NEW SPECIES OF THE PAPUAN GENUS TAFAIA VALCK LUCASSEN (COLEOPTERA: CETONIIDAE)

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With 53 text-figures and 1 plate

ABSTRACT

Four new species of the genus *Tafaia* Valck Luc. are described and figured, viz. *T. brunnea, T. difficilis, T. bacchusi* and *T. signifer,* all from New Guinea. These are keyed along with the only species hitherto known and a form not described herein. A key to some genera of the *Lomaptera* alliance serves to distinguish *Tafaia* from allied genera.

A few decennia ago Valck Lucassen (1939: 141) proposed the genus *Tafaia* for the accommodation of a singular new cetoniine beetle of the *Lomaptera* alliance, collected in eastern New Guinea. Valck Lucassen's paper remained the only original record of the genus. In that same year, however, two expeditions exploring unknown portions of western New Guinea had already secured other forms referable to *Tafaia.* I noticed these beetles when looking through the Leiden museum's cetoniid accessions. Recently the British Museum (Natural History) placed further *Tafaia*-like beetles at my disposal, while correspondence with G. Ruter revealed that more captures are due to be reported.

Some obstacles in classifying *Tafaia* species and their relatives cannot be suppressed. The type of *T. viridiaenea* Valck Luc. is a female, and a comparison with the females described hereafter showed them all to be quite similar. The males, however, are variably different, and judged from one case a pronounced sexual dimorphism may be expected in others. In a second case a male could not be associated with a female from the same region, though their conspecificity seems likely. Anyway, despite a certain heterogeneity, the available males and females all run fairly easily down to *Tafaia* in Valck Lucassen's key (1961: 4—5) to the genera of the *Lomaptera* alliance. In this connexion it may be noticed that, although Valck Lucassen has produced a very useful key, a clear-cut classification has not been gained so far, owing to the existence of poorly known intergeneric and otherwise problematic forms. Valck Lucassen himself was well aware of this, as appears from the notes accompanying his key. To avoid any misunderstanding, the generic limitations of *Tafaia* are reconsidered below, in a key to some genera of the *Lomaptera* alliance (= Lomapterides sensu Schenkling, 1921: 110—128). From this key the close affinities of *Tafaia* and *Digenethle* Thomson are evident; they may eventually turn out to be at most subgenerally distinct.

For allowing the study of the *T. viridiaenea* type and for submitting more material, I am indebted to Messrs R. D. Pope and M. E. Bacchus of the British Museum (Natural History), London. Mr. G. Ruter, correspondent of the Muséum National d'Histoire Naturelle, Paris, kindly allowed the inclusion of information on two *Tafaia*-like beetles while a paper of his dealing with these insects is forthcoming.

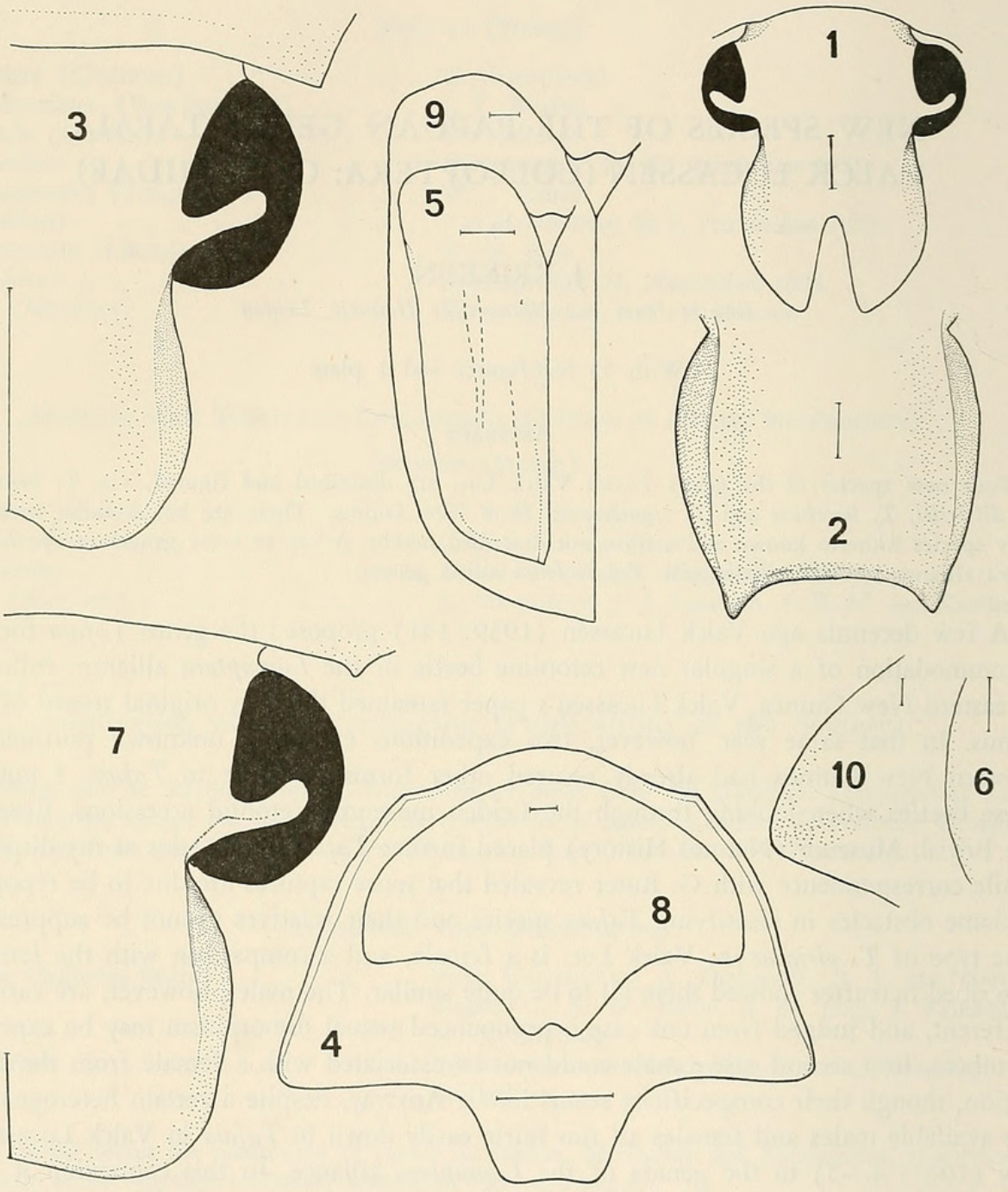

Fig. 1—10. Comparison of genera of the *Lomaptera* alliance, outlines. 1, *Lomaptera macrophylla* Gestro, ♂, Wissel Lakes area, head; 2, *Agestrata punctatostriata* Lansberge, ♂, Sangi & Talaud, clypeus; 3—6, *Microlomaptera aenea* Kraats, ♂, Aru Is.; 7—10, *Digenethle caelata* Thomson, ♂, Sattelberg; 3, 7, head; 4, 8, pronotum; 5, 9, left elytron; 6, 10, pygidial outline. 1 — 3, 7, full-face, 4, 5, 8, 9, dorsal, 6, 10, dextro-lateral view. Scale-lines = 1 mm

KEY TO SOME GENERA OF THE *Lomaptera* ALLIANCE

1. Anterior border of clypeus emerginate, lateral lobes simply rounded (Figs. 3, 7, etc.). Scutellum very distinct (Figs. 5, 9, etc.). Pygidial shape simple, more or less convex, with simply arcuate outline (ventral view) 2

— Anterior border of clypeus deeply incised (Fig. 1), or shallowly emarginate with small, pointed lateral protrusions (the oriental genus *Agestrata* Eschscholtz, Fig. 2), in the latter case body-dimensions excessive. Scutellum indistinct, or even entirely invisible. Pygidium frequently

modified. Parameral structure differing according to genus. — E and S Asia, Australia, and neighbouring islands, hundreds of species . . . . . eight genera

2. Pygidium shallowly convex, without distinct dorso-ventral transition (compare Fig. 6 with 10). Phallus relatively complex, with transverse dorso-basal parameral cavity; flaps between parameres (Fig. 11) small. Dorsal outline of pronotum as in Fig. 4, at least with noticeable antero-lateral angles. Clypeal surface convex medially. Small forms, total length not exceeding 20 mm. — Aru Islands and New Guinea, two described species . . . . . *Microlomaptera* Kraatz

— Pygidium strongly convex, outline as in Fig. 10, 23, etc. Phallus relatively simple. Dorsal outline of pronotum with obsolete antero-lateral angles (Fig. 8, etc.) 3

3. Clypeal surface concave, consequently margins raised, more or less distinctly carinate. Flaps between parameres small or absent (Fig. 13 and 14). Superior terminal spur of hind tibiae spatulate (Fig. 20) (in the known females). If elytral disc striolate, pattern of striae not fully obsolete. — New Guinea, at least six species . . . . . *Tafaia* Valck Luc.

— Clypeo-frontal surface somewhat convex. Flaps between parameres (Fig. 12) large. Elytra non-striate, non-costate, densely, braidedly striolate throughout discal striolae transverse or oblique. — New Guinea, four described species . . . . . *Digenethle* Thomson

KEY TO THE SPECIES OF *Tafaia*

1. Forms with tapering mesosternal process (Fig. 22, 49), its length exceeding middle coxal width. Postero-lateral angle of hind coxae (Fig. 21, etc.) distinct owing to concavely curvilinar posterior edge 2

— Mesosternal process (Fig. 28) short. Postero-lateral angle of hind coxae (Fig. 27) obtuse. Pronotum bicolorous. Sides of distal sternites with sparse primary and dense secondary punctation 5

2. Pygidium protruding, but short, largely covered by elytra. Antennal club (Fig. 47) modified in the males (at least as long as the remaining segments combined). Anal sternite very short (e.g. as in Fig. 50); pygidial length (ventral view) at least twice the median length of this sternite; borders of anal sternite not reaching ventro-dorsal transition. Strial pattern of elytra distinct. Elytral and pronotal colours not different. For tibiae of males with apical denticle only . 6

— Pygidium distinctly visible from above. Lamellae of antennal club (compare Fig. 37 with 47) not enlarged. If anal sternite relatively short, pronotal and elytral colours different, and ventrum (particularly anteanal sternite) only very sparsely setose 3

3. Abdominal sternites, particularly anteanal one, with numerous brown setae. Dorsum concolorous; colour of appendages may differ from that of body, which is brownish or greenish. Larger forms, with spatulate superior terminal spur on the hind tibiae of the only known female sex . 4

— Abdominal sternites glabrous or nearly so, punctation sparse. Dorsum distinctly bicolorous; head and pronotum yellow-brown, elytra dark brown, etc. Lateral borders of pronotum raised. Elytra non-striate. Clypeal surface with crowded punctulation (Fig. 31a). Length 22.5—27 mm. — E New Guinea . . . . . *bacchusi* sp. nov.

4. Clypeal surface distinctly punctate-rugulate. Lateral surface of abdominal sternites with numerous distinct seta-bearing primary punctures. Colour of entire dorsum greenish bronze. Spatulate spur of hind tibiae wide, width subequal to length of second tarsal segment, hind tibiae orange, apex black. Habitus Pl. 1 Fig. 1. Length 30 mm. — E New Guinea: Mt. Tafa . *viridiaenea* Valck Luc.

— Cephalic surface with many primary punctures separated by more than their own diameters. Lateral surface of abdomen with dense transverse striolation, primary punctures obsolete, though setae present. Colour of entire dorsum brown. Spatulate spur of hind tibiae (Fig. 20) relatively narrow. All tibiae blackish. Length 30—31.5 mm. — W New Guinea: Central Range . . . . . *brunnea* sp. nov.

5. Middle tibiae with external spine at about two-thirds from tibial base. Serially arranged primary punctures on elytral disc very distinct. Single known female with spatulate superior spur in hind tibiae. Elytral apex striolate. Length 31 mm. — W New Guinea: Central Range . . . . . *difficilis* sp. nov.

— Middle tibiae lacking external elevations. Series of primary punctures on elytral disc indistinct. Superior spur of hind tibiae tapering. Elytral apex non-striolate. Length 26 mm. — W New

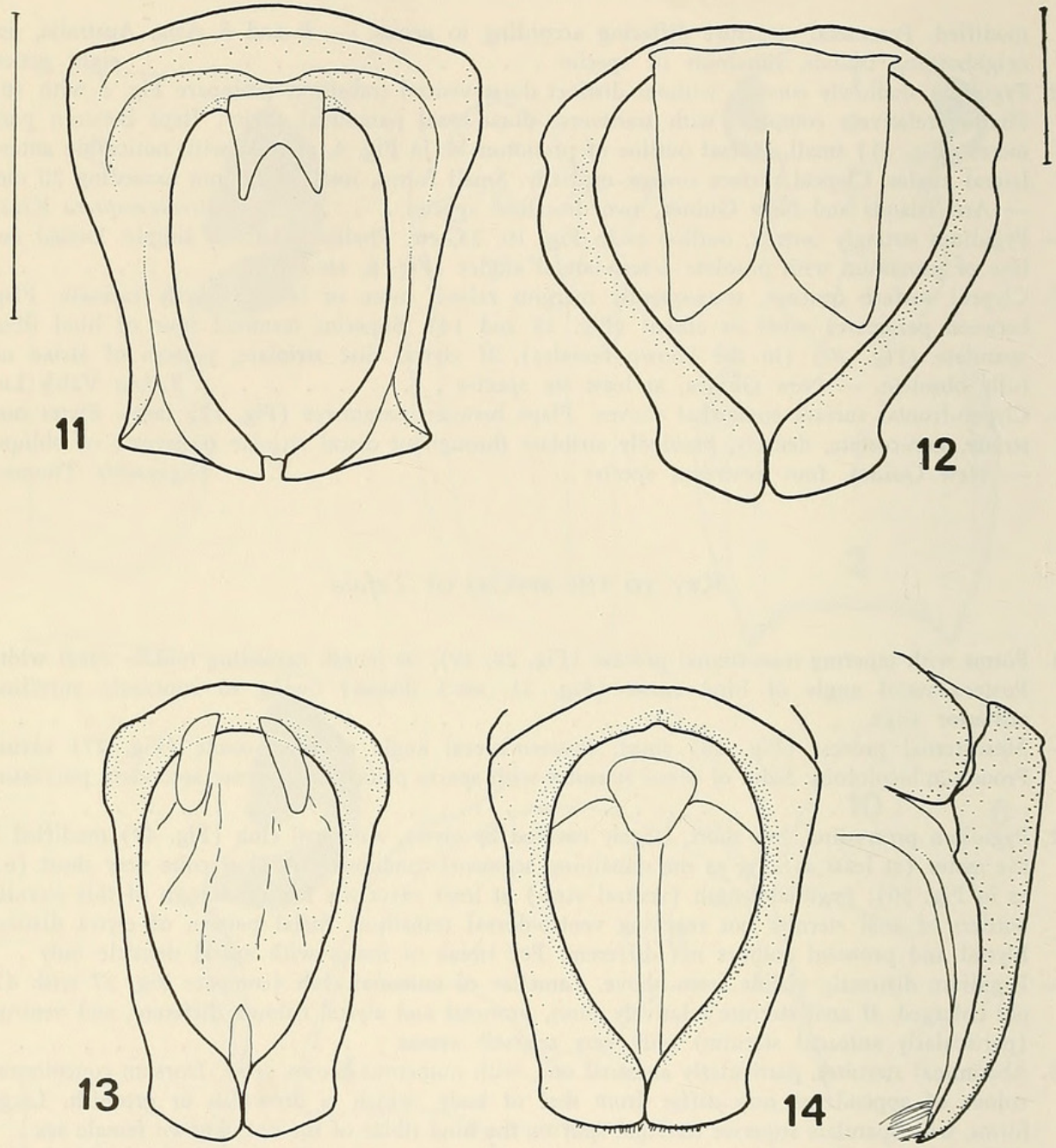

Fig. 11—14. Parameres, full-face view. 11, *Microlomaptera aenea* Kr., Aru Is.; 12, *Digenethle caelata* Th., Sattelberg; 13, *Tafaia* sp. nr *difficilis,* Moss Forest Camp; 14, *Tafaia bacchusi* sp. nov., Mt. Kaindi, with laevo-lateral view. Scale-lines = 1 mm, 12—14 same scale

Guinea: Central Range . . . . . male of *difficilis* or sp. ined.

6. Dorsum green. Head glabrous, clypeus shallowly concave. Antescutellar lobe truncate. Lamellae of antenna in male about as long as remaining segments combined. Length 22 mm. — E New Guinea: Mt. Jimmi . . . . . sp. nov. Ruter ms.

— Dorsum brown. Clypeo-frontal surface setose, clypeal margins distinctly raised (Fig. 42, 51). Antescutellar lobe (Fig. 43) conspicuously notched. Antennal lamellae of male (Fig. 47) much longer than remaining segments combined. Length 23—24 mm. — E New Guinea: Morobe District . . . . . *signifer* sp. nov.

Tafaia brunnea sp. nov.

Fig. 15—23, Pl. 1 Fig. 2

Female (holotype). — Approximate length 30, width 16, height 11 mm. Brown, with tinge of red, weakly shiny, most of integument shagreened; tips, margins, sutures of

several elements more or less infuscated, tibiae and tarsi blackish; pilosity brown. Habitus, Pl. 1 Fig. 2.

Cephalic contours, Fig. 15. Clypeus shallowly concave, hence margins raised; cephalic primary punctation moderately dense, punctures approximately isodiametric, moderately impressed; punctural diameters on clypeus 0.05—0.15 mm, their densities ca. 20/sq. mm; interspaces with close secondary punctation, punctures fine, shallow. Eye-canthi with about 5 long setae. Maximum length of head 4.50, maximum width 4.95 mm; ratio l/w 0.90.

Pronotal contours, Fig. 16; surface evenly convex, lateral margins not raised. Pronotal punctation double; discal surface with scattered, sparse primary punctation, densities increasing laterad, passing into marginal striolation; diameters of postero-median punctures 0.05—0.10 mm, their densities ca. 10/sq. mm; diameters of sublateral punctures 0.10—0.15, their densities 10—15/sq. mm; entire pronotal surface with secondary punctation like on the head. Median length of pronotum 9.6, maximum width 12.7 mm; ratio l/w 0.75. Scutellum (Fig. 17) raised medially, with numerous extremely fine punctures, and several seta-bearing punctures in front.

Elytral contours, Fig. 17; juxtasutural costa of elytron distinct behind, obsolete in front; strial pattern indistinct; elytral base sparsely punctate; disc with numerous infuscated punctures, each surrounded by an arcuate striola; separate elements obsolescent caudad and laterad, passing into braided striolation. Secondary punctation dense, punctures extremely fine. Distance between elytral and scutellar apices 14.5 mm; maximum length of left elytron 19.5, maximum width of elytra combined 14.5 mm, their ratio 1.34.

Latero-ventral surface of prothorax densely striolate, with numerous semierect setae; antero-median portion of prosternum distinctly raised, with long brown setae in front. Mesosternal process (Fig. 22) well-developed, dorsally with median ridge, ventrally weakly transversely convex. Mesepimera and mesosternum densely striolate, with numerous semierect setae. Metasternal disc shallowly sulcate medially, shiny, with several fine punctures; metasternal wings, metepisterna and greater part of hind coxal surface densely transversely striolate, with numerous semierect setae. Metepimera shiny, with small as well as extremely fine punctures. Postero-lateral angles of hind coxae (Fig. 21) distinct. Visible abdominal sternites 1—4 medially with sparse hemipunctures (i.e. punctures with about half of their borders obsolete) bearing fine semierect setae; laterally these sternites are densely punctulate-striolate, similarly setose; sternite 5 with numerous hemipunctures in the middle, punctures with coarse, semierect setae; laterally this sternite is transversely striolate, with similar setae, middle of sternites 1—6 with vague, fine secondary punctation; anal sternite finely, transversely striolate, glabrous. Pygidium (Fig. 23) with arcuate apical outline (seen from above); dorsal and ventral surface separated by transversely carinate apex; anal edge indistinctly marginate, margin widened medially; pygidial sculpture consisting of approximately concentric striolae; many fine setae are noticeable.

Fore tibia (Fig. 18) with 3 denticles and well-developed terminal spur; both sides with many seta-bearing hemipunctures. Inferior side of fore femur with setae, striolae and punctures. Middle and hind tibiae (Fig. 19) with scattered medium-sized hemipunctures, bearing semierect setae; outer surface of middle and hind tibiae lacking elevations; superior terminal spur of hind tibiae (Fig. 20) spatulate, longer than simply acuminate inferior one; spurs of middle tibiae both acuminate, inferior slightly longer.

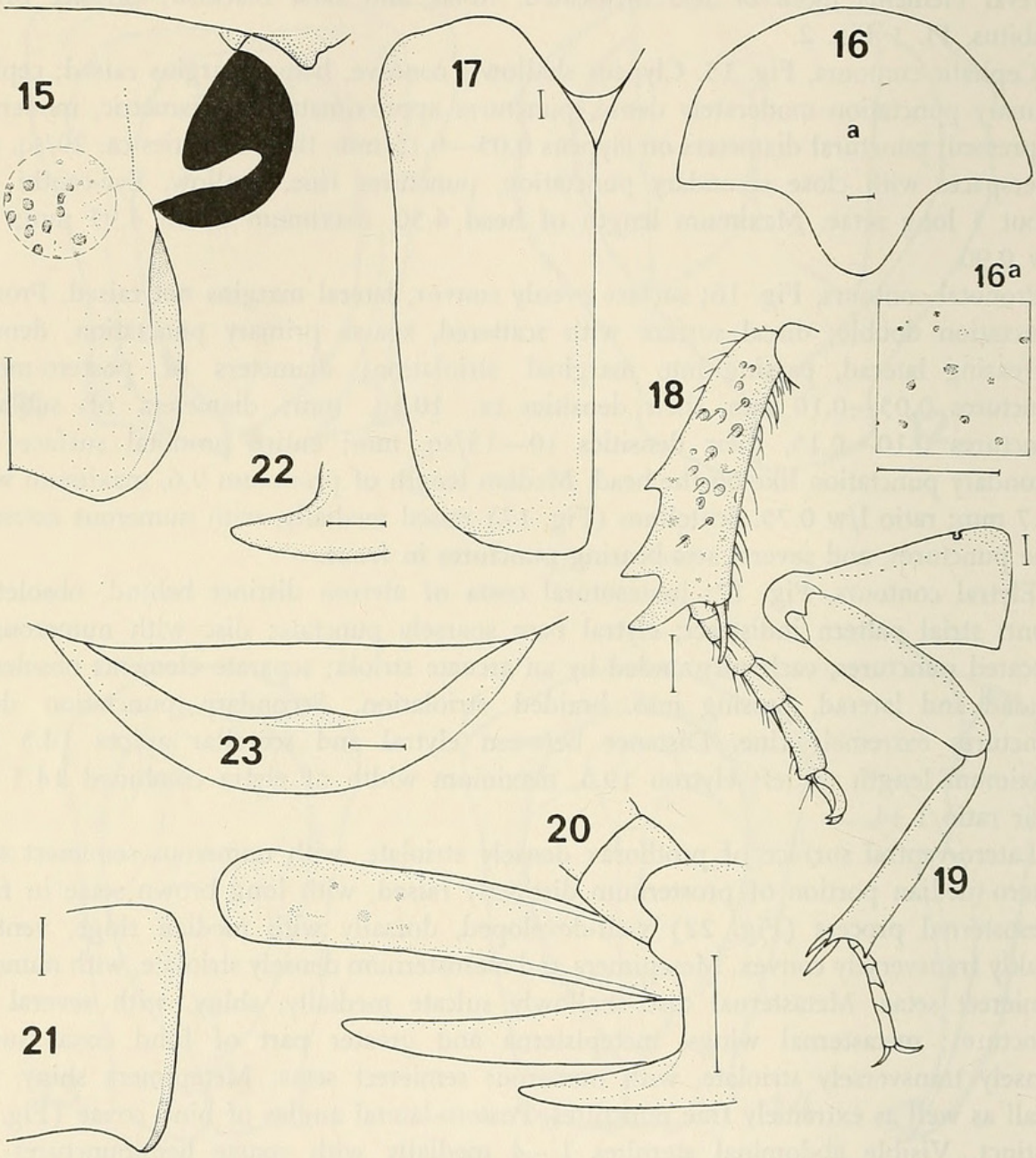

Fig. 15—23. *Tafaia brunnea* sp. nov., ♀ holotype, Top Camp. 15, left half of elytron, inset with details; 16, pronotum, 16a, enlarged details of pronotal disc (point a); 17, left elytron, scutellum; 18, right fore tibia, superior side; 19, right hind leg; 20, apex right hind tibia; 21, lateral part of hind coxa; 22, mesosternal process, laevo-lateral; 23, pygidium 15, 18—19, full-face, 16—17, dorsal, 20, dextro-lateral, 21, 23, ventral view. Scale-lines = 1 mm

Inferior side of middle and hind femora sparsely striolate-punctate, with semierect setae, mixed with many irregularly set punctules.

Variation. — Length 30—31.5 mm. No taxonomically noteworthy differences among the few females at hand.

Diagnostic remarks. — *Tafaia brunnea* may be identifiable from the sculptural features of many body-parts and the following combination of characters. Dorsum brown, concolorous, tibiae entirely blackish. Mesosternal process well-developed, tapering. Postero-lateral angle of hind coxae distinct. Spatulate spur of hind tibiae (in the female) relatively narrow. Pronotal borders immarginate. Elytral striation obsolete.

Material examined. — 3 females (Leiden museum).

Holotype, western New Guinea, labelled as follows: "Ned. Ind.-American/New Guinea Exped./Top Camp 2100 m/8.II.1939 L. J. Toxopeus". One paratype with the same data, except collected 7.II.1939; another from the Wissel Lakes area: Digitara, ult.XI.1939, leg. J. Hoeka (K.N.A.G.-Le Roux expedition).

Tafaia difficilis sp. nov.
Fig. 24—29, Pl. 1 Fig. 3

Female (holotype). — Approximate length 31, width 17, height 11.5 mm. Dark brown, more or less shiny, pronotum very shiny; lateral portions of thoracic segments (including pronotum), as well as hind coxae and sides of pygidium yellow-brown; tips, margins, sutures of several elements more or less infuscated, tibiae blackish; pilosity brown; microsculpture indistinct on head and pronotum (magnification × 50). Habitus, Pl. 1 Fig. 3.

Cephalic contours, Fig. 24. Clypeus concave, antero-lateral borders distinctly raised; clypeo-frontal surface with vague secondary punctation and rugulation; primary punctures closely set anteriorly, approximately isodiametric, shallow, ill-defined, their diameters ca. 0.1 mm, densities in the middle ca 30/sq. mm. Surface of vertex with vague primary and secondary punctures. Eye-canthi with slightly over 10 erect setae. Maximum length of head 4.75, maximum width 5.35 mm; ratio l/w 0.89.

Pronotal contours and disposition of colours, Fig. 25; surface evenly convex; sides shallowly marginate except near postero-lateral angles; lateral zones yellow-brown with an isolated patch of dark brown, discal surface dark brown, extremely shiny. Pronotal primary punctures shallow but distinct, approximately isodiametric, their diameters increasing laterad, lateral punctures with obsolete hind borders and some of them confluent; primary punctures on basal lobe small and sparse; densities of primary punctures on disc about 40 or less/sq. mm, their diameters less than 0.05 mm, increasing laterad to over twice that size for the punctures along the border; secondary punctation dense, covering entire pronotum, punctures extremely fine. Median length of pronotum 9.1, maximum width 12.4 mm; ratio l/w 0.73. Scutellum (Fig. 26) punctate-regulate in front, with numerous semierect setae; posterior surface with exceedingly fine punctation.

Elytral contours, Fig. 26; juxtasutural costa distinct behind, obsolete in front; striae represented by 6 series of well-defined umbilicate punctures, their diameters varying, amounting to nearly 0.5 mm, distances varying as well; distal portions of elytron transversely striolate; remaining surface with fine, sparse, scattered primary punctures, a secondary punctation like on the pronotum, though less dense, and a microsculpture. Distance between elytral and scutellar apices 16.8 mm; maximum length of left elytron 19.8, maximum width of elytra combined 14.5 mm, their ratio 1.38.

Legs and ventral side of body with minute secondary punctures, partly obliterated or replaced by other sculptures. Coxae and ventro-lateral portions of thorax with seta-bearing striolae, metepimera with seta-bearing punctures. Yellow-brown are: proepimeral concavities, humeral extremity of mesepimera, metasternal wings, metepisterna, and metepimera (margins infuscated). Raised antero-median part of prosternum longitudinally sulcate. Mesosternal process (Fig. 28) short. Postero-lateral angle of hind coxae (Fig. 27) rounded. Visible abdominal sternites striolate-setose, 2—4 with many sparsely set, small hemipunctures bearing semierect setae; anteanal sternite with coarser, large,

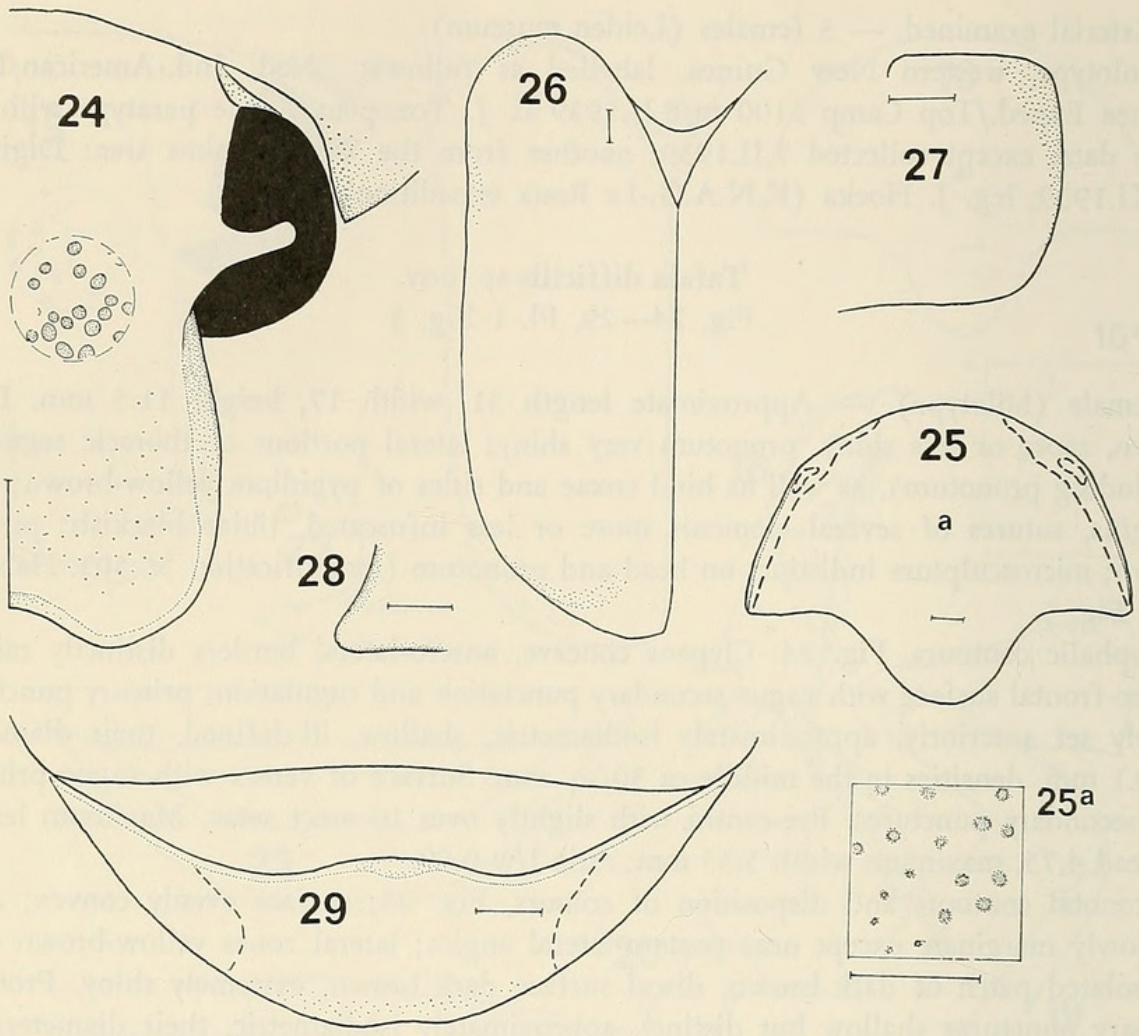

Fig. 24—29. *Tafaia difficilis* sp. nov., ♀ holotype, Moss Forest Camp. 24, left half of head, inset with details; 25, pronotum, 25a, enlarged details of pronotal disc (point a); 26, left elytron, scutellum; 27, lateral part of hind coxae; 28, mesosternal process, laevo-lateral; 29, pygidium. 24, full-face, 25—26, dorsal, 27, 29, ventral view. Scale-lines = 1 mm

seta-bearing hemipunctures, their diameters ca 0.1 mm, density in the middle ca 7/sq. mm; anal sternite transversely striolate with some inconspicuous punctures lacking setae. Pygidium (Fig. 29) with arcuate apical outline (seen from above), extreme apex lightly emarginate; dorsal and ventral sides distinctly separated, ventral side with median longitudinal callosity, but apex slightly impressed; sculpture consisting of approximately concentric striolae, obliterated on ventral surface; setae sparse, fine, inconspicuous.

Fore tibia with 3 denticles and well-developed terminal spur, like in *T. brunnea*; superior side with numerous scattered, rather large seta-bearing hemipunctures, inferior side with several smaller seta-bearing punctures. Fore femur with many small seta-bearing punctures above, larger seta-bearing hemipunctures beneath. Middle and hind tibiae with scattered medium-sized hemipunctures bearing coarse semierect setae; external side of middle tibiae with spine-like projection slightly behind the middle; superior terminal spur of hind tibiae spatulate, longer than simply acuminate inferior one; spurs of middle tibiae of equal length, acuminate; middle tibiae with many, hind tibiae with few seta-bearing hemipunctures, their dimensions variable. Inferior side of middle and hind femora with scattered hemipunctures bearing semierect setae, less sparse on the middle ones.

Diagnostic remarks. — *Tafaia difficilis* may be identifiable from the following combination of characters. Mesosternal process short. Postero-lateral angle of hind coxae obsolescent. Pronotum with yellow-brown lateral margins enclosing a dark patch halfway pronotal length. Sculptural features of dorsum distinctive as well.

Material examined. — Holotype, western New Guinea, labelled thus: "Neth. Ind.-Amer. New/Guinea Exped. 2600—/2800 m. Moss Forest/ Camp 9.X.—5.XI.1938/L. J. Toxopeus leg." (Leiden).

Note. — See at the end of the following description.

Tafaia sp.
Fig. 13, Pl. 1 Fig. 4

Male. — Approximate length 26, width 12, height 9 mm. Dark brown, largely shiny; lateral portions of thoracic segments (including pronotum) as well as hind coxae and most of pygidium yellow brown; tips, margins, sutures more or less infuscated; pilosity brown; most of integument with microsculpture (magnification × 50). Habitus, Pl. 1 Fig. 4.

Cephalic contours largely similar to those of *T. difficilis* (preceding description). Clypeus concave, lateral borders distinctly raised; clypeo-frontal surface with vague secondary punctation and rugulation; primary punctures closely set anteriorly, approximately isodiametric, very shallow and ill-defined. Vertex with more distinct primary punctures and exceedingly fine secondary ones. Eye-canthi with slightly more than 10 erect setae. Maximum length of head 4.65, maximum width 4.70 mm; ratio l/w 1.00.

Pronotal contours and disposition of colours largely similar to those of *T. difficilis*; surface evenly convex; sides shallowly marginate except near postero-lateral angles. Pronotal primary punctures approximately isodiametric, shallow but distinct, their hind borders more or less obsolescent; primary punctures of basal lobe fine; densities of discal primary punctures ca 25—30/sq. mm, their diameters ca 0.05 mm; extremely fine secondary punctation covering entire pronotum. Maximum length of pronotum 8.15, maximum width 10.2 mm; ratio l/w 0.81. Scutellum (shaped like in *T. difficilis*) punctate in front, with some setae; apical surface with exceedingly fine punctures.

Elytral contours and disposition of striae largely similar to those of *T. difficilis*; juxtasutural costa distinct behind, obsolete in front; striae represented by several irregular series of ill-defined impressions, basally with traces of genuine punctures in their centres, distally these impressions are irregularly confluent; surface on and around apical umbone non-striolate, slightly uneven; entire surface with secondary punctation like on pronotum. Distance between elytral and scutellar apices 11.6 mm; maximum length of left elytron 15.9, maximum width of elytra combined 12.3 mm, their ratio 1.30.

Legs and ventral side of body with minute secondary punctures. Ventro-lateral portions of prothorax striolate, partly setose, posterior concavity yellow-brown, other thoracic elements also yellow-brown, as in *T. difficilis*. Raised antero-median part of prosternum longitudinally sulcate. Mesosternal process short. Mesepimera proximally with seta-bearing striolae, elsewhere, on metepisterna, metasternal wings, and hind coxae, with sparse, small, seta-bearing hemipunctures, some of them transversely confluent. Postero-lateral angle of hind coxae shortly rounded. Abdominal sternites with very sparsely set, very small hemipunctures, partly bearing fine semierect setae; anal

segment with fine subtransverse striolae laterally. Superior surface of pygidium with similar fine striolae, inferior side with sparse, small punctures; anal border marginate.

Fore tibia with only two denticles, terminal spur well-developed; both sides with a number of small hemipunctures, a few of them bearing fine setae. Inferior side of middle and hind tibiae with scattered hemipunctures bearing semierect setae, denser on the middle ones, external projections lacking, spurs of middle and hind tibiae simply tapering, superior spurs longer than inferiors. Inferior side of fore and middle femora sparsely provided with small punctures, some of them bearing setae; hind femora almost entirely smooth and glabrous beneath.

Parameres, Fig. 13.

Material examined. — One specimen (Leiden), western New Guinea, labelled thus: "Neth. Ind. - Amer. New/Guinea Exped. 2600—/2800 m. Moss Forest Camp 9.X.—5.XI.1938/L. J. Toxopeus leg.".

Note. — This specimen may represent the male sex of *T. difficilis* sp. nov., since the features mentioned in the key to the species (couplet 5) may be only sexual. As I am not certain of its identity, I am describing this male separately, without naming it.

Tafaia bacchusi sp. nov.

Fig. 14, 30—41, Pl. 1 Fig. 5

Male (holotype). — Approximate length 22.5, width 16, height 7 mm. Cupreous yellow-brown: head, thorax, scutellum, pygidium, all weakly shiny; elytra, legs, antennae, abdominal sternites much darker brown, moderately shiny; most parts with a faint tinge of green; tips, margins, sutures of several parts more or less infuscated; entire integument more or less shagreened; pilosity brown. Habitus, Pl. 1 Fig. 5.

Cephalic contours, Fig. 30. Clypeus shallowly concave, margins raised, rather abruptly declivous laterally; cephalic surface slightly uneven, almost entirely crowded with minute punctures; clypeus with many vague puncture-like impressions; surface adjacent to eyes as well as eye-canthi with a number of distinct fine punctures, crowded punctulation absent there. Maximum length of head 3.65, maximum width 4.15 mm; ratio l/w 0.89.

Pronotal contours, Fig. 31; surface evenly convex, sides marginate, except near shortly rounded postero-lateral angles. Pronotal sculpture like that of the head, minute punctures not crowded though closely set, more than 100/0.25 sq. mm; disc with small superficial impressions, their diameters not exceeding 0.1 mm; impressions of lateral surface arcuate, margins almost striolate. Maximum length of pronotum 7.3, maximum width 8.9 mm; ratio l/w 0.82. Scutellum (Fig. 32) almost smooth.

Elytral contours, Fig. 32; juxtasutural costa of elytron distinct behind, obsolete in front; disc with several more or less arcuate punctures which distally pass into striolae, particularly around apical umbone; entire surface covered with closely set, minute punctures. Distance between elytral and scutellar apices 10.2 mm; maximum length of left elytron 13.5, maximum width of elytra combined 10.9 mm, their ratio 1.24.

Outline of antenna and mouthparts, Fig. 37—41. Femora, tibiae, and ventral side of body with cover of minute secondary punctures; ventro-lateral portions of thorax with distinct though in places very superficial striolation. Antero-median portion of prosternum distinctly raised, with long brown setae in front. Mesosternal process (Fig. 35) well-developed; parts of ventral elements of mesothorax with erect setae. Metasternum with hemipunctures passing into striolae laterad, many bearing subappressed to erect

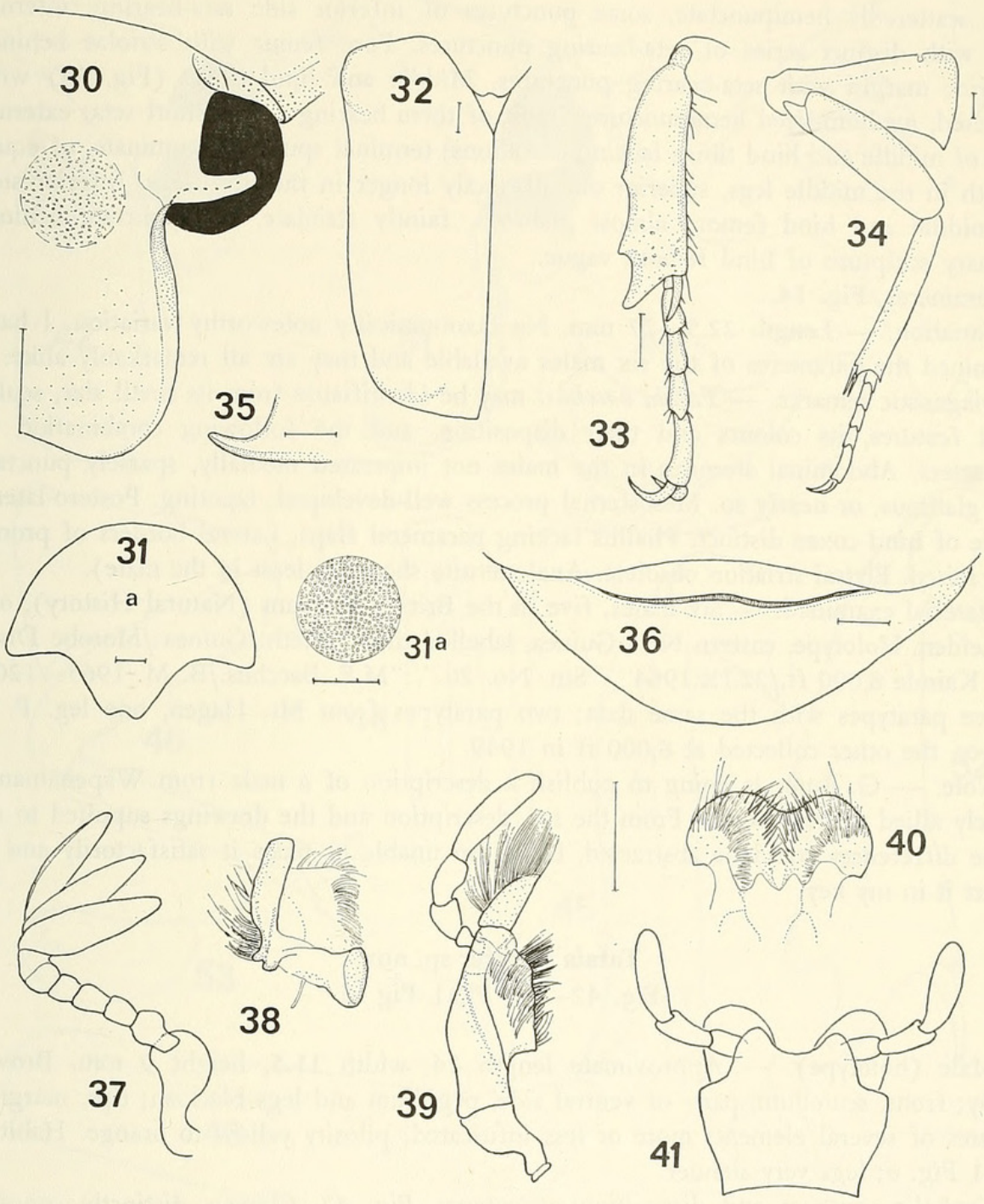

Fig. 30—41. *Tafaia bacchusi* sp. nov., ♂ paratype, Mt. Kaindi. 30, left half of head, inset with details; 31, pronotum, 31a, enlarged details of pronotal disc (point a); 32, left elytron, scutellum; 33, right fore tibia, superior side; 34, right hind leg; 35, mesosternal process, laevo-lateral; 36, pygidium; 37, right antenna; 38—41, mouth-parts, 38, right mandible, 39, right maxilla, 40, labrum, 41, mentum and labium. 30, 33—34, full-face, 31—32, dorsal, 36—41, ventral view. Scale-lines = 1 mm, except 31a = 0.3 mm

fine, very inconspicuous setae; disc with secondary punctation only. First visible abdominal sternite striolate, lateral portions of following very vaguely striolate, medial surface at most slightly wrinkled. Pygidium (Fig. 36) with arcuate apical outline (seen from above), dorsal and ventral surface separated; sculpture consisting of approximately concentric striolae, obliterated on ventral side.

Fore tibia (Fig. 33) with 3 denticles and well-developed terminal spur; both sides of

tibia scatteredly hemipunctate, some punctures of inferior side seta-bearing, internal side with distinct series of seta-bearing punctures. Fore femur with striolae behind, anterior margin with seta-bearing punctures. Middle and hind tibiae (Fig. 34) with scattered, medium-sized hemipunctures, most of them bearing a fine short seta; external side of middle and hind tibiae lacking elevations; terminal spurs all acuminate, of equal length in the middle legs, superior one distinctly longer in the hind legs. Inferior side of middle and hind femora almost glabrous, faintly striolate, hemipunctate behind, primary sculpture of hind femora vague.

Parameres, Fig. 14.

Variation. — Length 22.5—27 mm. No taxonomically noteworthy variation. I have examined the parameres of the six males available and they are all remarkably alike.

Diagnostic remarks. — *Tafaia bacchusi* may be identifiable from its small size, sculptural features, its colours and their disposition, and the following combination of characters. Abdominal sternites in the males not impressed medially, sparsely punctate and glabrous, or nearly so. Mesosternal process well-developed, tapering. Postero-lateral angle of hind coxae distinct. Phallus lacking parameral flaps. Lateral borders of pronotum raised. Elytral striation obsolete. Anal sternite short (at least in the male).

Material examined. — Six males, five in the British Museum (Natural History), one in Leiden. Holotype, eastern New Guinea, labelled thus: "Neth. Guinea:/Morobe Dist./ Mt. Kainde 8,000 ft./22.IX.1964", "Stn. No. 20.", "M.E. Bacchus./B. M. 1965—120". Three paratypes with the same data; two paratypes from Mt. Hagen, one leg. F. S. Mayer, the other collected at 8,000 ft in 1949.

Note. — G. Ruter is going to publish a description of a male from Wapenamanda closely allied to this species. From the ms. description and the drawings supplied to me some differences could be abstracted, but I am unable to place it satisfactorily and to insert it in my key.

Tafaia signifer sp. nov.

Fig. 42—53, Pl. 1 Fig. 6

Male (holotype). — Approximate length 24, width 11.5, height 9 mm. Brown, shiny; frons, scutellum, parts of ventral side, pygidium and legs blackish; tips, margins, sutures of several elements more or less infuscated; pilosity yellow to orange. Habitus, Pl. 1 Fig. 6; legs very slender.

Cephalic contours and disposition of colours, Fig. 42. Clypeus distinctly concave, margins strongly raised, particularly along anterior emargination, clypeal surface with close primary punctation, punctures deep, well-defined, more or less isodiametric, many bearing erect setae; punctural diameters 0.05—0.15 mm, their densities 50—60/sq. mm; secondary punctures vague, scattered, minute. Punctation of blackish posterior part of head sparse in the middle, close beside eyes; these punctures medium-sized, with fine setae; secondary punctation indistinct. Eye-canthi with a number of fine seta-bearing punctures. Maximum length of head 4.2, maximum width 4.2; ratio l/w 1.00.

Pronotal contours, Fig. 43; surface shallowly, evenly convex; lateral margin broadly thickened, except behind; basal lobe extensive, its apex distinctly notched. Medial surface of pronotum sparsely punctate, punctures distinct, approximately isodiametric, their diameters on disc 0.05—0.10 mm, densities 10—20/sq. mm; lateral punctation dense, more or less transverse, particularly in front, passing into poorly pronounced marginal

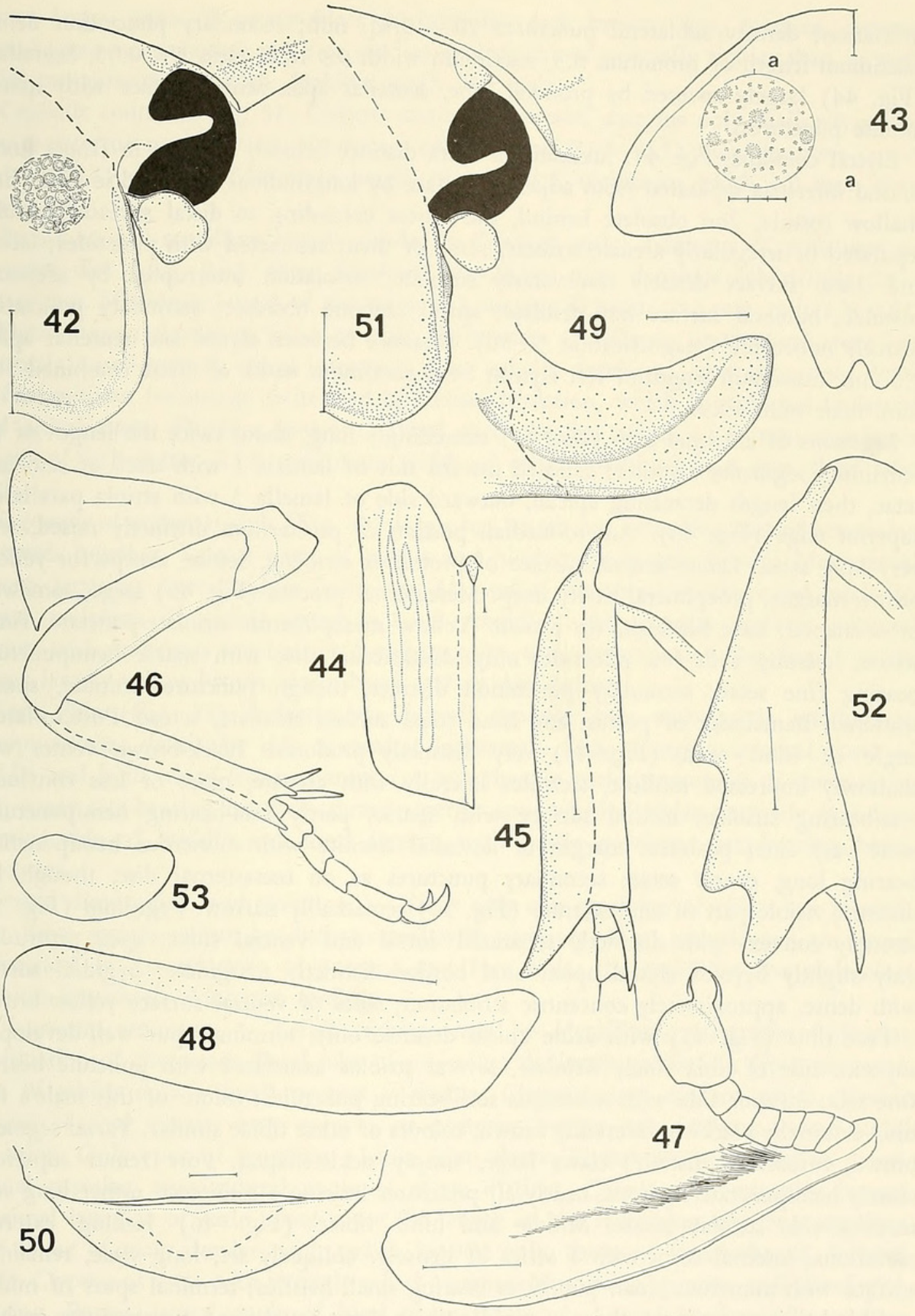

Fig. 42—53, *Tafaia signifer* sp. nov.; 42—50, ♂ holotype, Mt. Kaindi; 51—53, ♀ allotype, Bulolo. 42, left half of head, inset with details (setosity indistinct from above); 43, left half of pronotum, inset a with enlarged details of centre (point a) of pronotum; 44, left elytron, scutellum; 45, right fore tibiae, superior side (no details); 46, left hind leg; 47, left antenna; 48, outside of 3rd lamella; 49, mesosternal process, with indication of colour limit, dextro-lateral view. 51, left half of head; 52, right fore tibia, superior side; 53, outside of 3rd antennal lamella. 42, 45, 46, 51, 52, full-face, 43—44, dorsal view. Scale-lines = 1 mm, except inset 43a = 0.3 mm

striolation; density sublateral punctures 20—30/sq. mm; secondary punctation dense. Maximum length of pronotum 8.3, maximum width 9.9 mm; ratio l/w 0.83. Scutellum (Fig. 44) largely covered by pronotal lobe, scutellar apex acute, surface with sparse, minute punctures.

Elytral contours, Fig. 44; juxtasutural costa distinct behind, obsolete in front; juxtasutural interstria separated from adjacent surface by longitudinal striola; disc with three shallow costula, 2nd obsolete behind, the others extending to distal surface; costulae separated by irregularly arcuate striolae, some of them associated with punctules; lateral and distal surface densely transversely striolate, striolation interrupted by aforesaid costulae; humeral surface non-striolate; apical umbone obsolete; secondary punctation scarcely noticeable (magnification × 50). Distance between elytral and scutellar apices 9.6 mm; maximum length of left elytron 14.0, maximum width of elytra combined 10.9 mm, their ratio 1.29.

Segments of antennal club (Fig. 47) exceedingly long, about twice the length of the remaining segments together; exposed inward side of lamella 1 with track of semierect setae, their length decreasing apicad, outward side of lamella 3 with striola paralleling superior edge (Fig. 48). Antero-median portion of prosternum distinctly raised, with very long setae. Latero-ventral surface of prothorax striolate, setose, except for yellow-brown margin; proepimeral cavity deep. Mesosternal process (Fig. 49) large, somewhat prow-shaped; base blackish, tip brown. Yellow mesepimeron striolate-punctate, finely setose, laterally with few punctules only. Metasternal disc with sparse hemipunctules bearing fine setae; secondary punctation distinct, though punctures minute, sparse, scattered. Remainder of pectus, and hind coxal surface striolate, setose. Postero-lateral angle of hind coxa (Fig. 46) very distinctly produced. Black-brown venter with shallowly impressed midline, sternites laterally with arcuate, more or less confluent, seta-bearing striolae; medial surface with sparse, partly seta-bearing hemipunctures, setae very fine; posterior margin of anteanal sternite with numerous hemipunctures bearing long, coarse setae; secondary punctures as on metasternal disc, though less distinct; visible part of anal sternite (Fig. 50) remarkably narrow. Pygidium (Fig. 50) strongly convex, with distinctly separated dorsal and ventral sides; apex protruding only slightly beyond elytral apex; anal border distinctly marginate; pygidial surface with dense, approximately concentric striolation; sides of ventral surface yellow-brown.

Fore tibia (Fig. 45) with acute apical denticle only, terminal spur well-developed; superior side of tibia finely striolate, several striolae associated with punctule bearing fine seta; inferior side with numerous seta-bearing punctules; colour of this male's fore tibia externally blackish, internally brown, colours of other tibiae similar. Tarsal segments brown, infuscated distally; claws large, simply sickle-shaped. Fore femur superiorly closely hemipunctate in front, nearly all punctures bearing a semierect, rather long seta; inferior side striolate-setose. Middle and hind tibiae (Fig. 46) lacking external elevations; internal costa with a series of densely, obliquely set, long setae, remaining surface with numerous small punctures bearing small bristles; terminal spurs of middle and hind tibiae acuminate, those of middle tibiae about equal-sized, superior one on hind tibiae slightly longer than inferior; tarsal segments of middle and hind tibiae slightly compressed. Inferior side of middle and hind femora striolate, setose, setae long, semiappressed.

Parameres asymmetric, apparently mis-shapen; two separated flaps present.

Female (allotype). — Approximate length 23, width 12, height 8.5 mm. Brown,

shiny; frons, parts of pectus blackish; sternites dark brown; tips, margins, sutures, lateral spots on pronotum more or less infuscated; colour generally lighter than in male holotype; pilosity yellowish. Habitus much like male.

Cephalic contours, Fig. 51. Clypeus distinctly concave, margins only shallowly raised along anterior margination; diameters of punctures 0.05—0.15 mm, densities ca. 15 and less/0.25 sq. mm. Maximum length of head 4.2, maximum width 4.0 mm; ratio l/w 1.05.

Pronotum and scutellum largely similar to those of male; diameters of punctures on pronotal disc 0.05—0.10, their densities 10—20/sq. mm; densities sublaterally 20—30/sq. mm. Maximum length of pronotum 8,3, maximum width 10.3 mm; ratio l/w 0.81.

Elytra largely similar to those of male, differences as follows; juxtasutural costa less distinctly raised behind; discal interstriae more equally developed, extending onto distal surface without becoming obliterated by dense striolation, which is restricted to lateral and apical parts. Distance between elytral and scutellar apices 11.6 mm; maximum length of left elytron 14.6, maximum width of elytra combined 11.8 mm, their ratio 1.21.

Segments of antennal club (Fig. 53) large, but length not exceeding that of remaining segments together. Lateral parts of pectus and hind coxae largely brown. Mesosternal process tapering, lateral ridges indistinct. Abdominal sternites not impressed medially, lateral sculpture of visible sternites 1—4 extending onto medial surface; anteanal sternite with numerous seta-bearing hemipunctures, their densities ca 12/sq. mm. Pygidial colour largely yellow-brown, dorso-basal surface dark-brown.

Fore tibia (Fig. 52) 3-denticulate, broad; superior side with partly seta-bearing hemipunctures; denticular side somewhat infuscated. Setae fringing internal costa of middle and hind tibiae less numerous (ca 30) than in male; remainder of these tibiae with many seta-bearing hemipunctures; superior spur of hind tibiae narrowly spatulate. Inferior side of middle and hind femora with partly confluent seta-bearing hemipunctures.

Sexual dimorphism and variation. — Since only one specimen of either sex is available, these aspects cannot be distinguished with certainty. Most conspicuous are sexual differences in the structure of antenna and fore tibia; the male has the abdominal sternites impressed along the midline.

Diagnostic remarks. — *Tafaia signifer* may be identifiable from the following combination of characters. Basal lobe of pronotum distinctly notched in front of scutellum, of which only a small portion is visible. Clypeo-frontal surface setose. Visible portion of anal sternite very narrow, its posterior border not reaching ventro-dorsal transition. Only apex of pygidium visible from above. Elytral disc with shallow longitudinal costulae, apico-sutural angle of elytra distinct. Colour predominantly brown. Antennal lamellae of male about twice the length of the remaining segments together. Fore tibiae of male slender, with apical denticle only, those of female broad, 3-denticulate. Clypeus of male with strongly raised margins. Mesosternal process well-developed, tapering. Postero-lateral angle of hind tibiae produced. Lateral borders of pronotum distinctly raised.

Material examined. — One male, one female, Department of Agriculture, Port Moresby, to be deposited in the British Museum (Natural History). Holotype, eastern New Guinea, with locality-label reading: "In flight./Mt. Kaindi/ Wau, M. Dist./ 18.1.1970 F. R. Wylie". Allotype from the same region: Morobe Dist.: Bulolo, 25.XI. 1968, leg. F. R. Wylie, taken from "gauze screen house".

Approximate location altitude of places mentioned above[1])

Bulolo	7° 12′ S	146° 39′ E	600 m
Digitara	3° 41′	136° 28′	1800—2200
Hagen, Mt.	5° 45′	144° 05′	2400
Kaindi, Mt.	7° 21′	146° 43′	2400
Moss Forest Camp	4° 00′	138° 43′	2650—2800
Tafa, Mt.	8° 38′	147° 07′	1800
Top Camp	3° 30′	139° 02′	2100
Wapenamanda	5° 40′	143° 55′	1750—2700

[1]) To be located: Mt. Jimmi (E New Guinea, between Baiyer River and Jimmi River, high altitude, collections made by Jolivet, 1969).

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