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CONTRIBUTIONS IN SCIENCE

NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

THREE NEW SPECIES OF THE PALAEOTROPICAL ARBOREAL
ANT GENUS *CATAULACUS*
(Hymenoptera: Formicidae)

By ROY R. SNELLING



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Editor

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THREE NEW SPECIES OF THE PALAEOBOTROPICAL ARBOREAL ANT GENUS *CATAULACUS* (Hymenoptera: Formicidae)

By Roy R. Snelling²

ABSTRACT: Three new species of ants in the genus *Cataulacus* are described and illustrated: *boltoni* (NIGERIA), *mckeyi* (CAMEROUN) and *pompom* (MALAYA). Each is compared with previously described, related, species.

The Old World arboreal ant genus *Cataulacus* was revised by Bolton (1974). Since then several undescribed species have been discovered. The first of these was sent to me by Mr. Doyle McKey who has conducted some studies on its ecology. Two additional species were sent by Bolton for inclusion in this paper.

The descriptions which follow are patterned closely after those developed by Bolton in his revision. One terminological difference should be noted: I prefer to use *mesosoma* rather than *alitrunk*. The latter is descriptively inappropriate in discussing the wingless thorax of worker ants. Although the *mesosoma* of higher Hymenoptera actually consists of the true *mesosoma* + the first abdominal segment (i.e., the propodeum) use of the broad term seems not to have generated any confusion. In the descriptions the abbreviation WL (Weber's Length) is used rather than AL (Alitrunk Length).

Special note must be made of the cephalic and mesosomal hairs. In the descriptions I have described the appearance of the hairs in terms similar to those used by Bolton. The terminology applies to these hairs as they appear under an ordinary dissecting microscope. When studied with a scanning electron microscope (SEM), the hairs are truly bizarre (Figs. 4, 5, 11, 21, 22, 23, 26). This seems the most rational manner of dealing with these hairs, for access to a SEM is by no means universal and to describe the hairs as they are would only confuse matters.

Cataulacus boltoni NEW SPECIES

Figures 1-8

DIAGNOSIS: *Worker*: Dorsal cephalic hairs clavate to subspatulate; propodeal rugae transverse; sides of pronotum not marginate.

DESCRIPTION: *Holotype Worker*. TL 2.74; HL 0.76; HW 0.72; CI 95; EL 0.38; OI 53; IOD 0.53; SL 0.37; SI 52; PW 0.50; WL 0.78; MTL 0.28.

Occipital crest absent; occipital margin raised, with low, blunt denticles, one on occipital corner and one mesad of it, several located behind eye. Preocular denticle small, separated from eye by a small gap. Pronotum not marginate laterally, humeral angle dentiform; side with minute denticle at about midlength and a

larger one at promesonotal junction. Mesonotum and propodeum not marginate, with a couple of widely spaced, minute denticles on each side; propodeal spines short and bluntly rounded apically. Promesonotal and mesometanotal grooves absent on dorsum. Sides of propodeum, in dorsal view, distinctly convergent posteriorly, those of mesonotum straight, more strongly convergent and separated from propodeum by a narrow V-shaped notch. First gastric tergum not marginate at sides.

Dorsum of head moderately shiny, finely rugoreticulate, the interspaces finely and densely reticulate-punctate, the punctures shallow. Mesosomal dorsum less shiny, with irregular close-set, longitudinally oriented rugulae, strongest at sides, those on posterior part of mesonotum and base of propodeum sharp, transverse; interspaces densely reticulate-punctate. Dorsal surface of petiole and postpetiole sharply longitudinally rugose. First gastric tergum finely and densely reticulate-punctate throughout, no longitudinal rugulae at base.

Hairs on clypeus and cephalic dorsum bizarre, stout and short to medium, clavate to subspatulate. Hairs on meso- and metasoma numerous, stout and medium length on dorsum and sides, slender on venter.

TYPE MATERIAL: *Holotype worker*, NIGERIA: Gambari, 24 May 1975 (B. Taylor), in British Museum (Natural History).

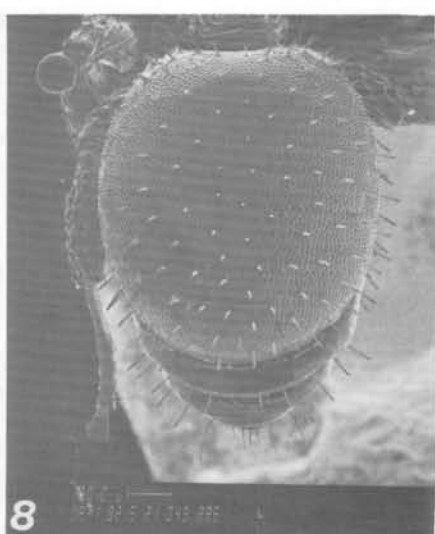
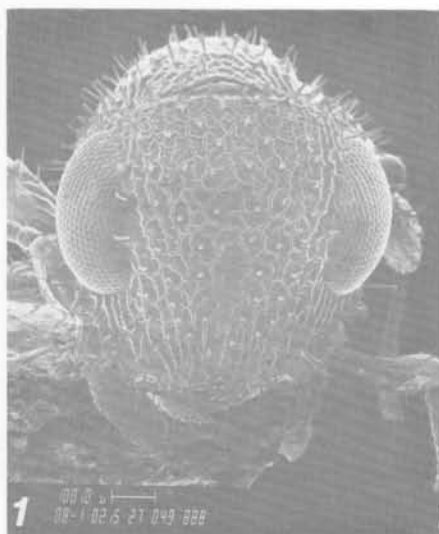
ETYMOLOGY: This species is dedicated to Mr. Barry Bolton, who recognized the novelty of this species and sent it to me for inclusion in this paper.

DISCUSSION: This species is a member of the TENUIS GROUP of Bolton (1974) and is readily distinguished from other group members by the combination of bizarre cephalic hairs, transversely rugose propodeal base and nonmarginate mesosomal dorsum. In this last character it is most like *vorticus* Bolton, to

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FIGURES 1-8. *Cataulacus boltoni*: 1, frontal view of head; 2, oblique-lateral view of head; 3, lateral view of head and part of mesosoma; 4, bizarre setae mesad of inner eye margin; 5, bizarre setae at preocular tooth; 6, dorsal view of head and mesosoma; 7, lateral view of mesosoma; 8, dorsal view of gaster. Scale as indicated on individual figures.

which it runs in Bolton's key; *boltoni* differs from *vorticus* in the much stronger mesosomal sculpturation, the transversely rugulose propodeal base and the longer, stouter and more numerous setae of the first gastric tergum. The hairs of the cephalic dorsum are longer than in *vorticus*, especially on the vertex and occiput.

Cataulacus mckeyi NEW SPECIES

Figures 9–18

DIAGNOSIS: *Worker and female:* Head about as long as broad; cephalic and mesosomal dorsa with abundant erect, flattened hairs; first gastric tergum with very fine longitudinal rugulae in middle of disk and hairs arising from punctures conspicuously greater than their diameter. *Male:* see description and discussion.

DESCRIPTION: *Holotype worker.* TL 3.93; HL 0.91; HW 0.91; CI 100; EL 0.41; OI 45; IOD 0.74; SL 0.42; SI 46; PW 0.74; WL 1.06; MTL 0.44.

Occipital crest absent, vertex rounded into occiput. Occipital corner denticulate and with a small denticle on margin close to corner, denticles small; side of head denticulate behind eyes. Side of pronotum strongly marginate and denticulate. In dorsal view, mesonotum and propodeum abruptly narrower than pronotum, denticulate at sides; propodeum with a pair of broad dorsoventrally flattened spines. Thoracic dorsum without sutures. Subpetiolar process quadrate, with prominent anterior and posterior angles. Subpostpetiolar process short, simple, acute. First gastric tergum not laterally marginate.

Dorsum of head with a very fine, loose rugoreticulum; interspaces moderately shiny, finely, densely and weakly reticulate-punctate, punctures stronger on vertex. Mesosomal dorsum with a rugoreticulum, no coarser than that of head, with transverse meshes obsolescent, so that rugae are largely longitudinal; interspaces slightly shiny, strongly and densely reticulate-punctate. First gastric tergum moderately shiny, densely reticulate-punctate, with fine, irregular longitudinal rugulae resulting from fusion of margins of aligned punctures, without conspicuous longitudinal rugae. Piligerous punctures scattered, coarser than hairs arising from them.

Dorsal surfaces of head, body and appendages with numerous short, flattened (rarely weakly clavate on cephalic dorsum), simple hairs, longest on gaster; hairs of first tergal dorsum separated by less than their length.

Paratype workers. TL 3.58–4.04; HL 0.86–0.94; HW 0.87–0.94; CI 98–102; EL 0.38–0.44; OI 43–47; IOD 0.66–0.73; SL 0.38–0.42; SI 43–46; PW 0.65–0.77; WL 0.96–1.09; MTL 0.40–0.44 (18 measured).

Paratype females. TL 5.06–5.19; HL 0.95–0.97; HW 0.92–0.96; CI 97–99; EL 0.41–0.44; OI 44–47; IOD 0.73–0.76; SL 0.44–0.45; SI 45–49; PW 0.92–0.96; WL 1.37–1.45; MTL 0.45–0.47 (7 measured).

As workers, with usual modifications of mesosoma for flight. Denticulae of head behind eye and of pronotal margin reduced, sometimes absent. Mesoscutum strongly longitudinally rugate, with few or no cross meshes; rugation of propodeum coarser than that of mesoscutum. Metafemur often with conspicuous longitudinal rugae on posterior face.

Allotype male. TL 4.53; HL 0.81; HW 0.85; CI 105; EL 0.36; OI 42; IOD 0.70; SL 0.32; SI 38; PW 0.83; WL 1.44; MTL 0.55.

Occipital crest absent, occipital corner denticulate, the tooth broad and more or less sharply angulate mesad. Side of head behind eye not denticulate, though margin often irregular. Pre-ocular denticle absent or present but small. Pronotal margin irregular but not denticulate. Anterior arms of notauli well developed and cross-ribbed, posterior arm absent or marked by a very weak depression. Propodeal spines short, stout. Subpetiolar and subpostpetiolar processes simple.

Dorsum of head densely reticulate-punctate with a few fine rugulae and a few weak rugulae close to and behind eyes, the cross-meshes reduced or absent. Pronotum densely reticulate-punctate, with a few irregular rugulae, especially at side. Mesoscutum densely reticulate-punctate, with fine longitudinal rugulae resulting from fusion of margins of aligned punctures. Scutellum similar but less shiny. Propodeal base densely reticulate-punctate and dull, with conspicuous fine longitudinal rugae. Dorsum of petiole densely reticulate-punctate and dull, with a few widely spaced fine rugae; dorsum of postpetiole densely reticulate-punctate and dull, sometimes with a few obscure rugulae at side. First gastric tergum moderately shiny and densely reticulate-punctate on basal one-fourth, punctures becoming increasingly faint caudad; with scattered coarse, setigerous punctures.

Simple, erect hairs present on all dorsal surfaces of head and body, some on head distinctly flattened.

Paratype males. TL 4.39–5.13; HL 0.78–0.86; HW 0.81–0.94; CI 103–109; EL 0.33–0.37; OI 40–43; IOD 0.66–0.77; SL 0.27–0.33; SI 33–37; PW 0.79–0.92; WL 1.44–1.60; MTL 0.47–0.56 (7 measured).

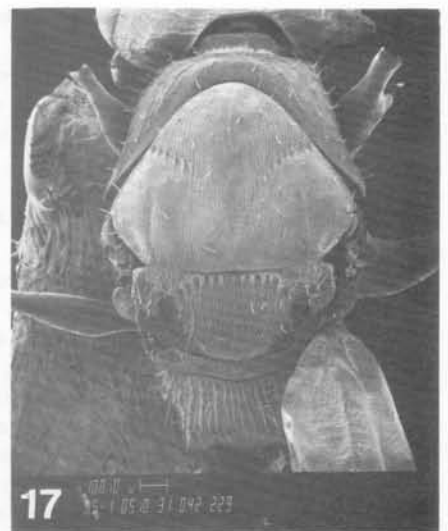
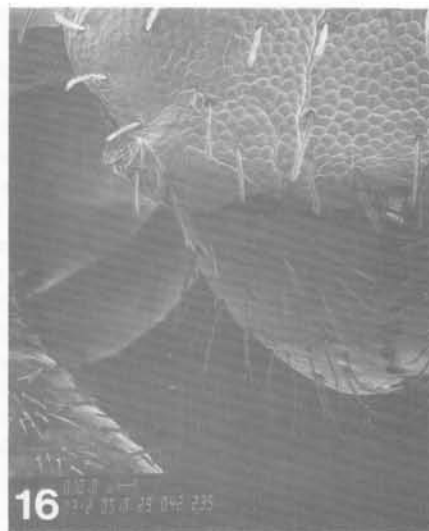
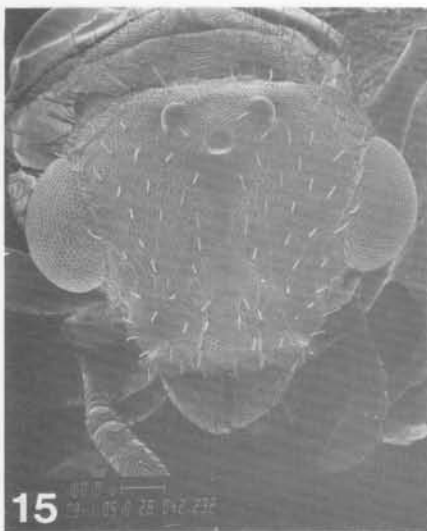
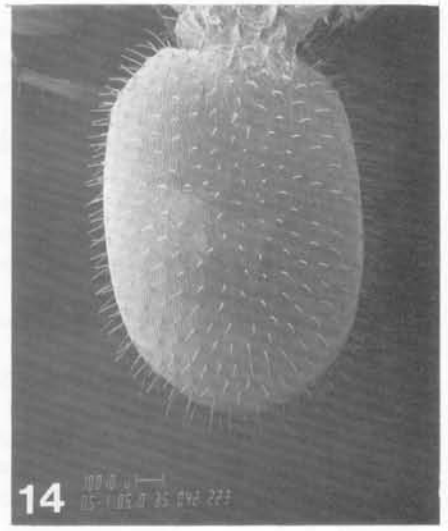
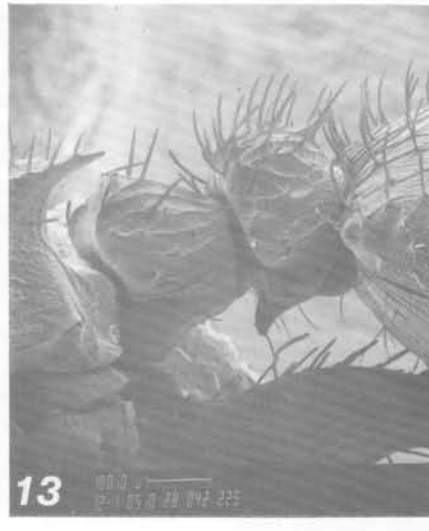
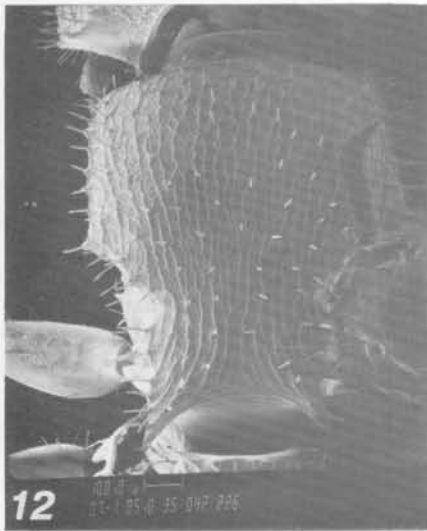
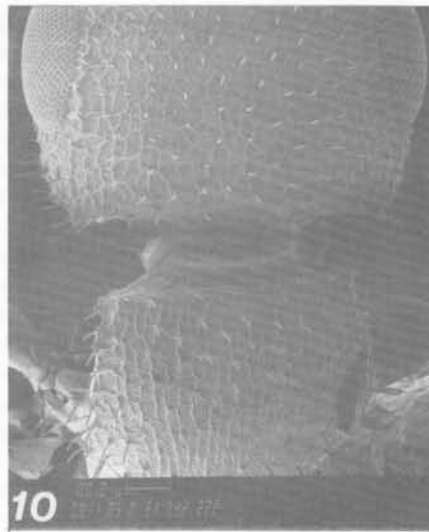
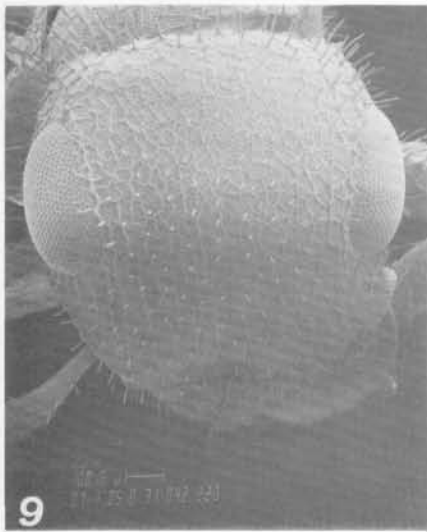
TYPE MATERIAL: *Holotype worker* and *allotype*, CAMEROUN: near Lac Tissongo, Douala-Edea Reserve (lat. 3°29' N, long. 9°50' E), about 5 km S of Sanaga River and about 15 km E of Mouanko, 18 July 1976 (D. McKey) in Natural History Museum of Los Angeles County. *Paratype females* (20), *workers* (135) and *males* (7) in BMNH, LACM, MCZ and collection of Mr. McKey.

ETYMOLOGY: This species is dedicated to its collector, Mr. Doyle McKey.

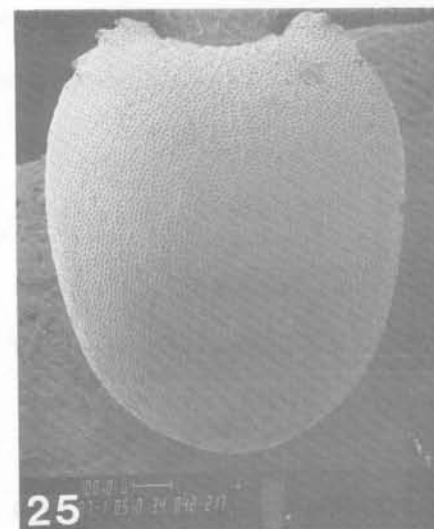
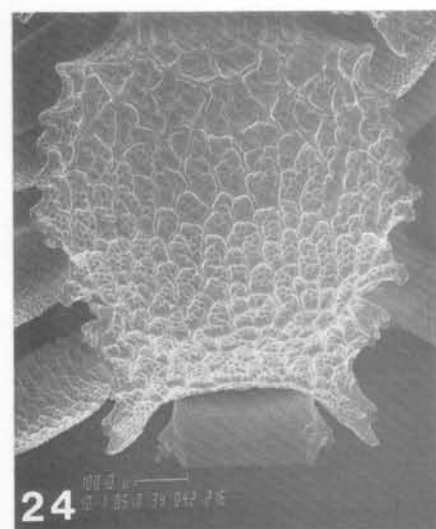
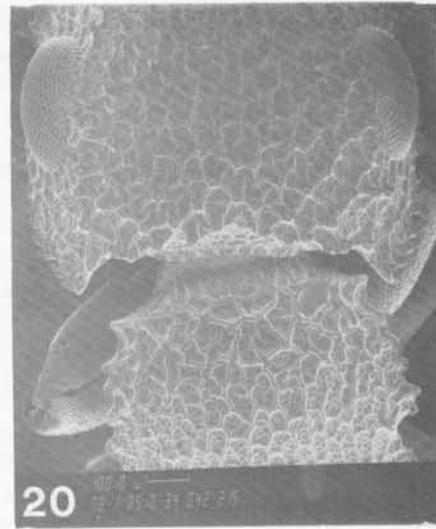
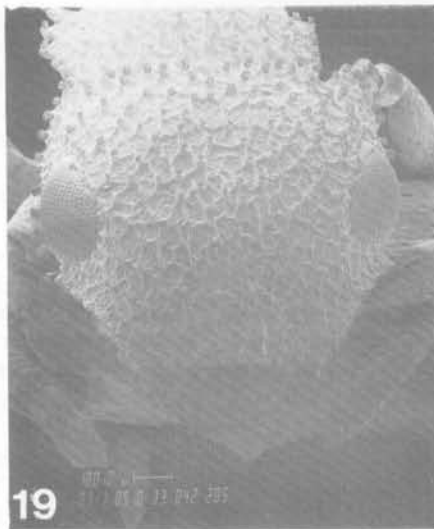
DISCUSSION: The worker of this species will run in Bolton's (1974) key to *pygmaeus* E. André and appears to be related to that species. The most obvious differences are the shorter and sparser pilosity, the more coarsely sculptured mesosomal dorsum and much finer piligerous punctures of the first gastric tergum of *pygmaeus*. The metafemur of *pygmaeus* has several conspicuous longitudinal rugae on the posterior surface; these usually are entirely lacking in *mckeyi*. According to Bolton the CI, OI and SI for *pygmaeus* are 94–97, 41–46 and 49–51, respectively, versus 98–102, 43–47 and 43–46, respectively, for *mckeyi*. The latter is also a smaller species, with a HW range of 0.87–0.94 versus 0.92–1.06 in *pygmaeus*.

The females of the two species are very similar, but *mckeyi*, with a HW range of 0.92–0.96 (1.08 in *pygmaeus*) is smaller. The CI, OI and SI of *pygmaeus*, as given by Bolton, are 92–95, 40–46 and 48–50, respectively. These are 98–102, 43–47 and 43–46, respectively, for *mckeyi*. Presumably there are differences in pilosity much like those between the workers of these species.

Bolton's description of the *pygmaeus* male does not suggest many differences between it and the male of *mckeyi*. According to Bolton, the side of the head, behind the eye, is denticulate (simple in *mckeyi*) and the pronotum is conspicuously rugoreticulate (very sparse rugulae laterad in *mckeyi*). Bolton does not



FIGURES 9–17. *Cataulacus mckeyi*, 9–14 of worker, 15–17 of male: 9, frontal view of head; 10, dorsal view of head and part of mesosoma; 11, bizarre setae on frons; 12, dorsal view of mesosoma; 13, lateral view of petiole; 14, dorsal view of gaster. 15, frontal view of head; 16, frontal view of lower part of face; 17, dorsal view of mesosoma. Scale as indicated on individual figures.



FIGURES 18–26. 18, *Cataulacus mckeyi*, male: lateral view of petiole. 19–26. *Cataulacus pompom*, worker: 19, frontal view of head; 20, dorsal view of head and part of mesosoma; 21, bizarre seta on frons; 22, bizarre setae near base of mandible; 23, bizarre seta near base of mandible; 24, dorsal view of mesosoma; 25, dorsal view of gaster; 26, apical area of first tergum. Scale as indicated on individual figures.

state that the punctures of the first gastric tergum become conspicuously weaker caudad as they do in *mckeyi* nor does he mention conspicuously coarse piligerous punctures. Until more males of members of the TENUIS GROUP become available, it is impossible to characterize that of *mckeyi* in a meaningful manner.

Cataulacus pompom NEW SPECIES

Figures 19–26

DIAGNOSIS: Cephalic and mesosomal sculpturation reduced; cephalic dorsum with abundant very short bizarre hairs (Figs. 24–26).

DESCRIPTION: *Holotype worker*. TL 3.46; HL 0.83; HW 0.94; CI 112; EL 0.32; OI 34; IOD 0.72; SL 0.45; SI 48; PW 0.69; WL 0.96; MTL 0.37.

Occipital crest complete, the median portion raised into a low, projecting ridge in full-face view; with well-separated weak denticles. Side of head denticulate behind eyes, occipital corner with a low, broad, triangular tooth. Sides of propodeum with a narrow, rectangular expansion, marked at each end by a blunt denticle and with another, smaller, denticle near middle. Sides of mesonotum roughly triangular in dorsal view, with a deep V-shaped notch separating them from propodeum. Propodeum behind this notch with a short free anterior face; side marginate, continuous with side of spine, margin with two or three minute denticles. First gastric tergum marginate on anterior one-fourth, margin with several weak, oblique denticles.

Dorsal surface of head finely rugoreticulate, interspaces finely and densely reticulate-punctate. Dorsal surface of mesosoma similar, but with longitudinal rugulae stronger. Dorsal surfaces of petiole and postpetiole very densely reticulate-punctate, with a few short, obscure longitudinal rugulae. First gastric tergum finely and very densely reticulate-punctate, with numerous short, fine obscure rugulae, the majority of which are more or less longitudinal.

Dorsal surface of head with numerous very short, bizarre hairs (Fig. 24), but with a few longer, subspatulate hairs along inner eye margin. Dorsal surface of mesosoma with short, bizarre hairs along margins and with two transversely arcuate rows across anterior part of pronotum. Petiole and postpetiole each with a few similar hairs; first gastric tergum with a short, bizarre hair on each marginal denticle. Dorsal surfaces of meso- and metafemora and external surface of mesotibia with 1–4 such hairs.

Paratype workers. TL 2.87–3.44; HL 0.74–0.85; HW

0.83–0.94; CI 110–114; EL 0.28–0.32; OI 33–35; IOD 0.65–0.71; SL 0.40–0.44; SI 47–49; PW 0.60–0.69; WL 0.81–0.97; MTL 0.33–0.40 (9 measured).

TYPE MATERIAL: *Holotype worker*, MALAYA: Selangor, Gombak, 2 Oct. 1973 (B. Bolton), from topmost twigs of felled forest tree, in British Museum (Natural History). *Paratype workers*, 9, same data as holotype, in British Museum (Natural History) and Los Angeles County Museum of Natural History.

ETYMOLOGY: The name proposed for this species is an arbitrary combination of letters and should be treated as a noun.

DISCUSSION: In Bolton's (1974) key to Indo-Australian and Oriental *Cataulacus* this species fails at couplet 13. It is, however, a member of the TAPROBANAE GROUP as evidenced by the reduced sculpturation, with the rugulae of the mesosomal dorsum principally longitudinal. The occipital crest is normal for the group, and is especially similar to that of such species as *praetextus* F. Smith and *reticulatus* F. Smith. It is immediately different from all TAPROBANAE GROUP species in the abundance of bizarre hairs on the cephalic and mesosomal dorsa. Hairs of this type appear to be of rare occurrence in the Indo-Australian-Oriental fauna although frequent in species of the Ethiopian Region. Somewhat similar, though less bizarre, hairs are seen in *simoni* Emery and, to a lesser degree, *granulatus* (Latreille). These are members of the GRANULATUS GROUP and differ from *pompom* in the nature of the cephalic and mesosomal sculpture.

ACKNOWLEDGMENTS

For making available the above-described new species, I extend my thanks to B. Bolton and D. McKey. The SEM photomicrographs which illustrate this paper have been made available through the generous assistance of Mr. Gerald E. Garner, Scanning Electron Analysis Laboratories, Inc., of Los Angeles, California.

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