red; anterior coxæ strongly spined ..... 14.
Legs black, or the tarsi red ..... 15.

14. Sixth segment of abdomen, in lateral view, not much longer than high (Wawawai, Wash.).....*deplanata* Cresson.
Sixth segment of abdomen, in lateral view, very much longer than high (Willowmore, Cape Colony ; *Brauns)*.....*penetatrix* Smith.

15. All the apical teeth of abdomen (including lateral ones) very short and blunt ; spines of anterior coxæ strong, covered on outer side with snow-white hair ; fourth abdominal segment with a subbasal hair band in the transverse sulcus (New Mexico)....*soledadensis* Ckll.
Apical teeth of abdomen at least partly elongated or sharp.....16.

16. Fourth ventral segment emarginate.....17.
Fourth ventral segment entire.....18.

17. Emargination of fourth ventral segment wide, the segment not produced in middle ; hair on eyes short...*grindeliæ*, subsp. *denverensis* Ckll.
Emargination of fourth ventral small and narrow, in a produced median lobe ; hair on eyes long (Beulah, New Mexico).....*rufitarsis*, subsp. *rhois* Ckll.

18. Lower apical teeth of abdomen very sharp ; very small species (California).....*angelica* Ckll.
Lower apical teeth of abdomen obtuse.....19.

19. Hair of eyes short ; face narrower (Las Vegas, New Mexico).....*grindeliæ* Ckll.
Hair of eyes very long (Olympia, Wash.)..*ribis* subsp. *kincaidi* Ckll.

A CORRECTION.

In the key to the species of *Metopia* given in my last paper on Tachinidæ (CAN. ENT., Vol. XLIII, Nos. 8 and 9), I have stated that in *Metopia lateralis* the third abdominal segment bears six or seven marginal macrochætæ, while in *Metopia leucocephala* it bears only a single pair. This distinction was based upon the study of a few specimens after I had left the National Museum, and a re-examination of a large series of specimens of both sexes shows that the character is a variable one. In both *lateralis* and *leucocephala* the number of marginal macrochætæ on the third abdominal segment varies from two to six or seven. The tendency to the development of a considerable number of strong setæ seems to be more marked in the males than in the females.

I am indebted to Mr. H. E. Smith, of the Gipsy Moth Laboratory, who called my attention to the inconstancy of the character.

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THE BLATTIDÆ OF ONTARIO.

BY E. M. WALKER, TORONTO.

The Blattidæ, or cockroaches, are represented in Ontario by eleven species, only two of which, however, are natives, the others being, with two or perhaps three exceptions, merely accidental visitors from the south.

Ischnoptera pensylvanica (De Geer).—Generally distributed throughout Ontario as far north as the Temagami District, and locally common or even abundant. I have specimens from the following localities: Point Pelee; Toronto; De Grassi Point, Lake Simcoe; Stony Lake, Peterborough Co.; Lake Joseph, Muskoka District; Go Home Bay, Georgian Bay; Temagami Park.

This cockroach is very abundant on the rocky, sparsely-wooded country about Go Home Bay, where it occurs in rotten logs and under loose bark. It readily takes up its abode in the summer cottages, where it becomes as much at home in the kitchen and larder as its cosmopolitan relatives of the city, and is often regarded by the residents as a nuisance. I came across it also in considerable numbers on a rocky island in Stony Lake, Peterborough Co., while on a canoe trip. They were first seen at night running up and down a tree trunk in some numbers. Our provision bags became infested with them, and remained so during the rest of the trip.

More annoying still is their habit of eating the paste from book-bindings and nibbling the surfaces of the covers. On my first visit to the Georgian Bay Biological Station, being unacquainted with this habit, I left a water-colour drawing, which I had just made, upon a book-shelf in the laboratory. Next morning only a ghost of it was to be seen, so thoroughly had the cockroaches nibbled off the pigments from the surface of the paper.

The adults appear about the middle of June, remaining until some time in August. They are most abundant during July. The species hibernates in the nymph state. Full-grown nymphs are found in the latter part of May.

Ischnoptera borealis Rehn.—An adult male of this species, labelled

"Toronto," is in the collection of the Provincial Education Dept. I remember also seeing a similar pale *Ischnoptera* some years ago in the collection of the late Dr. Brodie, which I took for *I. uhleriana*, but as these two species had not been separated at that time, I am unable to say to which of the two it belonged.

I. uhleriana has also been reported by Caulfield from "Welland and westward" (Ann. Rep. Ent. Soc. Ont., 16, 1888, p. 71), but for the same reason, as pointed out by Rehn, this record may also belong to *borealis*.

Blattella germanica L.—The "Croton Bug" is probably common throughout the settled parts of the Province. I have specimens from Toronto, Hamilton, Goderich and De Grassi Point, Lake Simcoe.

Blatta orientalis L.—The "Black-beetle" is doubtless also common in every city and town in the Province, though I have specimens only from Toronto and Sarnia.

Periplaneta americana L.—I have never met with this cockroach in Canada, but it has been recorded from Essex County by Caulfield (loc. cit.).

Periplaneta australasiæ Fabr.—I have taken a single male adult, and Mr. C. W. Nash several nymphs of this insect from bunches of bananas at Toronto.

Nyctibora holosericea Burm.—Toronto. One nymph from a bunch of bananas.

Nyctibora sericea Burm.—Mr. Nash has an adult male which he took from a bunch of bananas at Toronto.

Leucophæa surinamensis L.—One specimen from bananas. Taken by Mr. Nash.

Pancheora virescens Thumb.—A single adult from bananas. Taken by Mr. Nash.

Pancheora acolhua Sauss. & Zehntn. ?—Some years ago I sent a Panchlora for determination to Mr. A. N. Caudell, who labelled it somewhat doubtfully *P. acolhua* Sauss. & Zehntn. The specimen has since been destroyed by dermestids, so that the determination cannot be verified. It was taken at Toronto from a bunch of bananas.