VI.—NOTES ON A COLLECTION OF WEST AFRICAN MYRMECOPHILES

BY WM. M. MANN

Prof. Wheeler has kindly given me for study an interesting collection of West African myrmecophiles, most of them collected by the Rev. G. Schwab from nests of several species of Dorylus subgenus Anamma, some larvae of Microdon taken by Messrs. Lang and Chapin, and two Paussidae, not found with their host ant, collected by Dr. J. Bequaert and Messrs. Lang and Chapin.

Rev. G. Schwab had before sent quantities of material to Father E. Wasmann, who has recently written much on the guests of the doryline ants, increasing their number from fourteen species in 19001 to an extensive fauna, rich in highly specialized genera and species. Most of the species before me have been described by him. There is in the collection, however, an additional species of the interesting genus Dorylophila and a new variety of Ocyplanus kohli which I venture to describe.

Four specimens (one adult and three larvae) of an aradid bug and the curious Microdon pupae hereafter described were taken with Pheidole megacephala (Fabricius). The other species in the following list are guests of driver ants.

**Coleoptera**

**Paussidae**

**Pleuropterus lujæ** (Wasmann)

*Text Figure 101*

Pleuropterus dohrni WASMANN, 1907, Deutsch. Ent. Zeitschr., p. 152, Pl. I, fig. 3 (♀) (nec fig. 4; nec Ritsema).


Pleuropterus lujæ WASMANN, 1918, Tijdschr. v. Ent., LXI, p. 81.

Belgian Congo: Medje (Lang and Chapin).

The one specimen is without host ant. Originally described from Kondué, Kasai, also without indication of the host.

**Paussus sethiopt** Westwood

*Text Figure 102*

Paussus sethiopt WESTWOOD, 1845, Arcana Ent., II, p. 186, Pl. xiii, fig. 6. BLANCHARD, in Cuvier, Règne Animal, 3d Ed., Ins., Pl. lxi, fig. 8 (before 1845, but without description).

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Belgian Congo: Between Beni and Kasindi (J. Bequaert).

“At Lisasa, a village in the Savannah of the Semliki Valley, about midway between Beni and Kasindi, a great many specimens of this *Pausus* were attracted by lights in the evening (August 12, 1914). When taken between the fingers these beetles would ‘explode’ in the same manner as bombardier-beetles (*Brachinus*, *Pheropsophus*, etc.). They emit at the same time a volatile substance with a strong odor of bromine which stains the skin brown.” (J. Bequaert).

**Staphylinidae**

*Sympolemon anommati*is Wasmann


Cameroon: Akono-Linga (Schwab).

Host: *Dorylus (Anomma) nigricans sjæstedti* Emery.

Three specimens which agree closely with a cotype received from Father Wasmann. The species has been found with various *Dorylus* in the Belgian Congo (Sankuru; St. Gabriel) and Cameroon (Grand Batanga; Yukaduma).

*Mimanomma spectrum* Wasmann


Cameroon: Akono-Linga (Schwab).

Host: *Dorylus (Anomma) nigricans sjæstedti* Emery.
Prof. Wheeler sends me the following notes in regard to this extraordinary dorylophile: "In conversation with Mr. Geo. Schwab I learned that, although he investigated as many as 1000 to 1200 marching armies of Dorylus and Anomma during his sojourn of many years in the Cameroon, he succeeded in finding Mimanomma only on two occasions. The first lot, comprising the types, was sent to Father Wasmann in two vials which led him to cite them erroneously as from two armies (Zool. Anzeiger, XXXIX, 1912, p. 473). The second lot, which Mr. Schwab sent to me, was taken with the same host (Anomma nigricans subspecies sjæstedti) about 60 miles farther inland and 30 miles north of Akono-Linga, August 19, 1916. The beetles walk in the Anomma files but more slowly than the ants. Mr. Schwab says he has never seen the ants either touching or paying the slightest attention to the Mimanomma. The same is true of the other staphylinids which are often very numerous in the processions or bring up the rear after the ants have passed. He states that the dorylophiles are most abundant in August and may be very scarce in the processions during the rainy season. He captured only such beetles as voluntarily and persistently returned to the ant-trail after they had been removed from it.

"Wasmann, in dealing with the eitophiles of the Neotropical and the dorylophiles of the Ethiopian Region, has elaborated hypotheses of mimicry, hypertely, etc., to account for the ant-like appearance of some of these insects. Mimanomma he regards as a case of hypertely—one in which the insect has become an example of greatly and uselessly exaggerated mimicry of its host ('über das Ziel hinausschießende Mimicry'). As it is rather important that such speculations, which are easily excogitated in laboratories and museums, should not be left in undisputed possession of the field of theoretical biology, I advance another hypothesis which seems to me worthy of consideration. It is well known that bivouacking dorylines, and especially the species of Anomma, form great masses, like swarming bees, with their long legs, antennæ and bodies interlaced and enveloping the brood, booty, and guests. Long, slender insects like Mimanomma and even those of Wasmann's 'Trutztypus,' which have the very opposite shape, being short and broadly rounded anteriorly, with rapidly tapering posterior end, would be beautifully adapted for forcing their way through and moving about in the forest of legs, antennæ and bodies of the bivouacking ants, much as both very thin, long, insinuating and small, rotund, pushing people seem to be better adapted for shouldering their way through a crowd than people of average stature. Hence, the peculiarities of form referred by Was-
mann to mimicry, hypertely, etc. may be really direct and useful adaptations to the very peculiar nest environment created by the densely agglomerated bodies of their hosts. I have seen such conditions in ecitophile-containing artificial nests of our North American *Eciton (Acamatus) schmidtii* Emery and *opacitorax* Emery, and have no doubt that future observers will be able to make similar observations on *Anomma* and its guests. Of course, *M. spectrum* is really 'phasmoid,' rather than 'ant-like.'

**Dorylomimus brevicornis** Wasmann


**Host:** *Dorylus (Anomma) nigricans burmeisteri* variety *rubellus* (Savage).

Originally taken from the columns of the same ant at St. Gabriel near Stanleyville. A single specimen before me agrees closely with the description of the type. It is very distinct from a cotype of *D. kohli* Wasmann in having the head shorter and broader and the antennae shorter.

**Dorylaphila rotundicollis** Wasmann


**Host:** *Dorylus (Anomma) nigricans sjæstedti* Emery.

Several specimens in the collection agree closely with Wasmann's description and figure of this species, which was described from specimens taken with *Dorylus wilverthi* Emery in the Congo.

**Dorylaphila schwabi**, new species

Length 2 mm.

Dark reddish brown, antennae yellowish brown; very feebly shining; head, thorax, and elytra finely granulose-punctate and with a dense covering of short hairs; abdomen with fine, silky, semirecumbant hairs which are longest on the margins and apex.

Head broader than long, wider behind than in front, sides in back of eyes feebly convex and rounding into the feebly convex posterior border. Eyes a little more than half as long as sides of head, the surface a little convex. Antennae stout, first joint as long as the second and third together, second and third joints elongate-cylindrical, the third shorter than the second, fourth joint slightly longer than broad, remaining joints transverse, becoming strongly so apically, terminal joint a little longer than the two preceding. Pronotum broader than long, with a strong semicircular impression at the posterior portion and the posterior two-thirds of sides;
middle of posterior border slightly produced and rounded; surface in front of semi-
circular impression convex, with a broad, shallow impression behind middle. Elytra
at base a little broader than prothorax, broader behind than in front, sides and
posterior border nearly straight, sides elevated into blunt margins, surface flat
behind, elevated and feebly convex in front of middle. Abdomen narrow, about as
long as remainder of body, at base a little narrower than the elytra, first five seg-
ments margined at sides.

Cameroon: Efulen to Elat (Schwab).
Host: Dorylus (Anomma) nigricans burmeisteri variety rubellus (Savage).

This is the second species in the genus and differs from D. rotundi-
collis Wasmann in its smaller size, more delicate punctuation, in the
broader and thicker antennal joints, and in not having the posterior
corners of the elytra angulately projecting.

Ænictonia (Anommatonia) anommatophila Wasmann
Ent. Mus. Berlin, IV, p. 31, Pl. n, figs. 2, 2a–b.
Cameroon: Akono-Linga; Mful Aja (Schwab).
Host: Dorylus (Anomma) nigricans sjæstedti Emery.

Ænictonia (Anommatochara) rubella Wasmann
Mus. Berlin, IV, p. 33, Pl. n, figs. 4, 5, and 5a.
Cameroon: Akono-Linga (Schwab).
Host: Dorylus (Anomma) nigricans sjæstedti Emery.

Ocyplanus kohli Wasmann variety niger, new variety
Differing from the typical form (from nest of Dorylus wilverthi
Emery) in color, being black, with the appendages brown and the apical
portions of femora dark brown to black. The difference is constant in a
series of thirty specimens before me, which apparently belong to a
distinct variety.
Cameroon: Mful Aja (Schwab).
Host: Dorylus (Anomma) nigricans sjæstedti Emery.

Demera kohli Wasmann
Cameroon: Metit (Schwab).
Host: Dorylus (Anomma) kohli variety congolensis Santschi.
Several specimens, one of which has been compared with the type,
are in the collection.

Pl. III, fig. 5.
Pygostenus bicolor Wasmann


Cameroon: Batanga (Schwab).

Host: *Dorylus (Anomma) nigricans burmeisteri* variety *rubellus* (Savage).

One specimen.

Pygostenus lujæ Wasmann


Cameroon: Batanga (Schwab).

Host: *Dorylus (Anomma) nigricans burmeisteri* variety *rubellus* (Savage).

Four specimens.

Pygostenus alutaceus Wasmann


Cameroon: Batanga (Schwab).

Host: *Dorylus (Anomma) nigricans burmeisteri* variety *rubellus* (Savage).

The single specimen in the collection runs in Wasmann's key and answers to the short description of this species, which was first taken with *D. wilverthi* Emery in Congo.

Phyllodinarda xenocephala Wasmann


Cameroon: Akono-Linga (Schwab).

Host: *Dorylus (Anomma) nigricans sjæstedti* Emery.

Originally found with the same ant in Cameroon (Grand Batanga; Lolodorf).

**DIPTERA**

**Syrphidae**

**Microdon** species

**Text Figure 103**

Larva. Length 6 to 7.5 mm.

Dark brown, opaque (except stigmal plates), granulose-punctate. Form broadly oval, convex above, concave beneath. Dorsum with a strong median longitudinal ridge extending from the posterior spiracle to anterior end and a series of seven similar transverse ridges which are interrupted at middle; these ridges thickly covered with coarse, conical spines, some of which appear to be composed of elongate flattened hairs; surface between ridges reticulate, the reticula made up of rows of clusters o
3 to 5 crystalline-like particles. Lateral margins with an interrupted, moderately coarse longitudinal ridge beneath which is a series of four fine parallel ridges and a membranous margin. Posterior spiracle elongate, tubercular, dull grayish in color, stigmal plates shining, amber-colored, each divided into four stubby finger-like projections, two above and two below, above with two very large pores.

Congo: Zambi (Lang and Chapin).

Host: *Pheidole megacephala* (Fabricius).

Several specimens.

These pupae are remarkable on account of the pronounced ridges on the upper surface and the structure of their bristles. The latter vary, those at the sides of the ridges being elongate, whitish flat hairs arranged in groups of 2 to 6; the others thick, conical, brown structures, seemingly composed of masses of hairs coalesced. Most of the conical spines are subequal in size but among them are a few much larger than the others. All have at the tips whitish particles which are somewhat glistening and may possibly be exudations.

![Image](image_url)

*Fig. 103. Microdon species: larva living with Pheidole megacephala (Fabricius) at Zambi; from above.*

**HOMOPTERA**

*Coccidae*

The following scale insects were found in the domatia of various ant-plants collected by Lang, Chapin, and Bequaert in the Belgian Congo. They have been identified by Prof. R. Newstead, of the Liverpool School of Tropical Medicine. The three forms first enumerated are apparently still undescribed.

**Pseudococcus c:tri** (Risso) variety *congoensis* Newstead

Taken from myrmecodomatia of *Barteria fistulosa* inhabited by *Pachysima ethiops* (F. Smith) at Medje (Lang and Chapin). Also from domatia of *Cuviera angolensis* inhabited by *Crematogaster africana* subspecies *laurenti* variety *zeta* (Forel) near Stanleyville (Lang and Chapin).
Pseudococcus crassipes Newstead

Taken from myrmecodomatia of Sarcocephalus species inhabited by Crema
togaster africana subspecies winkleri variety fickendeyi (Forel) at Masongo, between Walikale and Lubutu (J. Bequaert).

Lecanion (Saissetia) barteriae Newstead

Taken from hollow stems of Barteria Dewevrei inhabited by Crema
togaster africana variety schumanni (Mayr) at Leopoldville (J. Bequaert).

Stictococcus formicarius Newstead


Larvae of this species were recognized in the pellets taken from the trophothylax of larvae of Pachysima æthiops (F. Smith) living in Barteria fistulosa at Medje (Lang and Chapin). This scale insect was described from specimens found in the hollow stems of Barteria fistulosa and Cuviera angolensis.