

On a Collection of African Coccidae.

Collected by Prof. Dr. L. Schultze in South and South West Africa.

By

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M. Sc., A. L. S., etc.

With Plate III.

This collection is of much interest as, apart from the new species which it contains, it was made in regions which had hitherto been unworked by the student of this remarkable and obscure group of insects. In all it represents eleven different species of which eight are new to science. Of the remarkable subgenus *Selenaspidus* there are two representatives; besides which there are seven other genera, all of which have hitherto been found in various parts of Africa.

Aspidiotus (Chrysomphalus) aurantii MASK. is widely distributed in the tropical and subtropical zones, and is generally a great pest of the various kinds of *Citrus*, as well as other cultivated plants. It has not hitherto been recorded from the South-Western portion of the African continent though it is apparently common in the south. The remaining species are probably precinctive; though they may at any time be carried elsewhere on imported plants.

I tender my thanks to Dr. L. SCHULTZE, as also to the Directors of the Berlin Zoological Museum for giving me the opportunity of investigating this material. At the same time I congratulate Dr. SCHULTZE on the discovery of so many new and interesting forms.

Monophlebus africanus n. sp. (NEWSTEAD).

Female, early adult. Faintly farinose. Ovate, with a faint constriction at the thoracic area; low convex above; sides thick; segmentation marked. Colour (in alcohol) pale dull orange to dull orange crimson; legs and antennae black. A few pale hairs are visible at the margins, under a low power, otherwise the integument appears smooth and glabrous. Under a higher magnification the derm is seen to bear slender hairs, rather widely separated, but these are more numerous and longer on the venter than on the dorsum; between the hairs there are minute circular spinnerets (Pl. III, Figs. 1, 1 a), some of which have a central orifice shaped somewhat like a figure-of-8. Antennae (Pl. III, Figs. 2, 2 a) normally of eleven segments but these organs are given to considerable variation even in examples of the same stage and are also sometimes asymmetrical. Eyes obconical, black. Legs short and stout; anterior tarsi (Pl. III, Fig. 3) with a bilateral row of 3—4 stout simple spines, ventrally; anterior tibiae with 3 (possibly 6) very long spinose hairs on the upper surface. The other legs are similar.

Length 8—10 mm.

Penultimate Stage of female. Of the same form and colour as the adult female. Antennal segments varying in number from 7—9; the apical segment may be either pointed (rare) or broader (frequent) and longer than the preceding one.

Male. Pale orange crimson, in alcohol. Legs, sclerites (dorsal and ventral), and eyes black. Abdominal lobes or tubercles on terminal segment two in number, these are nearly as long again as the width of the preceding segment; each with 3—4 very long stout hairs. Margin of two preceding segments

faintly produced but not distinctly tuberculate; these are also furnished with one or two rather long hairs. Tip of genital armature widely rounded and faintly emarginate; base scarcely wider than the apex, sides parallel. Wings faintly infuscated. Antennae brownish-black and furnished with very long hairs; apical segments wanting.

Length from point of head to tip of the closed wings 2,50 mm.

The anal tubercles of the male, in life, would no doubt be furnished, each with a single long filamentous appendage, but these had entirely disappeared in the alcohol. I assume that there would be three pairs of these filaments present, in life: one long median pair and two short lateral ones.

These insects (the females) give off a pale dull orange stain in alcohol; which permanently stained the white paper labels a dull pale red. It is very rarely that coccids produce such an effect in alcohol and may, therefore, be taken as a very marked character.

In form and colour the female looks like a very small form of *Monophlebus sjöstedti* NEWST.¹⁾ *M. africanus* differs in being much smaller, has a much shorter terminal segment to the antenna, and has simple tarsal spines. The male may also be distinguished by its pale infuscated wings; a character which is apparently unusual in the males of this genus.

Habitat: Rooibank bei Walfischbai, Mai 1905, in den Wurzelgeflechten der *!kquibes*-Pflanze; Steinkopf, August 1904, L. SCHULTZE.

Deutsch-Südwestafrika, Lüderitzbucht, December 1903, L. SCHULTZE.

Kap Cross, L. SCHULTZE.

Lophococcus mirabilis var. *tricornis* n. var. (NEWSTEAD).

Female, adult. Dark castaneous, in alcohol; external surface faintly polished. Form roughly hemispherical with three enormous horn-like projections on the dorsum, arranged transversely in the form of a trident; the middle one, the longest, measures 7 mm from base to tip and is equal to the width of the body at the margin; lateral horns 3,5 mm long, project considerably beyond the sides of the body; all the horns are rather flat at the base but have rounded ends; margin strongly and irregularly crenulated the prominences being bluntly spinose; posterior margin deeply emarginate. Ventral orifice covered with a secretory flap. Derm of venter densely clothed with strong, narrow, lanceolate spines in the mid region between and surrounding the legs; beyond this the spines are few in number and smaller. Spinnerets at the margin of the large ventral orifice packed closely together; these present a large quatrefoil pore. Antennae of 10 segments, the last in length equal to the three preceding ones; all the segments with fine hairs. Legs well developed and stout, resembling those of other *Monophlebid*s. Length at base 7 mm; width 7,50; height from base to tip of middle spine (longest axis) 10 mm; expanse of lateral spines 11 mm.

I am under the impression that this insect will prove, eventually, to be quite distinct from COCKERELL'S *L. mirabilis*²⁾, as the difference in the external form is very marked indeed, *mirabilis* having but one "stout erect spine about 3 mm. long, like a spike on a military helmet" (COCKERELL l. c.). It is true that an additional pair of spines are also present, but the author says that one of these does not amount "to more than a nodule", whereas in the var. *tricornis* the lateral spikes or horns are nearly as long as the central one. Otherwise the two insects agree.

1) Schwedische Akademie der Wissensch., 1908, Fig. A 1—4.

2) The Entomologist, Vol. XXXIV, 1901, p. 248.

The genus *Lophococcus* was established by COCKERELL¹⁾ for the reception of the type *L. mirabilis*, and until now it has remained monospecific. I am under the impression, however, that all the species of *Aspidoproctus* NEWST. will eventually be placed in the genus *Lophococcus* and that the former name will sink as a synonym of the latter. It remains with COCKERELL to decide as to whether his type female possesses a large secretory flap over the large ventral orifice (? marsupium) or not. He makes no reference to this curious structure in his diagnosis (l. c.); though he may possibly have overlooked it. It is present, however, in the var. *tricornis* and it is highly probable that it exists in *mirabilis*.

Habitat: Deutsch-Südwestafrika, Damaraland, Okahandja, L. SCHULTZE. One specimen, a female, only was collected.

Ripersia glandulifera n. sp. (NEWSTEAD).

Female, adult, viviparous. Ovate, tumid; pale pink in alcohol, dorsum with an irregular layer of white mealy secretion, no marginal appendages are visible but these may have been dissolved in the alcohol in which the examples were preserved. Derm thickly studded with spinnerets which are more numerous at the anal extremity; there are two pairs of large eye-like glands ('cicatrices'), one anterior, the other pair posterior. Antennae of 6—7 segments, usually seven; terminal segment the longest; hairs all spinose in character; but there is one large curved spine on the sixth segment and two slightly smaller ones at the apex of the seventh²⁾. Anal lobes quite obsolete, their positions are indicated by 3—4 short spines surrounded by a compact mass of spinnerets; there are similar groups of spines and spinnerets on the two preceding segments. Legs very short; tibia relatively short. Mentum and anal orifice normal.

Length 2—3,50 mm.

Female, second stage (Pl. III, Fig. 4). Very elongate. Antennae of seven segments. Derm with fewer spinnerets than in the adult; but there are distinct marginal groups of spinnerets and short spines on all the segments including also the cephalic and thoracic. Last abdominal segment distinctly lobate, highly chitinised and furnished with spines and spinnerets; the preceding segment similar but the group is smaller. Legs long, stout and hairy.

Larva. Derm spinose and glandular. Anal lobes forming low convex protuberances as in the young female; each of these bear one very long spinose hair and several short stout spines. Antennae of six segments, hairy and with similar spines to those in the adult. Legs normal and very hairy.

In some of its structural details this species resembles *Ripersia filicicola* NEWST.³⁾: but the adult female is easily distinguished by the character of the antennae and the large and closely packed group of spinnerets on the last two segments. Unfortunately one cannot give any further details regarding the external covering of this insect; the probabilities are that it will be found to be quite characteristic, judging by the number and arrangement of the spinnerets.

Habitat: Südwestafrika, Klein-Namaland, Kamaggas, Juni 1904, on *Adiantum* sp., Dr. L. SCHULTZE.

Aspidiotus reticulatus n. sp. (NEWSTEAD).

Puparium of adult female. Form somewhat like a miniature shell of the genus *Cardium*, transversely and coarsely striate, presenting a roughened surface; pellicles lateral; colour purplish red, margin

1) The Entomologist, Vol. XXXIV, 1901, p. 227.

2) Others may also be present in more perfect examples.

3) Ent. Mo. Mag. S. S., Vol. IX, p. 96, fig. 10. Monograph Brit. Coccidae. Ray Soc., Vol. II, 1902, p. 184, pl. 67.

Jenaische Denkschriften. XVII.

3

Schultze, Forschungsreise in Südafrika. V.

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paler: the whole more or less covered with a delicate farinose deposit. Ventral pellicle dense white sometimes stained yellow. Diameter 1,50—1,75 mm.

Female, adult. Widely rounded in front; sides of thoracic area very slightly narrowed posteriorly; pygidium strongly defined; free abdominal segments not well marked. Antennae with 4—5 short stout spines one of which is much larger than the rest. Posterior stigmata without parastigmatic glands; anterior pair with three rather large glands. Pygidium strongly and irregularly reticulated. Anal orifice considerably in front of the middle line. Margin of pygidium (Pl. III, Fig. 5) with three pairs of large lobes, the third pair almost as large as the median; anterior to these are three prominent lobe-like extensions of the body-wall with strongly dentate margins, beyond which there are several angular or tooth-like projections. Basal spine very long, the others gradually shortening toward the hind margin. The distinguishing morphological characters of this interesting coccid are the coarsely and irregularly reticulated pygidium, the large lobe like extensions of the body-wall and the rather striking form of the puparium.

Habitat: Südwestafrika. Klein-Namaland, Steinkopf, August 1904, L. SCHULTZE. Food-plant unknown, but evidently a monocotyledon.

Aspidiotus (Selenaspidus) euphorbiae n. sp. (NEWSTEAD).

Puparium of female. Circular, thick, and opaque; exuviae central or subcentral; larval pellicle golden brown to dark golden yellow, covered with a white secretion, generally; second pellicle red-brown, covered with secretion similar to that of the larva; secretory portion in two equal zones of pale ochreous and white, the latter marginal. Diameter 1,75—2 mm.

Female, adult. With a well-marked thoracic articulation, constriction at sides great. Integument not highly chitinised. Antennae represented by an extremely minute tubercle furnished with a long spinose hair at the base. Stigmata without parastigmatic glands. Pygidium with a clearly defined lingula-shaped body of chitine on the ventral surface, the apex of which points towards the hind margin. Circumgenital glands obsolete. Dorsal pores small, numerous, scattered over the whole of the pygidium. Anal orifice placed a little posterior to the lingula-shaped body. Fringe of pygidium (Pl. III, Fig. 6) with two pairs of large lobes, the third pair obsolete. Squamae broad and digitate, these organs are not, however, very clearly defined.

Length 1,50 mm.

Easily distinguished by the singular tongue-shaped mass of chitine on the pygidium. It is nearly related to *Selenaspidus magnus* LINDGR., but this species has the integument much more highly chitinised, is slightly larger, has a very wide vaginal orifice and the tongue-shaped body is entirely absent.

Habitat: Südafrika bei Riet Tinkas (südlich von Salem am Swakop), Sept. 1903, L. SCHULTZE. Auf *Euphorbia* aff. *virosa* WILLD.

Aspidiotus (Selenaspidus) schultzei n. sp. (NEWSTEAD).

Puparium of female. Circular, smooth and rather thin; pellicles central yellow to yellowish-brown; secretory portion straw-coloured to ochreous white.

Diameter 1,50—2 mm.

Female, adult. Strongly chitinised; thoracic articulation very distinct, constriction at sides deep; abdominal segments clearly defined by broad deep grooves terminating before reaching the margin; there are also several similar grooves on the thoracic region but they are very short and irregular taking the form rather of gland-tracts than true articulations. Pygidium (Pl. III, Fig. 7) with three pairs of lobes;

the second pair similar to the median pair, the third the smallest; all are distinctly striated, longitudinally. Squamae broad and rather coarsely divided. Spines very short. Tubular spinnerets long and slender, some of them reaching almost to the base of the pygidium.

Resembles *Aspidiotus articulatus* MORGAN, but may be readily distinguished by the absence of the long serrated squamae at the margin of the pygidium.

Habitat: Südwestafrika, Klein-Namaland, Kamaggas, L. SCHULTZE. On a succulent plant (R. N.).

Aspidiotus (Chrysomphalus) aurantii (MASKELL).

Habitat: Südwestafrika, Klein-Namaland, Kamaggas, Juli 1904, L. SCHULTZE. „Auf Orangebäumen und Citronenbäumen (*Citrus* spp.)“.

This is a common and widely distributed coccid. It feeds upon a number of different kinds of plants, but it is partial to various species of *Citrus* and *Rosa*, to which it is very destructive.

Chionaspis mytilaspiformis n. sp. (NEWSTEAD).

Puparium of female. Form closely resembling that of the common *Mytilaspis pomorum*, when fixed to the slender stem of its food plant; a few forms are, however, more or less straight, but all are highly convex.

Length 2—2,25 mm.

Female, adult, very elongate, narrowest in front. Antennae with two long, stout, curved spines and a minute central one. Anterior stigmata with 4—5 parastigmatic glands; posterior pair without glands. Abdominal and thoracic segments with large groups of dorsal glands. Pygidium with five groups of circumgenital glands, the anterior group represented generally by a few isolated spinnerets. Formula of three examples:

1		4		7
$\frac{12}{28}$	$\frac{10}{29}$	$\frac{13-11}{30 \quad 30}$	$\frac{10}{26}$	$\frac{8}{23}$

Anal orifice opposite the anterior group of spinnerets.

Margin of pygidium (Pl. III, Fig. 8): median pair of lobes generally well developed, anterior edge irregularly and coarsely serrate; second pair quite rudimentary or sometimes obsolete; third pair absent. Squamae spiniform, long. Spines long, slender. Dorsal glands in large and well marked groups or bands.

I had, at first, thought that this insect might prove to be MASKELL's¹⁾ *C. natalensis*. It certainly bears no resemblance to his extremely poor figure, neither does it agree with his diagnosis. It evidently belongs to the African group and is nearly related to *C. neri* NEWSTEAD. The latter has, however, a much larger second pair of lobes, and the anterior group of circumgenital glands are much more numerous.

Habitat: Südwestafrika, Groß-Namaland, Chamis am Koankip, Sept. 1905, L. SCHULTZE. On *Rhus lancea* L. f.

Chionaspis africana n. sp. (NEWSTEAD).

Puparium of female. Rather elongate, widened posteriorly: secretory portion dense, pure white and faintly but irregularly striated; pellicles yellow.

Length 2 mm.

Female, adult. Ellipsoidal; segmentation in macerated example, very faint. Antennae with one very long apical spine and one minute sub-basal spine. Anterior pair of spiracles with 4—5 parastigmatic

1) Trans. New Zealand Inst., 1895, p. 390.

glands close to the anterior margin of the orifice; posterior pair similar, parastigmatic glands apparently absent. Pygidium large; circumgenital glands in five groups, formula of one example:

$$\begin{array}{cc} & 14 \\ \frac{18}{16} & \frac{19}{18} \end{array}$$

Anal orifice opposite the lower lateral groups of circumgenital glands; position of vaginal orifice doubtful; dorsal glands in two short series, the first the longest, reaching to the distal part of the lower lateral groups of circumgenital glands. Margin of pygidium (Pl. III, Fig. 9) with three pairs of very short lobes of which the second and third¹⁾ are duplex. There are four bilateral spines; but the squamae are either entirely wanting or quite rudimentary and not traceable in the preparations.

Length 1,25 mm.

The distinguishing morphological characters of this insect are the more or less rudimentary lobes and the relatively few dorsal glands.

Habitat: Südwestafrika, Steinkopf (Klein-Namaland), 1904, L. SCHULTZE. The food-plant is not given, but the puparia were attached to the slender stems of a grass-like plant.

Chionaspis subnudata n. sp. (NEWSTEAD).

Puparium of female, broadly pyriform, faintly and irregularly striated transversely; white with a trace of pale slaty grey anteriorly; larval pellicles varying from yellow to dark grey or dark brown.

Length 1,75—2 mm.

Puparium of male white, with a sharply defined median ridge, sides rounded.

Female, adult. Subpyriform, widening considerably in the region of the free abdominal segments; gradually and widely rounded posteriorly; narrowest in front. Rudimentary antennae with one long curved spine and two very short ones. Anterior stigmata with 4 parastigmatic glands; posterior pair without glands. Circumgenital glands in five groups, formula of two examples:

$$\begin{array}{cc} 9 & 8 \\ \frac{14}{14} & \frac{12}{15} \quad \frac{12}{13} \quad \frac{12}{14} \end{array}$$

Anal orifice opposite the lower lateral groups of spinnerets. Fringe of pygidium (Pl. III, Fig. 10) almost denuded of appendages; median lobes very short, broad, with the inner margins touching so that in some examples they appear as if fused. There is a single long spine on either side of the lobes and beyond them one or two smaller ones. Dorsal pores numerous and extending to the margin.

Closely allied to *Chionopsis nudata* NEWST. but easily distinguished from this species by the form and position of the median lobes and also the shape of the adult female.

Habitat: Südwestafrika, Groß-Namaland, Brukkarossberg, August 1905, Dr. L. SCHULTZE. On an unknown plant called *lobarus*.

Fiorinia sp.

The material sent was insufficient for diagnostic purposes. It was taken at Steinkopf, Namaland, and bears the number 714.

The School of Tropical Medicine, the University, Liverpool,

April 23rd 1910.

¹⁾ The third pair are wanting altogether in one example.

Plate III.

- Fig. 1 and 1 a. *Monophlebus africanus* n. sp. Circular spinnerets.
„ 2 and 2 a. *Monophlebus africanus* n. sp. Antennae.
„ 3. *Monophlebus africanus* n. sp. Anterior tarsus.
„ 4. *Ripersia glandulifera* n. sp. Female, second stage.
„ 5. *Aspidiotus reticulatus* n. sp. Pygidium.
„ 6. *Aspidiotus (Sclenaspidus) euphorbiae* n. sp. Pygidium.
„ 7. *Aspidiotus (Selenaspidus) schultzei* n. sp. Pygidium.
„ 8. *Chionaspis mytilaspiformis* n. sp. Pygidium.
„ 9. *Chionaspis africana* n. sp. Pygidium.
„ 10. *Chionaspis subnudata* n. sp. Pygidium.
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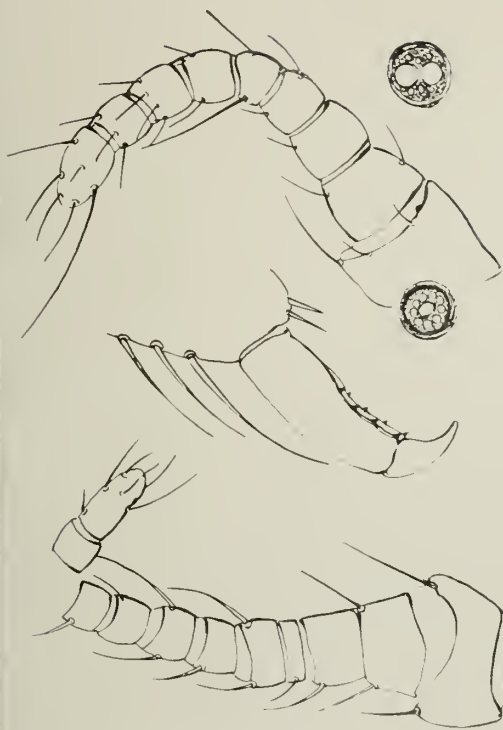


Fig. 1a.

Fig. 2.

Fig. 1.

Fig. 3.

Fig. 2a.



Fig. 5.

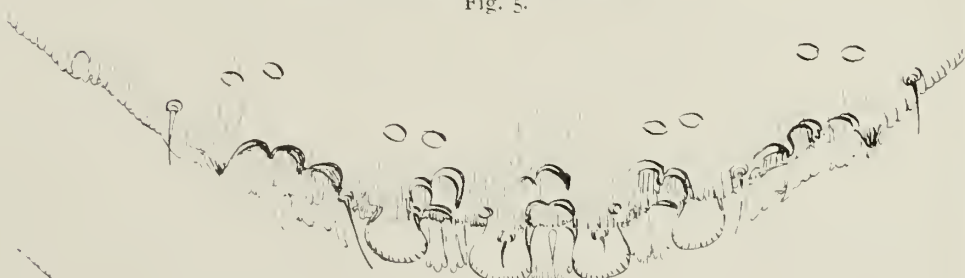


Fig. 6.

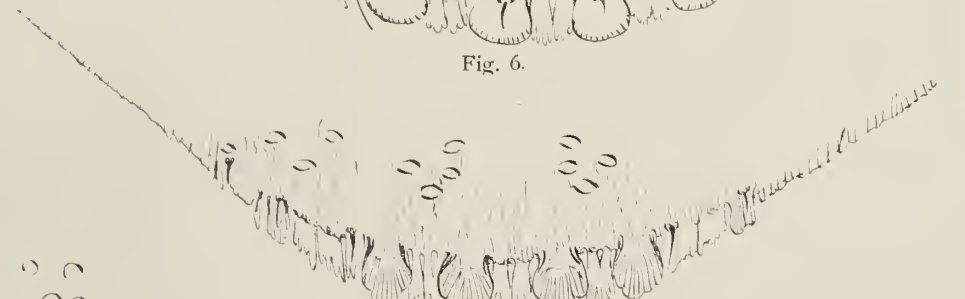


Fig. 7.



Fig. 8.



Fig. 9.



Fig. 10.

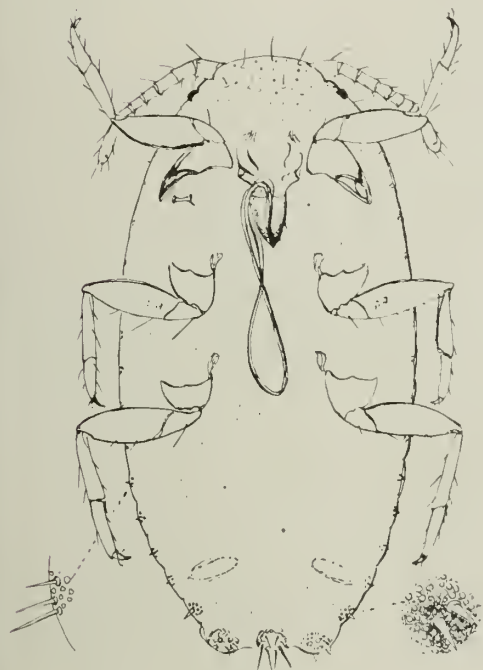


Fig. 4.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Denkschriften der medicinisch-naturwissenschaftlichen Gesellschaft zu Jena](#)

Jahr/Year: 1912

Band/Volume: [17](#)

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