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XXV.—New Records of Bees from Natal,

by

T. D. A. Cockerell, University of Colorado.

THROUGH the kindness of the Curator of the Durban Museum, Mr. E. C. Chubb, I have received an additional series of Natal bees, including a number of species not listed in my former paper, and others from new localities. I delayed my investigation of them, hoping to have the advantage of consulting a paper on South African bees which Dr. H. Friese expected to publish; and to-day various circumstances make it difficult to carry on the work with any speed. It is possible, however, to give a partial report.

XYLOCOPA CARINATA, Smith.

The difference of size, given to separate this from *X. hottentotta*, does not hold. A specimen of *carinata* from Widenham, 13th December, 1914 (L. Bevis; 1481) has the anterior wings only 14 mm. long; while one of *hottentotta* from Umbilo, 5th April, 1915 (L. Bevis; 1564) has them about 17.5 mm. A better distinction is found in the extremely dark wings of *carinata*, which are more rounded apically than those of *hottentotta*.

Maidl discusses *X. taschenbergi* Vachal as *hottentotta*. Mr. Meade-Waldo kindly examined Smith's type of *hottentotta* (from Port Natal) and showed that it differed from *taschenbergi* as follows:

Length 18–19 mm.; prominent tubercle between antennæ at base; terminal segments of abdomen with sparse fringe of black hair *hottentotta* Sm.

Length 25 mm.; the merest suggestion of a tubercle between antennæ; terminal segments of abdomen with conspicuous (separated) tufts of black hair *taschenbergi* Vach.

The British Museum has *taschenbergi* from Massowah and Khar-toum, determined by Morice. With regard to *X. carinata*, there is evidence that Smith had an insect more or less different from ours, since he speaks of green on the wings as well as purple. It appears probable that we should recognise two sub-species, as follows:

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X. carinata Smith, typical (*X. io* Vachal).

X. carinata natalensis Vachal (*X. natalensis* Vachal).

The latter being the form found in Natal.

The small specimen of *carinata* from Widenham has the first recurrent nervure going well beyond the second transverse-cubital; and should this, with the small size, prove locally constant, another race would be indicated. This, however, does not seem probable.

MESOTRICHIA NIGRITA (Fabricius).

♂ from Greenwood Park, Nov., 1914 (D. R. Boyce; 1639). ♀ from Durban, 25th Feb., 1905 (J. D. Casey). The male is a very large bright rufo-fulvous bee; the female is black, with conspicuous white hair on sides of thorax and abdomen.

MESOTRICHIA DIVISA (Klug).

A new locality is Umbilo, 2nd Oct., 1915 (L. Bevis).

MESOTRICHIA FLAVORUFA (De Geer).

Natal Coast (H. W. Bell Marley; 1634). Taken 25th May.

MESOTRICHIA BEVISI, sp. nov.

♂. Length about 13 mm., anterior wing 11.5 mm.; black, rather thinly covered with yellow hair, the effect produced being decidedly yellow on thorax, dark greenish on abdomen; wings strongly infuscated, sub-hyaline basally; the only pale markings on head are a small round yellow spot on base of each mandible, and a short bar of the same colour at each lower corner of face; scape curved, yellow on outer side; flagellum ferruginous beneath except at base, and red above at tip; face broad, inner orbital margins concave; lower half of cheeks and lower part of clypeus with white hair; face, front and vertex, especially in middle, with long black hair intermixed; mesothorax with some admixture of dark hairs; disc of mesopleura with hair all black; tegulae small, black; only two submarginal cells, the first t.c. vaguely indicated only; first r.n. meeting second t.c.; legs black, including tarsi; outer side of tibiae with mainly yellow hair;

anterior tarsi with very long white hair behind; middle tarsi with black hair in front, and with long hair, partly black and partly light, behind; hind tarsi with much black hair, but a fringe of long silvery white hairs beneath; hind basitarsus about or nearly as long as tibia; apical part of abdomen with a long black fringe, but a pure white tuft in middle; apical part of venter with white hair at sides and fulvous in middle.

Umbilo, 10th Oct., 1915 (L. Bevis; 1708). Closely related to "*M. anicula* (Vachal)," from Willowmore, Cape Colony (Brauns), but smaller, with white hair on clypeus, shorter yellow hair on abdomen, only two submarginal cells, etc. According to Friese and Enderlein, *anicula* is a synonym of *M. sciensis* (Gribodo). This may well be correct, but it appears doubtful whether the Willowmore insect is genuine *anicula* or *sciensis*, since it differs from Vachal's description by the yellow hair of head (white only on lowest part of cheeks) and the considerably larger size, fully 16 mm. The disc of mesopleura has yellow hair, and the hind tarsi have much light hair. The accompanying female sent by Dr. Brauns (which is, however, from Lichtenburg, Transvaal,) runs exactly to *anicula* in Friese's table. On running the Willowmore male in Vachal's table, it goes to *M. suspiciosa* (Vachal), described from Delagoa Bay, and agrees with the description of that insect. Maidl reports *suspiciosa* from Algoa Bay. Friese makes *suspiciosa* a synonym of *M. flavobicincta* (Gribodo), which is manifestly incorrect. *M. suspiciosa* must be maintained as a valid species, to include the Willowmore male, with a range from Algoa Bay to Delagoa Bay. It should therefore occur in Natal.

In appearance *M. bevisi* is like a miniature *M. luteola* (Lep.).

EUASPIS ABDOMINALIS (Fabricius).

Durban, 1914 (H. W. Bell Marley; 1634). Abdomen red, with sparse red hair; no ventral scopa in female. Parasitic bees, in Natal probably breeding in nests of *Gronoceras combusta*.

CROCISA GUINEENSIS, Rodoszkowski = *C. PICTA*, Smith.

Mr. Bevis has now taken both sexes at Umbilo, 10th Oct., 1915. The well keeled fifth ventral segment of female confirms the species as

C. guineensis. It is to be noted, however, that one of the males, certainly not a different species, has the apical truncation of abdomen briefly trilobed, in the style of *C. picta*. Furthermore, *C. picta* was described from Port Natal, and Meade-Waldo examined the type female, and found a keel on the fifth ventral segment exactly as described for *guineensis*. In view of these facts, and the variability of the male just mentioned, it becomes evident that the two names represent a single species, to be called *C. picta*. This agrees with Meade-Waldo's conclusion.

On the same day, 10th Oct., at Umbilo, Mr. Bevis took both sexes of *C. meripes* Vachal, and a male *C. calceata* Vachal. These species are so closely allied that they may prove to be only varietally distinct, as Brauns has suggested.

CROCISA ARCUATA, Vachal.

Both sexes; Umbilo, 2nd Oct., 1915 (L. Bevis). Larger than *C. calceata* and *meripes*, with a pair of large bluish-white hair-spots on scutellum. Vachal's description is very short; Dr. Brauns gives additional details in Uh. K. K. Zool.-bot. Ges. Wien, 1909, p. 15. *C. arcuata*, as at present understood, is a wide-spread species, and must include *C. wellmani* Ckll., from Portuguese West Africa, described four years later. The Natal specimens agree with *wellmani*.

The following bee has an extraordinary resemblance to *Crocisa*, but it is not parasitic, and the blue spots on the abdomen are tegumentary, not due to hair.

APIS UNICOLOR, Latreille.

Of seven workers taken by Mr. Bevis at Umbilo, two are *unicolor* proper, and five are variety *adansoni* Latr. The latter vary in the colour of the scutellum, which may be black or fulvous.

GRONOCERAS COMBUSTA (Smith).

Both sexes from Umbilo, 2nd Oct. and 17th Dec., 1916 (L. Bevis; 1706, 1478).

MEGACHILE MEDIOCANA, Cockerell = BITUBERCULATA sub-species.

At Umbilo, 17th Oct., 1915, Mr. Bevis took both sexes. The male is nearly the same as *M. sjæstedti* Friese (*bituberculata* Rits.), and it is evident that the male I recorded from Stella Bush as *bituberculata* belongs here. When describing *mediocana* I suggested that it was perhaps a sub-species of *bituberculata*, and I now think we ought to write *M. bituberculata mediocana*.

NOMIA (CROCISASPIDIA) NIGRIPES (Friese).

♂. Umbilo, 5th April, 1915 (L. Bevis; 1564).

Friese described his *nigripes* very briefly as a variety of *N. scutellaris* Sauss., from Madagascar, but it is certainly distinct. The Umbilo male differs a little from Friese's description, having the anterior femora thickly covered with white hair beneath, and the hind femora with a rather short fringe of white hair along lower margin. The insect is very like *N. amabilis* Ckll., but has no red hair on apical part of abdomen, and the postscutellum is much broader. The blue on first three abdominal segments is brighter than in *amabilis*.

NOMIA SERRATULA, Smith.

Described from Natal. A male from Widenham, 13th Dec., 1914 (L. Bevis; 1481), has the abdomen red, with the basal half of first segment black, and large transverse dark blotches on discs of first and second segments. The abdomen may be black, with only the apical margins of the segments red. The first three abdominal segments have excessively large punctures; the male legs are slender, their tibiae strongly serrate or rather denticulate on outer margin. The female is unknown.

NOMIA FRIESEANA, nom. nov.

New name for *Nomia friesei* Ckll., Ann. Durban Mus., vol. 1 (1916) p. 216 (not *N. friesei* Magretti).

NOMIA VULPINA UMBILOENSIS, Cockerell.

This was described from a male. A female (Umbilo, 18th April, 1915, L. Bevis; 1563) is referred here, as it agrees in appearance, structure of the wings, etc. In the table in Ann. Durban Mus., p. 212, the female runs to *N. perornata* Ckll., which it superficially resembles very closely, differing however, as follows:

Second submarginal cell about half as long as third; wings not conspicuously darkened at apex; first abdominal segment with depressed smooth marginal area broad and rufotestaceous; disc of first segment closely punctate *umbiloensis*.

Second submarginal cell not half as long as third; wings very dark at apex; first abdominal segment entirely black to margin; disc of first segment dull and impunctate *perornata*.

In the clouded apex of wings, *N. perornata* is like *N. nubecula* Sm., from Sierra Leone. The female *N. umbiloensis* has broad fulvous hair-bands on segments two to four of abdomen, while the fifth segment is densely fringed with dark chocolate hair. The hind legs are of course not modified as in the male, but the hind basitarsus is very broad. The anterior and middle knees are red. The insect resembles *N. fulvohirta* Sm., from Sierra Leone in several particulars.

NOMIA AUREOVITTATA, sp. nov.

Runs in Ann. Durban Mus., p. 211, to *N. speciosa*; but entirely distinct by its relatively minute size, and absence of orange band on first abdominal segment.

♀. Length about 8 mm.; black, including the legs (tarsi ferruginous apically), the abdomen with very broad bright orange (white at sides) tegumentary bands on segments two to four, these bands, however, covered with very fine pubescence, and appearing dull; head broad, hair of face and cheeks greyish-white; antennae dark, the flagellum short, with a red spot beneath on last joint; mandibles with a dark red spot in middle; clypeus closely punctured; mesothorax and scutellum dull and densely punctured, with thin reddish hair; area of metathorax rather large, with fine cross-ridges, the apical

middle opaque and without ridges; tegulae dark brown, oblong, but not of the large type; wings dusky, the apical field darkest, but not abruptly so; stigma very short, reddish; basal nervure strongly arched, meeting transverso-median; second submarginal cell square, very small, third very long, as long or longer than first two combined; first two abdominal segments finely and closely punctured; hair at apex of fifth segment whitish.

Umbilo, 18th April, 1915 (L. Bevis; 1563). Somewhat related to *N. braunsiana* Friese, but larger, with dusky wings, etc.

NOMIA BEVISIANA, sp. nov.

A species of the sub-genus *Stictonomia*, easily separated from *N. megacantha* Ckll. by the smaller size and much shorter scutellar spines. It is also quite distinct from *N. cameroni* Ckll. There is some resemblance to *N. amœnula* Gerst., but *N. bevisiana* is larger, with differently coloured abdomen, etc. It is not *N. anomala* (Kirby), which Meade-Waldo records from Durban.

♂. Length about 7 mm.; black, the tarsi, and apices of tibiae more or less, ferruginous; tegulae greatly enlarged, posteriorly whitish; flagellum dark red beneath; scutellar spines rather short but broad, dentiform; first two abdominal segments with extremely large punctures; depressed hind margins of all the segments broadly rufo-testaceous, and dull white hair-bands at the bases of the depressions; apex of abdomen without any projecting plate; hind legs not at all modified. Head broad, orbits very strongly converging below; face with very pale ochreous-tinted hair; mesothorax and scutellum dull, with short fulvous tomentum; methathorax with a narrow channel at base, strongly transversely ribbed; below this is a large dullish impunctate area, and below this the posterior face is covered with very large punctures; wings dusky, stigma very dark reddish; basal nervure very strongly arched, meeting transverso-median; second sub-marginal cell small, third very long; marginal cell very broad and obtuse at end.

Umbilo, 8th Dec., 1914 (L. Bevis; 1480). A very distinct little species.

NOMIA CONCINNULA, sp. nov.

♂. Length about 7 mm., with unusually long wings; rather slender, dark, with a distinct greenish tint, especially on mesothorax; knees, tarsi, and spot at apex of tibiae ferruginous or reddish, the knees varying to obscurely so; tegulae reddish with hyaline margins, not at all enlarged; flagellum very bright ferruginous beneath, black above; postscutellum covered with dense tomentum; area of metathorax rather indistinct; hind legs not much modified, the femora moderately swollen, the tibiae very broad apically, with a strong dentiform angle on inner side at apex, and above this angle a slight swelling. Face with pale ochreous hair; mesothorax and scutellum finely and closely punctured but shining; wings dusky; stigma very large, rufo-testaceous; basal nervure only moderately arched; second sub-marginal cell very small, first sub-marginal longer than second and third combined; abdomen finely rugulose, second and third segments transversely depressed in middle; apex with a rounded red plate, and much light hair.

Widenham, 14th Dec., 1914 (L. Bevis; 1482). This may be compared with *N. cinerascens* Sm., but differs by the smoky wings and flagellum black above. The greenish colour suggests some of the Australian species, but these are structurally quite different.

NOMIA PLATYCEPHALA, sp. nov.

♂. Length about 9 mm.; robust, black, including legs and antennae, but anterior and middle knees dark reddish; head very broad, facial quadrangle much broader than long, anterior orbits sub-parallel; mandibles long, simple, with a dark red mark near end; clypeus finely rugosopunctate, but shining; face and front broad and flat, except an elevation between antennae; flagellum short, like that of a female; hair of face white, dense only at sides; mesothorax and scutellum finely and closely punctured, but shining, with a thin clothing of very pale ochreous hair, and some redder hairs interspersed; base of metathorax with a narrow channel, finely transversely ridged; posterior face of metathorax shining, with scattered punctures; tegulae rufous, not at all enlarged; wings suffused with brown, stigma and nervures dark brown; stigma of moderate size; basal nervure little

arched, not reaching transverso-median; second sub-marginal cell large, receiving first recurrent nervure a little before beginning of last third; third sub-marginal unusually short, much as in *Halictus*, not so long as first; legs with glittering pale hair; hind legs not modified; abdomen shining, hind margins of segments hyaline, segments two to four with very thin white hair-bands, more or less failing in middle; apex of abdomen with a very large rounded shining reddish-brown plate, from which extends on each side a relatively low lobe.

Widenham, 13th Dec., 1914 (L. Bevis; 1481). In the broad head and short antennæ this is closely related to *N. cubitalis* Vachal, but the legs are differently coloured. *N. platycephala* may stand as the type of a new sub-genus *Macronomia*, distinguished by the characters of venation, broad head, short antennæ of male, and large apical plate of male abdomen. It is in some respects parallel with the sub-genus *Patellapis* Friese of *Halictus*. The robust form and character of the sub-marginal cells give it a peculiar appearance, as though intermediate between *Halictus* and *Nomia*; but the metathorax is that of *Nomia*.

XXVI.—Some apparently undescribed South African Heterocera,

by

A. J. T. Janse, F.E.S.

FAMILY NOCTUIDÆ.

CHLORIDEA FUSCIMACULA, sp. nov.

♂. Head, thorax, abdomen above and ground colour of fore-wing isabella colour (XXX)*; hairs of head and thorax tipped with ochraceous-tawny (XV) and blackish; tegulæ edged with ochraceous-tawny; scales of patagia tipped with metallic bluish-black; abdomen above speckled with ochraceous-tawny, on under-side maize yellow (IV); anal tuft ochraceous-orange (XV); palpi cream colour (XVI), second joint thinly, and third joint thickly, speckled with ochraceous-tawny; fore tarsi fuscous (XLVI), ringed with cream colour; thorax on under-side, and hairs on legs, cream-colour mixed with buff-yellow (IV). Fore-wing with costal, inner-marginal and terminal areas tinged with russet (XV) and thinly irrorated with fuscous; sub-basal line faint, oblique to 1b, then inwardly to inner-margin, some blackish scales outwardly; anti-medial line blackish, curved inwards from upper-median to below lower-median, forming a semi-circle around the orbicular, which is represented by a blackish-brown dot surrounded by a faint russet ring, the anti-medial line is then curved inwards to vein 1b, then curved outwards between 1b and inner-margin; medial line very faint; reniform chestnut-brown (XIV) surrounded by a blackish ring and then surrounded as far as upper-median by a russet coloured U-shaped mark, which is sharply edged by blackish below the upper median, this mark is connected with a blackish costal mark so as to enclose the reniform entirely beyond the upper median; post-medial line antique brown (III), oblique from costa to vein 7, then bent outwardly as far as vein 3, then oblique to three-fourth of inner margin and dentate outwardly on veins 1b to 7; sub-terminal faint, shaded by antique-brown on inner-side, especially near costa as far as vein 7 and towards inner-margin; a terminal suffusion of raw umber (III); cilia hair-brown (XLVI) with a fuscous line. Hind-wing

* All colour names mentioned are those of Ridgway's "Color Standards and Nomenclature," 1912; the numerals following each name indicate the number of the plate in that work.