

Aglycyderidae of the Society Islands¹ (Coleoptera: Curculionoidea)

Elwood C. Zimmerman² and Gérard H. Perrault³

ABSTRACT

Four species of *Proterhinus* are recorded from the Society Islands for the first time. Three of these, *P. brevicornis* (from Tahiti and Tahaa), *P. fimbriatus* (from Tahiti, Moorea, and also from Rurutu in the Austral Islands), and *P. gourvesi* (from Tahiti), are new to science. The fourth species, *samoae*, is widely distributed in Polynesia on *Cocos nucifera* and is now reported from Huahini, Raiatea, and Maupiti.

RÉSUMÉ

Quatre espèces de *Proterhinus* sont rapportées pour la première fois des îles de la Société. Trois de celles-ci, *brevicornis* (de Tahiti et Tahaa), *fimbriatus* (de Tahiti, Moorea, et aussi de Rurutu dans les îles Australes), et *gourvesi* (de Tahiti), sont nouvelles pour la science. La quatrième espèce, *samoae*, largement distribuée en Polynésie sur *Cocos nucifera*, est à présent citée de Huahine, Raiatea, et Maupiti.

INTRODUCTION

No species of the primitive curculionoid family Aglycyderidae (= Proterhinidae) has been described heretofore from the Society Islands, but Zimmerman (1935, 1948) noted that he had discovered undescribed species in the islands in 1934. We now record 4 species, 3 of them new, from the Society Islands.

The Aglycyderidae were first made known by Westwood when he exhibited specimens from the Canary Islands (off the west coast of North Africa) at the December 1863 meeting of the Entomological Society of London. Westwood (1864) described these as *Aglycyderes setifer*. Since then, species of Aglycyderidae have been described from the New Caledonia area, New Zealand, Samoa, the Phoenix Islands, the Marquesas, and the Hawaiian Islands, and E.C.Z. has under study new species from other mid-Pacific islands. When R.C.L. Perkins (1907) described *Proterhinus samoae*, the first *Proterhinus* to be found outside Hawai'i, he wrote: "I anticipate that when the islands of the Southern Pacific are thoroughly investigated by skilled collectors of Micro-coleoptera that other forms of Proterhinidae will be discovered, and possibly some that will more nearly connect these with *Aglycyderes*." Perkins's prophecy has been proven correct.

The greatest contemporary development of the Aglycyderidae is in Hawai'i, where *Proterhinus* Sharp, 1878, long ago found a safe haven and where more than 200 species now exist. In

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Hawai'i, aglycyderids are among the most common, abundant, and widely distributed of the endemic Coleoptera. Elsewhere only a few uncommon or rare species represent the remnants of a mostly extinct group of Coleoptera that is, among living groups of curculionoids, most closely allied to the Belidae (now found in South America, New Zealand, Australia, and New Guinea) and Oxycorynidae (now living in South America, South Africa, and Indomalaya). Aglycyderidae was probably extensively developed in the Cretaceous. The reason it is now restricted to islands and has disappeared from continents is shrouded in mystery. It is especially inexplicable why none has been found in Australia, where Belidae reaches its greatest development, because Aglycyderidae is present in the nearby ancient islands of New Caledonia and New Zealand. Jean Menier (1974) described a new species of *Aglycyderes* from southern Morocco. This is the first record of a member of the family from a continent, and if the record represents a truly distinct species and not just an established colony of the variable Canary Island species, the continental African discovery is of particular interest.

In 1934, as a member of the Mangarevan Expedition to southeastern Polynesia, E.C.Z. searched especially for *Proterhinus* in the Society Islands. He was able to find only 3 specimens, each representing a different species. In 1961, the late J.L. Gressitt of Bishop Museum collected 5 examples of a new species on Mount Aorai, the 2nd highest mountain on Tahiti. Collections made in 1973, 1974, and 1975 by G.H.P. and M.J. Gourvès and in 1985 by G.H.P. produced multiple specimens of 2 species from Tahiti, of which one was the species found by Gressitt, and single examples of 2 other species, 1 from Tahiti and 1 from Huahine. Gustav Paulay collected 1 specimen each of 2 of these on Mount Marau in 1977 and 1984. A single specimen of 1 of them was also found on Mount Aorai by B.H. Gagné in 1972. Although E.C.Z. had carefully searched for *Proterhinus* in September 1934 on the same plant species at the same localities on Mount Aorai where Gressitt, G.H.P., and Gourvès later found *Proterhinus*, he failed to find any specimens. Moreover, E.C.Z. found only 1 example of *Proterhinus* on Moorea, 1 on Raiatea, and 1 on Tahaa. In view of the methods used by E.C.Z. to collect specimens, and the fact that he has collected large numbers of the genus, especially in Hawai'i, we have concluded that there are few species of *Proterhinus* in the Society Islands and that they are evidently mostly rare. The reason for the abundance of *Proterhinus* in Hawai'i and its rarity elsewhere remains an enigma.

The following Aglycyderidae are now known from the Society Islands:

Proterhinus brevicornis, n. sp.: Tahiti, Tahaa.

Proterhinus fimbriatus, n. sp.: Tahiti, Moorea (and Rurutu, Austral Islands).

Proterhinus gourvesi, n. sp.: Tahiti.

Proterhinus samoae Perkins: Huahine, Raiatea, and Maupiti (introduced from western Polynesia).

The holotypes of the new species here described are deposited in Bishop Museum in Honolulu, which houses the world's largest collection of Polynesian insects. Paratypes, where available, are deposited in the Museum National d'Histoire Naturelle in Paris and in the British Museum (Natural History) in London.

Specimens of the 3 new species collected on Tahiti were mostly taken by beating low vegetation, shrubs, and trees, including *Cyathea* and other ferns, *Metrosideros*, and *Weinmannia*, growing on or near the windblown crests of high ridges above 1,000 m.

Key to the *Proterhinus* of the Society Islands

1. Strongly depressed, explanate species with anterolateral corners of prothorax acute and conspicuously projecting cephalad; lateral margins of pronotum and elytra armed with a continuous row of very conspicuous, long, sharply pointed setae, forming a fringe (Figs. 33-38, 56) *fimbriatus*, n. sp.
- Facies not as above 2

- 2(1). First antennal segment appearing mostly nude, with only a few fine, subapical setae, segments 3–8 each with only 1 whorl of fine setae; antennae not capable of extending caudad of base of pronotum (Figs. 29–32, 51–52, 57) *brevicornis*, n. sp.
 First antennal segment densely clothed dorsad with coarse setae and setulae that partly or mostly conceal the derm, segments 3–8 with more than 1 whorl of fine setae; antennae capable of extending over base of elytra 3
- 3(2). Longitudinal dorsal contour of elytra (viewed from side) continuously convex from base to apex; antennal segments 10 and 11 more or less similar in shape to segment 9 . . . (flightless species found on native vegetation in the high mountains of Tahiti) (Figs. 39–42, 50, 54) *gourvesi*, n. sp.
 Elytra almost flat longitudinally from base to top of caudal declivity; antennal segments 10 and 11 broader than 9 . . . (fully winged species found normally on *Cocos nucifera* in the lowlands) (Figs. 43–48, 53, 55) *samoae* Perkins

Proterhinus brevicornis Zimmerman & Perrault, new species Figs. 29–32
 (♂, ♀), 51–52 (antennae), 57 (metapleural area)

♂ (holotype). Facies as in Fig. 29; subcylindrical in form. *Derm* mostly rufous to piceous; vestiture mostly yellowish or golden with some rather poorly defined condensations of golden squamules on elytra. *Head and rostrum* as in Fig. 30; widest at a point about length of an eye in front of eyes, at this point as wide as distance across eyes; width subequal to total length of head and rostrum, width divided into greatest width of pronotum = 1.35; surface entirely densely punctate, punctures much larger and coarser on head; microsculpture coarse and conspicuous on entire surface, with a large, broad, shallow concavity on each side of medial line (latter narrowly cariniform on holotype but probably variable); with coarse, decurved squamules, scattered erect setae, and more conspicuous, longer, erect, sharply pointed, marginal and submarginal setae. *Antennae* as in Figs. 29, 52, not capable of reaching caudad of base of prothorax; segment 1 (total length measured from beneath head) as long as segment 2 + about 1/2 of 3, only slightly wider than 2; 2 as long as 3 + about 1/2 of 4; 3 as long as 4 + about 1/2 of 5; 6, 7, and 8 each successively slightly shorter; 8 about 3/4 as wide as long and about 1/2 as long as 3; clava appearing to be formed of segments 10 and 11, which are about 2x as wide as 9; total length of segments 9–11 subequal to combined length of segments 4–8 inclusive; segments 1 and 2 with only a few erect hairlike setae and no squamules; segments 3–8 each with only 1 whorl of long, fine setae. *Prothorax* shaped as in Fig. 29; widest at about middle and there a little wider than length, somewhat longer than head + rostrum and a little less than 1/2 as long as elytra; anterior corners angular and slightly produced behind extreme apex; pronotum densely and coarsely punctate and coarsely reticulate, with a row of conspicuous, short, erect setae around margins and a few mostly shorter, scattered erect setae in addition to the decurved squamules. *Scutellum* nude. *Elytra* as in Fig. 29; surface lacking elevations or depressions; humeri rounded, not produced; microsculpture noticeably less coarse than on pronotum; punctures large and dense; decumbent squamules rather sparsely distributed but with some irregular patches of condensed squamules; with 4 longitudinal rows of long, erect, sharp, spikelike setae (some of the rows may be incomplete) in addition to a row of similar setae that extends along lateral margin from above ventrite 3 to around apex. *Legs* with erect, mostly sharply pointed setae on femora and tibiae comparatively short (mostly not more than about 1/3 as long as long erect elytral setae and conspicuously different in appearance from latter); 3 pairs of femora rather similar in shape; tarsi with segment 3 (excluding claws) extending beyond apex of 2 as far as length of 2, lobes asymmetrical. *Ventral surface* mostly with microsculpture moderately coarse; prosternum, metasternum, and ventrite 1 densely, coarsely punctate; ventrites 2–5 successively less obviously punctate; mesosternum coarsely punctured only along caudal margin; setae moderate, fine, sharply pointed, slanting erect; distances separating pro-, meso-, and metacoxae subequal; medial length of metasternum distinctly

longer than distance between mesocoxae and as long as or a little longer than ventrites 2+3; ventrite 1 with medial length as long as ventrites 2-3 + ½ of 4; ventrite 2 a little longer than 3; 3 and 4 subequal in length; 5 distinctly longer than 1.

♀. Head, rostrum, and facies as in Figs. 31-32; width across eyes conspicuously greater than greatest width in front of eyes, lateral contours of head and rostrum narrowed from eyes to mandibles; dorsal separation of head and rostrum ill defined but, assuming base of rostrum to be at bases of sulci, length (excluding mandibles) and basal width subequal and distance from front of an eye to apex of epistoma as great as interocular distance + an eye; with 6 well-defined dorsal sulci that bear erect, sharp setae.

Total length 3.25-3.40 mm; width 1.0-1.2 mm.

Distribution. Society Islands: Tahiti and Tahaa.

Type specimens. SOCIETY IS. TAHITI: holotype ♂, [Mt] Pito Iti, crest of mt, 900-1,000 m [not labeled with date of capture, 1973 or 1974] (Gourvès) (BPBM 13785); allotype ♀, Mt Marau, 1,300 m, 29.VIII.1984, on fern (Paulay) (BPBM). TAHAA: paratype ♀ (teneral specimen), Mt Purauti, E ridge, ca. 420 m, 11.X.1934, beaten from *Devalia solida* (Zimmerman).

Remarks. The short antennae whose first segment bears only a few fine setae will alone serve easily to distinguish this species from the other species of *Proterhinus* known from the Society Islands.

***Proterhinus fimbriatus* Zimmerman & Perrault, new species**

Figs. 1-6

(♂ genitalia), 17-19 (♀ genitalia), 33-38 (♂, ♀), 49 (antenna), 56 (metapleural area)

♂. Facies as in Fig. 33; a strongly depressed species; usually with a mealy incrustation. *Derm* mostly reddish brown to piceous; vestiture mostly appearing dirty white to pale yellowish and arranged on dorsum as on Fig. 33, but variable. *Head and rostrum* combined (there appears to be no rostrum when viewed from above) as in Figs. 33, 35, and in Fig. 36 of ventral surface; widest at point about equal to length of an eye in front of eyes and there conspicuously wider than width across eyes, about ¼ wider than total length of combined head and rostrum, only slightly narrower than extreme width of prothorax (width divided into extreme width of pronotum = 1.11 on holotype ♂); surface coarsely and closely punctate basad, with coarse reticulate microsculpture distad to epistoma and with a large, shallow, conspicuous depression on each side of medial line in front of middle; cephalic margins with erect, thick, mostly lanceolate setae. *Antennae* as in Fig. 49; capable of reaching nearly to middle of elytra; extreme length of segment 1 (measured from beneath head) somewhat longer than 2+3, almost 2x as thick as 2, with numerous fine, hairlike setae and some coarse prostrate squamules; segment 2 about as long as 3 + ½ of 4; segments 3-8 each successively slightly shorter, all claviform and longer than broad, each with more than 1 whorl of very fine, erect setae; 8 about ½ as long as 2; 9-11 forming a weak clava whose total length is a little longer than funicular segments 5-8. *Prothorax* shaped as in Fig. 33; medial length subequal to that of combined head and rostrum or about ½ medial length of elytra; anterior corners acute, very conspicuously protruded cephalad; lateral margins with a fringe of long, lanceolate, very conspicuous, sharply pointed setae that arise from tuberculiform bases; surface coarsely, closely punctate, mostly shiny (when clean), with fine microsculpture and with very shallow, irregular, variable depressions. *Scutellum* nude. *Elytra* shaped as in Fig. 33; puncturation dense, coarse, confused; lateral margins fringed with very long, conspicuous, lanceolate setae continuous with lateral fringes of prothorax; humeri rounded, not produced; disc of each elytron with an oblique row of long and short, erect, lanceolate setae extending from near suture at top of caudal declivity toward humerus and borne from an irregular, variable carina that terminates at a large, broad, shallow, variable depression at about basal ⅓, usually a less-developed dorsal depression just behind middle, these depressions with derm often darker and with sparser vestiture, vestiture usually

condensed and more conspicuous behind and in front of posterior depressions; another variable row of erect setae similar to those described above on either side of suture; base with a broad, low elevation on either side of scutellum; derm shiny (when clean), with fine microsculpture and dense, coarse punctures. *Legs* with numerous, long, erect, lanceolate setae; 3 pairs of femora similar in shape; tarsi with segment 3 (excluding claws) extending beyond apex of 2 about length of 2, which is asymmetrical. *Ventral surface* with short, sharp setae; abdomen and metasternum dulled by coarse, reticulate microsculpture but prosternum moderately shiny with microsculpture much less developed; puncturation of sternum and ventrite 1 mostly comparatively shallow, punctures of ventrites 2–5 indefinite or absent; mesosternum conspicuously punctate only near caudal margin; metasternum with medial length $\frac{2}{3}$ as great as distance between mesocoxae and subequal to medial length of ventrite 2; ventrite 1 as long as 2 + 3 + about $\frac{1}{3}$ of 4; 3 shorter than 2; 4 shorter than 3; 5 about as long as 1.

♀. Head and rostrum very different from those of ♂, facies as in Figs. 34, 37, 38; width across eyes slightly greater than greatest width of head in front of eyes; rostrum (excluding mandibles) about as long as broad, about as long as head from caudal margin of eyes to base of rostrum, longitudinally multistriate, with numerous, very fine, erect setae.

Total length 3.0–4.0 mm; width 1.0–1.4 mm.

Distribution. Society Islands: Tahiti and Moorea. Austral Islands: Rurutu.

Type specimens. SOCIETY IS. TAHITI: holotype ♂ (BPBM 13786), 3 ♂, 1 ♀, paratypes, Mt Aorai, 1,350 m, 14.IV.1973 (Perrault); allotype ♀, 1 ♀ paratype, Mt Aorai, 12.IV.1974 (Gourvès). Other/additional paratypes. TAHITI: 1 ♂, 2 ♀, Mt Aorai, crest of mt, 1,350 m, 9.IX.1973 (Perrault); Mt Aorai, 1 ♀, 12.IV.1974 (Gourvès); 1 ♀, [Mt] Pito Iti, 1,000 m, 12.IV.1970 (Gourvès); 1 ♀, Mt Marau, 1,300–1,450 m, 15.VII.1973 (Perrault); 1 ♂, 1 ♀, Mt Marau, crest of mt, 1,400 m, 1.VI.1974 (Perrault); 1 ♀, Mt Marau, 1,450 m, 12.II.1974 (Perrault); 1 ♂, 1 ♀, Mt Pito Iti trail, 1,000 m, 30.IV.1977 (Gourvès); 2 ♂, 2 ♀, Mt Marau, summit of mt, 1,400 m, 20.IX.1977 (Gourvès); 1 ♀, Mt Marau, 1,400 m, 18–21.VIII.1977, found under bark (W.C. Gagné); 2 ♂, Mt Marau, 21.X.1985 (Perrault); 1 ♀, [Mt] Pito Iti trail, 1,000 m, 18.XI.1985 (Perrault); 2 ♂, Mt Atara, 1,100 m, 30.XI.1985 (Perrault). MOOREA: 1 ♀, Mt Teaharea, N ridge, about 600 m, 25.IX.1934, beaten from an unidentified shrub (Zimmerman). AUSTRAL IS. RURUTU: 1 ♀, Mt Manureva, SW slope, 300 m, 25.VII.1934, beaten from *Dryopteris* fern (Zimmerman); 2 ♀, same locality, about 335 m, 29.VII.1934, beaten from *Metrosideros* (Zimmerman).

Remarks. This is one of the most distinctive of the described species of *Proterhinus*. The only known close ally is an undescribed species from Rapa (Zimmerman, unpubl.). The depressed form and the conspicuous lateral fringes of large setae render the species easily recognized. The large bladderlike appendage arising from the ductus seminalis of the female genital system is particularly noteworthy.

The fact that this species occurs on Rurutu in the Austral Islands and also on Tahiti and Moorea in the Society Islands is unusual and unexpected.

***Proterhinus gourvesi* Zimmerman & Perrault, new species**

Figs. 7–10

(♂ genitalia), 20–22 (♀ genitalia), 39–42 (♂, ♀), 50 (antenna), 54 (metapleural area)

♂. Facies as in Fig. 39; subcylindrical in form. *Derm* reddish brown to piceous, variable; vestiture mostly white or dirty white but with some yellowish-tinged squamules and some of shorter erect setae on elytra darker; on unabraded specimens a conspicuous patch of condensed squamules at about middle of each side of pronotal disc, and similar prominent patches arranged on elytra as follows: a basal humeral patch, a basal patch on each side of scutellum, a patch behind these at about basal $\frac{1}{3}$ of elytral length, obliquely posterolaterad of latter patch a similar patch just behind middle on each elytron, and other variable condensations of

squamules. *Head and rostrum* as in Fig. 40, widest at point about length of an eye in front of eyes and there slightly wider than width across eyes, subequal to length of combined head and rostrum, width divided into extreme width of pronotum = 1.25 on holotype; surface coarsely, closely punctate and coarsely reticulate; with a large, broad concavity on either side of medial line in front of a line drawn between points of greatest cephalic width; with coarse, decurved squamules and some erect, coarse setae and with narrower, sharply pointed setae around rostral apex. *Antennae* as in Fig. 50, capable of extending caudad to about apex of ventrite 1; segment 1 (total length measured from beneath head) slightly shorter than 2+3, about $\frac{1}{4}$ wider than 2; 2 about $\frac{2}{3}$ as long as 3; 3 slightly longer than 5; 5-8 each successively slightly shorter, 8 a little longer than 2; dorsal side of segment 1 with numerous, thick, blunt-tipped setae rather similar to those on adjacent part of head, all other segments with numerous long, fine, hairlike setae; segments 9-11 forming a poorly defined clava whose total length equals combined lengths of segments 6-8. *Prothorax* shaped as in Fig. 39; length subequal to width, about $\frac{1}{4}$ longer than head plus rostrum and about $\frac{1}{2}$ length of elytra; anterior corners not projecting; pronotum densely, coarsely punctate, microsculpture inconspicuous; erect setae very short on disc but with a row of well-developed, blunt-tipped, erect setae around margins similar to larger erect setae on elytra. *Scutellum* nude. *Elytra* as in Fig. 39, without any conspicuous elevations or depressions; humeri not produced, subrectangular with only corners rounded; less coarsely sculptured than pronotum; microsculpture inconspicuous; in addition to prostrate squamules, numerous erect, stout setae that are shortest on disc and longest laterad and caudad. *Metepisternum* with cephalic end enlarged, convex, somewhat protuberant, conspicuously indenting subhumeral elytral margin (Fig. 54; compare *samoae*, *fimbriatus*, and *brevicornis*, Figs. 55-57). *Legs* with numerous erect setae (in addition to background squamules) that resemble longer erect setae on elytra and pronotum; 3 pairs of femora of rather similar shape; tarsi with segment 3 (excluding claws) extending beyond apex of 2 for a distance less than length of 2, lobes of segment 2 symmetrical. *Ventral surface* with microsculpture mostly inconspicuous and derm mostly shiny, except laterad and caudad on abdomen; all setae small, fine, mostly inconspicuous; pro- and metasternum not coarsely punctured, punctures only moderately large, some separated by their diameters; disc of mesosternum with numerous punctures, punctures less coarse and dense than caudad; most punctures of ventrite 1 small and not closer together than their diameters on disc; metasternum with medial length as long as distance between mesocoxae and as long or somewhat longer than ventrite 2 + $\frac{1}{2}$ of 3; ventrite 1 with medial length greater than 2+3+4; 2 about as long as 3 + $\frac{1}{2}$ of 4; 3 and 4 subequal; 2 and 5 subequal.

♀. Head, rostrum, and facies as in Figs. 41-42; width across eyes slightly but distinctly greater than greatest width of head in front of eyes; rostrum (excluding mandibles) a little broader than long and about as long as head from base of rostrum to caudal margin of an eye, longitudinally multistriate, striae punctures bearing long, erect, hairlike setae.

Total length 3.2-4.2 mm; width 0.9-1.4 mm.

Distribution. Society Islands: Tahiti.

Type specimens. SOCIETY IS. TAHITI: Holotype ♂ (BPBM 13787, allotype ♀ (BPBM), 1 ♂, 3 ♀, paratypes, [Mt] Pito Iti trail, 1,000 m, 12.IV.1974 (Gourvès). Additional paratypes. TAHITI: 1 ♂, 3 ♀, Mt Aorai, 1,450 m, 14.V.1974 (Perrault); 1 ♂, [Mt] Pito Iti trail, 1,000 m, 26.VII.1974 (Perrault); 1 ♂, 1 ♀, [Mt] Pito Iti trail, 26.VII.1974 (Perrault); 2 ♂, 11 ♀, Mt Aorai, 1,350 m, 14.IV.1973 (Gourvès); 1 ♂, Mt Aorai, crest of mt, 1,350 m, IX.1973 (Perrault); 1 ♂, 1 ♀, Mt Aorai trail, 1,400 m, IX.1976 (Gourvès); 1 ♀, Mt Aorai, N side, 1,400 m, 10.IX.1977 (B.H. Gagné); 1 ♂, Mt Marau, 1,300-1,400 m, from *Metrosideros* (Paulay); 5 ♂, 3 ♀, Mt Marau, 1,400 m, 13.XI.1985 (Perrault); 1 ♂, Mt Aorai, NW ridge, 1,400-1,450 m, 9.VII.1961, on *Metrosideros collina* (Gressitt); 2 ♀, Mt Aorai, 1,400 m, 11-12.VII.1961, on *Weinmannia parviflora*, "No. 3746" (Gressitt).

Remarks. The subtubular shape in combination with the long antennae that reach far caudad of the base of the elytra make easy the recognition of this species in the Society Islands' fauna.

We take pleasure in dedicating this species to Mr. J. Gourvès in recognition of the outstanding work he has done in collecting the coleopterous fauna of Tahiti and in recognition of the numerous excursions to the interior of Tahiti he made in the company of his friend Gérard Perrault.

***Proterhinus samoae* Perkins** Figs. 11–16
(♂ genitalia), 23–28 (♀ genitalia), 43–48 (♂, ♀), 53 (antenna), 55 (metapleural area)

Proterhinus samoae Perkins, 1907, Proc. Hawaii. Entomol. Soc. 1: 87; 1928, Insects of Samoa 4(2): 173.

Distribution. Although this species is widely distributed in Polynesia, Melanesia, and Micronesia, its distribution has not been recorded in literature.

Specimens examined. SOCIETY IS. HUAHINE: 1 specimen, small islet in front of Parea, sea level, IV.1974 (Gourvès), first record for the island of Huahine. MAUPITI: 1 specimen, small islet, XII.1977 (Gourvès), first record for the island. RAIATEA: Tetaro Islet, about 1 m above sea, 4.X.1934, beneath a limb of *Hibiscus tiliaceus* (not a true host) on ground (Zimmerman), first record from Raiatea and earliest record for the Society Islands.

Remarks. The cephalic ends of the metepisterna (Fig. 55) are enlarged and protrude distinctly into the lateral margins of the elytra (compare *P. gourvesi*). This is the only known species of *Proterhinus* whose hind wings are developed for flight, and this fact is here reported for the first time.

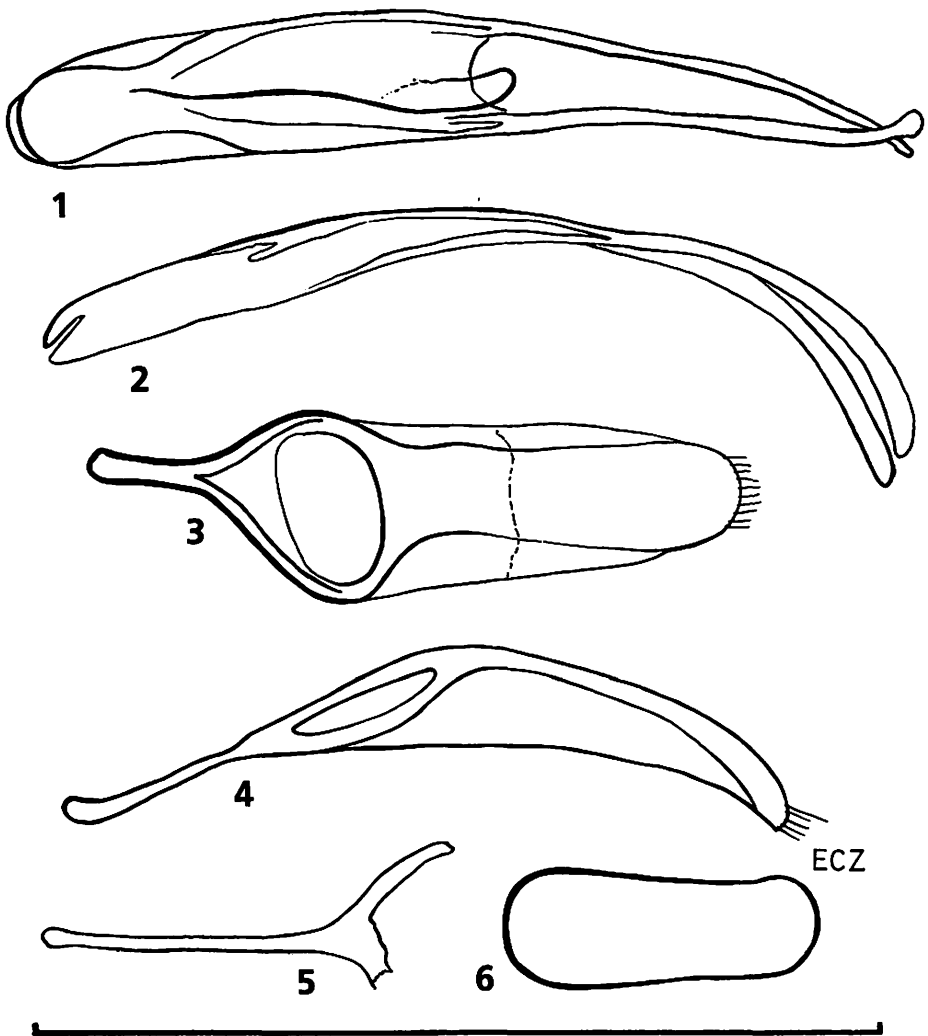
The larvae of this species live in various dead parts of *Cocos nucifera*, particularly in the dead fronds. The species appears to be a comparatively recent immigrant to the Society Islands, and it has no doubt been introduced by commerce from islands to the west. It often infests the stem ends of *C. nucifera* fruits, and it is thus easily transported. It was described by Perkins from a male bred in Honolulu from the fruit-stem of a coconut imported from Samoa for planting in Hawai'i.

ACKNOWLEDGMENTS

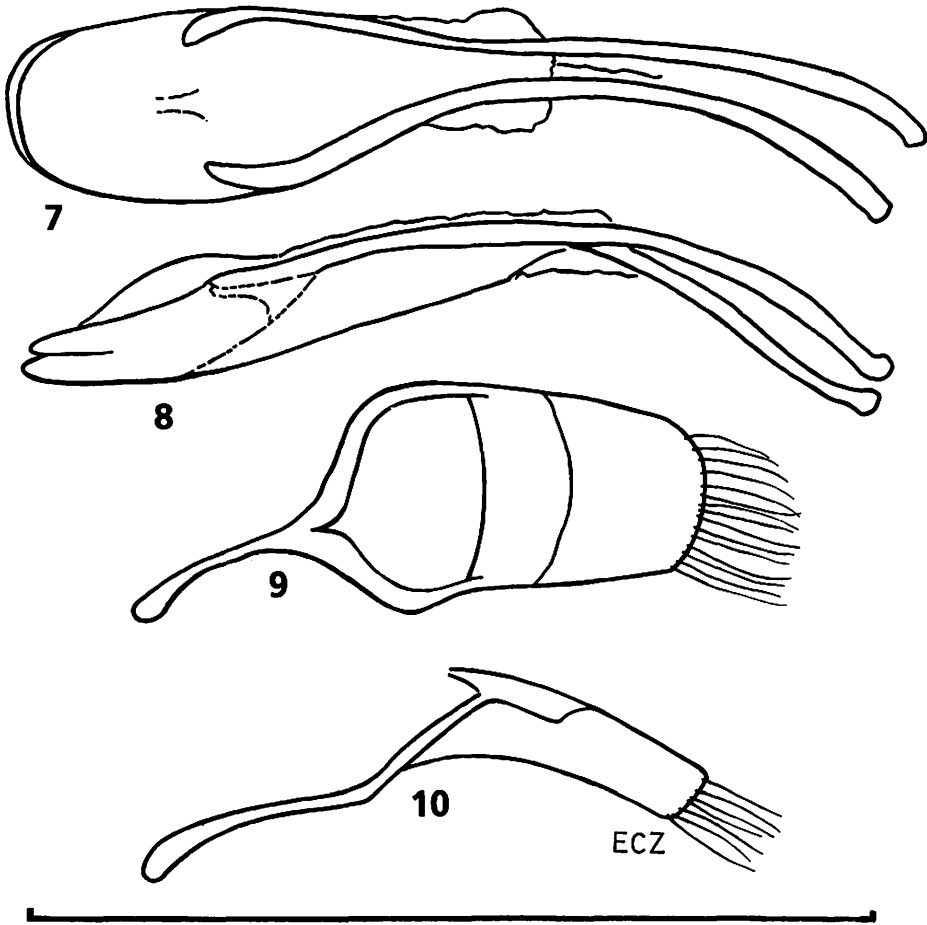
The assistance of Elizabeth Lockie and Kathy Pickerd in preparing the scanning electron photomicrographs is gratefully acknowledged. G.A. Samuelson supplied specimens for study from the collections of Bishop Museum.

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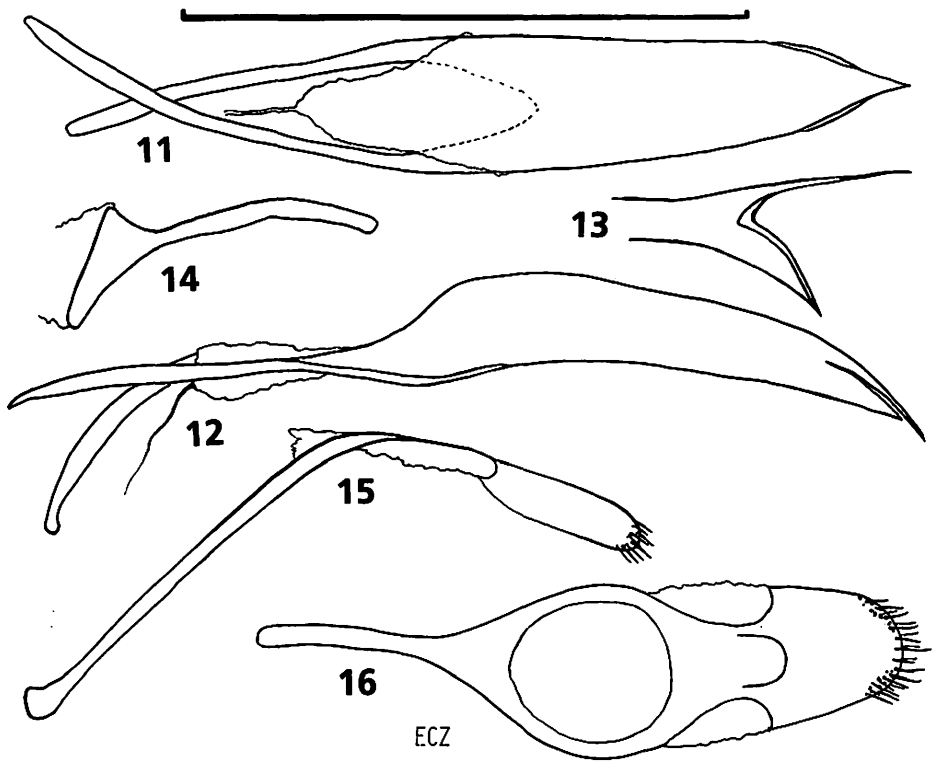
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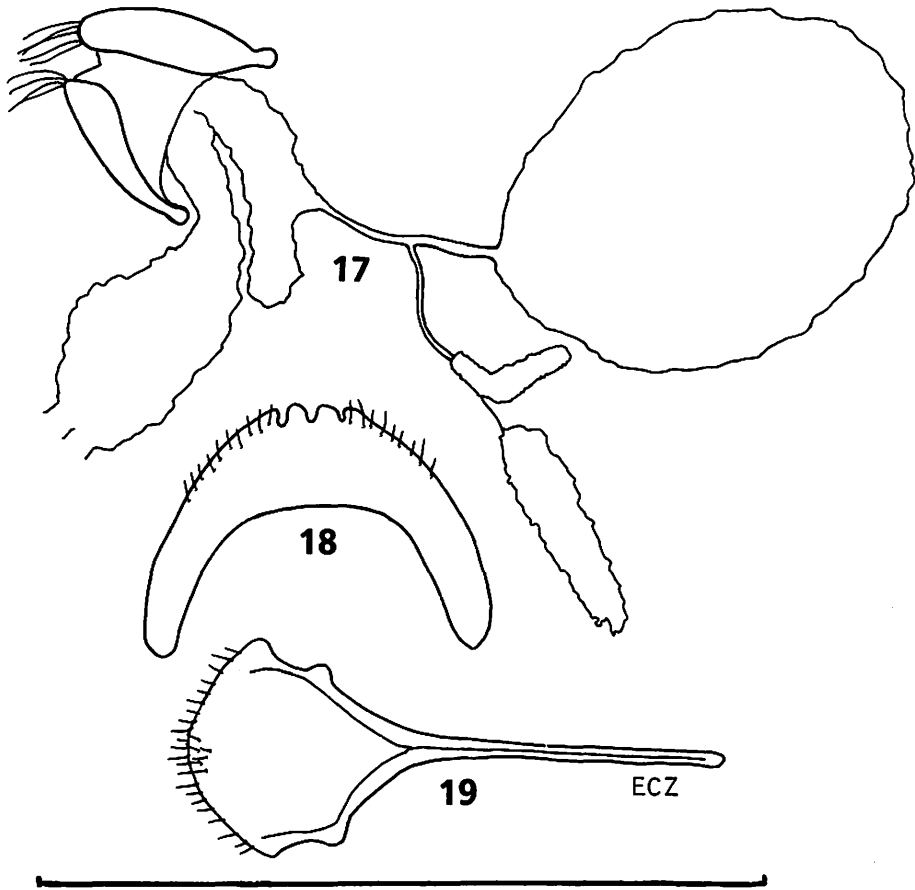
Figs. 1-6. ♂ genitalia of *Proterhinus fimbriatus*: 1-2, dorsal and lateral views of aedeagus; 3-4, dorsal and lateral views of tegmen (optically distorted); 5, sternite 9; 6, sclerotized loop of rectum. Scale line = 1.0 mm.



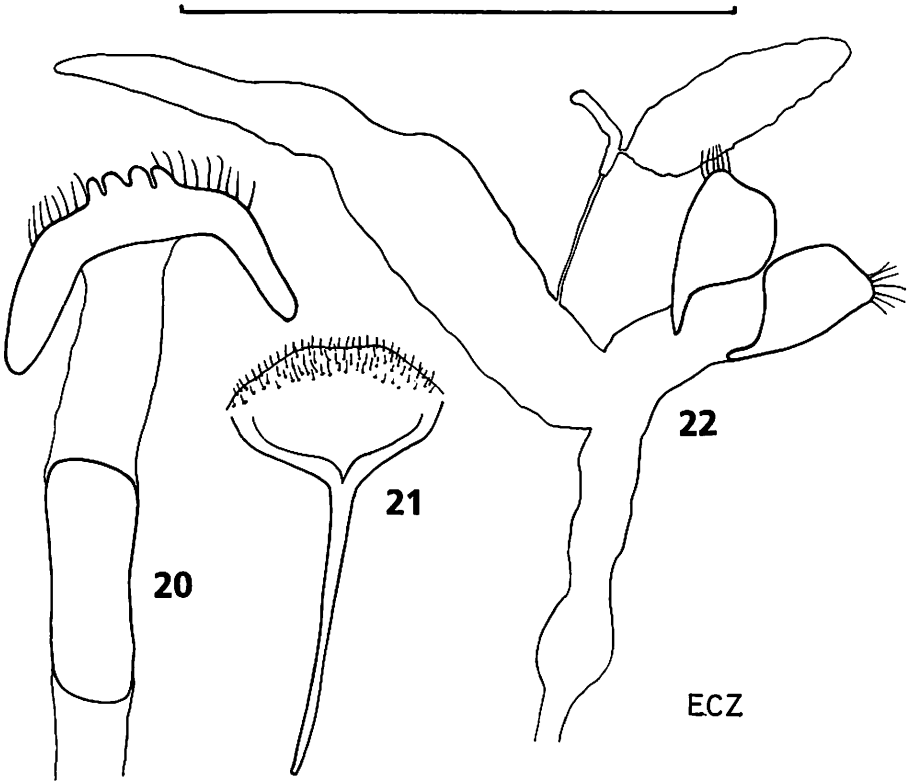
Figs. 7-10. ♂ genitalia of *Proterhinus gourvesi*: 7-8, dorsal and lateral views of aedeagus; 9-10, dorsal and lateral views of tegmen (optically distorted). Scale line = 1 mm.



Figs. 11–16. ♂ genitalia of *Proterhinus samoae*: 11–12, dorsal and lateral views of aedeagus (with ostium closed); 13, apex of aedeagus with ostium open; 14, sternite 9; 15–16, lateral and dorsal views of tegmen (optically distorted). Scale line = 1.0 mm.



Figs. 17-19. ♀ abdominal details of *Proterhinus fimbriatus*: 17, genital tract; 18, tergite 8; 19, sternite 8. Note the unusual, balloonlike process of the ductus seminalis, and compare Figs. 22 and 23. Scale line = 1.0 mm.



Figs. 20-22. ♀ abdominal details of *Proterhinus gourvesi*: 20, tergite 8 with part of rectum and sclerotized loop; 21, sternite 8; 22, genital tract. Scale line = 0.5 mm.

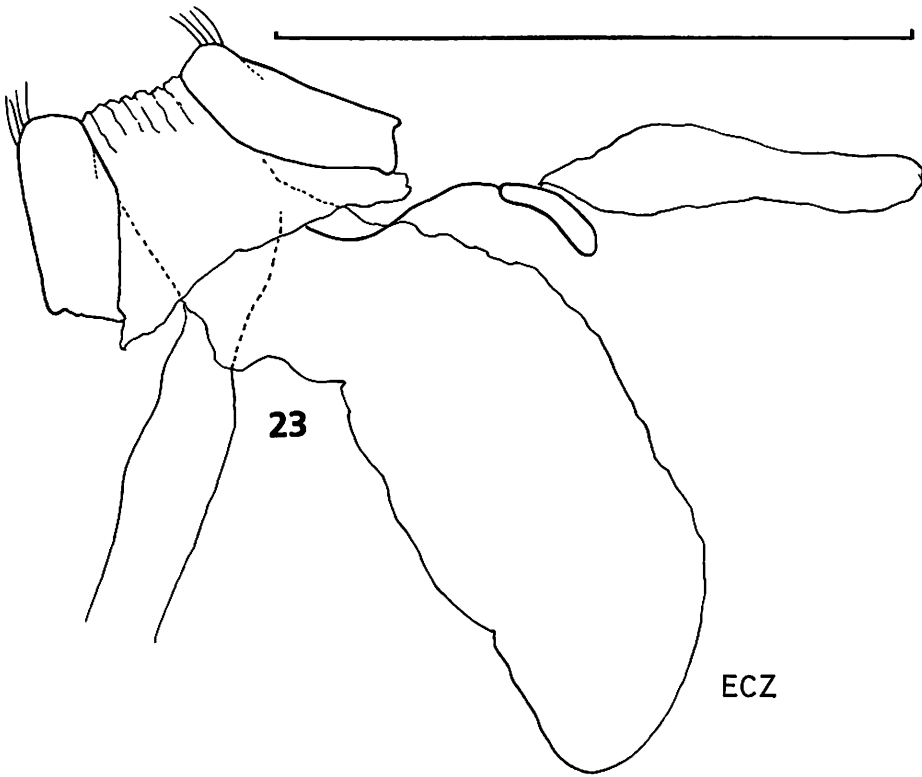
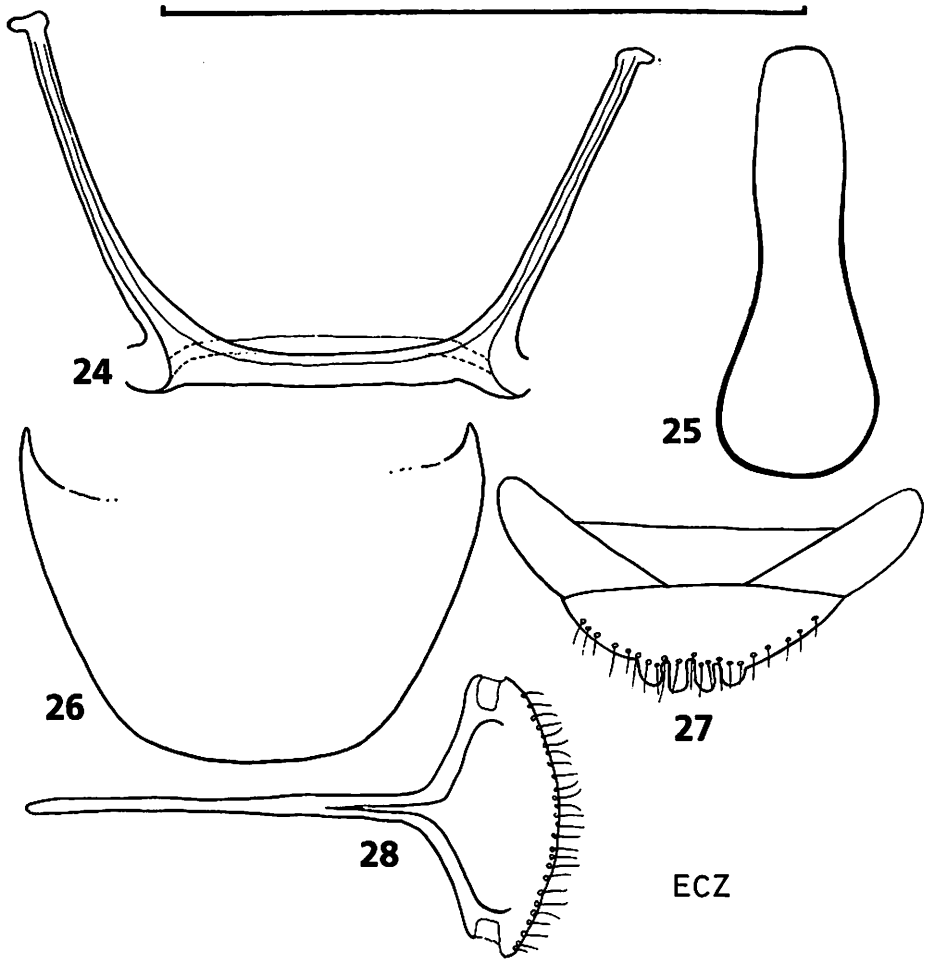
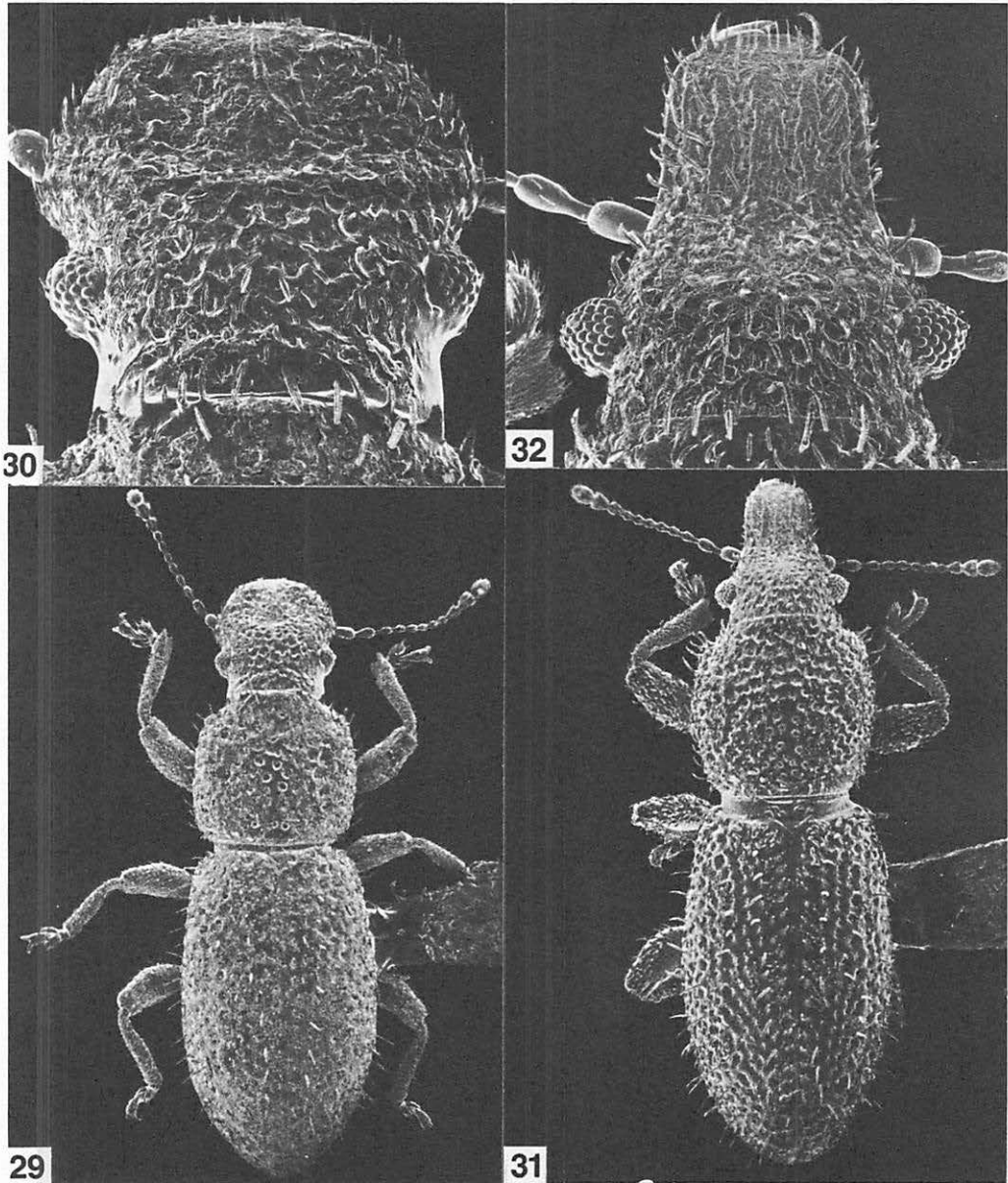


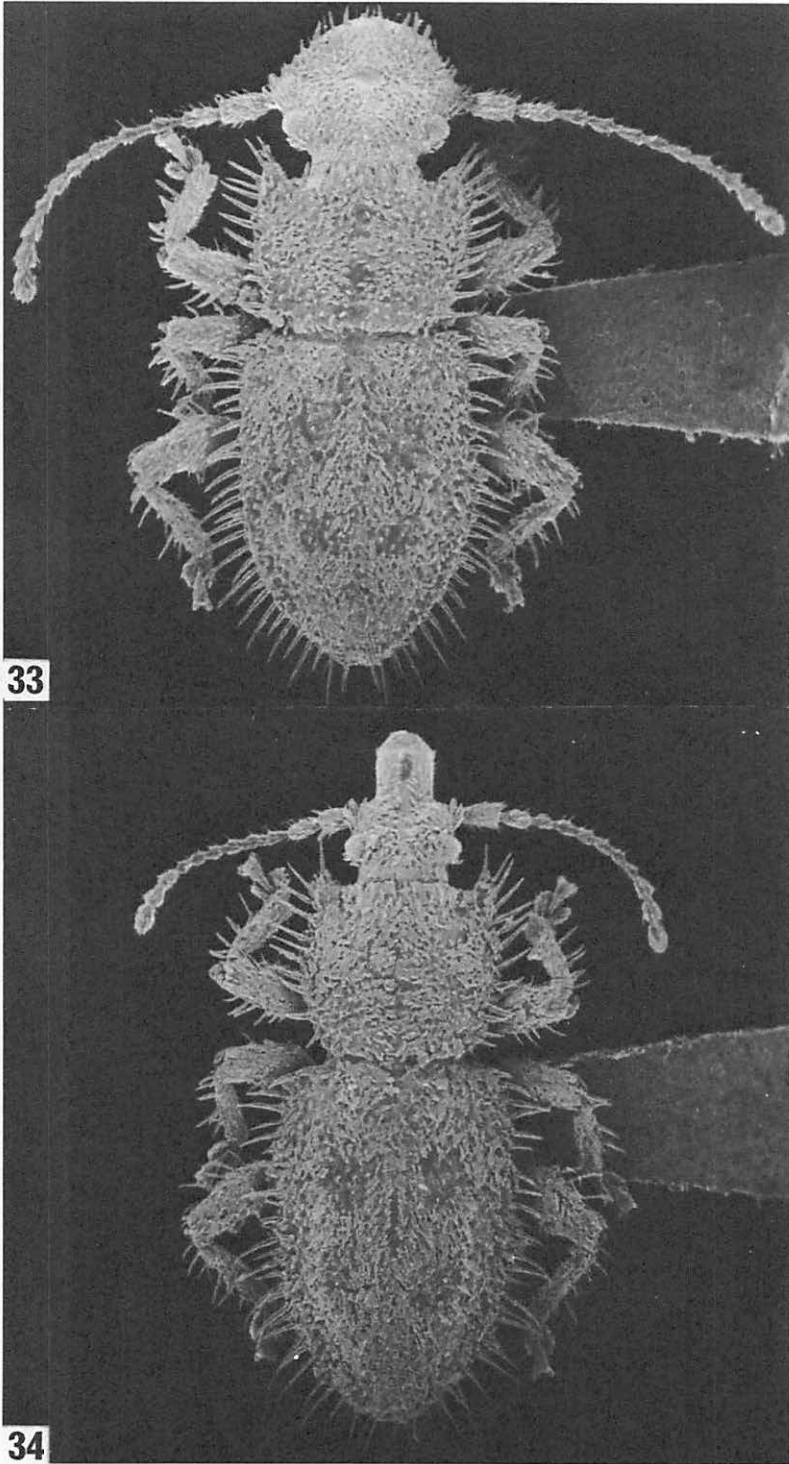
Fig. 23. ♀ genital tract of *Proterhinus samoae*. Scale line = 0.5 mm.



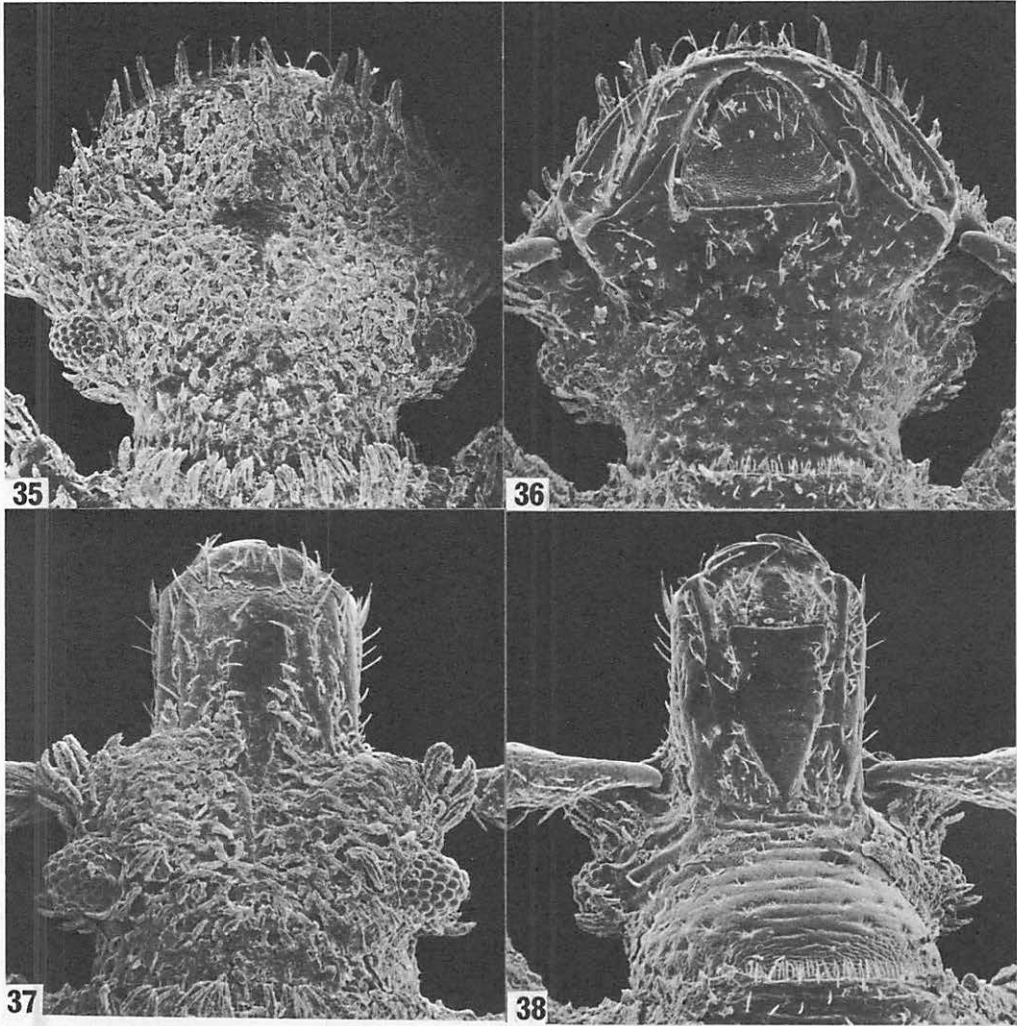
Figs. 24–28. Features of ♀ *Proterhinus samoae*: 24, metendosternite (no posterior marginal tendons observed); 25, sclerotized loop of rectum; 26, tergite 7 (pygidium); 27, tergite 8; 28, sternite 8. Scale line = 0.5 mm.



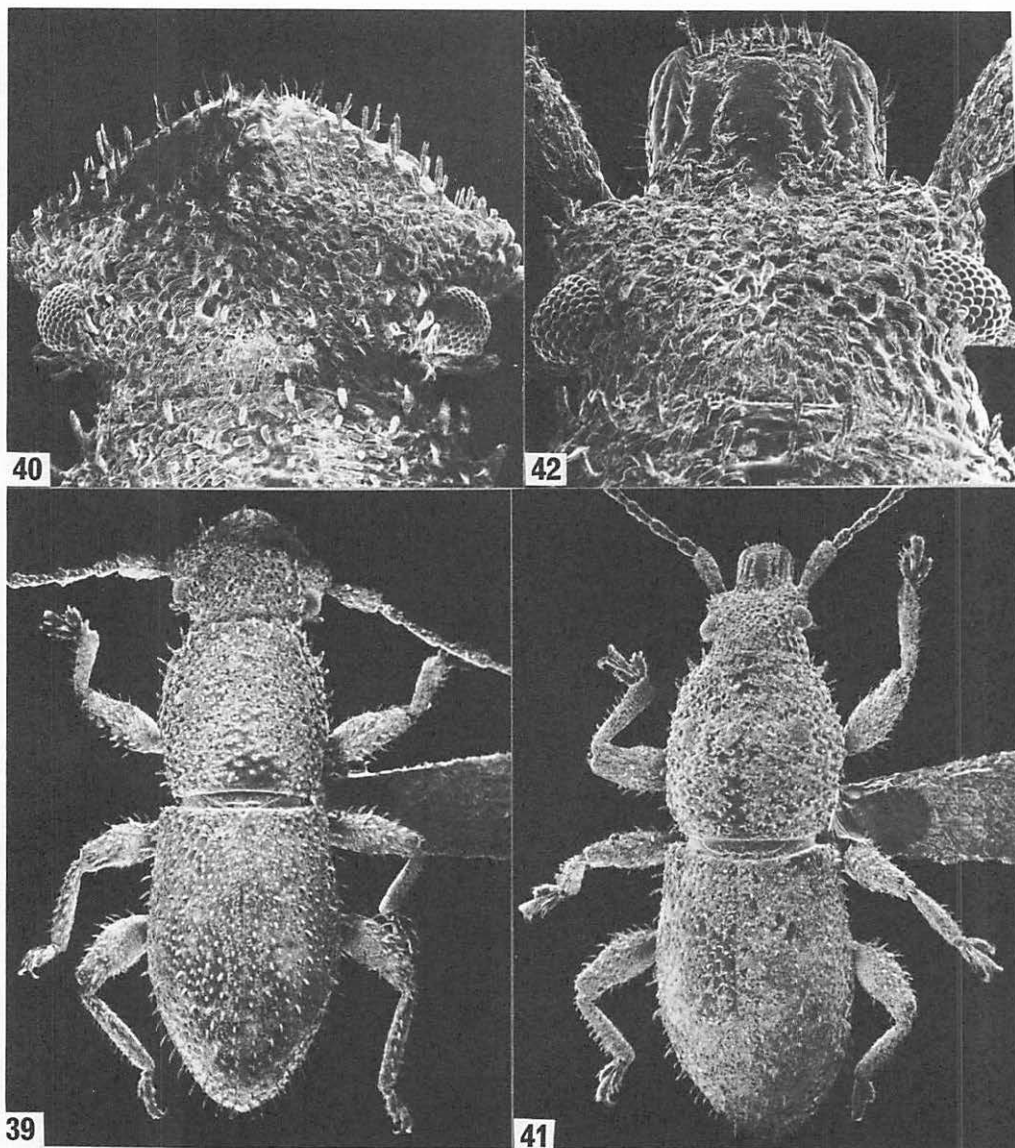
Figs. 29–32. *Proterhinus brevicornis*: 29, holotype ♂ (total length 3.5 mm); 30, head of same specimen enlarged (optically somewhat foreshortened); 31, paratype ♀ (total length 3.3 mm); 32, head of same specimen enlarged.



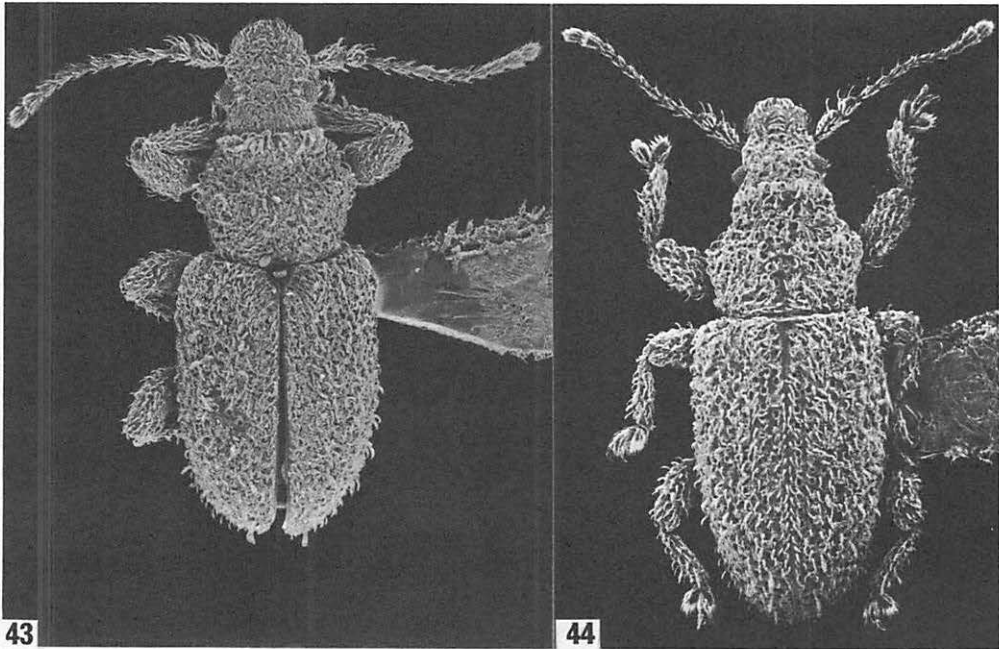
Figs. 33–34. Paratypes of *Proterhinus fimbriatus* from Mt Marau, Tahiti: 33, ♂ (total length 3.7 mm); 34, ♀ (total length 3.9 mm).



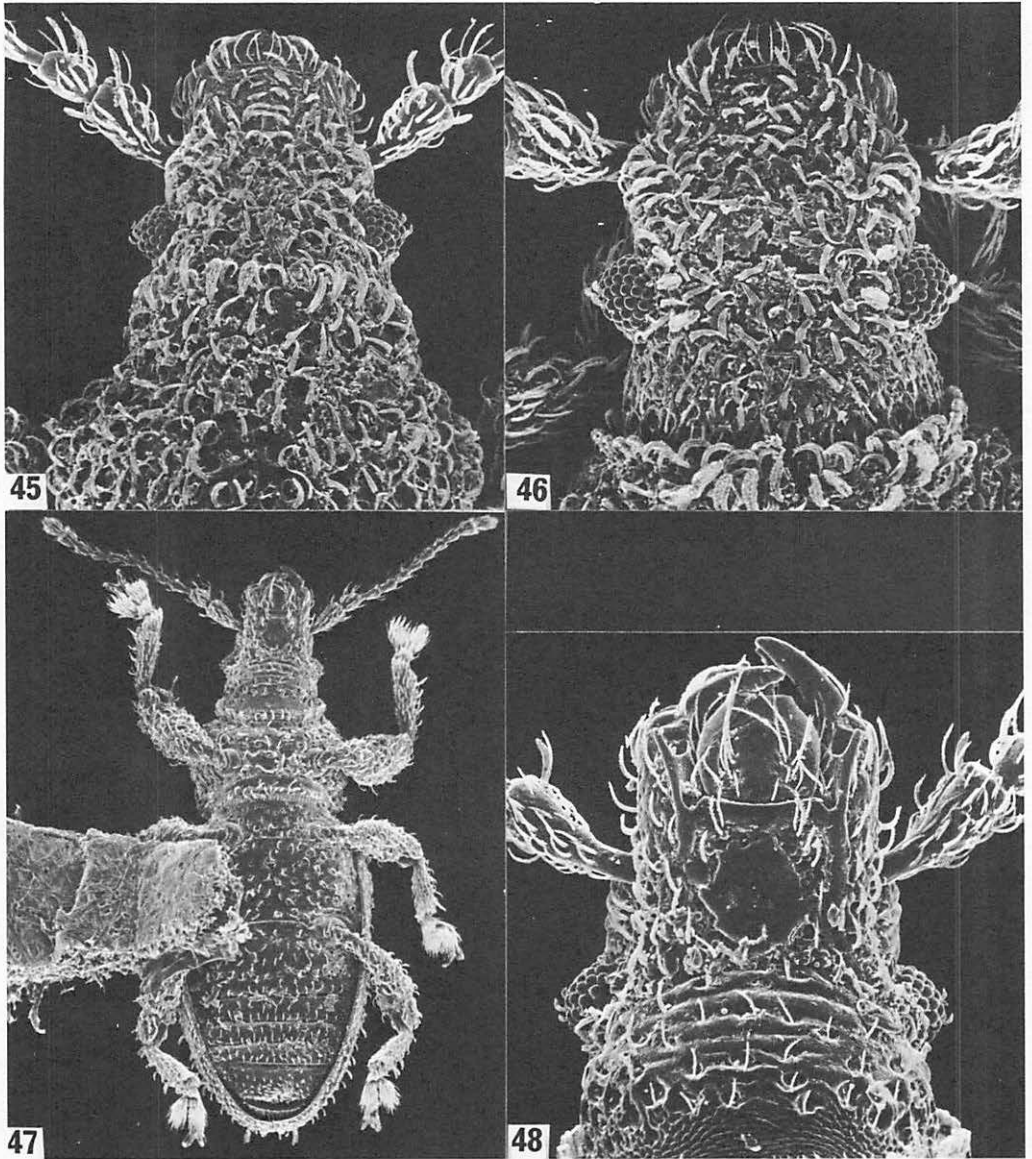
Figs. 35–38. Details of heads of *Proterhinus fimbriatus* specimens illustrated in Figs. 33 and 34: 35–36, dorsal and ventral views of ♂ (note the conspicuous adelognathus nature of the mouth, a feature not mentioned in literature); 37–38, dorsal and ventral views of ♀ (note the absence of posterior gular sutures and the conspicuous pregula).



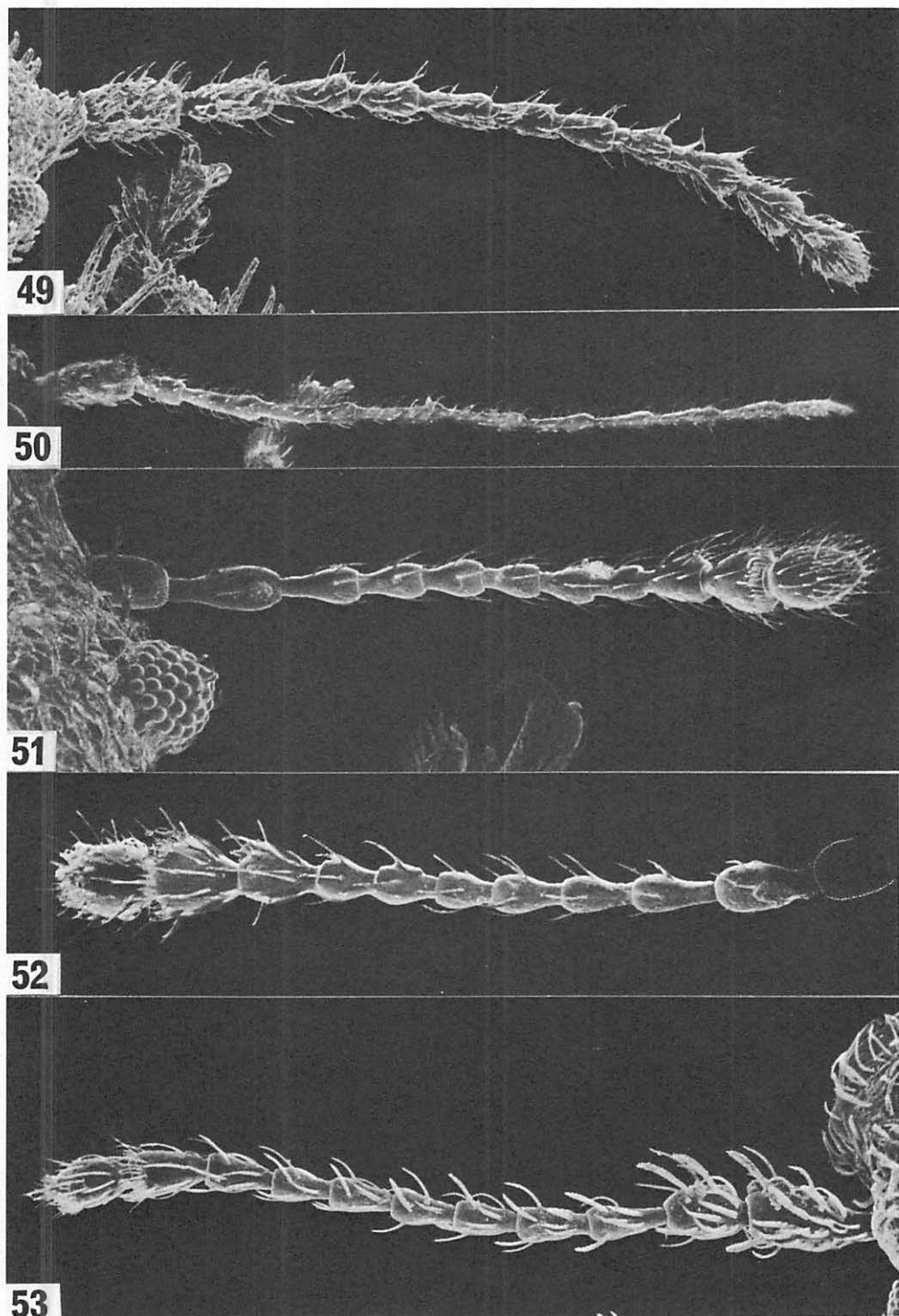
Figs. 39–42. *Proterhinus gourvesi* paratypes from Mt Pito Iti, Tahiti: 39, ♂ (total length 4.3 mm); 40, head of same specimen enlarged; 41, ♀ (total length 3.6 mm); 42, head of same specimen enlarged.



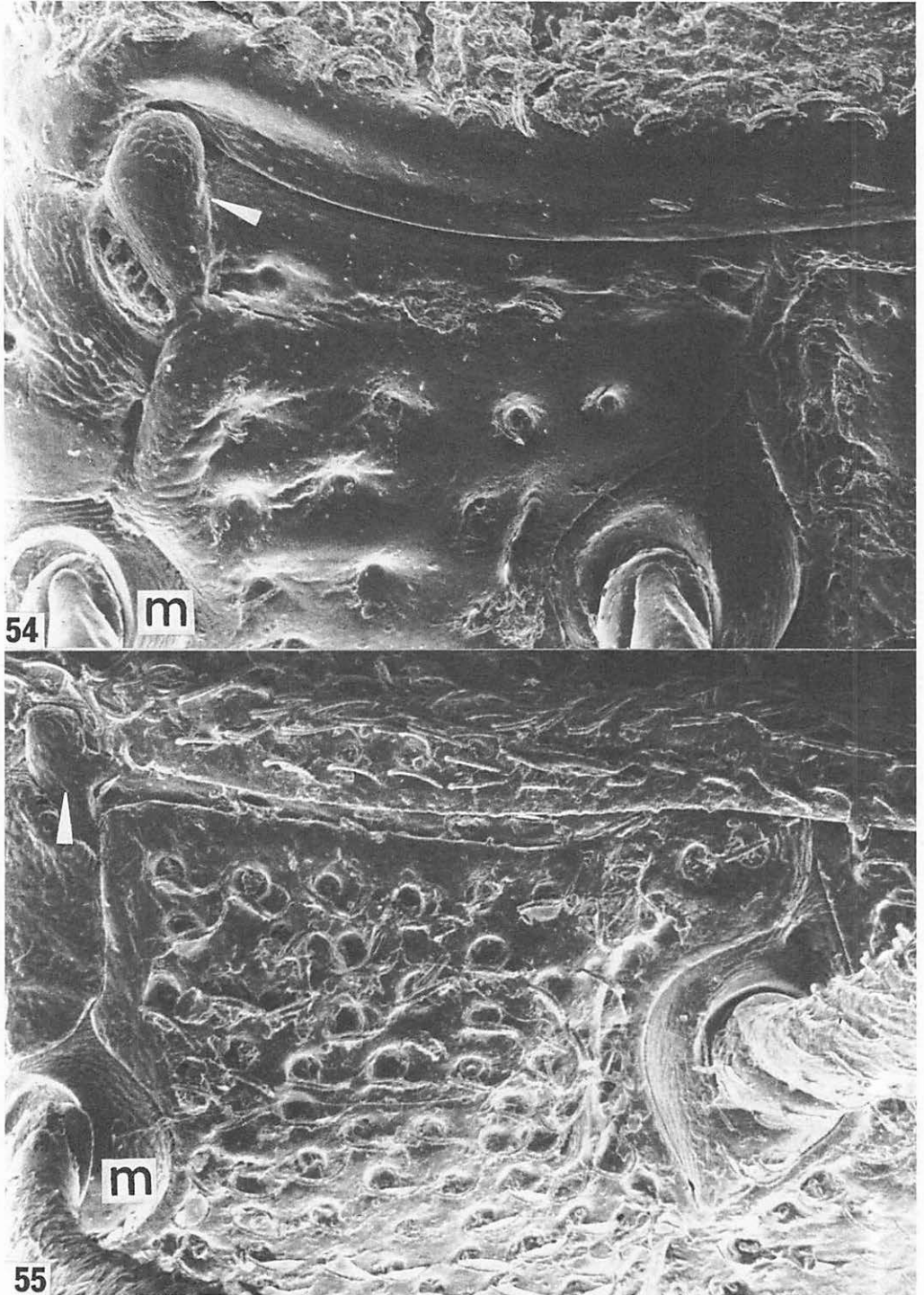
Figs. 43–44. *Proterhinus samoae* specimens from Vanua Mblavu, Fiji: 43, ♂; 44, ♀ (total lengths 2.1 mm) (photographs not equally enlarged).



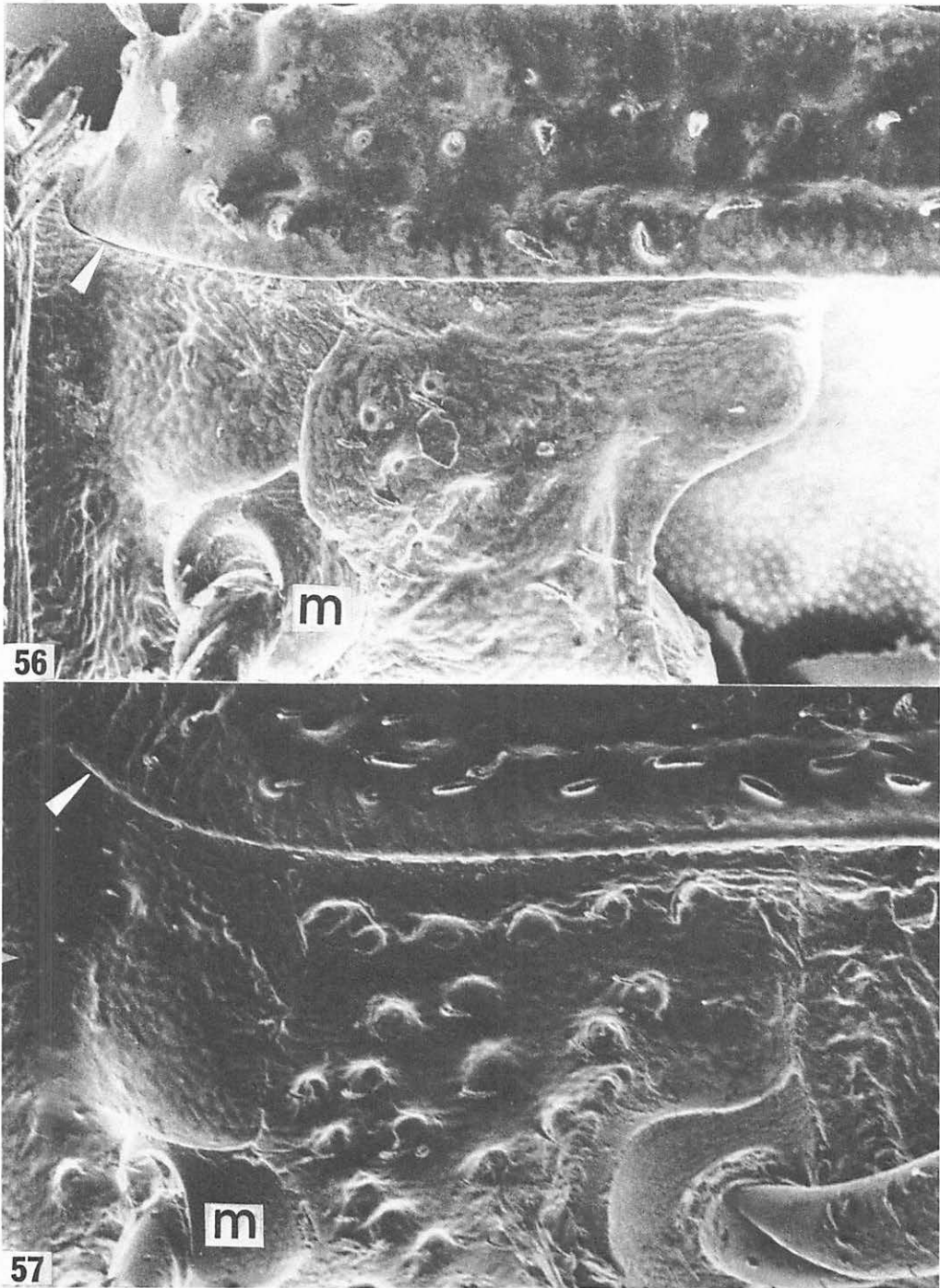
Figs. 45–48. Details of *Proterhinus samoae* specimens illustrated in Figs. 43 and 44: 45, head and part of prothorax of ♀; 46, same view of ♂; 47, underside of ♀; 48, enlargement of underside of head of ♀.



Figs. 49–53. Antennae of *Proterhinus* species. 49, *Proterhinus fimbriatus*. 50, *Proterhinus gourvesi* (edge view; note the short segment 2). 51–52, *Proterhinus brevicornis*: 51, ♀; 52, ♂. 53, *Proterhinus samoae*.



Figs. 54–55. Left metapleural areas showing the protuberant cephalic ends (arrows) of the metepisterna that protrude into the lateral elytral margins (m = mesocoxa): **54**, *Proterhinus gourvesi* paratype from Mt Aorai, Tahiti; **55**, *Proterhinus samoae* specimen from Raiatea.



Figs. 56–57. Left metapleural areas showing continuous lateral margins of elytra (arrows) and reduced metepisterna (m = mesocoxa): **56**, *Proterhinus fimbriatus* paratype from Mt Aorai, Tahiti; **57**, *Proterhinus brevicornis* paratype from Tahaa.