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Contributions from the New Mexico Biological Station— IX. On Certain Genera of Bees.

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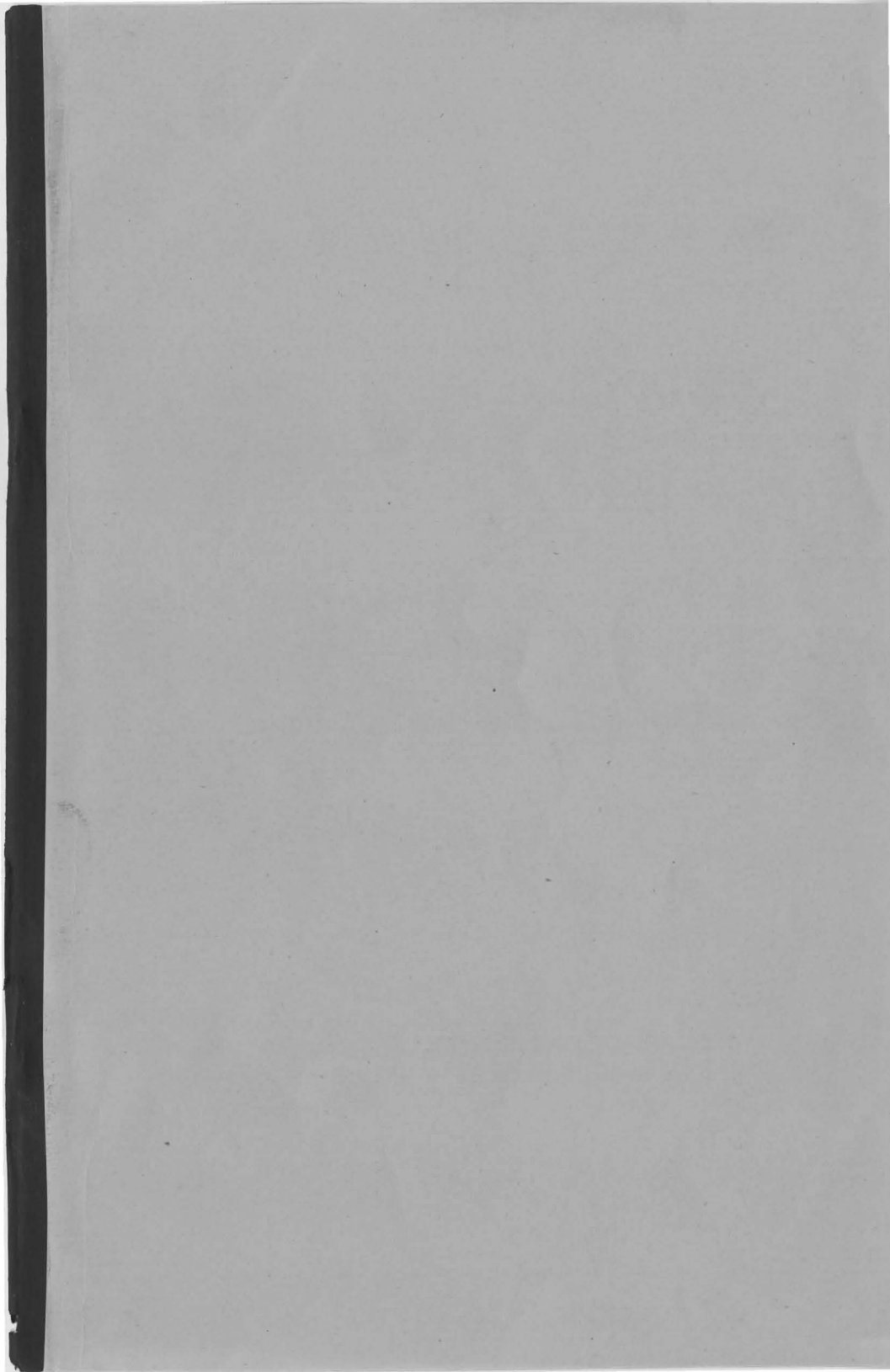
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Contributions from the New Mexico Biological Station.—IX.
On certain Genera of Bees. By T. D. A. and WILMATTE
P. COCKERELL.

(1) *ANTHOPHORINÆ.*

In *Trans. Amer. Ent. Soc.* xxvi. 1899, pp. 58-64, Mr. W. H. Ashmead has given tables for the separation of the genera of

this group; but we find these unsatisfactory on account of the stress laid upon minor differences of venation, while certain radical differences in the mouth-parts of the genera are overlooked. This defect was perhaps unavoidable in a synopsis of the genera of the whole world, many of which could not at the time be examined for mouth-characters; but it may be useful here to indicate the lines on which a better classification may be framed.

Tribes.

- Paraglossæ very long, hairy *Eucerini* (*Eucera*, Patton, Bull. U.S. Geol. Surv. v. 471).
 Paraglossæ not or hardly exceeding first joint of labial palpi *Anthophorini* (*Anthophoræ*, Patton, tom. cit. 475).
 Paraglossæ very short; form robust, hind legs of ♀ with a copious scopa: neotropical types *Centrini*.

CENTRINI.

- Maxillary palpi 4-jointed *Centris*, Fabr.
 Maxillary palpi 6-jointed; paraglossæ very short, broad, thin, scale-like 1.
 1. First three joints of maxillary palpi twice as thick as, or at least noticeably thicker than, the last three; joint 4 about as long as 3 . . . *Exomalopsis*, Spin.
 All joints of maxillary palpi of about equal thickness and slender; joint 4 longer than 3; 1 not over half length of 4; clypeus yellow in male *Anthophorula*, Ckll. (*Diadasiella*, Ashm.).

We find also certain differences between species of these genera, which may be found to indicate subgenera.

CENTRIS.

- Last joint of maxillary palpi short, not half length of penultimate joint; penultimate (third) joint less than half length of second: flight slow *C. pallida*, Fox.
 Last joint of maxillary palpi longer, over half length of penultimate joint; penultimate two thirds length of second: flight very rapid *C. rhodopus*, Ckll.; *C. Hoffmannseggia*, Ckll.

The measurements of the last three joints of the maxillary palpi here given are in μ :—

<i>C. pallida</i>	. . .	(2) 430, (3) 189, (4) 84.
<i>C. rhodopus</i>	. . .	(2) 300, (3) 235, (4) 138.

The *C. pallida* studied is a cotype kindly sent by Mr. Fox.

EXOMALOPSIS.

- Third joint of labial palpus conspicuously stouter than 4 *E. Solani*, Ckll.
 Third and fourth joints of labial palpus long and slender, of equal thickness *E. penelope*, Ckll.

ANTHOPHORINI.

- Maxillary palpi 4-jointed, labial palpi 2-jointed.. *Saropoda*, Latr.
 Maxillary palpi 5-jointed 1.
 Maxillary palpi 6-jointed 2.
 1. Blade of maxilla greatly elongated, whip-like; tongue extremely long *Entechnia*, Patton.
 Not so *Anthophoroides*, g. n.
 2. Third joint of labial palpi attached to tip of second; first two joints with long hair.... *Meliturga*, Latr.
 Third joint of labial palpi attached to side of second 3.
 3. Blade of maxilla broad at base, suddenly narrowing to the slender apical portion .. *Diadasia*, Patton.
 Blade of maxilla broad, gradually narrowing to the more or less blunt tip 4.
 4. Second joint of maxillary palpi very much longer than first *Anthophora*, Latr.
 Second joint of maxillary palpi not much longer than first *Emphoropsis*, Ashm.

The last three genera are separated also by good characters of the venation, for which see the tables of Ashmead and Cresson. Ashmead cites no type for his new genus *Emphoropsis*, but in a letter he informs me that it is *Habropoda floridana*, Smith. The known species of *Emphoropsis* are *E. floridanus* (*Habropoda floridana*, Sm.), *E. miserabilis* (*H. miserabilis*, Cress.), *E. Morrisoni* (*H. Morrisoni*, Cress.), and *E. salviarum* (*H. salviarum*, Ckll.).

Emphoropsis differs from *Habropoda* by the relatively long first joint of maxillary palpi and the second not so long as 4 to 6 united; there are also other important differences, duly indicated by Ashmead.

ANTHOPHOROIDES, gen. nov.

Type *A. vallorum* (*Podalirius vallorum*, Ckll.). Maxillary palpi 5-jointed, the second joint long, the last very small. The superficially similar *Anthophora Lesquerellæ*, Ckll., is a true *Anthophora*.

AMEGILLA, Friese.

Anthophora cleomis, Ckll., and *A. cardui*, Ckll., belong to

this group, which Ashmead treats as a genus. The mouth-parts agree with *Anthophora*, and we think *Amegilla* at best of subgeneric rank.

MELITURGOPSIS, Ashm.

Ashmead cites no type, but has kindly sent us the type species, an undescribed form from San Francisco Co., Calif., collected in October. It is superficially just like *Anthophora Porterae*, Ckll., but differs in venation and other particulars, and is certainly not congeneric. In Cresson's tables it runs to *Habropoda*, but Cresson's "*Habropoda*" is *Emphoropsis*. The second submarginal cell along the cubitus is shorter than the first or third, whereas in *E. salviarum* and *floridanus* it is about equal to the third. The male *Meliturgopsis* has the scape all black, clypeus white except sides and anterior edge, lateral face-marks V-shaped; hair of thorax greyish white mixed with black; abdomen without bands, first segment densely covered with greyish-white hair.

Meliturgopsis seems practically identical with *Emphoropsis*, the latter having priority of place.

EUCERINI.

- | | |
|---------------------------------------|--|
| Maxillary palpi 4-jointed | 1. |
| Maxillary palpi 5-jointed | 2. |
| 1. Scopa of ♀ with plumose hairs | <i>Melissodes</i> , Latr. |
| Scopa of ♀ with simple hairs | <i>Anthedon</i> , Rob. |
| 2. Two submarginal cells | <i>Eucera</i> , Scop. |
| Three submarginal cells | <i>Xenoglossa</i> , Smith; <i>Xenoglossodes</i> , Ashm.; <i>Florilegus</i> , Rob.; &c. |

MACROGLOSSAPIS, Ckll. = *Macroglossa*, Rads. (not Ochs.).

This genus is omitted by Ashmead. It differs from other genera of Anthophorinæ by its 3-jointed maxillary palpi; the tongue is as long as the body; antennæ filiform, as long as the thorax.

(2) ANTHIDINÆ.

- | | |
|---|-----------------------------|
| Second joint of labial palpi about or nearly twice as long as first | 1. |
| Second joint of labial palpi not, or not much, longer than first | 2. |
| 1. Maxillary palpi 3-jointed | <i>Paranthidium</i> , nov. |
| Maxillary palpi 2-jointed | <i>Dianthidium</i> , Ckll. |
| 2. Maxillary palpi 3-jointed | <i>Protanthidium</i> , nov. |
| Maxillary palpi 2-jointed | <i>Anthidium</i> , Fabr. |

PROTANTHIDIUM, gen. nov.

Type *P. steloides* (*Megachile steloides*, Bingham), of which

we have a male from the Khasia Hills, India, sent by Mr. Sladen. The face is yellow below the antennæ; scutellum prominent and bilobate; abdomen marked on apical segments with yellow. This has the mouth-parts nearly as in *Megachile*, but the ornaments of an *Anthidium*. It appears to be the most primitive of the Anthidiinæ.

ANTHIDIUM, Fabr.

Here falls *A. manicatum* and such American species as *A. Porterae* and *A. maculosum*.

DIANTHIDIUM, Ckll.

This was described as a subgenus, but it should probably be regarded as a genus. Its type is *D. curvatum* (*Anthidium curvatum*, Smith), and *D. parvum* (*Anthidium parvum*, Cress.) is quite congeneric.

The little group of *D. gilense* (Ckll.), *D. Ehrhorni* (Ckll.), *D. notatum* (Latr.), *D. perpleæum* (Smith), and *D. strigatum* (Panz.)*, all described under *Anthidium*, is possibly of subgeneric value, and in respect to its labial palpi falls more or less between *Anthidium* and *Dianthidium*. *D. gilense*, in particular, falls with *Anthidium* if its mouth alone is regarded, and so far presents an argument against the generic status of *Dianthidium*.

The following measurements of the first two joints of the labial palpi are in μ :—

<i>D. strigatum</i> . . .	(1) 650, (2) 870.
<i>D. gilense</i> . . .	(1) 720, (2) 760.
<i>D. parvum</i> . . .	(1) 720, (2) 1220.
<i>D. perpictum</i> . . .	(1) 650, (2) 1200.
<i>A. manicatum</i> . . .	(1) 1300, (2) 1320.
<i>A. Porterae</i> . . .	(1) 1200, (2) 1000.

The nesting-habits of *Dianthidium* and *Anthidium* seem not to be the same; compare *D. consimile* (Ent. News, 1896, p. 25) with *Anthidium manicatum* and *A. parosela*.

PARANTHIDIUM, subgen. nov.

Type *Dianthidium perpictum* (*Anthidium perpictum*, Ckll.). This has the primitive character of 3-jointed maxillary palpi, but the venation of *Dianthidium*.

East Las Vegas, New Mexico, U.S.A.,
October 29, 1900.

* We have this species from Marseilles, France, sent by M. Ernest André. It seems that, according to the law of priority, it ought to be called *D. minus* (*Apis maculata*, var. *minor*, Rossi, 1790).

