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TO
THE INDIAN OCEAN IN 1905,
UNDER THE LEADERSHIP OF
MR J. STANLEY GARDINER.
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NO. XVI.—FOSSORIAL HYMENOPTERA FROM THE SEYCHELLES AND
OTHER ISLANDS IN THE INDIAN OCEAN.

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(Communicated by PROF. J. STANLEY GARDINER, M.A., F.R.S., F.L.S.)

Read 19 January, 1911.

THE fossorial Hymenoptera of the expedition to the Seychelles and Aldabra (1908—9) have been handed to me by Mr Scott for identification. Those from the Seychelles are very few in number, only including thirteen species. Several of these have doubtless been imported, such as the two species of *Sceliphron* and *Ampulex compressa*. Of the ten remaining species one, *Sphex umbrosus*, is wide ranging; three are identical with Madagascar species, one with a Mauritius species, and five only are peculiar; two of these last belong to the genus *Crabro*, two to *Pison*, and one to *Notogonia*. But it is not unlikely that some even of these have been imported, though not yet recorded from elsewhere, the habits of *Trypoxylon* and *Pison*, which often make their nests in holes in wood, rendering their transportation on ships easy. Of the eleven species recorded in this paper from Aldabra and adjacent islands, six are common Madagascar forms, and five are wide-ranging. One common Eastern species obtained in the Chagos Islands is also referred to, namely *Sceliphron bengalense*; this makes a total of 25 species from all the islands investigated by the Percy Sladen Trust Expeditions of 1905 and 1908.

Fam. **Scoliidæ**.

Genus **SCOLIA** Fabr.

1. *Scolia* (*Triscolia*) *hyalinata* Sich.

Scolia (*Triscolia*) *hyalinata* Sichel, Sauss. et Sich. Spec. gen. *Scolia*, p. 53, 1864, ♀.

Localities. Cosmoledo and Astove, 1907 (H. P. Thomasset); Aldabra, 1908, 1 ♂ (J. C. F. Fryer). Described from Madagascar.

The male has the wings clear hyaline and the abdomen faintly glossed with blue, but otherwise only differs from the female by the usual sexual characters.

2. *Scolia (Dielis) cælebs* Sich.

Elis (Dielis) cælebs Sich., Spec. gen. *Scolia*, p. 184, 1864, ♀.

Localities. Assumption, 1909, several ♀♀ (R. P. Dupont). Astove, 1907, 1 ♂ (H. P. Thomasset).

Probably the name *eriophora* Klug should be used for this wide-ranging African species, but as I am not certain I prefer to retain Sichel's name.

3. *Scolia (Dielis) pilosella* Sauss.

Elis pilosella Sauss., Grandidier: Hist. Madagascar xx. p. 220, 1892.

Locality. Astove. (R. P. Dupont.) Described from Madagascar. The specimen from Astove is in the British Museum. This species was not obtained by the Percy Sladen Trust Expeditions of 1905 and 1908.

Fam. **Pompilidæ.**

Genus MYGNIMIA Shuck.

4. *Mygnimia nenitra* Sauss.

Mygnimia nenitra Sauss., Mitth. Schweiz. entom. Ges. viii. 1, p. 268, 1891; Sauss., Grandidier: Hist. Madagascar xx. p. 410, 1892, T. 9, F. 33.

Locality. Seychelles: Silhouette Island, Mare aux Cochons, 1000 feet, August and September, 1908. Four specimens, all females; they settled and ran swiftly on the ground, with quivering wings (H. Scott). Described by Saussure from Madagascar.

There is a tubercle just in front of the intermediate coxæ, as in the Eastern genus *Macromeris*. The tibiæ however in *Macromeris* are smooth, which is not the case in the present species. The tubercle is also present, though less developed in *M. hova* Sauss. from Madagascar, but is absent in *combusta* Sm. and other allied species from the mainland of Africa.

Fam. **Sphegidæ.**

Genus AMPULEX Jur.

5. *Ampulex compressa* Fabr.

Sphex compressa Fabr., Spec. Insect. i. p. 445, 1781.

Ampulex compressa (Fabr.) Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 76.

A common eastern species, doubtless imported on ships.

Localities. Seychelles: Mahé; "frequents the outsides of houses &c. in Port Victoria" (Scott, 1908—9). Chagos Islands, 1905 (see Cameron, *l.c.*).

Genus SCELIPHRON Klug.

6. *Sceliphron (Chalybion) madecassum* Gribodo.

Pelopæus madecassus Grib., Ann. Mus. Civ. Genova xviii. p. 263, 1882.

Sceliphron violaceum Sauss., Grandidier: Hist. Madagascar xx. p. 440, 1892.

Sceliphron madecassum Kohl., Denkschr. R. Akad. Wissen. Math.-Naturwiss. Klasse lxxi. p. 193, 1906.

Sceliphron bengalense Cam., Trans. Linn. Soc. Ser. 2, Zool., xii. 1907, p. 76 (nec Dahlb.).

Specimens of this species from Mahé and Silhouette all show the very long petiole characteristic of *madecassum*, and differ from the specimens from the Chagos Islands referred to *bengalense* correctly by Cameron, but I must consider his record from the Seychelles as mistaken.

Localities. Seychelles: Mahé, road below Morne Blanc, X. 1908, Cascade Estate, II. 1909, Long Island, VII. 1908: Silhouette, cultivated country, IX. 1908 (Scott). Also from Madagascar.

7. *Sceliphron (Chalybion) bengalense* Dahlbom.

Sceliphron bengalense Dahlbom, Hym. Eur. i. 433; Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 76.

This species was obtained in the Chagos Islands by the "Sealark" Expedition in 1905, and recorded by Cameron, *l.c.* [As stated above, the specimens obtained during that expedition in the Seychelles, and referred to this species, are really *S. madecassum*.]

8. *Sceliphron hemipterum* Fabr.

Sphex hemiptera Fabr., Suppl. ent. syst. p. 244, 1798.

Pelopæus hemipterus Fabr., Syst. Piez. p. 204, 1804.

Sceliphron hemipterum (Fabr.), Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 75.

Localities. Seychelles: Mahé, Silhouette, Praslin (1905 and 1908—9). Also from Africa and Madagascar.

Genus AMMOPHILA Kirby.

9. *Ammophila (Psammophila) capensis* Lepel.

Ammophila capensis Lepel, Hist. Nat. Insect. Hym. iii. p. 368, 1845.

Localities. Assumption (J. C. F. Fryer, and R. P. Dupont). Cosmoledo, 1907 (H. P. Thomasset). A common African species, probably only a race of *A. tydei* Guillaou. It also occurs in Madagascar.

10. *Ammophila* sp.

A single specimen (♂) of a true *Ammophila* has been received from Mr R. P. Dupont, who obtained it in Assumption Island in 1910. It resembles a form obtained in Réunion and referred by Saussure (in Grandidier, Hist. Madagascar xx. p. 436) to *A. sabulosa* Linn.: but Saussure's determination of the species may be incorrect.

Genus SPHEX Linn.

11. *Sphex torridus* Sm.

Sphex torrida Sm., Ann. and Mag. Nat. Hist., Ser. 4, xii. p. 291, 1873.

Localities. Aldabra; many specimens, chiefly found at coast (1908, J. C. F. Fryer). Assumption (1909 and 1910, R. P. Dupont). Cosmoledo (1907, H. P. Thomasset). A common species in Madagascar.

12. *Sphex umbrosus* Christ.

Sphex umbrosa Christ, Naturg. d. Insect. p. 293, 1791: Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 75.

Sphex rufinervis Pérez, Ann. Soc. Entom. France lxiv. p. 209, 1895.

Localities. Seychelles: Praslin, Mahé (1905 and 1908—9). Also known from S. Europe, Africa, India and Australia.

The male has the wings darkened on the basal half, but is only a slight variety of this common species.

13. *Sphex (Harpactopus) aegyptius* Lep.

Sphex aegyptia Lep., Hist. Nat. Ins. Hym. iii. p. 356, 1845.

Locality. Astove (R. P. Dupont). A common species in East Africa and Western Asia. The Astove specimens are in the British Museum: the species was not obtained by the Percy Sladen Trust Expeditions.

Genus CERCERIS Latr.

14. *Cerceris nenitra* Sauss.

Cerceris nenitra Sauss., Soc. entom. ii. p. 25, 1887.

Cerceris nenitra Sauss., Grandidier: Hist. Madagascar xx. p. 551, 1892.

Locality. Aldabra (Fryer). Also from Madagascar.

Genus NOTOGONIA Costa.

15. *Notogonia reticulata* Sauss.

Notogonia reticulata Sauss., Grandidier: Hist. Madagascar xx. p. 512, 1892.

Notogonia mahensis Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 78.

Localities. Seychelles: Silhouette, Mare aux Cochons, over 1000 ft., August and September, 1908: Mahé, near Morne Blanc, October 1908; above Port Glaud, 500—1000 ft. November 1908 (H. Scott). Many specimens of both sexes. Also known from Madagascar.

16. *Notogonia seychellensis* Cam.

Notogonia seychellensis Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 77, ♀ (♂).

Notogonia rufofemorata Cam., *l.c.* p. 78, 1907 (♂).

Cameron states that he is describing both sexes of *N. seychellensis*, but I have seen the types of *seychellensis* ♀ and *rufofemorata* and consider that the differences are merely sexual. He does not point out the differences between the sexes of *seychellensis* or compare the males of his species.

Localities. Seychelles: Silhouette; Mont Pot-à-eau, over 1000 ft. (August): Mahé, Cascade Estate, &c. Specimens always seen singly (H. Scott).

Genus TACHYSPHEX Kohl.

17. *Tachysphex micromegas* Sauss.

Tachysphex micromegas Sauss., Grandidier: Hist. Madagascar xx. p. 481, 1892.

Localities. Seychelles: Silhouette, numerous specimens settling and running on paths on plateau of Mare aux Cochons, over 1000 ft., VIII.—IX. 1908; Mahé, from near Morne Blanc, about 800 ft., XI. 1908, and from Cascade Estate in March 1909 (H. Scott). Astove, one specimen (R. P. Dupont). Described by Saussure from Madagascar.

Genus BEMBEX Fabr.

18. *Bembex madecassa* Sauss.

Bembex madecassa Sauss., Mitth. Schweiz. entom. Ges. viii. p. 260, 1891.

Localities. Aldabra, many specimens, found in all places where sand or guano is present (1908—9, J. C. F. Fryer). Assumption (1909, R. P. Dupont). Cosmoledo (H. P. Thomasset). Also Madagascar.

Genus PISON Jur.

19. *Pison speculare*, sp. n.

♀. Nigra, nitida, capite opaco; segmento mediano nitido, in medio longitudinaliter sulcato; alis hyalinis, leviter infumatis.

Clypeus clothed with short, delicate, silver pubescence, the anterior margin slightly incurved, produced in the middle into a distinct angle. Head opaque, the eyes rather deeply emarginate, the distance between them at the base of the clypeus greater by one half than that on the vertex; the posterior ocelli very near to the eyes, twice as far from each other. Antennæ inserted as near to the eyes as to each other, the second joint of the flagellum about twice as long as the first and equal in length to the third. Thorax shining, microscopically punctured, the mesopleuræ rather more strongly punctured; median segment shining, with a longitudinal median sulcus not quite reaching the apex, the sulcus broad at the base and marked with a short longitudinal carina and a few faint oblique striæ, except in the sulcus the segment is smooth. Abdomen smooth and shining, the three basal segments a little depressed at the apex, the first segment a little longer than the breadth at the apex. Second cubital cell reaching the middle of the second transverse cubital nervure, receiving the first recurrent nervure close to the base, the second recurrent nervure received close to the base of the third cubital cell.

Entirely black, the abdominal segments without bands of pubescence. Wings hyaline, clouded with fuscous; nervures black.

Length 8 mm.

Localities. Seychelles: Praslin (November): Mahé, Morne Blanc, 1000 ft. (November 1908, H. Scott).

The median segment resembles in the want of sculpture that of *P. insulare* Sm. from the New Hebrides, but the shape of the clypeus is different.

20. *Pison argentatum* Shuck.

Pison argentatus Shuck., Trans. Ent. Soc. London ii. p. 79, 1837.

Locality. Aldabra (J. C. F. Fryer). A wide-ranging species, originally described from Mauritius.

21. *Pison* (*Parapison*) *isolatum*, sp. n.

♀♂. Niger, punctatus, abdomine nitido, pedibus, tegulis, scapo et flagello basi rufo-ferrugineis.

♀. Clypeus nearly twice as broad as long, finely punctured, produced and narrowly rounded on the middle of the apical margin. Head opaque, obscurely punctured, a carina from the base of the clypeus reaching half-way to the anterior ocellus. Second joint of the flagellum distinctly longer than the third; eyes separated on the vertex by a distance about equal to twice the length of the third joint of the flagellum; the posterior ocelli rather further from each other than from the eyes; the emargination of the eyes rather deep, the eyes are twice as far apart on the clypeus as on the vertex. Thorax finely and rather sparsely punctured; the median segment shorter than the mesonotum, narrowed posteriorly, irregularly and indistinctly obliquely striated, with a median sulcus not quite reaching the apex, the surface of the posterior truncation indistinctly transversely striated with a deep median sulcus. Abdomen subpetiolate, smooth and shining, the first segment longer than its breadth at the apex. First abscissa of the radius longer than the second; first recurrent nervure received close to the apex of the first cubital cell, second at one-third from the base of the second (third) cubital cell.

Black; scape, four basal joints of the flagellum, mandibles in the middle, tegulæ and legs (except the coxæ and the apical joint of the tarsi) ferruginous. Wings hyaline, tinged with fuscous, nervures black.

Length 8 mm.

♂. Clypeus produced into a point on the middle of the apical margin; apical dorsal segment of the abdomen large, rounded at the apex. Otherwise as in the female.

Localities. Seychelles: Silhouette, specimens settling on paths on plateau of Mare aux Cochons, over 1000 ft., VIII—IX. 1908: Mahé, Cascade Estate, about 1000 ft., III. 1909 (H. Scott).

Genus TRYPOXYLON Latr.

22. *Trypoxylon errans* Sauss.

Trypoxylon errans Sauss., Reise Novara Zool. ii. Hym. p. 84, 1867.

Trypoxylon gardineri Cam., Trans. Linn. Soc., Ser. 2, Zool., xii. 1907, p. 76.

Localities. Mauritius (Saussure). Mahé, Cascade Estate, November to March, and Long Island, July (H. Scott). Coetivy, 1905 (J. Stanley Gardiner).

"This species comes into rooms at Port Victoria and goes into nail holes in walls." Species of *Trypoxylon* and *Pison* have similar habits in other countries, often forming their nests in key-holes.

Saussure gives the colour of the clypeus as yellow (Hist. Madagascar xx. p. 527, 1892); in the Seychelles the colour is black, but this is also the case in specimens from Mauritius in the British Museum, and Saussure's original description only gives "Clypei margo testaceus."

23. *Trypoxylon scutifrons* Sauss.

Trypoxylon scutifrons Sauss., Grandidier : Hist. Madagascar xx. p. 523, 1892.

Locality. Astove (R. P. Dupont). Also from Madagascar. The Astove specimen is in the British Museum. This species was not obtained by the Percy Sladen Trust Expeditions.

Genus CRABRO Fabr.

24. *Crabro (Rhopalum) oceanicus*, sp. n.

♀. Minuta, nigra, scapo, pedibusque anterioribus et intermediis flavis; abdomine subtus ferrugineo, segmento dorsali tertio fusco-ferrugineo; alis hyalinis.

♀. Mandibles bidentate at the apex; clypeus flat, without a carina, covered with delicate silver pubescence. Antennæ inserted close to the eyes, much further from each other than from the eyes, which are separated by a distance equal to about half the length of the scape, the first joint of the flagellum a little longer than the second. Posterior ocelli near together, about twice as far from the eyes as from each other and further from the posterior margin of the head than from the eyes. Head, thorax and median segment smooth and shining, the anterior angles of the pronotum slightly rounded; the mesonotum with a delicately impressed line from the anterior margin to the middle; median segment with a longitudinal sulcus, shallow on the dorsal surface, deep on the posterior slope. Petiole very slender, as long as the thorax without the median segment, swollen at the apex; second abdominal segment more than half as long as the petiole, very narrow at the base, gradually widened to the apex; the fourth segment the broadest; apical segment broadly triangular. Posterior tibiæ swollen towards the apex, with a few delicate spines on the outer margin. The recurrent nervure is received beyond the middle of the cubital cell.

Black; the scape and the anterior and intermediate legs pale yellow; abdomen beneath ferruginous, the third and fourth dorsal segments ferruginous at the base, the third at the apex fuscous. Tegulæ testaceous; wings hyaline, iridescent, nervures black.

Length 5 mm.

♂. Similar to the female. There are four minute teeth on the anterior margin of the clypeus.

Length 4 mm.

Localities. Seychelles: Mahé, 1 specimen obtained flying round a *Roscheria*-palm in high damp forest on summit of "montagne Anse Major," over 2000 ft., 1. II. 1909: Silhouette, 1 specimen obtained in forest above Mare aux Cochons, 1908 (H. Scott).

25. *Crabro (Dasyproctus) scotti*, sp. n.

♀. Nigra, alutacea, mandibulis, clypeo, flagelloque basi ferrugineis; scapo, pronoto, pro- et mesopleuris, tegulis, mesonoti macula magna margine posteriore lineisque laterilibus ante tegulas, scutello, postscutello, segmento mediano basi apice lateribusque, pedibusque ochraceis.

♀. Mandibles tridentate at the apex, the inner tooth small and short. Clypeus much broader than long, opaque and almost smooth, with an obscure median carina, with

two broad short teeth on the middle of the apical margin, clothed with short close silver pubescence. Head large and massive, much broader than the thorax, opaque, with a shining furrow on the inner margin of each eye near the summit; antennæ inserted nearer to the eyes than to each other, the second joint of the flagellum a little longer than the third and half as long again as the first. Posterior ocelli as far from each other as from the eyes and fully half as far again from the posterior margin of the head as from each other; eyes separated at the base of the clypeus by a distance equal to about one-third of the length of the scape, the facets in front much larger than elsewhere. Thorax opaque, the scutellum slightly shining; pronotum transverse, rounded at the angles, with a deep groove in the middle; mesonotum broadly and shallowly depressed in the middle anteriorly, with short longitudinal striæ on the middle of the apical margin; scutellum almost smooth, with a few scattered punctures; median segment with a deep sulcus from base to apex, obliquely striated at the base. Mesopleuræ opaque, with a vertical sulcus below the anterior wings, moderately hollowed for both the anterior and intermediate femora. Abdomen petiolate; the first segment a little longer than the mesonotum and scutellum combined, gradually and evenly broadened from the base, about half as wide at the apex as long; apical segment pointed, very narrow. Posterior tibiæ spinose, intermediate almost smooth. The recurrent nervure is received beyond two-thirds from the base of the cubital cell.

Black; the mandibles, except at the apex, clypeus and four basal joints of the flagellum dull ferruginous brown; scape, pronotum, tegulæ, pro- and mesopleuræ, a large spot on the posterior margin of the mesonotum, a line above the tegulæ, scutellum, postscutellum, a large triangular mark at the base of the median segment, the apex of the median segment extending onto the sides, a very small obscure spot on each side of the first abdominal segment near the apex and the legs reddish chrome. Wings hyaline, nervures black.

Length 9 mm.

♂. The first abdominal segment is much narrower than in the female, very little broadened to the apex, and is longer. The median segment is wholly black.

Localities. Seychelles: Silhouette, Mare aux Cochons, over 1000 ft. (September): Mahé, Cascade Estate (February). 3 ♀, 1 ♂.

The colour of the markings is reddish chrome (Roy. Horticultural Soc. Colour Chart 51, shade 4). Mr Scott informs me that the colour is natural and not changed by cyanide.