

NEW PSEUDOCOCCIDAE (HOMOPTERA : COCCOIDEA) FROM AFRICA

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THIS paper contains the descriptions of a first batch of thirty new species of Pseudococcidae from Africa south of the Sahara, found during the study of a large amount of material accumulated in the collection of the Scott Agricultural Laboratories, Nairobi. Many more new species are at hand which together with sundry notes on species already known from the area under review will be dealt with in a further paper to be published at a later date.

Many of the species described in the following pages cannot properly be placed in any known genus and their inclusion in the genera *Pseudococcus*, *Trionymus*, etc., has therefore to be understood as an entirely provisional measure pending a revision of the family.

The nomenclature used in the descriptions is that adopted by the late Prof. G. F. Ferris in his magnificent work on the scale insects of North America.

Allococcus aberiae sp. n.

(Plate 20)

External appearance of living adults not recorded. Mounted specimens elongate to rather broadly elliptical in outline; length up to 2.9 mm. Anal lobe cerarii each with two conical spines surrounded by a fairly close group of 30-40 trilocular pores and six to nine auxiliary setae; area besetting the cerarian spines not chitinized. The spines of the remaining cerarii become more slender and longer anteriorly, where they attain the same size and shape of some of the dorsal body setae and often tend to be set widely apart from each other. Each cerarius has two spines except the preocular cerarii (xvii) each of which at times carries one spine only. Two to eight trilocular pores are associated with each cerarius; auxiliary setae absent. Ventral side of each anal lobe with an irregularly shaped, poorly defined, elongate chitinized bar, at times much reduced in size due to the absence of the tract between the apical and subapical setae; occasionally the chitinized bar is missing altogether. Apical seta 220-235 μ long; subapical 60-75 μ .¹ Multilocular disc pores set in five groups on the ventral side of the last

¹ All measurements in microns refer to the length of the structure for which they are given.

abdominal segments as follows: (ix + x) 25–35; (viii) 31–46; (vii) 21–35; (vi) 18–36; (v) 25–36. On the segments anterior to the genital opening they are arranged in linear transverse rows along the distal margin, except on the segment (viii) and—occasionally—on segment (vii) where a few occur near the basal margin. One or two multilocular pores at times occur near the attachment of the front or hind legs. The dorsal tubular ducts with oral rim are few and are arranged in a fairly regular pattern. The marginal series is present singly near each abdominal cerarius anterior to the anal lobes and near each frontal cerarius. Occasionally two ducts occur near each of the penultimate cerarii (ii). Median series extending from the second to the fifth—occasionally seventh—abdominal segments. Ducts of the submedian and submarginal series very irregular in number and arrangement, at times entirely absent. A few ducts are scattered on the dorsal side of the prosoma and along the ventral marginal area of the thorax. Ventral tubular ducts with oral collar crowded on the marginal area of all abdominal segments and, occasionally, on the metathorax; a small group occurs near each of the thirteenth pair of cerarii; a few more are associated with the transverse rows of multilocular disc pores and are scattered on the prosoma. Trilocular pores not numerous and evenly distributed on both surfaces of the body. Circular disc pores on dorsum smaller than the trilocular pores; those on venter about the same size as the latter. Anterior and posterior dorsal ostioles somewhat inconspicuous. Circulus absent. Dorsal setae few and short; ventral ones much longer and more numerous. Legs all well developed but slender; hind tibia with some small translucent pores; dimensions of legs (iii): trochanter plus femur 285–330 μ ; tibia plus tarsus 320–365 μ . Anal ring setae 125–155 μ . Beak 130–155 μ . Antennae with eight joints with a pseudoarticulation on the apical one; total length 420–490 μ .

KENYA. Nairobi: 12.iii.1941, eight mounted adult females collected on *Aberia caffra* Hook f. & Harv. (R. H. Le Pelley)—Coll. No. 1493; Nairobi; 24.ii.1954, eleven mounted adult females from *Aberia caffra* Hook f. & Harv. (G. De Lotto)—Coll. No. 1541.

Other records of the same species on material not included in the type series, are:

KENYA. Nairobi: 5.ix.1954 on *Olea europea* L. (G. De Lotto); Limuru: 10.iii.1937 on *Coffea arabica* L. (A. R. Melville); Molo: 7.ix.1953 on *Pyrus malus* L. (T. H. Jackson); Nairobi: 29.x.1953 on *Acokanthera schimperi* (D. C.) Benth. (G. De Lotto).

TANGANYIKA. Arusha: 19.x.1937 on *Psidium guajava* L. (A. R. Melville).

This species closely resembles *A. quaesitus* (Brain) but differs from it in the number and arrangement of the dorsal tubular ducts with oral rim. In *aberieae* these ducts are few and are set in a median and marginal series; in *quaesitus* they are much more numerous and tend to be arranged in transverse segmental rows.

Allococcus meridionalis sp. n.

(Plate 21)

Living adults not seen. Mounted specimens rather elongate elliptical, up to 2.9 mm. long. Anal lobe cerarii each with two conical spines surrounded by a

loose group of 30–40 trilocular pores and four or five auxiliary setae; area about the cerarian spines not chitinized. Spines of the remaining cerarii attaining the same size but tending to be more slender towards the anterior end. Each preanal cerarius carries two spines, except the preocular (xvii) and occasionally the ocular (xvi) cerarius each of which has three spines. Each cerarius is beset by 4–8 trilocular pores but is devoid of auxiliary setae. Ventral side of each anal lobe with a very small chitinized bar arising from the subapical seta; apical seta 175–180 μ long; subapical one 45–50 μ . Multilocular disc pores arranged in seven groups on the ventral side of the last abdominal segments as follows: (ix + x) 39–44; (viii) 85–100; (vii) 81–109; (vi) 92–99; (v) 94–118; (iv) 9–10; (iii) 6–7. On the segments (viii) to (v) the multilocular pores are mostly arranged in transverse rows along the distal margin and a few are scattered near the basal margin; on segments (iv) and (iii) they are instead crowded in irregular groups near the margin on either side of the body. A few pores occur on the median and submedian ventral areas of the thorax. Dorsal tubular ducts with oral rim few. Marginal series occurring singly near each abdominal cerarius anterior to the anal lobe and between the preocular (xvii) and frontal (xviii) cerarii; ducts of the submarginal, submedian and median series arranged very irregularly. A few ducts are scattered on the thorax, head and along the ventral marginal area of the thorax. Ventral tubular ducts with oral collar crowded on the marginal area of all abdominal segments; a few are grouped near each of the (xiii) pair of cerarii and with the multilocular disc pores. Trilocular pores not numerous and uniformly distributed over the body. Circular disc pores smaller than the trilocular ones, few and scattered on both surfaces of the body. Anterior and posterior dorsal ostioles inconspicuous. Circulus absent. Dorsal setae few, slender and very short; ventral ones much longer. Legs all well developed; hind tibia with a few very small translucent pores; dimensions of legs (iii): trochanter plus femur 285–300 μ ; tibia plus tarsus 305–330 μ . Anal ring setae 120–130 μ . Beak 115 μ . Antennae with eight joints with a pseudoarticulation on the apical one; total length 440–450 μ .

SOUTH AFRICA. Belville: March 1931, three mounted adult females collected on *Geranium* sp. (C. J. Joubert)—Coll. No. 2462.

Very closely allied to *abertiae* De Lotto but differing from it in the number and arrangement of the multilocular disc pores, which in *meridionalis* are numerous and extend laterally to the edges of the abdominal segments. In *abertiae* they are few and restricted to the midregion of the abdomen.

Cataenococcus hypogeus sp. n.

(Plate 22)

Habit of the living adults not recorded. Mounted specimens broadly elliptical to nearly circular in outline; length up to 2.5 mm. Anal lobe cerarii each provided with eight to fifteen conical spines among which are intermingled some trilocular pores. Remaining cerarii of the abdomen and thorax structurally identical to those of the anal lobes; on the head the spines tend to be set in a continuous irregular

series. Ventral side of each anal lobe without chitinized bar; apical seta 185–235 μ . Multilocular disc pores arranged in groups on the last three abdominal segments as follows: (ix + x) 15–38; (viii) 35–59; (vii) 23–47. No multilocular pores occur on the ventral prosoma or on the dorsum. Tubular ducts of oral collar type of two sizes. The larger ones are not numerous and are arranged in small groups on the ventral marginal area of the last three or four abdominal segments anterior to the anal lobes. The smaller ones tend to be crowded all along the ventral marginal area, close to the cerarian spines; a few are scattered on both surfaces of the body. Trilocular pores numerous and evenly distributed. Circular disc pores absent. Anterior and posterior dorsal ostioles inconspicuous, with membranous lips. Circulus transversely elongate. Dorsal setae of the anal segment fairly long, of normal shape; remaining dorsal setae variable in size, all knobbed on one side near the apex, as shown in the accompanying figure. The ventral setae present no distinctive feature; all are slender. Legs well developed, stout, with some minute translucent pores on the hind coxa; claw without denticle; dimensions of legs (iii): trochanter plus femur 255–290 μ ; tibia plus tarsus 200–220 μ . Anal ring entire with six setae measuring 65–80 μ in length. Beak 220–240 μ . Antennae 7- or 8-jointed; in specimens in which the antennae are reduced to seven joints, one joint may be marked by a pseudoarticulation; total length 300–350 μ .

KENYA. Nairobi: 29.x.1953, eleven mounted adult females collected on roots of *Gelonium procerum* Prain (G. De Lotto)—Coll. No. 1513.

The shape of the dorsal setae clearly differentiates this species from all congeneric ones so far known from Africa south of the Sahara.

Cataenococcus jasmini sp. n.

(Plate 23)

Living adults not seen. Mounted specimens broadly elliptical in outline, up to 3.5 mm. long. Anal lobe cerarii each with a group of six to twelve robust conical spines surrounded by many trilocular pores; area about the cerarian spines not chitinized; auxiliary setae missing. All along the margin of the body the cerarian spines are arranged in a continuous, fairly regular series, without interruption. Ventral side of each anal lobe with a prominent, irregularly shaped, elongate chitinized bar enclosing a robust apical seta 140–160 μ , supplemented by some shorter ones. Multilocular disc pores present in small groups on the midregion of the last three abdominal segments as follows: (ix + x) 10–19; (viii) 16–25; (vii) 6–10. No multilocular disc pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts absent. Ventral tubular ducts of oral collar type of two sizes. The large ones are arranged in small groups on the marginal area of the abdomen and thorax and between the antennae; a few are present on the median area of the last three or four abdominal segments anterior to the genital opening. The small ducts are few and scattered without any particular pattern on the median and submedian areas of the abdomen. Trilocular pores numerous. Circular disc pores noticeably smaller than the trilocular pores, not numerous and scattered on

both surfaces of the body. Anterior and posterior dorsal ostioles well developed; in young specimens the lips are slightly chitinized. Circulus large, transversely elongate. Dorsal and ventral setae numerous, rather long. Legs all well developed, stout; hind coxa with some minute translucent pores; dimensions of legs (iii): trochanter plus femur 410–460 μ ; tibia plus tarsus 340–380 μ . Anal ring entire, with six setae 125–145 μ long. Beak 275–315 μ . Antennae with eight joints measuring altogether 505–535 μ .

KENYA. Nairobi: 10.xi.1942, ten mounted adult females collected on *Jasminum* sp. (R. H. Le Pelley)—Coll. No. 236.

This species closely resembles *C. hypogeus* but differs in having a large chitinized bar on the ventral side of the anal lobes; furthermore in *hypogeus* the dorsal setae are knobbed at the apex, while in *jasmini* they are finely pointed, as is usually the case.

Dysmicoccus mollis sp. n.

(Plate 24)

Living adults not seen. Mounted specimens broadly elliptical, nearly circular in outline; length up to 2.9 mm. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each enclosed within a rounded chitinized area and carries two robust conical spines beset by a group of about 50–60 trilocular pores and four to six auxiliary setae. Spines of the remaining cerarii smaller. Normally the spines occur in pairs, except on the metathorax where each of the (xii) cerarii have three spines. The most anterior pairs—(xv) to (xvii)—have three or four, occasionally five, spines. Each cerarius is associated with a small cluster of trilocular pores and two to five slender auxiliary setae. The area about the spines is not chitinized. Ventral side of each anal lobe with an elongate irregularly shaped chitinized bar; apical seta 125–140 μ long; subapical one 40–60 μ . Multilocular disc pores distributed ventrally on the seven ultimate abdominal segments as follows: (ix + x) 32–40; (viii) 54–68; (vii) 68–82; (vi) 61–66; (v) 46–59; (iv) 32–36; (iii) 17–22. On the segments anterior to the genital opening the pores are set in transverse rows along the distal margin and on segments (viii) to (vi) a few occur near the basal margin. No multilocular pores occur on the ventral side of the prosoma or on the dorsum. Dorsal tubular ducts of oral collar type few and sparsely scattered. Ventral tubular ducts also of oral collar type; they are crowded on the marginal area of all abdominal segments and intermingled with the multilocular disc pores; others are scattered on the thorax and head, mostly along the marginal and sub-marginal areas. Trilocular pores fairly numerous and evenly distributed. Circular disc pores noticeably smaller than the trilocular pores, few and scattered on both surfaces of the body. Anterior and posterior dorsal ostioles well developed with membranous lips. Circulus large. Dorsal setae few, rather short and slender; ventral ones more numerous and somewhat longer. Legs all well developed, fairly stout; hind tibia with a few minute translucent pores; dimensions of legs (iii): trochanter plus femur 275–315 μ ; tibia plus tarsus 285–320 μ . Anal ring setae

145–170 μ . Beak 140–155 μ . Antennae with eight joints, measuring together 385–425 μ .

UGANDA. Serere: 12.viii.1954, ten mounted adult females collected on roots of *Arachis hypogea* L. (W. R. Ingram)—Coll. No. 1679.

Closely allied to *D. senegalensis* Balachowsky, from which it departs in having eight segments to the antennae and more numerous multilocular disc pores.

***Eurycoccus glomerulus* sp. n.**

(Plate 25)

Habit of living adults not recorded. Mounted specimens broadly elliptical in outline; length up to 3 mm. Anal lobe cerarii each with two long slender spines set apart from each other, without any grouping of trilocular pores. Area about the cerarian spines not chitinized. Ventral side of each anal lobe without a chitinized bar; apical seta 140–155 μ ; subapical one 80–95 μ . Multilocular disc pores arranged in transverse rows on the ventral side of the last five or six abdominal segments as follows: (ix + x) 39–54; (viii) 53–83; (vii) 45–86; (vi) 41–68; (v) 14–28; (iv) 0–5. No pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts entirely absent. Ventral tubular ducts of oral collar type of two sizes. The larger ducts are set in small groups on the marginal area of the last four or five abdominal segments. The smaller ducts are scattered on the ventral side of all abdominal segments. Trilocular pores not numerous and evenly distributed. Circular disc pores smaller than the trilocular pores and scattered on both surfaces of the body. Anterior and posterior dorsal ostioles inconspicuous with membranous lips. Circulus very small, rounded. Ventral and dorsal body setae few and slender. Legs well developed; hind coxa with some minute translucent pores; dimensions of legs (iii): trochanter plus femur 195–235 μ ; tarsus plus tibia 220–240 μ . Anal ring setae 70–80 μ . Beak 100–115 μ . Antennae with six or seven joints measuring altogether 270–290 μ .

KENYA. Machakos: 4.ii.1956, nine mounted adult females collected on roots of *Setaria sphacelata* Stapf & Hubbard (G. De Lotto)—Coll. No. 1951.

This species comes close to *E. coccineus* (Newstead) from which it differs in having many more multilocular disc pores and by the absence of the chitinized bar on the ventral side of each anal lobe.

***Natalensia nana* sp. n.**

(Plate 26)

Habit of living adults not recorded. Mounted specimens elongate to broadly elliptical in outline; length up to 1.2 mm. Anal lobe cerarii each with three robust setae about 100 μ long, surrounded by a few trilocular pores; area about the cerarian setae not chitinized. Ventral side of each anal lobe provided with a stout apical seta 140–160 μ long; chitinized bar absent. Multilocular disc pores entirely absent; except in one specimen in which one pore occurs just in front of the genital

opening. Dorsal tubular ducts absent. Ventral tubular ducts of oral collar type set along the distal margin of all abdominal segments anterior to the genital opening; a few occur on the last abdominal segment and near the attachment of the hind legs. Trilocular pores few and uniformly distributed. Circular disc pores smaller than the trilocular ones, scattered on either surface of the body. Anterior and posterior dorsal ostioles inconspicuous, with membranous lips. Circulus absent. Dorsal and ventral body setae short and slightly knobbed at the apex; very few in number. Legs well developed but slender; translucent pores entirely missing; claw without denticle; dimensions of legs (iii): trochanter plus femur 140–150 μ ; tibia plus tarsus 150–160 μ . Anal ring entire with a few small cells and with six setae attaining 65–80 μ in length. Beak 95–105 μ . Antennae with six joints, not geniculate; three falcate sensory setae are inserted on the apical joint and one on the preapical one; total length 180–190 μ .

KENYA. Nairobi: 16.xi.1955, three mounted adult females collected on roots of *Themeda triandra* Forsk. (G. De Lotto)—Coll. No. 1901.

Species close to *N. fulleri* Brain from which it differs in having three setae instead of two on the anal lobe cerarii and in having some tubular ducts on the ventral side of the abdomen, which in *fulleri* are entirely absent.

Phenacoccus alienus sp. n.

(Plate 27)

Living adults not seen. Mounted specimens elongate to rather broadly elliptical in outline; length up to 2.5 mm. Marginal cerarii recognizable only on the last three or four abdominal segments. Anal lobe cerarii each built up of two lanceolate spines surrounded by a loose group of trilocular pores and four or five minute auxiliary setae. The spines of the remaining cerarii tend to be progressively smaller and more widely separated from each other, without any grouping of trilocular pores. Auxiliary setae absent. Ventral side of each anal lobe without a chitinized bar; apical seta 145–155 μ ; subapical one 20–30 μ . Multilocular disc pores arranged in transverse segmental rows on the ventral side of the last three or four abdominal segments as follows: (ix + x) 22–33; (viii) 20–59; (vii) 5–29; (vi) 0–13. No multilocular pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts absent. Ventral tubular ducts of the oral collar type few, mostly in association with the multilocular disc pores; a few are scattered all over the venter. Quinquelocular pores absent. Trilocular pores rather few and uniformly distributed. Circular disc pores smaller than the trilocular pores, not numerous and scattered on either surface of the body. Anterior and posterior dorsal ostioles inconspicuous with membranous lips. Circulus absent. Dorsal setae small and slender, ventral ones somewhat longer, in both cases very few. Legs short otherwise normal, with a small denticle on the claw; hind legs without translucent pores; dimensions of legs (iii): trochanter plus femur 175–210 μ ; tibia plus tarsus 210–255 μ . Anal ring setae 75–95 μ . Beak 80–90 μ . Antennae with eight joints, with a well-marked pseudoarticulation on the apical joint; total length 250–270 μ .

SOUTH AFRICA. Middleburg: January 1954, seven mounted adult females collected on roots of grass (E. E. Anderssen)—Coll. No. 1658.

The reduction on the number of marginal cerarii easily distinguishes *P. alienus* from all species referable to the genus *Phenacoccus* so far known from Africa south of the Sahara.

***Phenacoccus trionymoides* sp. n.**

(Plate 28)

Habit of living adults not recorded. Mounted specimens elongate elliptical in outline, up to 2 mm. long. Margin of the body with two pairs of cerarii. Anal lobe cerarii each with two conical spines surrounded by 20–30 trilocular pores and four to six auxiliary setae; area about the cerarian spines not chitinized. Spines of the preanal cerarii slightly smaller with a group of about 12 trilocular pores and two to three slender auxiliary setae. Ventral side of each anal lobe without chitinized bar; apical seta 100–130 μ long; subapical one 35–45 μ . Multilocular disc pores arranged in five groups on the ventral side of the last abdominal segments as follows: (ix + x) 28–39; (viii) 33–57; (vii) 27–49; (vi) 12–28; (v) 4–12. On all segments anterior to the genital opening the pores are set along the distal margin, except on the (viii) segment on which a few are set near the basal margin. One or two pores occasionally occur near the attachment of the middle and hind legs; a few more pores are present on the dorsal midregion of the last abdominal segments. The dorsal tubular ducts of oral rim type have very indistinct rims. These ducts are set in a fairly regular median and marginal series extending respectively from the penultimate and antepenultimate abdominal segments as far as the head. A few ducts are interpolated between these two series. A few more ducts occur on the ventral marginal and submarginal areas of the abdomen and thorax. Tubular ducts of oral collar type of two sizes. The larger ones are very numerous. On either surface of the abdomen and on the dorsal surface of the thorax they are arranged in transverse segmental rows; on both surfaces of the head and on the ventral surface of the thorax they tend to be crowded into small irregular groups. Tubular ducts of smaller size, few in number and distributed on either surface of the body in association with those of the larger size. Quinquelocular pores absent. Trilocular pores few. Circular disc pores much smaller than the trilocular pores, few and scattered over both surfaces of the body. Anterior and posterior dorsal ostioles inconspicuous with membranous lips. Circulus absent. Dorsal setae few and very small; ventral ones also sparse but longer. Legs all well developed; claws with a small denticle; hind tibia with a few translucent pores; dimensions of legs (iii): trochanter plus femur 235–265 μ ; tibia plus tarsus 265–285 μ . Anal ring setae 95–110 μ . Beak 100–110 μ . Antennae 8-jointed with a pseudoarticulation on the apical joint; total length 350–410 μ .

KENYA. Nairobi: 9.xi.1956, thirteen mounted adult females collected on *Caralluma dummeri* (NE. Br.) S. A. Bruce (P. T. O. Bally)—Coll. No. 2099.

This species is assigned to the genus *Phenacoccus* inasmuch as the claws are provided with a tooth. Structurally it appears more closely related to *Trionymus sanguineus* James than to any African species of the "*Phenacoccus* group", although in *sanguineus* the unguinal denticles are entirely absent.

Planococcus crassus sp. n.

(Plate 29)

Living adult females at full maturity highly convex, nearly hemispherical, covered by granulate white wax; lateral and caudal filaments short. Mounted specimens broadly elliptical to nearly circular in outline; length up to 2.9 mm. Anal lobe cerarii each with two conical spines beset by five to seven auxiliary setae and a group of about 40 trilocular pores; area about cerarian spines not chitinized. Remaining cerarii each carrying two spines, except for the last five or six pairs anterior to the anal lobes, each of which have three or four spines, often of different size, at times supplemented by one or two small auxiliary setae. Occasionally three spines occur on each of the most anterior cerarii, namely the (xvi), (xvii) and (xviii). Ventral side of each anal lobe with an elongate chitinized bar; apical seta 260–300 μ ; subapical one 80–110 μ . Multilocular disc pores set in five groups on the ventral side of the last abdominal segments as follows: (ix + x) 18–34; (viii) 25–38; (vii) 27–39; (vi) 16–25; (v) 3–8. On all segments anterior to the genital opening the pores are arranged in transverse rows along the distal margin only. No multilocular pores occur on the ventral side of the prosoma or on the dorsum. Dorsal tubular ducts entirely absent. There are a few ventral tubular ducts with an oral collar, arranged in very small groups on the marginal area of the last three or four abdominal segments anterior to the anal lobes. Three to five of these ducts occur on either side of the (x) abdominal segment; a few more of them are intermingled with the multilocular disc pores. Trilocular pores numerous on either surface of the body. The circular disc pores are of roughly the same size as the trilocular pores, and are arranged in small groups along the dorsal median line of the abdomen anterior to the anal lobe segment; a few are scattered over the dorsum and the venter but in no particular pattern. Dorsal setae fairly long, not numerous; ventral ones longer and more slender. Anterior and posterior dorsal ostioles prominent. Circulus large, transversely elongate. Legs all well developed; hind tibia at times with a few translucent pores; dimensions of legs (iii): trochanter plus femur 280–310 μ ; tibia plus tarsus 270–285 μ . Beak 175–225 μ . Anal ring setae 100–140 μ . Antennae with eight joints, together measuring 415–450 μ in length.

KENYA. Nairobi: 12.xii.1955, ten mounted females collected on *Ficus* sp. (G. De Lotto)—Coll. No. 1944.

This species is very close to *latipes* De Lotto which originally was assigned to the genus *Pseudococcus*. It differs from *latipes* in the absence of multilocular disc pores

on the dorsum and on the ventral side of the prosoma and in the absence of a chitinized area on the anal lobe cerarii.

Planococcus flagellatus sp. n.

(Plate 30)

Living adults not seen. Mounted specimens fairly broadly elliptical in outline, up to 2.5 mm. long. Anal lobe cerarii each with two conical spines beset by a loose group of 20–30 trilocular pores and two or three auxiliary setae; area about the cerarian spines not chitinized. All remaining cerarii have two spines noticeably longer and more slender than those of the anal lobe cerarii, strongly flagellate and beset by 8–12 trilocular pores; auxiliary setae absent. At times one of the abdominal cerarii—usually the (vii)—carries one spine only and in one specimen it was absent altogether on one side of the body. Ventral side of each anal lobe with an elongate chitinized bar; apical seta 230–250 μ long; subapical one 45–75 μ . Multilocular disc pores arranged in seven groups on the ventral side of the abdominal segments as follows: (ix + x) 20–37; (viii) 52–67; (vii) 70–107; (vi) 87–134; (v) 52–95; (iv) 31–50; (iii) 11–20. On all segments anterior to the genital opening these pores are mostly set in transverse rows along the distal margin and some are scattered over the same segments. Six to fourteen pores occur near the attachment of the fore legs; four to twelve pores on the head anterior to the mouth parts. A few more are scattered on the ventral prosoma. No multilocular pores occur on the dorsum. Dorsal tubular ducts normally absent, except in two specimens in which one duct of the oral collar type occurs on the marginal area of one of the preanal segments. Ventral tubular ducts with oral collar all of the same size and set in groups on the marginal area of the last five to seven abdominal segments; others are associated with the transverse rows of multilocular disc pores or are scattered over the prosoma. Trilocular pores not numerous and uniformly distributed on either surfaces of the body. Circular disc pores slightly smaller than the trilocular ones, sparse, scattered on dorsum and venter, but in no particular pattern. Dorsal setae few, fairly robust; ventral ones equally sparse, but longer and more slender. Anterior and posterior dorsal ostioles well developed, with membranous lips. Circulus very small, rounded, set near the distal margin of the (iv) abdominal segment. Legs all well developed; hind coxa and tibia with a few translucent pores; dimensions of legs (iii): trochanter plus femur 260–290 μ ; tibia plus tarsus 275–305 μ . Anal ring setae 115–130 μ . Beak 130–160 μ . Antennae with eight joints, measuring altogether 365–405 μ in length. In one specimen one of the antennae was ill-formed and had seven joints only.

UGANDA. Sebei: 18.ii.1957, seven mounted adult females collected on roots of *Vernonia auriculifera* Hiern. (D. J. McNutt)—Coll. No. 2144.

This species comes close to *P. kraunhiae* (Kuwana) but in *flagellatus* the dorsal tubular ducts are normally absent. The circulus is much smaller and set close to the distal margin of the (iv) abdominal segment, whilst in *kraunhiae* it extends across the intersegmental furrow between the (iv) and (v) segments.

Planococcus formosus sp. n.

(Plate 31)

Habit of living adults not seen. The mounted holotype specimen is a rather old adult female, very broadly, elliptical nearly circular in outline, 1.5 mm. long. Anal lobe cerarii each with two stout conical spines enclosed within a large chitinized area and beset by 11–14 trilocular pores and four or five slender auxiliary setae. Spines of all remaining cerarii slightly smaller, often of different size. Most of the preanal lobe cerarii have two spines, but those on the last three to five abdominal segments and the ocular cerarii (xvi) usually have three or four spines. The number of spines on each cerarius of the holotype specimen is as follows: (i) 2–2; (ii) 3–4; (iii) 3–3; (iv) 2–3; (v) 2–2; (vi) 2–3; (vii) 2–2; (ix) to (xv) 2–2; (xvi) 3–3; (xvii) 2–2; (xviii) 1–2. Each cerarius is surrounded by 2–12 trilocular pores; area about the cerarian spines not chitinized; auxiliary setae absent. Ventral side of each anal lobe with an elongate chitinized bar; apical seta 280 μ ; subapical one 60 μ . Multilocular disc pores very few, set in three groups on the ventral side of the last abdominal segments as follows: (ix + x) 5; (viii) 7; (vii) 4. Dorsal tubular ducts entirely absent. Ventral tubular ducts of oral collar type arranged in groups of one to four on the marginal and submarginal areas of the last four abdominal segments anterior to the anal lobes; a few are scattered on the ventral prosoma. Trilocular pores very few and sparsely distributed on both surfaces of the body. Circular disc pores of two sizes. The larger ones attain the same size as the trilocular pores and are arranged in eight groups along the median line of the dorsum; others are distributed along the dorsal marginal area and on the venter. Circular disc pores of smaller diameter are distributed on both surfaces of the body in no particular pattern. Dorsal and ventral body setae few, short and slender, except a few on the ventral side of the head and abdomen which are somewhat longer. Anterior and posterior dorsal ostioles prominent with moderately chitinized lips. Circulus large, transversely elongate. Legs all well developed, very stout; hind coxa and tibia with a few translucent pores; dimensions of legs (iii): trochanter plus femur 250 μ ; tibia plus tarsus 250 μ . Anal ring setae 90 μ . Beak 90 μ . Antennae with eight joints measuring altogether 360 μ .

UGANDA. Kisinga: 22.vii.1955, one mounted adult female collected on *Coffea arabica* L. (T. J. Crowe)—Coll. No. 1884.

Species very close to *rotundatus* De Lotto from which it differs in having the anal lobe cerarii enclosed within a large chitinized area and some of the marginal cerarii anterior to those on the anal lobes provided with more than two spines.

Planococcus hospitus sp. n.

(Plate 32)

Living adult female not seen. Mounted specimen holotype broadly elliptical, 1.8 mm. long. Anal lobe cerarii each with two robust conical spines surrounded by about 20 trilocular pores and three or four auxiliary setae; area about the

cerarian spines not chitinized. All remaining cerarii with two spines, except the (xvi) pair which on one side is reduced to one spine only. Each cerarius is beset by 8–12 trilocular pores but is devoid of auxiliary setae. Ventral side of each anal lobe with an elongate chitinized bar; apical seta $200\ \mu$ long; subapical one $60\ \mu$. Multilocular disc pores set in four groups on the ventral side of the last abdominal segments as follows: (ix + x) 16; (viii) 23; (vii) 29; (vi) 7. On all segments anterior to the genital opening the multilocular pores are arranged in transverse rows along the distal margin only. No pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts entirely absent. Ventral tubular ducts of oral collar type very few on the midregion of the last four abdominal segments anterior to the genital opening; no tubular ducts occur along the margin of the body. The trilocular pores are not numerous and are evenly distributed. Circular disc pores very large, attaining the same size as the multilocular disc pores. Some of these disc pores are arranged in small irregular groups along the dorsal median line from the preanal segment up to the thorax; many others are scattered on either surface of the body, but in no particular pattern. Anterior and posterior dorsal ostioles well developed, having slightly chitinized lips. Circulus rather small, rounded. Dorsal setae small; ventral ones longer, in both cases few in number. Legs all well developed; translucent pores on hind legs absent; dimensions of legs (iii): trochanter plus femur $220\ \mu$; tibia plus tarsus $200\ \mu$. Anal ring setae $100\ \mu$. Beak $145\ \mu$. Antennae with eight joints measuring together $345\ \mu$ in length.

UGANDA. Kampala: 18.x.1956, one adult female holotype collected on tubers of *Eulophia* sp. (A. G. P. Michelmore)—Coll. No. 2421.

Very close to *rotundatus* De Lotto but differing from it in the absence of tubular ducts on the ventral marginal area of the abdomen and by the size of the circular disc pores which in *rotundatus* are much smaller in diameter. Furthermore in *hospitus* the multilocular disc pores are more numerous.

Planococcus nigrutilus sp. n.

(Plate 33)

Living adults not seen. Mounted specimens broadly elliptical to nearly circular in outline, up to 2.5 mm. long. Anal lobe cerarii each with two robust conical spines surrounded by a loose group of 20–25 trilocular pores and one or two short auxiliary setae; area about cerarian spines not chitinized. All remaining cerarii have two spines of the same size as those of the anal cerarii, beset by 6–12 trilocular pores, without auxiliary setae. One of the thoracic cerarii—usually the (xi)—carries only a single spine. Ventral side of each anal lobe with an elongate chitinized bar; apical seta 220 – $290\ \mu$; subapical one 60 – $90\ \mu$. Multilocular disc pores present ventrally on five or six ultimate abdominal segments as follows: (ix + x) 41–53; (viii) 44–71; (vii) 48–80; (vi) 45–73; (v) 29–41; (iv) 0–3. On all abdominal segments anterior to the genital opening most of the pores are arranged in transverse rows along the distal margin, but a few are scattered over the segment; two to four pores occur on the head anterior to the mouth parts; one to three more pores

occur on the dorsal marginal area between the (xvi) and (xv) pairs of cerarii. No multilocular disc pores are associated with the stigmatic opening or near the attachment of the legs. Dorsal tubular ducts entirely absent. Ventral tubular ducts of oral collar type of two sizes. The larger ones are set in small groups on the ventral marginal area as far as the head. They are absent, however, on the last abdominal segment. The smaller ducts are very sparse and are associated with the transverse segmental rows of multilocular disc pores. Trilocular pores numerous and evenly distributed on both surfaces of the body. The circular disc pores are somewhat larger than the trilocular pores; they are set in five to seven groups on the dorsal side of the thorax and on the first to third abdominal segments along the median line. Other circular pores are scattered on both surfaces of the body. Dorsal setae very small; ventral ones longer and more slender; in either case they are few. Anterior and posterior dorsal ostioles prominent with membranous lips. Circulus rather large, transversely elongate. Legs all well developed, fairly stout; hind coxa and tibia with some translucent pores; dimensions of legs (iii): trochanter plus femur 260–305 μ ; tibia plus tarsus 250–285 μ . Anal ring setae 95–110 μ . Beak 155–175 μ . Antennae with eight joints, measuring together 350–380 μ .

BELGIAN CONGO. Katana: 15.x.1941, fifteen mounted adult females collected on *Pheonix canariensis* L. (F. L. Hendrick)—Coll. No. 1499.

This species is very close to *citri* (Risso) from which it differs in the total absence of tubular ducts on the ventral side of the last abdominal segment; furthermore the body content of *nigritulus* is very dark brown, almost black, while in *citri* it is light pinkish.

Pseudococcus bruguierae sp. n.

(Plate 34)

Living adult not seen. Mounted female holotype elliptical in outline, 2.1 mm. long. Margin of the body with a series of seventeen pairs of cerarii. Anal lobe cerarii each with two conical spines surrounded by a group of 30–40 trilocular pores and four or five auxiliary setae; area about the cerarian spines not chitinized. Each of the remaining cerarii also with two spines, slightly smaller, except for the frontal cerarii (xvii) which both have three spines, and the ocular cerarii (xvi), one of which carries four spines, the other six. Each cerarius is beset by 10–15 trilocular pores and is devoid of auxiliary setae. Ventral side of each anal lobe with an ill-defined slightly chitinized elongate bar; apical seta 225 μ ; subapical one 60 μ . Multilocular disc pores set in six groups on the ventral side of the last abdominal segments as follows: (ix + x) 29; (viii) 53; (vii) 39; (vi) 44; (v) 41; (iv) 14. On the segments anterior to the genital opening all pores are arranged in transverse rows along the distal margin, except on the (viii), (vii) and (vi) segments on which a few pores are scattered along the basal margin. There are very few dorsal ducts of the oral collar type. On one side of the body one duct occurs near the (iv) cerarius and two near the (ix); on the opposite side two ducts are associated with the (ii) and (iii) cerarii. Ventral tubular ducts very numerous

and crowded on the marginal area, forming a nearly continuous band from the last abdominal segment as far as the head. A few ducts, slightly smaller in size, are associated with the multilocular disc pores. Trilocular pores few and uniformly distributed. Circular disc pores noticeably smaller than the trilocular pores, very few. Anterior and posterior dorsal ostioles rather inconspicuous, with membranous lips. Circulus fairly large. Dorsal setae small, few; ventral ones longer and more numerous. Legs all well developed; translucent pores apparently absent; dimensions of legs (iii): trochanter plus femur $285\ \mu$; tibia plus tarsus $260\ \mu$. Beak $95\ \mu$. Anal ring setae $145\ \mu$. Antennae with eight joints, measuring together $410\ \mu$ in length.

KENYA. Mombasa: 30.ix.1957, one mounted adult female holotype collected on *Bruguiera gymnorrhiza* (L.) Lam. (R. H. Le Pelley)—Coll. No. 2234.

This species bears a very close resemblance to *burnerae* Brain, but departs from it in having much more numerous ventral tubular ducts along the marginal area of the body; the multilocular disc pores are also more numerous and are set in six groups instead of five as is the case in *burnerae*; furthermore in the latter the dorsal tubular ducts are much less numerous.

Pseudococcus cryophilus sp. n.

(Plate 35)

Living adults not seen. Mounted specimens elongate elliptical in outline; length up to 3.5 mm. Margin of the body with two pairs of cerarii only. Anal lobe cerarii each with four to eight robust conical spines of different size, among which are intermingled a few trilocular pores and one to three robust auxiliary setae; the spines are surrounded by an ill-defined chitinized area. Preanal cerarii similar to those of the anal lobes but the area about the cerarian spines is not chitinized and the number of spines is reduced to one to four. Ventral side of each anal lobe without a chitinized bar; apical seta 130 – $190\ \mu$ long. Multilocular disc pores scattered on both surfaces of the body. Tubular ducts with oral collar or oral rim entirely absent. They are replaced by small ducts as shown in the accompanying figure. These ducts are very numerous on both surfaces of the body. Trilocular pores very sparse and irregularly scattered on the dorsum and venter. Circular disc pores smaller than the trilocular pores, fairly numerous all over the body. Anterior and posterior dorsal ostioles inconspicuous with membranous lips. Circulus absent. Dorsal and ventral body setae not numerous, rather short and slender. Legs well developed; claws without denticle; hind femur and tibia with some minute translucent pores; dimensions of legs (iii): trochanter plus femur 225 – $260\ \mu$; tibia plus tarsus 235 – $280\ \mu$. Anal ring entire with six setae attaining 150 – $180\ \mu$ in length. Beak 100 – $125\ \mu$. Antennae with seven joints, except in two specimens in which one of the antennae was reduced to six joints; total length of the 7-jointed antennae 260 – $315\ \mu$.

KENYA. Mt. Kenya: 15.i.1951, twenty mounted adult females collected at about 16,000 ft. altitude on *Festuca pilgeri* St. Ives (R. H. Le Pelley)—Coll. No. 1083.

Pseudococcus occiduus sp. n.

(Plate 36)

Habit of living adults not recorded. Mounted specimens rather elongate elliptical, up to 3.2 mm. long. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each with two robust conical spines surrounded by numerous trilocular pores and four or five auxiliary setae; chitinized area large, elongate. Each of the remaining cerarii normally carries two spines, except the (xii), (xv) and (xvii) pairs each of which has three; four or five spines occur on the ocular cerarii (xvi). The spines tend to become progressively smaller anteriorly. Each cerarius is associated with a cluster of trilocular pores, three to five slender auxiliary setae, and is enclosed within a rounded chitinized area. Ventral side of each anal lobe with an irregularly-shaped elongate chitinized bar; apical seta 160–190 μ long; subapical one 90–110 μ . Multilocular disc pores occurring in five groups on the ventral side of the last abdominal segments as follows: (ix + x) 23–59; (viii) 46–102; (vii) 41–97; (vi) 15–36; (v) 5–22. On the segments anterior to the genital opening the pores are arranged along the distal margin, except on the (viii) and—occasionally—on the (vii) segments on which a few are present near the basal margin; two or three pores at times occur on the dorsal side of the preanal abdominal segment. Dorsal tubular ducts of oral rim type small, rather numerous and crowded near each marginal cerarius, except on the anal lobes where they are absent. A few ducts are scattered over the dorsum and along the ventral marginal areas of the head, thorax and first two or three abdominal segments. Ventral tubular ducts with oral collar arranged in groups on the marginal area of all abdominal segments; a few are associated with the multilocular disc pores and are scattered over the prosoma. Trilocular pores not numerous and uniformly distributed. Circular disc pores much smaller than the trilocular pores, very few and scattered on both surfaces of the body. Anterior dorsal ostioles inconspicuous; posterior ones well developed; both having membranous lips. Circulus large, transversally elongate. Dorsal setae fairly long, not numerous; ventral ones much longer and more numerous. Legs all well developed, slender; hind tibia with a few translucent pores; dimensions of legs (iii): trochanter plus femur 460–540 μ ; tarsus plus tibia 505–635 μ . Anal ring setae 170–220 μ . Beak 125–145 μ . Antennae with eight joints, measuring together 610–750 μ in length.

UGANDA. Entebbe: 2.vii.1954, eleven mounted adult females collected on *Coffea robusta* Lind. (W. R. Ingram)—Coll. No. 1677.

Other records of the same species on material not included in the type series, are:

BELGIAN CONGO. Elizabethville: January 1930 on *Coffea* sp. (C. J. Joubert.)

KENYA. Kiambu: 4.vi.1953 on *Coffea arabica* L. (D. J. McCrae); Kisii: 18.ii.1937 on *Coffea arabica* L. (A. R. Melville); Nairobi: 2.ix.1951 on *Acokanthera schimperi* (D. C.) Benth. (G. De Lotto); 19.vi.1937 on *Nerium oleander* L. (A. R. Melville); Ruiru: 31.x.1953 on *Sapium ellipticum* Pax. (G. De Lotto).

TANGANYIKA. Arusha: 29.x.1937 on *Coffea arabica* L. and *Psidium guajava* L. (A. R. Melville).

UGANDA. Toro: 14.iii.1951 on *Coffea arabica* L. (D. J. McCrae).

The large number of small dorsal tubular ducts with oral rim associated with the marginal cerarii clearly distinguishes this species from all others of the genus *Pseudococcus* as recently restricted by Ferris.

***Pseudococcus percrassus* sp. n.**

(Plate 37)

Living adults not seen. Mounted specimens nearly circular in outline; length up to 2.8 mm. Margin of the body with a series of eighteen pairs of cerarii. Anal lobe cerarii each with four or five conical spines surrounded by many stout auxiliary setae and several trilocular pores. All remaining cerarii are similar to those of the anal lobes, except on the thorax and head where the cerarian spines are reduced to two to four. Ventral side of each anal lobe with an irregularly-shaped chitinized bar; apical seta 175–220 μ . Multilocular disc pores set in transverse rows on the ventral side of the last five abdominal segments. The number of pores in the holotype specimen is as follows: (ix + x) 69; (viii) 80; (vii) 134; (vi) 113; (v) 78.¹ On the three segments anterior to the vulvar opening some of the multilocular pores are arranged along the basal margin. No multilocular disc pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts absent. Ventral tubular ducts of oral collar type few; they occur on the penultimate (viii) and antepenultimate (vii) abdominal segments in association with the multilocular disc pores. Trilocular pores very numerous on both surfaces of the body. Circular disc pores rather variable in size, mostly somewhat smaller than the trilocular pores, not numerous and scattered all over the body. Anterior and posterior dorsal ostioles very conspicuous with moderately chitinized lips. Circulus transversely elongate. Dorsal setae short, very numerous; ventral ones slightly longer, slender, also numerous. Legs all well developed, stout; hind coxa with some minute translucent pores; dimensions of legs (iii): trochanter plus femur 410–450 μ ; tibia plus tarsus 350–360 μ . Anal ring setae 115–130 μ . Beak 210–225 μ . Antennae with eight joints measuring together 550–620 μ .

UGANDA. Kampala: 8.xi.1956, two mounted adult females collected on *Cyperus papyrus* L. (F. M. Kasaija)—Coll. No. 2403.

***Pseudococcus pulcherrimus* sp. n.**

(Plate 38)

Living adults not seen. Mounted specimens elongate elliptical in outline; anal lobes prominent; length up to 1.3 mm. Marginal cerarii reduced to six pairs, two of which occur on the last two abdominal segments and four pairs on the head and thorax. The anal lobe cerarii each carries a group of nine to twelve robust conical spines surrounded by a large chitinized area which in part extends to the ventral side of each lobe; among the cerarian spines are intermingled some trilocular

¹ In the paratype specimen the ventral abdominal area was distorted so that the number of multilocular disc pores on the various segments could not be satisfactorily counted.

pores; auxiliary setae entirely absent. All remaining cerarii are structurally identical with those of the anal lobes except that the chitinized area is smaller. The ventral side of each anal lobe has a small apical seta 65–75 μ long and no chitinized bar. On the ventral side of the body the multilocular disc pores are arranged in transverse groups on all abdominal segments. In five specimens the number of pores occurring on each segment was found as follows: (ix + x) 76–114; (viii) 90–136; (vii) 111–134; (vi) 114–163; (v) 88–144; (iv) 86–121; (iii) 37–68. Other multilocular pores are scattered over the head and thorax, mostly along the marginal area of the body. Dorsal tubular ducts small, devoid of oral collar or oral rim. They occur in two compact groups near the margin of the body, one on the mesothorax, the other much larger and elongate in shape, extends from the metathorax to the first three or four abdominal segments. Each group of these ducts is bordered by numerous multilocular disc pores set close to one another in a continuous regular line. The ventral tubular ducts are also devoid of oral rim or oral collar, and partly project from the integument of the body. A single duct occurs on the submedian area of all abdominal segments anterior to the genital opening; a few are scattered over the thorax. Circular disc pores absent. Trilocular pores very few. Dorsal ostioles and circulus absent. Dorsal setae conical or slightly lanceolate in shape. One fairly large lanceolate seta occurs on the submedian area of the three or four abdominal segments anterior to the anal lobes; other setae, smaller in size, are set in pairs or in small groups as shown in the accompanying figure. Ventral setae normal, slender and very few. Legs unusually long and slender; claw without a denticle; translucent pores entirely absent; dimensions of legs (iii): trochanter plus femur 360–410 μ ; tibia plus tarsus 480–550 μ . Anal ring entire with six setae measuring 115–140 μ in length. Beak two-segmented, 80–90 μ long. Antennae of nine long slender joints, measuring together 670–735 μ .

KENYA. Mombasa: 7.xi.1956, eight mounted adult females collected on leaves of *Flacourtia indica* (Burm. f.) Merr. (R. H. Le Pelley)—Coll. No. 2089.

This peculiar mealybug appears to have no relationship to any other known to the writer. Its inclusion in the genus *Pseudococcus* is purely provisional.

Pseudococcus spinulosus sp. n.

(Plate 39)

Living adults not seen. Mounted specimens elliptical, up to 2.1 mm. long. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each with two conical spines surrounded by a group of about 40–50 trilocular pores and four to six auxiliary setae; area about the spines not chitinized.¹ The remaining cerarii have each two spines, except the (x) and the (xv) which are usually reduced to one spine only; the (xii) to (xiv), (xvi) and (xvii) cerarii normally have three spines. The spines are more slender than those of the anal lobes and often are of different size. Each cerarius is beset by a small group of trilocular pores, but without auxiliary setae. Ventral side of each anal lobe without chitinized bar; apical seta

¹ In one specimen one of the anal lobe cerarii was missing.

robust, 240–265 μ ; subapical one 50–65 μ . Multilocular disc pores set in three or four groups on the ventral side of the last abdominal segments as follows: (ix + x) 14–20; (viii) 19–23; (vii) 2; (vi) 0–1. Dorsal tubular ducts with oral rim normally absent, except in one specimen in which on one side of the body one duct is associated with the (vi) cerarius and on the opposite side one duct occurs near the (vii) cerarius. Ventral tubular ducts with oral collar tend to be crowded along the marginal area of all abdominal segments, and are set in transverse rows along the distal margin of the (iv) to (vii) abdominal segments. Trilocular pores fairly numerous and uniformly distributed on either surface of the body. Circular disc pores somewhat smaller than the trilocular pores, numerous and scattered at random all over the body. Anterior and posterior dorsal ostioles well developed, with membranous lips. Circulus absent. Dorsal setae fairly numerous, very robust and long; ventral ones shorter and slender, except for one seta inserted on the marginal area of each abdominal segment anterior to the anal lobes which is as stout as those of the dorsum. Legs well developed; translucent pores absent; dimensions of legs (iii): trochanter plus femur 340–360 μ ; tibia plus tarsus 370–380 μ . Anal ring setae 110–130 μ . Beak 150–160 μ . Antennae with eight joints, measuring together 395–415 μ .

UGANDA. Kampala: 21.xii.1953, three mounted females collected of roots of *Saccharum officinarum* L. (A. G. P. Michelmores)—Coll. No. 1813.

This species comes close to *P. muraliae* Brain, but differs from it in having the multilocular disc pores arranged in three groups instead of five, and in having very long robust dorsal setae; furthermore in *spinulosus* the dorsal tubular ducts with oral rim are normally absent.

Rhizoecus perprocerus sp. n.

(Plate 40)

Living adults not seen. Mounted specimens elongate elliptical, membranous at maturity; length up to 1.7 mm. Anal lobe cerarii each with three setae about 75 μ long, surrounded by a few trilocular pores; area about the cerarian setae not chitinized. Multilocular disc pores rather numerous on the dorsum and venter. Tubular ducts with oral collar small; they are few and scattered on both surfaces of the body. Trilocular pores rather numerous and evenly distributed. Circular disc pores absent. Tritubular ducts fairly large in size; on the dorsum they are arranged in a marginal and median series; on the venter they are set in a submarginal and submedian series on the abdomen only; one or two ducts occur near each stigmatic opening and one is inserted in front of the mouth parts. Anterior and posterior dorsal ostioles small with slightly chitinized lips. Circulus and ventral cephalic plate absent. Dorsal setae small; ventral ones longer and more numerous. Legs well developed, with ungual digitules finely pointed; hind legs without translucent pores; dimensions of legs (iii): trochanter plus femur 145–160 μ ; tibia plus tarsus 155–175 μ . Anal ring set close to the abdominal extremity, entire, with six setae measuring about 60 μ in length. Beak 85–95 μ . Antennae short, stout, geniculate, with six joints measuring altogether 185–205 μ in length; apical joint with two falcate sensory setae; one falcate seta occurs on the preapical joint.

SOUTH AFRICA. Hexriver: July 1930, four mounted adult females collected on roots of an unknown plant (C. J. Joubert)—Coll. No. 2496.

Very close to *R. immsi* James but differs from it by the absence of the circulus and the small chitinized area about the setae of the anal lobe cerarii.

Ripersia speciosa sp. n.

(Plate 41)

Living adults not seen. Mounted specimens rather broadly elliptical in outline, up to 2.3 mm. long. Marginal cerarii recognizable on the last six abdominal segments only. Anal lobe cerarii each with four conical spines of different size, surrounded by a loose group of about 30 trilocular pores and three to four auxiliary setae; area about the cerarian spines not chitinized. Preanal cerarii each with three spines, slightly smaller in size. All remaining cerarii carry two spines which tend to become progressively longer and more slender anteriorly. Each cerarius is beset by a few trilocular pores and is devoid of auxiliary setae. Ventral side of each anal lobe without chitinized bar; the apical setae were all broken off in the specimens at hand; subapical one 45–50 μ long. Multilocular disc pores arranged in two groups on the ventral side of the last abdominal segments as follows: (ix + x) 7–11; (viii) 4–8. Tubular ducts with oral rim set singly or in pairs in a fairly regular series along the dorsal and ventral marginal areas of the body; a few more are scattered in no apparent pattern. Ventral tubular ducts of oral collar type set in loose transverse rows on the last five abdominal segments. Trilocular pores not numerous and uniformly distributed. Circular disc pores large, attaining the same size of the trilocular pores. They are fairly numerous on both surfaces of the body. Anterior and posterior dorsal ostioles inconspicuous with membranous lips. Circulus transversely elongate. Dorsal setae short, few; ventral ones longer and more numerous. Legs all well developed; hind tibia with a group of large translucent pores, having a heavily chitinized thick rim; dimensions of legs (iii): trochanter plus femur 260–270 μ ; tibia plus tarsus 305–315 μ . Anal ring setae 100–110 μ . Beak 125–155 μ . Antennae small, not geniculate, of six joints, which together attain a length of 350–365 μ .

BELGIAN CONGO. Nyatja: October 1941, three mounted adult females collected on roots of *Coreopsis* sp. (F. L. Hendrick)—Coll. No. 1504.

Very closely allied to *R. glandulosa* James but differing from it in having two groups of multilocular disc pores and four and three spines on the anal and preanal cerarii respectively.

Spilococcus commiphorae sp. n.

(Plate 42)

Habit of living adults not recorded. Mounted specimens broadly to very broadly elliptical in outline; length up to 2.8 mm. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each with two robust conical spines surrounded

by a loose group of about a dozen trilocular pores and five to seven auxiliary setae; area about the cerarian spines not chitinized. All the remaining cerarii are provided with two spines, except the frontal (xvii) and ocular (xvi) cerarii which carry three, four or five spines, and the (xv) which occasionally has three spines. The spines are somewhat longer and more slender than those of the anal lobes and are beset by 3–8 trilocular pores; area about the cerarian spines not chitinized; auxiliary setae absent. Ventral side of each anal lobe with a well-marked elongate chitinized bar; apical seta 210–240 μ ; subapical one 80–110 μ . Multilocular disc pores fairly numerous and arranged in transverse rows on the ventral side of the last five abdominal segments. The number of pores occurring on each segment could not be accurately ascertained because on the marginal area of the body the pores near the distal margin are not clearly separated from those set close to the basal margin of the preceding segment. A few more pores are scattered on the marginal area of the thorax and occasionally one or two pores occur on the dorsal side of the abdomen. Tubular ducts with oral rim somewhat variable in size, but always smaller in diameter than the multilocular disc pores. On the dorsal side of the postsoma the ducts are numerous and tend to be set in irregular transverse segmental rows; on the prosoma they are much fewer and are widely scattered. Fairly numerous ducts occur on the venter, mostly along the marginal area. Tubular ducts with oral collar few and scattered on both surfaces of the body. Trilocular pores few and evenly distributed. Circular disc pores slightly smaller than the trilocular pores, few and scattered all over the body. Anterior and posterior dorsal ostioles inconspicuous. Circulus large, transversely elongate. Dorsal setae fairly numerous, stout; ventral ones slender but longer. Legs all well developed without translucent pores on the hind pair; dimensions of legs (iii): trochanter plus femur 320–380 μ ; tibia plus tarsus 360–415 μ . Anal ring setae 140–170 μ . Beak 145–170 μ . Antennae with eight joints, except in two specimens in which one of the antennae was found with seven joints only; the total length of the 8-jointed antennae is 490–630 μ .

SOUTH AFRICA. *Zebedelia*: 6.ii.1957, twelve mounted adult females collected on *Commiphora* sp. (G. De Lotto)—Coll. No. 2186.

Related to *S. perforatus* De Lotto, but easily distinguishable from it in having a complete series of seventeen pairs of marginal cerarii and eight joints to the antennae.

Spilococcus diversus sp. n.

(Plate 43)

Habit of living adults not recorded. Mounted specimens elongate to broadly elliptical in outline; length up to 2 mm. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each provided with two conical spines beset by a group of 30–40 trilocular pores and nine to ten auxiliary setae; area about the cerarian spines not chitinized. The remaining cerarii carry two spines, except on the thorax and head where at times one or two of the cerarii have three—seldom four—spines. Each cerarius is surrounded by a few trilocular pores; auxiliary setae absent.

The spines of the abdominal cerarii tend to become progressively smaller and more slender anteriorly; on the thorax and head they are even more slender but become longer, attaining the same size and shape of some of the dorsal body setae. Sometimes they tend to be widely apart from each other. Ventral side of each anal lobe with a small poorly marked chitinized bar; in one specimen the bar is entirely absent. Apical seta robust, 235–255 μ long; subapical one about 80 μ . Multilocular disc pores set in transverse segmental rows on the ventral side of the last five abdominal segments as follows: (ix + x) 23–33; (viii) 24–31; (vii) 11–19; (vi) 9–14; (v) 6–11. On all segments anterior to the genital opening the pores are arranged along the distal margin, except on the (viii) where a few pores occur near the basal margin. No multilocular pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts with oral rim very variable in number and arrangement; one to three ducts at times occur on the ventral marginal area of the thorax. Ventral tubular ducts with oral collar crowded near the marginal area of all abdominal segments and near each frontal cerarius (xvii). They are also associated with the multilocular disc pores. A few more are scattered on the thorax and head. Trilocular pores numerous on both surfaces of the body. Circular disc pores somewhat smaller than the trilocular ones and distributed on the dorsum and venter without any particular pattern. Anterior and posterior dorsal ostioles well developed with membranous lips. Circulus transversely elongate. Dorsal seta not numerous, rather robust; ventral ones longer and more slender. Legs all well developed; hind tibia with rather numerous minute translucent pores; dimensions of legs (iii): trochanter plus femur 285–345 μ ; tibia plus tarsus 330–385 μ . Beak 125–135 μ long. Anal ring setae 135–145 μ . Antennae with eight joints measuring altogether 370–480 μ .

UGANDA. Kampala: 9.vi.1958, four mounted adult females collected on *Solanum* sp. (G. De Lotto)—Coll. No. 2366.

Other records on material not included in the type series are:

KENYA. Nairobi: 25.ii.1954 on roots of *Leonotis mollissima* Guerke (G. De Lotto).

UGANDA. North Bugisu: 27.ii.1957 on roots of *Dichrocephala integrifolia* D. C. (G. De Lotto).

Very close to *Pseudococcus erigeroni* James but easily separable from it by the presence in *diversus* of the circulus.

Spilococcus kajiadoensis sp. n.

(Plate 44)

Habit of living adult not recorded. Mounted holotype specimen elongate elliptical in outline, 2.5 mm. long. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each with two conical spines surrounded by numerous trilocular pores and eight to ten auxiliary setae; area about the cerarian spines not chitinized. Each of the remaining cerarii is provided with two spines which tend to become progressively smaller and more slender towards the anterior end; each cerarius is

surrounded by a few trilocular pores but is devoid of auxiliary setae. Ventral side of each anal lobe without a chitinized bar; apical seta fairly robust, about $300\ \mu$ long; subapical one $90\ \mu$. Multilocular disc pores set in five groups on the ventral side of the last abdominal segments as follows: (ix plus x) 60; (viii) 79; (vii) 54; (vi) 7; (v) 3. On the segments anterior to the genital opening the pores are arranged in transverse linear rows along the distal margin, except on the (viii) segment where a few occur near the basal margin. No multilocular pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts of oral rim type few. The marginal series occur singly near each abdominal cerarius anterior to the anal lobes and near each frontal (xvii) cerarius; the median series extends from the (viii) to (vi) abdominal segments. The submedian and submarginal series are present only on the first abdominal segments as shown in the accompanying figure. A few more ducts are scattered on the dorsal prosoma and on the ventral marginal area of the thorax. Ventral tubular ducts with oral collar crowded on the marginal area of all abdominal segments and extending in irregular transverse rows in association with the multilocular disc pores; a small group of ducts occurs on the head, close to each of the frontal cerarii (xvii). Trilocular pores fairly numerous and evenly distributed. Circular disc pores somewhat smaller than the trilocular ones, sparsely scattered on both surfaces of the body. Anterior dorsal ostioles inconspicuous; posterior ones fairly well developed; in both instances their lips are membranous. Circulus large, transversely elongate. Dorsal setae fairly long and slender; ventral ones slightly longer but somewhat stouter. Legs all well developed; hind tibia with many minute translucent pores; dimensions of legs (iii): trochanter plus femur $560\ \mu$; tibia plus tarsus $660\ \mu$. Anal ring setae $200\ \mu$. Beak $175\ \mu$. Antennae with eight joints, measuring together $715\ \mu$ in length.

KENYA. Kajiado: 30.vi.1957, one mounted adult female collected on *Croton* sp. (G. De Lotto)—Coll. No. 2204.

Other records are:

KENYA. Kiambu: 20.x.1929 on *Datura* sp. (R. H. Le Pelley). These specimens are in too poor a condition for their inclusion in the type series.

Resembling *Pseudococcus burnerae* Brain from which it differs in having much more numerous multilocular disc pores and dorsal tubular ducts with oral rim, and in the absence of a chitinized bar on the ventral side of the anal lobes.

Spilococcus limuricus sp. n.

(Plate 45)

Living adult not seen. Mounted specimen holotype rather elongate elliptical, 2.4 mm. long. Margin of the body with seventeen pairs of cerarii. Anal lobe cerarii each built up with two conical spines beset by several trilocular pores and about a dozen auxiliary setae; area about the cerarian spines not chitinized. The spines of all remaining cerarii are missing; from the number of the spine sockets it seems that each of the abdominal cerarii is formed with two spines, while on the

thorax and head some of the cerarii are built up with three—seldom four—spines. On one side the (x) and (xi) cerarii are not recognizable. Each cerarius is surrounded by a group of about a dozen of trilocular pores, but devoid of auxiliary setae. Ventral side of each anal lobe without a chitinized bar; apical seta of both anal lobes broken away; subapical one $125\ \mu$ long. Multilocular disc pores arranged in transverse groups on the ventral side of the last three abdominal segments as follows: (ix + x) 46; (viii) 52; (vii) 32. Dorsal tubular ducts of oral rim type, few. Marginal series almost continuous from the penultimate abdominal segment as far as the frontal cerarius, except those near the (xi), (xii), (xiv) and (xv) cerarii which are missing; submarginal, submedian and median series arranged rather irregularly as shown in the accompanying figure. A few ducts are scattered on the dorsal prosoma and on the ventral marginal area of the thorax. Ventral tubular ducts of oral collar type crowded on the marginal area of all abdominal segments; a few more occur on the midregion of the last four abdominal segments anterior to the genital opening. Trilocular pores rather numerous and uniformly distributed. Circular disc pores noticeably smaller than the trilocular pores, they are not numerous and are scattered on both surfaces of the body. Anterior and posterior dorsal ostioles well developed with membranous lips. Circulus transversely elongate. Dorsal setae slender; ventral ones longer and rather robust. Legs prominent; hind tibia with a group of unusually large translucent pores which attain the same diameter or are slightly larger than the trilocular pores and are provided with a thick heavily chitinized rim; dimensions of legs (iii): trochanter plus femur $590\ \mu$; tibia plus tarsus $725\ \mu$. Anal ring setae $180\ \mu$. Beak $200\ \mu$. Antennae with eight joints measuring altogether $790\ \mu$.

KENYA. Limuru: II.iii.1937, one mounted adult female collected on *Coffea arabica* L. (A. R. Melville)—Coll. No. 135.

This species bears a very close resemblance to *S. kajiadoensis* but departs from it in having the multilocular disc pores arranged in three groups instead of five as is the case of *kajiadoensis*; in *limuricus* the translucent pores on the hind tibia are very large, while in *kajiadoensis* they are minute and without chitinized rims.

Spilococcus pusillus sp. n.

(Plate 46)

Habit of living adults not recorded. Mounted specimens elongate to very broadly oval in outline; length up to 3.5 mm. Margin of the body with only ten pairs of cerarii, extending forwards from the anal lobes to the eleventh pair; the tenth pair being absent. Each of the anal lobe cerarii carries two conical spines surrounded by 35–45 trilocular pores and three or four auxiliary setae; area about the cerarian spines not chitinized. Each preanal cerarius bears two spines which become progressively smaller and more slender anteriorly and are beset by a few trilocular pores; auxiliary setae absent. Ventral side of each anal lobe without chitinized bar; apical seta robust 175 – $205\ \mu$; subapical one 60 – $70\ \mu$. Multilocular disc pores set in transverse groups on the ventral side of the last seven abdominal

segments as follows: (ix + x) 25–51; (viii) 34–64; (vii) 30–63; (vi) 39–67; (v) 25–54; (iv) 9–17; (iii) 6–13. On all segments anterior to the genital opening the pores are mostly crowded near the distal margin and a few occur close to the basal one. A few multilocular pores are scattered on the ventral median and submedian areas of the thorax. Dorsal tubular ducts of the oral rim type tend to be arranged in a median and submarginal series on the abdomen and thorax; a few are scattered on the head and on the ventral marginal area of the thorax. The number and arrangement of these ducts is very variable, and in some specimens not included in the type series they are occasionally entirely absent. Ventral tubular ducts with oral collar rather numerous and crowded on the marginal area of all abdominal segments and in association with the multilocular disc pores. A few are scattered on the thorax and head. Trilocular pores numerous on either surface of the body. Circular disc pores variable in size, the largest attaining the same size of the trilocular pores; they are distributed on both surfaces of the body. Anterior and posterior dorsal ostioles well developed with membranous lips. Circulus transversely elongate. Dorsal setae not numerous, rather short and robust; ventral ones longer and more slender. Legs all well developed with a few minute translucent pores on the hind tibia; dimensions of legs (iii): trochanter plus femur 255–305 μ ; tibia plus tarsus 285–320 μ . Beak 135–155 μ . Anal ring setae 95–125 μ . Antennae with eight joints measuring altogether 350–400 μ in length.

KENYA. Nairobi: 6.viii.1959, seven mounted adult females collected on roots of *Bidens pilosa* L. (G. De Lotto)—Coll. No. 2479.

Other records on specimens not included in the type series are:

KENYA. Kakusi: March 1930 on roots of *Indigofera* sp. (T. W. Kirkpatrick); Nairobi: November 1940 on roots of *Solanum tuberosum* L. (R. H. Le Pelley); Nyeri: 4.iv.1951 on roots of *Ipomoea batatas* Poir (G. M. Lavers).

Closely related to *diversus* De Lotto but differing from it in having a reduced number of marginal cerarii and a larger number of multilocular disc pores.

Trionymus longipilosus sp. n.

(Plate 47)

Living adults not seen. Mounted specimens very broadly elliptical to nearly circular in outline; length up to 2.5 mm. Cerarii confined to a single pair on the anal lobes, each of which is formed with two conical spines surrounded by 10–12 trilocular pores and two to three auxiliary setae; area about the cerarian spines not chitinized. Ventral side of each anal lobe with an elongate chitinized bar; apical seta 255–315 μ long; subapical one 100–115 μ . Multilocular disc pores arranged in transverse rows on the ventral side of the last five abdominal segments as follows: (ix + x) 15–27; (viii) 16–25; (vii) 22–29; (vi) 19–27; (v) 9–16. No multilocular disc pores occur on the ventral prosoma or on the dorsum. Dorsal tubular ducts absent. Ventral tubular ducts with oral collar crowded all along the marginal area of the body and tending to become progressively fewer anteriorly; a few ducts are associated with the multilocular disc pores and scattered on the thorax

and head. Trilocular pores not numerous and evenly distributed. Circular disc pores somewhat smaller than the trilocular pores, scattered on dorsum and venter. Anterior and posterior dorsal ostioles fairly prominent, with membranous lips. Circulus irregularly shaped, sometimes transversely elongate, sometimes rounded. Dorsal setae fairly numerous, very long and robust. From the penultimate abdominal segment as far as the head, pairs of robust very long setae are inserted along the margin of the body. The ventral setae are more slender and much shorter, not numerous. Legs all well developed, but rather short and stout; claw without denticle; translucent pores on hind legs entirely missing; dimensions of legs (iii): trochanter plus femur 255–285 μ ; tibia plus tarsus 255–275 μ . Anal ring entire with six setae measuring 125–160 μ . Beak 110–115 μ . Antennae constantly 8-jointed, measuring altogether 395–445 μ in length.

KENYA. Mombasa: 12–13.viii.1937, twenty-two mounted adult females collected on *Annona* sp. (A. R. Melville)—Coll. Nos. 139 and 141.

Other records are:

KENYA. Mombasa: 5.xi.1956 on *Peliostigma thonningii* (Schum.) H. Redhead (R. H. Le Pelley).

Trionymus pygmaeus sp. n.

(Plate 48)

Habit of living adults not recorded. Mounted specimens broadly to very broadly elliptical in outline; length up to 1.5 mm. Margin of the body with five—occasionally six—pairs of cerarii occurring on the last abdominal segments. Anal lobe cerarii each built up with two conical spines beset by 15–25 trilocular pores and two to four auxiliary setae; area about the spines not chitinized. Spines of the remaining cerarii tend to be more slender and on the most anterior pair they are at times set somewhat apart from each other; the spines are beset by a few trilocular pores, but the auxiliary setae are missing. Ventral side of each anal lobe without a chitinized bar; apical seta 205–225 μ ; subapical one 60–70 μ . Multilocular disc pores arranged in four groups on the ventral side of the last abdominal segments as follows: (ix + x) 34–39; (viii) 43–58; (vii) 26–43; (vi) 6–11. Dorsal tubular ducts entirely absent. Ventral tubular ducts of oral collar type not numerous and crowded on the marginal area of the last three or four abdominal segments; a few ducts are associated with the multilocular disc pores. Trilocular pores fairly numerous and uniformly distributed. Circular disc pores noticeably smaller than the trilocular pores, few in number. Anterior and posterior dorsal ostioles inconspicuous, with membranous lips. Circulus absent. Dorsal setae fairly robust; ventral ones slender and somewhat longer. Legs all well developed without translucent pores; dimensions of legs (iii): trochanter plus femur 205–220 μ ; tibia plus tarsus 220–235 μ . Anal ring setae 95–105 μ . Beak 135–145 μ long. Antennae with seven joints, except in one specimen in which one antenna has five, and the other six, joints; the total length of 7-jointed antennae is 285–315 μ .

KENYA. Nairobi: 16.xii.1955 and 31.v.1956, three mounted adult females

236 NEW PSEUDOCOCCIDAE (HOMOPTERA : COCCOIDEA) FROM AFRICA
collected on roots of *Themeda triandra* Forsk. (G. De Lotto)—Coll. Nos. 1900 and 2030.

Close to *Ripersia hypoestis* James from which it differs by the absence of the circulus and in having a larger number of multilocular disc pores.

Trionymus viator sp. n.

(Plate 49)

Living adult not seen. Outline of the holotype specimen elongate elliptical, 1.9 mm. long. Margin of the body with two pairs of cerarii only. Anal lobe cerarii each with two robust conical spines surrounded by seven to eight auxiliary setae and a loose group of about 50 trilocular pores; area about the cerarian spines not chitinized. Preanal cerarii similar to those of the anal lobes but devoid of auxiliary setae. Ventral side of each anal lobe without a chitinized bar; apical seta 160 μ long; subapical one 30 μ . Multilocular disc pores arranged in four groups on the ventral side of the last abdominal segments as follows: (ix + x) 33; (viii) 61; (vii) 39; (vi) 7. Two or three more multilocular pores occur on the dorsal side of the penultimate and antepenultimate abdominal segments. Dorsal tubular ducts with oral rim distributed in a marginal and median series from the penultimate abdominal segment as far as the head. On the head, thorax and first abdominal segments some ducts are interspersed between the two series. A few more occur on the ventral marginal areas of the thorax and abdomen. Tubular ducts with oral collar of three different sizes. The largest ones are very numerous and are crowded on the ventral marginal area of the abdomen, extending in transverse irregular rows on the (iv) to (vii) abdominal segments; small groups of pores also occur on the ventral marginal area of the thorax and head. On the dorsal surface a large number of ducts are arranged in groupings on the thorax as shown in the accompanying figure. The ducts of median size are distributed over the ventral midregion of the abdomen; a few occur on the dorsal side of the penultimate and antepenultimate abdominal segments. The smallest ducts are few and are intermingled with the largest ones on the marginal area of the abdomen. Trilocular pores fairly numerous and evenly distributed. Circular disc pores much smaller than the trilocular ones, few and scattered on both surfaces of the body. Anterior and posterior dorsal ostioles well developed, with membranous lips. Circulus absent. Dorsal setae few, small; ventral ones more numerous, somewhat longer. Legs all well developed; hind tibia with a grouping of small translucent pores; dimensions of legs (iii): trochanter plus femur 335 μ ; tibia plus tarsus 365 μ . Anal ring setae 125 μ . Beak 145 μ long. Antennae with eight joints with a pseudoarticulation on the apical one; total length 480 μ .

KENYA. Nairobi: 22.iii.1941, one adult mounted female intercepted from South Africa on *Pyrus malus* L. (R. H. Le Pelley)—Coll. No. 1494.

This species is closely allied to *T. lounsburyi* (Brain) but differs from it in the presence of large groupings of tubular ducts with oral collar on the dorsal side of the thorax.

The holotype and paratype specimens used for the description of the new Pseudococcidae dealt with in this paper have been deposited as follows :

	Type series	B.M.*	U.S.A.	S.A.	E.S.	S.A.L.
<i>Allococcus aberiae</i>	19	8	4	—	—	7
<i>A. meridionalis</i>	3	1	—	—	1	1
<i>Cataenococcus hypogeus</i>	11	5	3	—	—	3
<i>C. jasmini</i>	10	4	2	—	—	4
<i>Dysmicoccus mollis</i>	10	4	2	—	—	4
<i>Eurycoccus glomerulus</i>	9	4	2	—	—	3
<i>Natalensia nana</i>	3	1	1	—	—	1
<i>Phenacoccus alienus</i>	7	2	1	2	—	2
<i>P. trionymoides</i>	13	6	3	—	—	4
<i>Planococcus crassus</i>	10	4	2	—	—	4
<i>P. flagellatus</i>	7	3	1	—	—	3
<i>P. formosus</i>	1	1	—	—	—	—
<i>P. hospitus</i>	1	1	—	—	—	—
<i>P. nigrutilus</i>	15	6	3	—	—	6
<i>Pseudococcus bruguierae</i>	1	1	—	—	—	—
<i>P. cryophilus</i>	22	10	5	—	—	7
<i>P. occiduus</i>	11	4	2	—	—	5
<i>P. percrassus</i>	2	1	—	—	—	1
<i>P. pulcherrimus</i>	8	3	2	—	—	3
<i>P. spinulosus</i>	3	1	1	—	—	1
<i>Rhizoecus perprocerus</i>	4	1	1	—	1	1
<i>Ripersia speciosa</i>	3	2	—	—	—	1
<i>Spilococcus commiphorae</i>	12	4	2	2	—	4
<i>S. diversus</i>	4	2	1	—	—	1
<i>S. kajiadoensis</i>	1	1	—	—	—	—
<i>S. limuricus</i>	1	1	—	—	—	—
<i>S. pusillus</i>	7	3	1	—	—	3
<i>Trionymus longipilosus</i>	22	10	5	—	—	7
<i>T. pygmaeus</i>	3	1	1	—	—	1
<i>T. viator</i>	1	1	—	—	—	—

* B.M. = British Museum (Natural History), London. Inclusive of holotype.

U.S.A. = U.S. National Collection of Coccidae, Washington, D.C.

S.A. = South African National Collection of Insects, Pretoria.

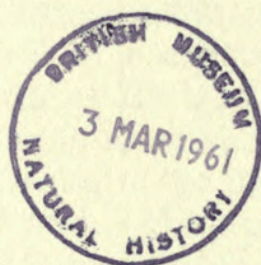
E.S. = Elsenburg-Stellenbosch Agricultural College, Stellenbosch, South Africa.

S.A.L. = Scott Agricultural Laboratories, Nairobi, Kenya.

REFERENCES

- BALACHOWSKY, A. S. (1953). Sur un *Dysmicoccus* nouveau (Hom. Coccoidea-Pseudococcini) nuisible au *Casuarina* en A.O.F. *Bull. Inst. franç. Afr. noire*, **15** : 1046-1050.
- DE LOTTO, G. (1954). Three apparently new mealy bugs from Kenya. *Proc. R. ent. Soc. Lond. (B)* **23** : 110-114.
- (1955). Three new Coccids (Homopt. : Coccoidea) attacking coffee in East Africa. *Bull. ent. Res.* **46** : 267-273.
- (1957). The Pseudococcidae (Hom. : Coccoidea) described by H. C. James from East Africa. *Bull. Brit. Mus. (Nat. Hist.) Ent.* **5** : 185-232.
- (1958). The Pseudococcidae (Hom. : Coccoidea) described by C. K. Brain from South Africa. *Ibid.* **7** : 79-120.

- EZZAT, Y. M. & McCONNELL, H. S. (1956). A classification of the mealybug tribe Planococcini (Pseudococcidae, Homoptera). *Univ. Maryland Agric. exp. Sta., Bull.* A-84.
- FERRIS, G. F. (1950). *Atlas of the Scale Insects of North America*, 5. Stanford Univ. Press.
- (1953). *Ibid.* 6. Stanford Univ. Press.
- (1955). On some genera of the Pseudococcidae. *Microentomology*, 20 : 1-19.
- WILLIAMS, D. J. (1958). The mealy-bugs (Pseudococcidae : Homoptera) described by W. M. Maskell, R. Newstead, T. D. A. Cockerell and E. E. Green from the Ethiopian Region. *Bull. Brit. Mus. (Nat. Hist.) Ent.* 6 : 205-236.
- (1958). The mealy-bugs (Pseudococcidae : Homoptera) described by W. J. Hall, F. Laing and A. H. Strickland from the Ethiopian Region. *Ibid.* 7 : 1-37.





De Lotto, Giovanni. 1961. "New Pseudococcidae (Homoptera: Coccoidea) from Africa." *Bulletin of the British Museum (Natural History) Entomology* 10, 211–238.
<https://doi.org/10.5962/bhl.part.16262>.

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