OCCASIONAL PAPERS
OF
BERNICE P. BISHOP MUSEUM
HONOLULU, HAWAII

Volume XXII February 11, 1959 Number 7

Curculionid Genus Gymnopholus (Coleoptera)

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Dr. K. M. Heller founded the genus *Gymnopholus* in 1901 [Mus. Dresden, Abh. **10** (2) : 8] on a single species, *G. weiskei* Heller; and on the following page he described the genus *Aroaphila,* based also on a single species, *A. cyphothorax* Heller. Later, additional species convinced him that the distinctions upon which he had relied were not really of generic significance, and he reduced *Aroaphila* to the rank of a subgenus (1937, Arb. morph. tax. Ent. Berlin-Dahlem **4**: 265). Here, it seems more logical to treat it as a simple synonym.

Thanks to the efforts of Miss L. E. Cheesman, Dr. J. L. Gressitt, and Dr. J. H. H. Szent-Ivany, no fewer than five new species are now available. This brings the total number up to 13, allowing for some synonymy.

A key has been prepared to facilitate the identification of these often highly variable insects. This was possible only through the kind help of Herr Direktor Reichert, of the Dresden Museum, who very kindly lent me the types of several species described by Heller from single specimens, which led to the clearing up of various errors.

Key to species of Gymnopholus

1(2). Scutellum invisible; funicle with joint 2 shorter than 1; elytra dull, rugose.....**1. kokodae.**

2(1). Scutellum small but distinct; funicle with joint 2 equal to or longer than 1.

3(16). Posterior pairs of femora smooth and sparsely punctate.

4(7). Elytra coarsely foveolate, opaque, with dense, dull-brown indumentum; pronotum with coarse vermiculate foveae.

5(6). Pronotum with the two dorsal prominences widely separated, with a broad deep depression between them; epistome forming a perfectly smooth hollow with fine, sparse punctures....**2. rugicollis.**

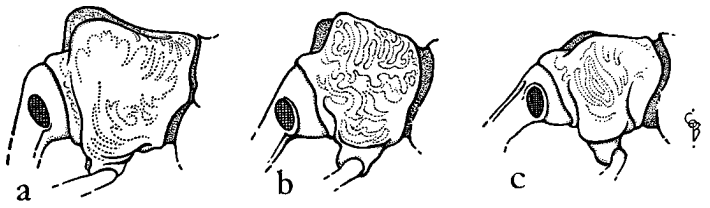

FIGURE 1.—Lateral view of prothorax: **a**, *Gymnopholus cheesmanae;* **b**, *G. rugicollis;* **c**, *G. kokodae.*

6(5). Pronotum with prominences close together and shallowly separated; epistome more strongly and closely punctate and enclosing a low, raised triangle.....**3. reticulatus.**

7(4). Elytra comparatively smooth and shiny, with rows of small punctures, sometimes with variable scales; pronotum smooth, finely punctate, or impunctate.

8(15). Pronotum with two large obtuse prominences, anterior margin almost flat and forming an angle with anterior declivity of prominences in lateral view (fig. 1); sides of prothorax with some shallow, irregular wrinkles.

9(10). Tubercles on pronotum low and rounded, approximately of size and shape of an eye and shallowly separated; elytra without a sutural tubercle on declivity, scales with apices sharply pointed.....**4. marquardti.**

10(9). Tubercles on pronotum high and deeply separated, much larger than an eye; elytra with a small low sutural tubercle on declivity, the scales (if present) rounded or subtruncate apically.

11(14). Tubercles on pronotum with their outer sides more or less concave, so that their apices overhang somewhat outwardly; rostrum without any median sulcus; vertex of head without a median stria.

12(13). Rostrum closely and rugosely punctate, ridges above anterior end of scrobes distinctly divergent; eyes not projecting beyond outline of temples.....**5. integrirostris.**

13(12). Rostrum with rather sparse larger punctures and much smaller ones in between, ridges above scrobes nearly parallel; eyes more convex.....**6. interpres.**

14(11). Tubercles on pronotum with their outer sides vertical or slightly convex, their apices not overhanging outwardly; rostrum with a more or less distinct median sulcus; vertex of head with a fine longitudinal stria.....**7. gressitti.**

15(8). Pronotum with the two prominences amalgamated into one (fig. 4, *b, c*), its anterior declivity forming a continuous line from its summit to the anterior margin, without any flat apical area; sides of prothorax with five to 10 strong regular transverse costae.....**8. weiskei.**

16(3). Posterior pairs of femora rugulose or with rasplike punctures.

17(18). Upper surface dull, normally clothed with short recumbent setae matted together by a brown indumentum, without scales; dorsal prominences on pronotum widely separated....**9. cheesmanae.**

18(17). Upper surface smooth and shiny, without indumentum but often with limited areas bearing small scales; the pronotal prominences closely approximated.

19(22). Elytra with humeral angles somewhat obtusely projecting laterally, suture with a stripe of pale scales.

20(21). Elytra with depressed line along inner half of interval 1 and the sutural stripe entirely confined to this so that it is very narrow and sharply defined; interval 7 in female not carinate, punctures in striae closely placed; scape stout and gradually widening from base to apex.....**10. suturalis.**

21(20). Elytra with no depressed line on interval 1, sutural stripe broad and diffuse; interval 7 in female with a sharp crenulated carina from shoulder to beyond middle, punctures in striae widely separated; scape slender and abruptly clavate at apex .....**11. fulvospretus.**

22(19). Elytra with the humeral angles not projecting laterally and without any sutural stripe of pale scales.

23(24). Prothorax with a deep subapical constriction; elytra separately rounded at apex; underside with a broad median stripe of long, dense, suberect setae from metasternum to end of ventrite 2.....**12. cyphothorax.**

24(23). Prothorax not, or very feebly, constricted at apex; elytra jointly rounded or acuminate at apex; underside with only sparse short setae down middle.....**13. angustus.**

1. **Gymnopholus kokodae,** new species (fig. 2, *a*).

Female. Derm dull black above, covered (especially in the depressions) with dense, matted, recumbent setae that are concealed by a brown gummy secretion; the underside very shiny black, with only a few sparse, suberect setae.

Head finely and sparsely punctate, with a shallow sulcus behind eyes and a short low costa along their inner margin. *Rostrum* shorter than pronotum, parallel-sided in basal half and rapidly widening in front; dorsum with a broad shallow median sulcus, areas on each side of it with rather large sparse punctures, lateral sulci shallow and almost impunctate, scrobes extending nearly to eyes. *Antennae* comparatively short, scape not quite reaching middle of eye; funicle with joint 1 longer than 2, and 2 longer than 3, distal joints as broad as long or slightly transverse. *Prothorax* a little longer than broad, widest at middle and there very slightly rounded, with a subapical constriction, base subtruncate, with a deep transverse stria in front of it, with angles nearly right angles; dorsum with usual two discal prominences somewhat like those in *G. rugicollis* Heller, but much lower and more obtuse, space between them wider and shallower and very coarsely rugose; lateral areas, which slope inwards as seen from in front, with broad, irregular, transverse wrinkles; median depression with rather dense recumbent pale setae, smoother discal areas with sparse fine double punctures. *Scutellum* invisible. *Elytra* ovate, widest before middle narrowing with a curve

to apex, which is more acuminate than in nearly allied species, basal margin subtruncate, shoulders obliquely truncate; dorsum with large, shallow, subconfluent foveae, which are filled with matted recumbent gray setae covered with brown secretion, foveae showing some signs of linear arrangement behind middle; interval 5 with a low conical tubercle at top of declivity, suture raised on declivity with an obtuse elevation on each side of it. *Legs* black, femora with a sparse fringe of short erect setae beneath, and posterior pairs transversely strigose.

Length 22 mm.

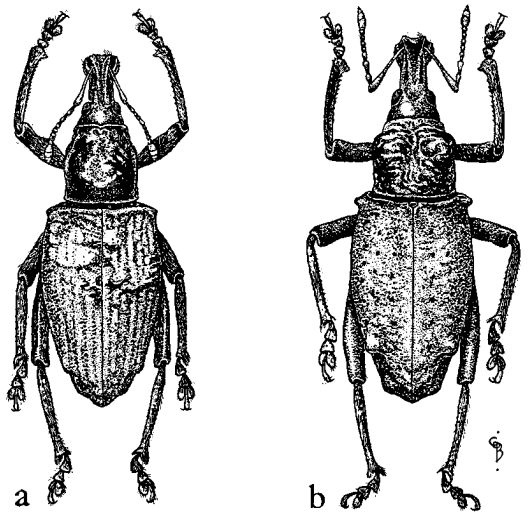

FIGURE 2.—**a,** *Gymnopholus kokodae,* female; **b,** *G. rugicollis,* female.

Type in the British Museum.

New Guinea: Kokoda, one female, 1906, C. A. W. Monckton.

This species is somewhat intermediate between *G. rugicollis* Heller and *G. reticulatus,* new species, but differs from both in the absence of a scutellum and the shorter antennae, the funicle of which has joint 1 longer than 2, and the distal joints not longer than broad.

G. rugicollis further differs in having no costa along the inner margin of the eyes, which are more convex; the prothorax is covered with very coarse vermiculate wrinkles and the dorsal elevations are much higher, being subrectangular in lateral view; the elytra are much less acuminate behind, and the basal angles have a short truncate process projecting slightly forwards; the femora without any fringe beneath and the posterior pairs quite smooth externally.

2. **Gymnopholus rugicollis** (Heller). (Figure 2, *b.*)

Aroaphila rugicollis Heller, 1913, Archiv Naturgesch. A, **79**: 44, fig. 6.

3. **Gymnopholus reticulatus,** new species (fig. 3, *a, b*).

Male and female. Derm black, bare; dull above and very shiny beneath.

Head finely and densely punctate, with a short median stria on vertex, not constricted behind eyes; frons with a low costa along inner margin of eyes. *Rostrum* shorter than pronotum (proportionately somewhat shorter and broader

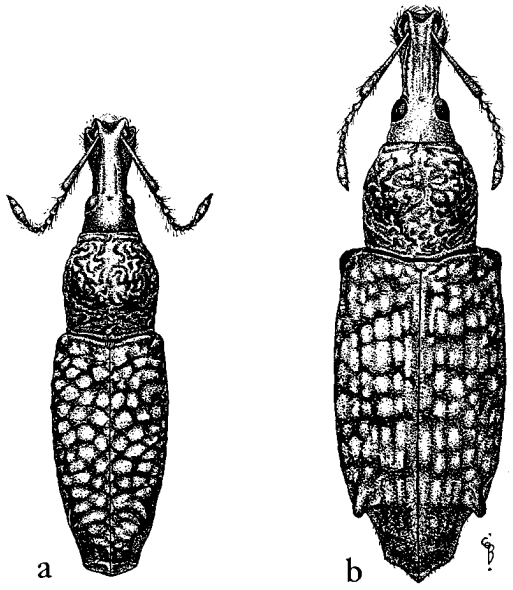

FIGURE 3.—*Gymnopholus reticulatus:* **a,** male; **b,** female.

in female than in male), rapidly widening from base to apex; dorsum convex transversely, without any median sulcus, but with a very low median carina that is often more or less obliterated; lateral sulcus varying much in length and depth, the general surface being smooth with fairly close double punctation, but sometimes becoming rugulose; scrobes extending only about half-way between antennae and eyes. *Antennae* rather stout, distal joints of funicle slightly longer than broad and clavate, 1 and 3 equal, 2 a little longer. *Prothorax* somewhat longer than broad, almost parallel-sided from base to two-thirds, then narrowing with a curve to apex, where there is a slight narrow constriction, basal margin truncate with angles more or less prominent laterally; dorsum very rugosely vermiculate, two large prominences closely approximate with only a comparatively shallow depression between them, anterior declivity much steeper than

posterior slope. *Scutellum* with dense recumbent white setae. *Elytra* broadly suboblong in female, much narrower and ovate in male, very shallowly sinuate jointly in middle of base with a short deeper sinuation within shoulders, which are obtusely rounded and slightly projecting laterally in female (much less so in male), apices jointly rounded in both sexes; dorsum with very large rugose subconfluent foveae that are not arranged in rows, narrow interspaces being raised to form an irregular reticulation, with a large obtuse conical tubercle at top of declivity where normally would be end of interval 5, this tubercle much smaller in male; foveae filled with matted recumbent white setae, which are normally entirely covered by an earthlike brown gummy secretion. *Sternum* with a small patch of dense recumbent white setae on mesosternal process and at base of metepisterna.

Length 21-30 mm.

Type in the British Museum; cotypes in Bishop Museum.

Northeast New Guinea: East highlands, Daulo Pass, 8,000 ft., one male, one female, June 1955, Szent-Ivany; Asaro-Chimbu Divide, above Daulo Pass, in moss forest, 8,500-9,400 ft., four males, one female, June 1955, Szent-Ivany (type); Daulo Pass, 2,500 m., Asaro-Chimbu Divide, seven males, four females, June 1955, J. L. Gressitt.

4. **Gymnopholus marquardti** Heller, 1935, Nova Guinea, Zool. **17** (2): 179, pl. fig. 18.

This species is still known only from the unique type. It is a very distinct form, the tubercles on the pronotum being unusually low.

5. **Gymnopholus integrirostris** Heller.

Aroaphila integrirostris Heller, 1913, Archiv Naturgesch. A, **79**: 43; 1926, Nova Guinea, Zool. **15** (2): 276, fig. 1.

The outward curvature of the prothoracic tubercles in this species affords a very distinctive character. The specimens vary much in size, and also in the development of the two tubercles on the elytra, which are frequently entirely absent. Thirteen examples examined are entirely bare above, but in two females that almost certainly belong to this species the whole upper surface is rather densely clothed with gray and pinkish scales.

6. **Gymnopholus interpres** Heller, 1935, Nova Guinea, Zool. **17** (2): 180.

This species is based on a single female from the Eddie Creek Goldfields, Huon Gulf, 1933, which I have seen. It is separated from *G. integrirostris* by its rather more finely punctate rostrum, entirely impunctate prothorax, and much shorter elytra with more distinct striae.

No other specimen has been found since, and the comparatively slight differences from *G. integrirostris* suggest that it may well be only a slight geographical or individual variant of the latter species.

7. Gymnopholus gressitti, new species (fig. 4, *a*).

Male and female. Derm very shiny black above and below, except head, rostrum, and pronotum which are more or less opaque; dorsum entirely devoid of scales in male and occasionally also in female, but usually female has dense patches or stripes of pale green or coppery scales, nearly always on declivity but sometimes occurring on basal half; underside often with scattered scales along lateral areas of sternum in female, but these may be entirely absent, and there are none in the 13 males examined.

Head not constricted behind eyes, with sparse punctures of varying sizes; frons flat, slightly wider than length of eye, with a variable shallow median sulcus, containing a fovea. *Rostrum* a little shorter than pronotum, rather shorter and stouter in female than in male, broadly dilated apically; dorsum with a shallow median sulcus that varies a good deal in its development, being rarely almost evanescent, the punctures also highly variable but always fairly strong; on each side a short sulcus that also varies much in length and depth; scrobes extending for a little more than half distance to eyes. *Antennae* with scape somewhat abruptly clavate apically with rather dense long subrecumbent brown setae; funicle with joint 2 longer than 1 and 1 longer than 3 in female; in male, joints 1 and 2 equal; distal joints much longer than broad, clavate. *Prothorax* as long as broad, parallel-sided to the very shallow apical constriction, basal margin broadly sinuate, with angles produced backwards; dorsum with the two usual large obtuse prominences that are broadly separated by a deep depression, surface quite smooth, opaque, with very shallow minute sparse punctures, the outer faces of these prominences (viewed from in front) straight and sloping slightly inwards from base upwards, and without wrinkles. *Scutellum* distinct, with sparse short setae or sometimes narrow green scales (female). *Elytra* narrow and elongate in male, much broader in female, subtruncate at base, with basal margin raised, its angles roundly rectangular but often slightly projecting laterally, especially in female, the apices jointly rounded; dorsum very smooth and shiny with regular rows of small distant punctures, but stria 9 with larger punctures that usually develop into very large uneven foveolae; the broad even intervals with very sparse minute punctures; intervals 5 and 6 with a large obtuse conical tubercle at top of declivity in female and a much smaller one in male, and suture with a common low setigerous tubercle below middle of declivity; actual sutural margin depressed and developing a short lenticular opening on declivity beyond tubercle. *Legs* with posterior pairs of femora smooth, with sparse small punctures, the front pair more or less wrinkled transversely.

Length 16-25 mm.

Type in the British Museum; cotypes in Bishop Museum.

Northeast New Guinea: Dividing range between Asaro and Chimbu Valley, in primeval forest, 9,000-9,400 ft., three males, four females, Oct. 1954-June 1955, Szent-Ivany (type); Daulo Pass, 8,000 ft., one male, four females, June 1955, Szent-Ivany; Daulo Pass, Asaro-Chimbu Divide, 2,500-3,000 m., eight males, seven females, June 1955,

J. L. Gressitt; Miramar, Asaro Valley, 1,800 m., one female, June 1955, Gressitt; Mt. Otto, above Kabebe, 2,200 m., two males, June 1955, Gressitt.

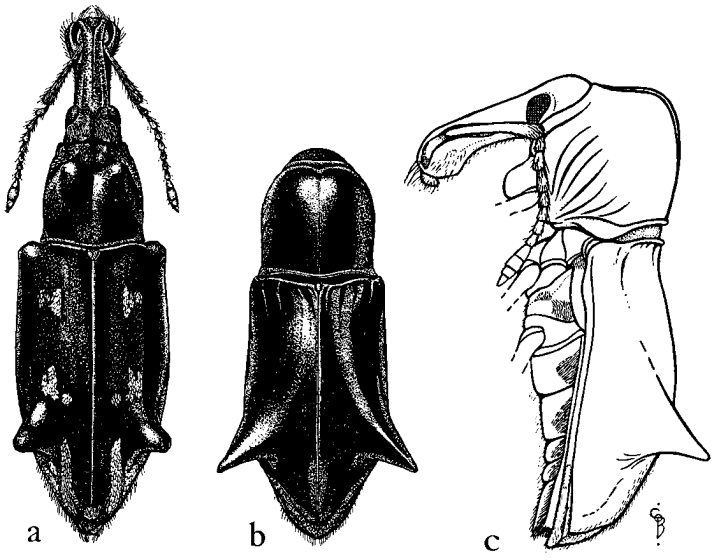

FIGURE 4.—**a,** *Gymnopholus gressitti,* female; **b,** *G. weiskei,* female; **c,** *G. weiskei,* male, side view.

8. Gymnopholus weiskei Heller 1901, Mus. Dresden, Abh. **10** (2): 8, fig. 1 (fig. 4, *b, c*).

Gymnopholus forticornis Heller, Nova Guinea, Zool. **17** (2): 179, 1935 (new synonym).

A comparison of the unique type of *G. forticornis* with a series of 35 specimens of *G. weiskei* has shown that the supposed distinctive characters relied on by Heller are unstable and cannot be regarded as indicating specific differences. Dr. Fritz van Emden has kindly examined the material and agrees with this conclusion.

9. Gymnopholus cheesmanae, new species (fig. 5, *a*).

Male and female. Derm dull black, with rather dense, short, recumbent setae that are matted over by a brown waxy secretion, usually abraded on higher smoother areas on elytra.

Head smooth, with fine sparse punctures, shallowly constricted behind eyes, which have no ridge along inner margin. *Rostrum* shorter than pronotum, parallel-sided in basal half and broadly dilated at apex; dorsum with small, sparse, shallow punctures and a broad, deep, median sulcus that often extends shortly and narrowly onto frons, and on each side of it a shorter, shallower sulcus; scrobes extending nearly to eyes. *Antennae* with scape gradually widening from base to apex, more clavate in male; funicle with joint 2 longer than 1 and 1 longer than 3, distal joints longer than broad and more or less clavate. *Prothorax* about as long as broad, subquadrate, parallel-sided from near base to broad collarlike apical constriction, with usually a feeble sinuation just before basal angles, which are produced slightly outwards and backwards; dorsum very similar to that of *G. rugicollis,* with two widely separated prominences that form a rounded right angle in lateral view, space between deeply depressed and very coarsely vermiculate, but sculpture normally hidden by clothing. *Scutellum* small but distinct. *Elytra* widest at base, gradually narrowing with a slight curve to apex, truncate at base with basal angles slightly projecting laterally; dorsum with very shallow irregular foveolae, which vary greatly in size and development, being sometimes nearly obliterated in parts and normally almost concealed by dense clothing; interval 7 with a crenulate carina in female extending from basal angle to one-third or one-half length of elytra, much reduced and sometimes nearly obliterated in male. *Legs* with femora more or less strigose externally, without any erect fringe beneath.

Length 12-28 mm.

Type in the British Museum.

New Guinea: Papua, Mt. Tafa, 5,000-8,500 ft., 10 males, seven females, Feb. 1934, Cheesman (type); Mondo, 5,000 ft., two males, Feb. 1934, Cheesman.

Closely allied to *G. rugicollis,* which differs in having the median sulcus on the rostrum partly or completely obliterated. The elytra are much less narrowed behind, there is a broad transverse depression across the declivity, there is no carina on the basal half of interval 7, and the foveolae are much deeper, more sharply defined, and more regular; the posterior pairs of femora are smooth and sparsely punctate; and ventrite 5 of the female has a broad transverse depression near the apex.

10. Gymnopholus suturalis (Heller).

Aroaphila suturalis Heller, 1910, Wiener Ent. Zeitung **29**: 181; 1913, Archiv Naturgesch A, **79**: 46.

This is another well-marked species that is known only from the unique type.

In his description Heller states that the first stria is very closely approximated to the sutural stria and impressed. An examination of the type shows that this is a misinterpretation. The term "sutural stria" is evidently intended for what would more suitably be called the

sutural margin, and the so-called "first stria" is clearly not a true stria in the normal sense of the word, but an adventitious impressed line that outwardly delimits the narrow and sharply defined pale sutural stripe. If this line were treated as a stria, this species would have 11 striae instead of the normal 10.

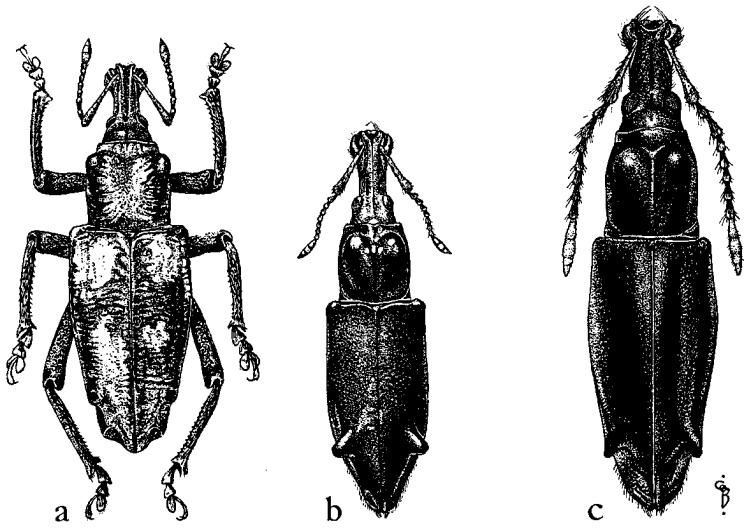

FIGURE 5.—**a,** *Gymnopholus cheesmanae,* female; **b,** *G. angustus,* male; **c,** *G. angustus,* female.

11. Gymnopholus fulvospretus (Heller).

Aroaphila fulvospreta Heller, 1926, Nova Guinea, Zool. **15** (2): 276, fig. 2.

The dull-blue scales on the declivity of the elytra appear to constitute a reliable distinction.

12. Gymnopholus cyphothorax (Heller).

Aroaphila cyphothorax Heller, 1901, Mus. Dresden, Abh. **10** (2): 9; 1913, Archiv Naturgesch. A, **79**: 46.

13. Gymnopholus angustus, new species (fig. 5, *b, c*).

Male and female. Derm black, shiny, entirely bare above, rather sparsely setose beneath.

Head shallowly constricted behind eyes, with small, sparse punctures; frons unevenly punctate, with a shallow median furrow containing a fovea. *Rostrum*

elongate, with unequal separated punctures containing short recumbent brown setae and with a shallow median sulcus continuous with that on the frons and a shorter shallow one on each side; scrobes extending to only two-thirds of distance to eyes. *Antennae* comparatively slender and elongate, distal joints of funicle much longer than broad, 1 and 3 equal, 2 longer. *Prothorax* slightly longer than broad, subparallel-sided from base to three-fourths, with a shallow subapical constriction, base broadly sinuate, with its angles produced backwards; dorsum with sparse, fine punctures, almost flat longitudinally from base to three-fourths and there divided by a deep Y-shaped sulcus into two large obtuse prominences, anterior slope of which is almost vertical; lateral areas almost perpendicular, with very sparse, fine punctures and no transverse wrinkles. *Elytra* very narrow in male, somewhat broader in female, subparallel in basal half, truncate at base (male) or shallowly trisinuate (female), jointly rounded at apex (male) or very shortly jointly acuminate (female), dorsum almost flat longitudinally in male, outline being nearly continuous with that of pronotum, rather more convex in female, declivity nearly vertical in male but without any projecting angle, less steep in female, basal margin raised, external angles roundly rectangular in male, more sloping in female and projecting shortly forwards, interval 8 being markedly carinate close to base; striae not impressed, represented by rows of minute and widely spaced punctures; intervals impunctate, sometimes with fine transverse striolae, interval 5 with a sharp backwardly directed tubercle at top of declivity, larger than that of *A. cyphothorax,* interval 7 costate and transversely wrinkled on basal fourth in female only. *Legs* with rasplike granular punctures, front femora transversely wrinkled on external face.

Length 16-21 mm.

Type in the British Museum.

New Guinea: Southeast Papua, Mondo, 5,000 ft., nine miles southeast of Mafulu, one male, Feb. 1934, Cheesman (type); Mt. Tafa, 8,500 ft., five miles southeast on Mondo, one female, Feb. 1934, Cheesman.