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## Notes on the Bee-Genus Halictus

T. D. A. Cockerell

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CYPRUS.—One *Acidalia* (October, 1890), which I have not yet succeeded in determining.

MARMARICE, COAST OF SYRIA.—*Zonosoma pupillaria*, Hb., two, one closely approximating to *ab. nolaria*, Hb.

There are in all about thirty-nine species represented, about one-half of them being good local southern species; one belongs to the Geometridæ (*sens. str.*); about twenty to the Acidaliidæ (eighteen to Staudinger's great genus *Acidalia*); ten to the Larentiidæ; and only eight to the large family Boarmiidæ.

## NOTES ON THE BEE-GENUS *HALICTUS*.

By T. D. A. COCKERELL.

In the 'Canadian Entomologist,' September, 1902, Mr. Charles Robertson gives a synopsis of the Halictinæ found in the vicinity of Carlinville, Illinois. In this work the old genus *Halictus* is divided into *Halictus*, Latr., *Lasioglossum*, Curtis, *Erylaeus*, Rob., *Dialictus*, Rob., *Chloralictus*, Rob., and *Paralictus*, Rob. One's natural wish is to accept these genera, as *Halictus*, in the broad sense, contains so many species; but, if they are valid, they should remain distinguishable when all the known forms are considered. In order to test the validity of some of the characters used by Robertson, I have examined a number of American and European species, the latter received through the kindness of Mr. H. Friese.

A character given for *Lasioglossum* by Mr. Robertson is "hind spur [of hind tibia] finely serrate" in the females. Unfortunately *H. xanthopus*, Kirby, the type of *Lasioglossum*, has this spur pectinate with four large blunt teeth, and several little ones. However, *Lasioglossum* is ordinarily easily distinguished from *Halictus* proper (as represented by *H. scabiosæ* in Europe, or *H. lerouxii* in America) by the short third submarginal cell, the outer margin of which is gently curved. In typical *Halictus* this cell is considerably produced, the outer margin showing a distinct double curve. Using this character of the venation, the following clearly belong to *Halictus* proper:—

### AMERICAN.

*lerouxii*, *ligatus*,  
*parallelus*, and *fasciatus*,  
cited by Robertson.

### EUROPEAN.

*scabiosæ*, *cariniventris*,  
*virescens*, *maculatus*,  
*patellatus*, *tetrazonius*.

*H. patellatus*, Mår. (a large black species with banded abdomen) has the hind spur of hind tibia of female with few large teeth. *H. virescens*, Lep., collected by Friese at Bozen, Tirol, April 30th, 1898, is a beautiful insect, bright olive-green, with continuous ochreous hair-bands on abdomen; it has the third

submarginal cell of the long type, but shorter than usual; the spur has few large teeth. This insect is clearly related to *H. fasciatus*. *H. cariniventris*, Mär., from Buda, 29th May, 1886, is a green species, with the abdomen covered with ochreous hair as in various American Anthophorids; the third submarginal cell is quite of the long type, though not very long. In *H. scabiosa* and *H. maculatus* the teeth of the spur are short and triangular, so that the spur becomes coarsely serrate, just as in the American species referred to *Lasioglossum* (Robertson says for these "finely serrate," but under a high power it appears coarse enough).

Robertson not only separates the species with a short third submarginal from *Halictus*, but divides these into several groups, of which *Lasioglossum*, *Evylæus*, and *Choralictus* occur in Europe as well as America.

*Lasioglossum*, as thus restricted, includes comparatively large black species with abdominal hair-bands; species resembling *Halictus* proper except in the venation.

*Evylæus* and *Chloralictus* are ordinarily smaller, the abdomen commonly pubescent or pruinose, but not exhibiting definite hair-bands, and the second transverso-cubital nervure is more or less weak. The last character, on which Robertson lays stress, seems to me of doubtful value. The only difference between *Evylæus* and *Chloralictus* is that the former is black, the latter green or blue, or at least partly so.

If all these characters are held to be generic, we need more generic names. Thus, using the colour and spur, *Halictus* proper may be divided thus:—

- (1.) Colour green; spur pectinate—e. g. *virescens*.
- (2.) Colour black; spur pectinate—e. g. *patellatus*.
- (3.) Colour black; spur serrate—e. g. *scabiosæ*.

Again, *Lasioglossum* divides thus:—

- (1.) Colour black; spur pectinate—e. g. *xanthopus*.
- (2.) Colour black; spur serrate—e. g. *coriaceus*.

Even the character of the third submarginal cell fails us, as witness the following species:—

*H. fasciatellus*, Schenck, has the third submarginal between the long and short types, a slight double curve on outer margin.

*H. lævigatus*, Kirby, has a very large third submarginal, with a faint indication of a double curve, but its general shape is more as in *Lasioglossum*. The spur has numerous short strong teeth.

*H. zonulus*, Smith, has the third submarginal very large, twice as broad below as the second, but its outer margin is regularly and gently arcuate. The spur is minutely but distinctly beaded.

- H. olympiae* Ckll., has a very large second submarginal, so that the third, though large, is not much bigger. Spur coarsely serrate.
- H. olympiae subangustus*, Ckll., has the third submarginal essentially of the short type, but there is more or less of a double curve. Spur serrate.
- H. kincaidii*, Ckll., has a strong double curve, but third submarginal hardly of the long type. Spur with few long teeth.
- H. angustior*, Ckll., has the third submarginal essentially of the narrow type, but almost or quite twice as large as the small second submarginal. Spur with about four oblique teeth, the first quite long.

The following species (not including those enumerated by Robertson) have the third submarginal undoubtedly as in *LasioGLOSSUM* :—

| AMERICAN.                        | EUROPEAN.  |
|----------------------------------|--|
| <i>pacificus</i> , Ckll.         | <i>vulpinus</i> , Nyl.   |
| <i>sisymbrii</i> , Ckll.         | <i>major</i> , Nyl.  |
| <i>similis</i> , Smith.          | <i>malachurus</i> , Kirby.   |
| <i>politus</i> , Smith (Mexico). | <i>leucozonius</i> , Schrank (but cell very<br><i>calceatus</i> , Scop. [large). |

Certain of these, as *H. pacificus*, *sisymbrii*, *leucozonius*, and *calceatus*, have the spur coarsely serrate as in *H. coriaceus*. *H. politus*, which looks much like these, has the spur with numerous moderately long teeth. *H. similis* has the spur with about four short oblique slender teeth.

The greatest reduction of spur-teeth I have seen results in the hind edge of the spur being apparently simple, but a high power lens shows it to be minutely beaded. This occurs in the American *H. amicus*, Ckll., and the European *H. zonulus*, Smith. *Halictus* (*Lucasius*) *cochlearcitaris*, Dours, has the third submarginal long, but there is hardly any double curve, and the angle is slightly appendiculate. This is a large black species with continuous hair-bands on abdomen; spur with teeth quite large towards the base, otherwise minute.

*Nomioides* is a genus of little bees with nearly the structure of *Halictus*, but all the form and colours of *Perdita*. *N. variegatus*, Oliv., and *N. pulchellus*, Schenck, have the third submarginal short, but slightly angled outwardly, and minutely appendiculate. Ashmead is wrong in treating *Lucasius* as a synonym of *Nomioides*, as Mr. Vachal has pointed out to me.

Mr. Vachal writes me that *Thrinchostoma*, Sauss., "is an *Halictus*, with the tongue longer than in *Halictus* s. str., and bodkin-shaped. The name of Saussure's genus is wrongly spelled by Dalla Torre and Ashmead.

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