

**STUDIES ON IDIOCERINE LEAFHOPPERS: VIII. THE
PAPUAN GENUS *PEDIOSCOPIUS* AND TWO ALLIED
NEW GENERA FROM THE PHILIPPINE ISLANDS**
(Homoptera : Cicadellidae)

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Abstract : *Pedioscopus* Kirkaldy is redefined and most of the Philippine species are transferred to 2 new genera. The 6 new species of *Pedioscopus* are: *P. larvatus*, *P. lineatus*, *P. maculifrons* and *P. personatus* from New Guinea, also *P. quadrilineatus* (Solomon Is.) and *P. septemmaculatus* (New Hebrides). The following are retained provisionally, pending further revisions, in "*Pedioscopus*:" "*P.*" *balochoides* Maldonado Capriles, "*P.*" *busonioides* (Baker), "*P.*" *tutuilanus* Osborn, "*P.*" *t. curtulus* Linnavuori and "*P.*" *unimaculatus* (Melichar). *Philipposcopus* new genus, type-species *Pedioscopus maquilingensis* Baker, 1915, also includes *Pedioscopus modestus* Baker, 1915 - new combinations. *Angusticella* new genus, type-species *Pedioscopus colorata* Baker, 1915, is divided into 2 new subgenera, with *Pedioscopus simplex* Baker, 1915 also transferred to the nominate subgenus; and *Upsicella* new subgenus, type-species *Pedioscopus angustatus* Baker, 1915, all new combinations. The species are keyed and the new species figured.

The material discussed below was loaned to me for study by Drs J. L. Gressitt, Bernice P. Bishop Museum (BPBM), Honolulu, Hawaii, and J. P. Kramer, United States National Museum (USNM), Washington, D. C.

Examination of specimens from the Philippine Islands classified by Baker as *Pedioscopus* disclosed that they belong in different genera herein described as new. Six new species of *Pedioscopus* are also described. In order to save space I have limited the bibliographical information about the old species. Complete information can be obtained from Metcalf (1966).

The types of the genera, subgenera, and new species described below are deposited in the collections of the BPBM, the USNM, and my own (JMC) as indicated. In the measurements that follow 30 micrometer units are equivalent to 1.0 mm.

Genus ***Pedioscopus*** Kirkaldy 1906

Pedioscopus Kirkaldy 1906: 349.

Idiocerus Lewis 1834: 47, in part.

Redescription of the genus: ♂—vertex and frons down to ocelli finely striated; other parts of head and pronotum shagreen. Upper extremities of postclypeus well defined and reaching close to lower-inner margin of ocellus of same side; lateral margin of postclypeus slightly angled at level of upper end of lora. Filament of antenna hair-like. Ocelli apart at twice the distance from ocellus to compound eye. Postclypeus from ocelli to anteclypeal

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suture slightly over twice as long as anteclypeus, as wide or slightly wider than long. Anteclypeus bell-shaped, narrower basally than apically, sides concave. Lora slightly elevated above surface of gena, semicircular. Vertex 4 to 5 times as wide as long. Pronotum with hind margin very shallowly concave or nearly straight; 2.5 to 3.5 times length of vertex. Scutellum about $1.5 \times$ as wide as long; slightly shorter than length of vertex and pronotum combined. Forewing without anteapical cells; four apicals, the first and fourth wider than second and third; second and third subrectangular, of nearly the same width, about half as wide as first. Hind tibia flattened, slightly curved; with 7 to 9 well developed mostly decumbent spines on three margins and around 30 hair-like spines on inner-upper margin. Hind femur with 1+2 spines at apex. Sexually dimorphic in coloration; straw-colored, usually with two large round black spots on pronotum; postclypeus yellow or totally or partially black; anteclypeus, lora, and part of gena blackish; forewing with margins of clavus, costal margin, median vein, cubitus, and veins of second and third apical cells brown or dark brown; R inconspicuous; usually with a longitudinal brown stripe that runs close or over M; area from costal margin to M yellowish or hyaline, other cells grayish or with a pale brownish tinge; abdominal sterna yellowish, or more or less brownish on disc or black; legs straw-colored or yellowish, apex of foretibia and foretarsi black in some species.

Genitalia: Valve angularly produced medially, with microsetae; aedeagus vertical, slightly bent cephalad at about midlength or near apex, relatively thick, gonopore opening caudad near apex, with two filaments arising at or near apex, filaments smooth or with serrate upper margin, socle large, flattened laterally; pygofer basically long diamond-shaped, with minute microsetae near apical angle or margin, with a dorsal median fold, a two-pronged apodeme arising from the base of the upper margin and projecting ventro-caudad; style flattened laterally, slightly upcurved apophysis, apophysis with serrate lower margin, with a cluster of fine long setae near apex and a row of long fine setae along outer-upper edge before apex; plates elongate, slender, upper margin with long fine setae, a few shorter hairs on lower margin.

♀: Shape and proportions of head, pronotum, and scutellum and forewing venation as in ♂. General coloration as in ♂; two round spots high on face or frons, visible from above; usually with another pair of spots between ocelli or these may fuse into a rectangular spot; postclypeus variously ornamented with black. *Genitalia*: seventh sternum rectangular, hind margin nearly straight; pygofer smooth or with a pair of small spines on inner margin near apex; ovipositor straight, slightly surpassing apex of pygofers.

Type-species: *Pedioscopus philenor* Kirkaldy 1906.

Linnavuori (1960) suggested that *Idiocerus* is in part a synonym of *Pedioscopus* but did not point it out; see discussion under *P. amabilis*.

KEY TO THE ♂♂ OF PEDIOSCOPUS

1. Postclypeus and anteclypeus yellow 2
 Postclypeus ornamented with black, anteclypeus black 3
2. Pronotum with entire or broken black band; scutellum with black basal triangles
 **amabilis**
 Pronotum with two black spots; scutellum yellow. **disjunctus**
3. Pronotum with broad transverse black band **lineatus**
 Pronotum with two black spots 4
4. Postclypeus with mask-like band across ocelli 5
 Postclypeus dark from ocelli to margin of anteclypeus 6
5. Band between ocelli with undulate margins; inner margin of clavus with apical half yellow **larvatus**

- Band between ocelli with straight margins; inner margin of clavus brown..... **personatus**
6. Abdominal sterna black **philenor**
 Abdominal sterna mostly yellowish 7
7. Longitudinal stripes on forewing broad **quadrilineatus**
 At least three longitudinal stripes of forewing narrow..... 8
8. Costal margin mostly yellow; scutellum straw-colored; legs yellowish **maculifrons**
 Costal margin dark brown; scutellum brownish and yellow; apex of foretibia brown;
 foretarsi dark **septemmaculatus**

KEY TO THE ♀♀ OF *PEDIOSCOPUS*

1. Abdominal sterna black..... **philenor**
 Abdominal sterna yellow or mostly yellow 2
2. Pronotum with broad transverse band 3
 Pronotum with two round spots 4
3. Face and vertex yellow..... **amabilis**
 A mask-shaped band across ocelli **lineatus**
4. Bright yellow species; face unmarked..... **disjunctus**
 Yellowish or straw-colored species; face ornamented with black 5
5. Face with four spots..... 6
 Face with mask-shaped band across ocelli..... **personatus**
6. Forewing with broad longitudinal brown stripes..... **quadrilineatus**
 Forewing with narrow longitudinal brown stripes 7
7. Vertex with two anterior semicircular spots; scutellum ornamented with brown
 **maculifrons**
 Vertex with 2 oval anterior spots; scutellum yellow-white, anteriorly pale brown
 **septemmaculatus**

***Pedioscopus philenor* Kirkaldy** Fig. 35-41.

Pedioscopus philenor Kirkaldy 1906: 349.

Pedioscopus polydoros Kirkaldy 1906: 349.

Pedioscopus agenor Kirkaldy 1906: 350.

Evans (1936) was probably right in reducing *agenor* and *polydoros* to synonyms of *philenor*. The latter, described from a ♂ and the first two from females, exhibits the sexual dimorphism in coloration typical of the genus, i. e., dark face in the males and several spots on the face of females.

♂ genitalia as in fig. 37 to 40; from a specimen from Queensland, Australia.

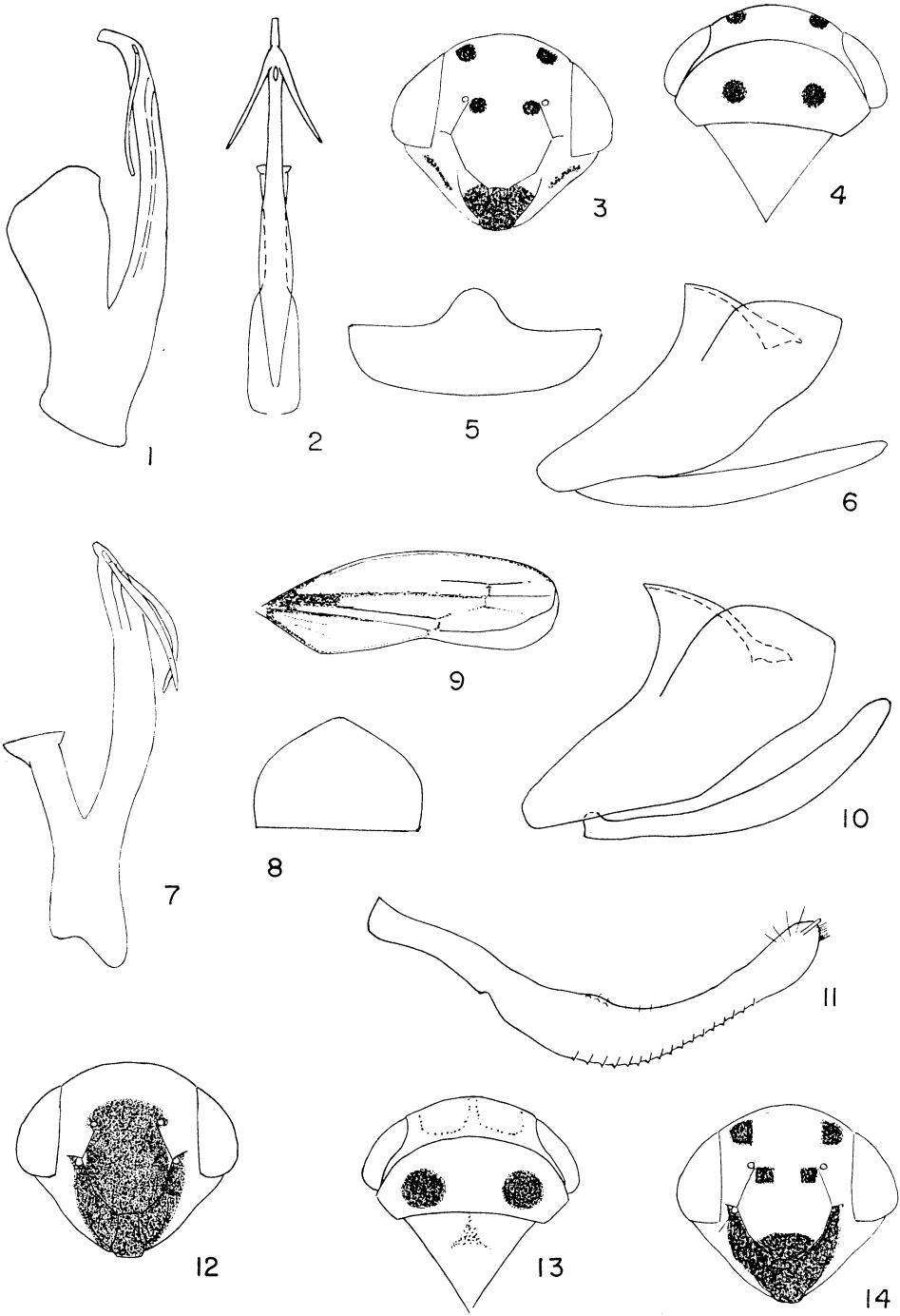
The dark sterna and different ♂ genitalia separate *philenor* from the other species in the genus.

***Pedioscopus disjunctus* Baker** Fig. 1-6.

Pedioscopus disjunctus Baker 1915: 331.

♂: Yellowish except as follows: two spots on pronotum, narrow inner margin of clavus, broader line along M to cross vein, and basal 2/3 of costal margin blackish. Genitalia as in fig. 1, 2, 6. Length 3.4 mm.

♀: Yellow except as follows: two spots on pronotum, two large spots high on face, two



smaller between ocelli, anteclypeus, lora contiguous to anteclypeus, and gena below eye black (fig. 3 and 4), ovipositor brown. Seventh sternum with apical margin straight, basal margin angularly shallowly bent cephalad, thus pentagonal. Length 3.7 mm.

SPECIMENS EXAMINED : 2 ♂♂ from Los Baños, Philippine Islands, X.1915, F. Muir collector, one in JMC, the other in BPBM. 1 ♀, Busuanga Island, 4 km N of San Nicolás, 20.V.1962, H. Holtman, from light trap, in BPBM.

Both sexes can be recognized by their yellow color especially the opaque yellow clavus, yellow lora, and the mostly unmarked face.

***Pedioscopus maculifrons* Maldonado** Capriles, new species Fig. 7-14.

♂ : Vertex straw-colored, with vitreous area well defined and slightly darker; postclypeus from above ocelli, anteclypeus, lora, and gena from above lora to antennal pit blackish (fig. 12). Beak and thorax laterally yellowish. Pronotum with two large round spots (fig. 13). Scutellum straw-colored, with an inconspicuous median triangular pale brownish area. Legs straw-colored or yellowish. Forewings straw-colored, with narrow longitudinal stripes as follows: along inner margin of clavus, claval suture, apical half of costal margin, median vein, apex of Cu, and second and third apical cells (fig. 9). Abdominal sterna yellowish.

Vertex $3.5 \times$ as wide as long medially (24 : 7); pronotum $2.5 \times$ as wide as long (35 : 14); face across eyes slightly wider than long to apex of anteclypeus (39 : 36); scutellum less than $1.5 \times$ as wide as long (24 : 18). Length 3.8 mm.

♂ genitalia as in fig. 7, 8, 10, 11.

♀ : General coloration as that of females of the genus. Vertex straw-colored, with two semicircular spots on anterior margin; face with two large black spots above and two smaller squarish spots between ocelli (fig. 14). Postclypeus black apically; anteclypeus, lora, and gena from apex of lora to antennal pit blackish. Pronotum with two large round spots in line with those on the head. Scutellum with anterior margin blackish, an inverted T, and two brown dots on disc. Thorax laterally yellowish, above midcoxa black. Legs and beak straw-colored. Forewing hyaline or opaque; longitudinal fine brown stripes along inner margin of clavus, claval suture, part of costal margin, and median veins; second and third apical cells margined with brown; area between costal margin and M yellowish; clavus yellowish; remaining areas with a pale brownish tinge. Abdominal sterna yellowish, some sterna irregularly brownish on disc; seventh sternum yellowish, blackish-brown medianly on disc.

Vertex $5 \times$ as wide as long (30 : 6); face across eyes slightly wider than long to apex of anteclypeus (50 : 44); pronotum slightly over 2.5 times as wide as long (45 : 17). Scutellum less than 1.5 times as wide as long (31 : 24). Length 4.2 mm.

♀ genitalia : Seventh sternum with hind margin very slightly convex, $2 \times$ as wide as long medially; pygofer totally yellow or brownish and yellow along inner margin; ovipositor blackish.

Holotype ♂ (BISHOP 9706), New Guinea, Papua, Daradae Plantation, 500 m, 80 km N of Port Moresby, 7.IX.1959, sweeping, T. C. Maa collector. Allotype female, in BPBM, same data as holotype. Paratypes : 22 ♂♂, 4 in JMC, 2 in USNM, and 16 in BPBM.

Fig. 1-14. Fig. 1-6, *Pedioscopus disjunctus* Baker : 1, aedeagus, lateral; 2, aedeagus, caudal; 3, head, frontal, ♀; 4, head and thorax, dorsal, ♀; 5, valve, ♂; 6, pygofer, lateral, ♂. Fig. 7-14, *Pedioscopus maculifrons* n. sp. : 7, aedeagus, lateral; 8, valve, ♂; 9, forewing; 10, pygofer, lateral; 11, style, lateral; 12, head, frontal, ♂; 13, head and thorax, dorsal, ♂; 14, head, frontal ♀.

The ♂ of this species is close to those of *P. philenor*, *P. quadrimaculatus*, and *P. septemmaculatus* as all have the postclypeus black from ocelli down to anteclypeal margin. The ♀ by having four spots above on face is closer to the ♀ of the latter. They can be separated by the characters in the keys and the ♂ by details of the genitalia. The trivial name of this new species refers to the extensive black coloration on the face of the ♂.

Pedioscopus larvatus Maldonado Capriles, new species Fig. 15-20.

♂: Vertex yellow, vitreous area well defined, slightly brownish. Face above straw-colored, a black mask-shaped band between ocelli and apical half of postclypeus black (fig. 20). Anteclypeus and lorae black. Gena blackish along margin of postclypeus from lora to antennal pit. Small dark area under eye. Pronotum with two dark spots, their outer margins in line with the inner margin of eye. Scutellum with basal half orange, apical half yellowish. Thorax laterally yellow. Legs yellowish, apex of foretibia blackish. *Forewing*: clavus with inner margin dark-brown to apex of claval vein, thence yellow to apex, outer margin narrowly brown; costal margin from near base, median stripe, margins of three inner apical cells, and apex of outer discal, brown; cells between longitudinal stripe on M and inner margin of clavus with a pale brownish tinge; from M to costal margin whitish; apical cells brownish. Abdominal sterna yellowish, first two grayish discally, others brownish discally.

Vertex nearly four times as wide as long (27: 7); face across eyes wider than long (47: 39); pronotum less than $2.5 \times$ as wide as long (40.5: 17); scutellum nearly $1.5 \times$ as wide as long (29: 20). Length 4.1 mm. Genitalia as in fig. 16 to 19.

Holotype ♂ (BISHOP 9707), New Guinea, Papua, Daradae, nr Javarere, Musgrove R., 100 m, 3.X.1958, J. L. Gressitt collector.

Close to *P. personatus*, they can be separated by the characters in the key and details of the internal genitalia.

Pedioscopus lineatus Maldonado Capriles, new species Fig. 21-27.

♂: Vertex yellowish, vitreous area well defined. With a rectangular mask-shaped black band across ocelli (fig. 25), lower half of postclypeus black. Anteclypeus and lora black. Gena black along margin of postclypeus to antennal pit. Beak yellowish. Pronotum with trilobed transverse blackish band. Scutellum with a black triangular area near each basal angle and these connected by a black line, an inverted T-shaped mark on disc (fig. 26). Thorax laterally whitish yellow, brown above midcoxa. Legs whitish yellow, apex of hind tibia pale reddish brown. *Forewing*: clavus blackish on basal third, apical $2/3$ with a brownish tinge; costal margin, commissural suture, M, and Cu brown; R concolorous with adjacent cells; veins of second, third, and fourth apical cells brownish; mesad of M with a brownish tinge, from M to costal margin hyaline. Abdominal sterna and genital capsule yellow. Length 3.7 mm.

Vertex nearly $5 \times$ as wide as long (24: 5); face across eyes wider than long. Pronotum 2.5 times wider than long (36: 14), scutellum wider than long (25: 20).

♂ genitalia as in fig. 21 to 24.

♀: Vertex as in ♂. Face with a mask-shaped blackish brown band between ocelli and a spot on each side above and laterad of the corners of the mask-shaped band (fig. 27); lower half of postclypeus blackish from a point above upper extreme of gena. Anteclypeus and lora black. Gena black along margin of postclypeus to antennal pit. Beak and legs yellow. Pronotum with broad transverse black band somewhat constricted medianly; pleura black above

midcoxa. Scutellum dirty or grayish yellow. *Forewing*: clavus blackish on basal angle or basal third, blackish coloration extending along commissural margin to about middle, thence narrowly blackish to apex; inner margin brown to about midlength, thence yellow to apex; remaining areas of clavus grayish yellow, as scutellum; area between M and commissural suture blackish brown to about midlength of corium, then brown along M, Cu, and commissural suture; veins of inner three apical cells thinly brown, cells mesad of M as in clavus, cells laterad of M hyaline, with a yellowish tinge; costal margin brown. Abdominal sterna yellow.

Vertex nearly $5 \times$ as wide as long (28: 5.5); face across eyes wider than long (43: 40). Pronotum slightly less than $2.5 \times$ as broad as long (38: 16). Scutellum wider than long (28: 20). Length 3.8 mm.

Seventh sternum rectangular, hind margin straight; pygofer yellow, smooth; ovipositor dark brown.

Holotype ♂ (BISHOP 9708), W. New Guinea, Vogelkop, Kebar Valley, W. of Manokwari, 550 m, 4-31.I.1962; L. W. Quate collector. Allotype ♀, in BPBM, New Guinea, NW, Nabire, S. Geelvink Bay, 10-40 m, 3.X.1962, jungle, H. Holtmann coll., from light trap.

The broad transverse black band across pronotum and the mask-shaped band across ocelli of both sexes easily identify this species. *P. amabilis* has a somewhat similar transverse band on pronotum but its face is uniformly yellowish. The trivial name *lineatus* makes reference to the black band across the pronotum.

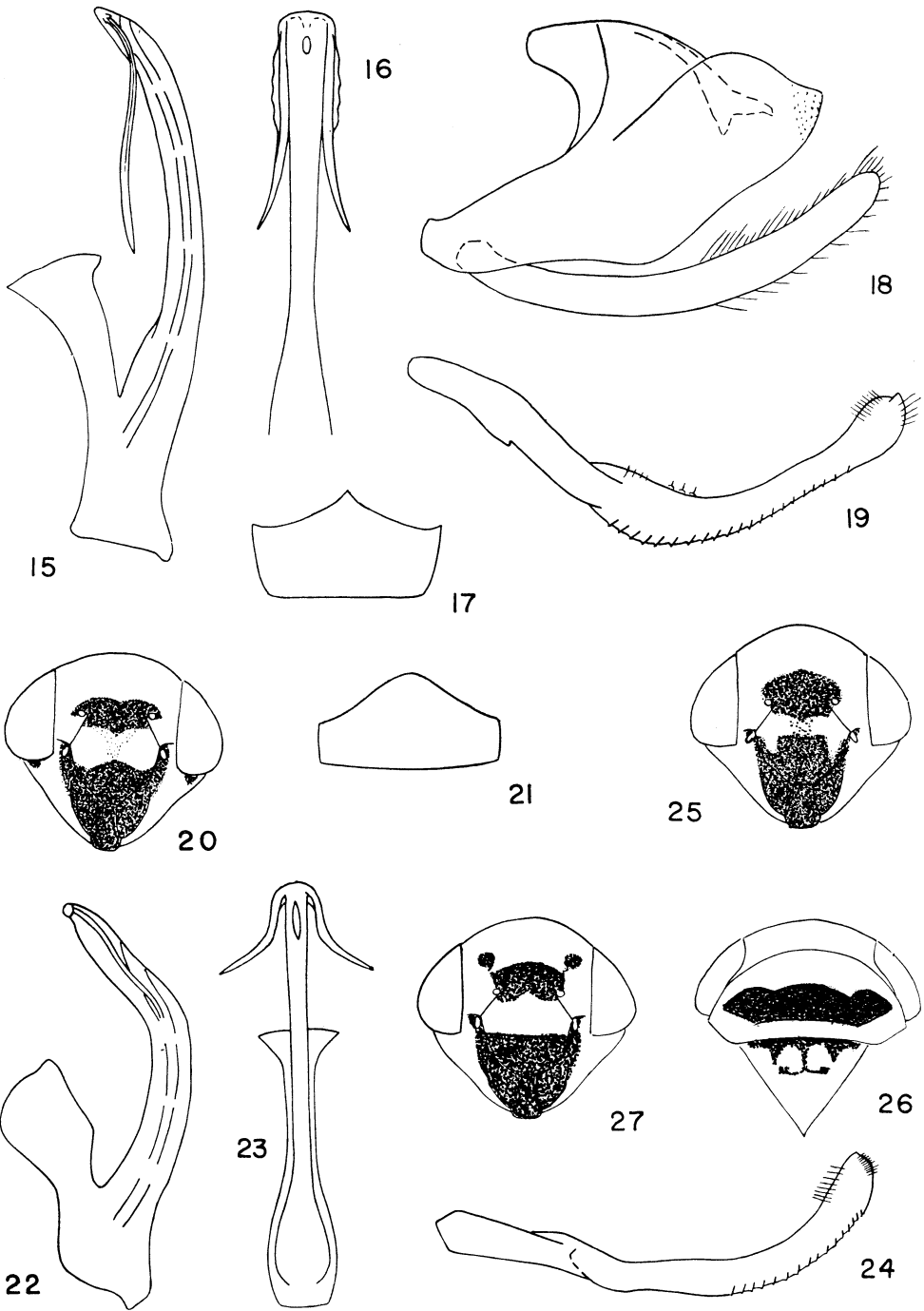
Pedioscopus personatus Maldonado Capriles, new species Fig. 28-34.

♂: Vertex straw-colored, vitreous area well or poorly defined; face with a subrectangular mask-shaped black band across ocelli; lower part of postclypeus black with upper margin in a W-pattern, fig. 32. Anteclypeus and lora black. Gena black along margin of postclypeus to antennal pit. Beak straw-colored. Pronotum straw-colored, with two black spots on disc. Scutellum with a pale brownish or orange triangular spot near each basal angle and a small inverted-T discal spot. Thorax yellowish white, above midcoxa with or without a small brown area. Legs whitish yellow, apex of foretibia brownish or yellow. *Forewing*: clavus with a pale brownish tinge, margins narrowly brown; corium with commissural suture, costal margin, M, veins of third apical cell, and veins of base of appendix brown; wing area mesad of M with a brownish tinge; area outward of M with a pale yellowish tinge. First abdominal sternum yellowish, others with discal brownish area.

Vertex about $6 \times$ as wide as long (28: 5); face slightly wider across eyes than long (44: 42). Pronotum nearly $2.5 \times$ as wide as long (44: 17); scutellum wider than long. Length 4.1-4.2 mm.

♂ genitalia as in fig. 28, 29, 33, 34.

♀: Similar in overall coloration to ♂. Vertex straw-colored, vitreous area well defined, three small black spots on anterior margin; face with a pair of spots above and a blackish area between ocelli (fig. 31); lower half of postclypeus black. Postclypeus and lorae black. Gena along side of postclypeus to antennal pit black. Beak yellowish or straw-colored. Pronotum straw-colored, with two black spots on disc inside level of inner margin of eyes. Scutellum straw-colored, black along anterior margin, with small discal brown design (fig. 30). Thorax yellowish, brown above midcoxa. Legs yellow or straw-colored, claws black. *Forewing*: clavus grayish or dirty straw-colored, narrowly brown along commissural margin and inner margin to level of tip of scutellum, thence yellowish to apex; costal margin yellow to midlength, thence brown to apex; broad band along M, narrow band along Cu, veins of second and third apical



cell and base of appendix brown; hyaline from M to costal margin and mesad from M with a grayish yellow tinge. Abdominal sterna yellow. Length 4.2-4.3 mm.

Vertex nearly 5 times as wide as long (26 : 5); pronotum 2/3 as wide as long (40 : 15); scutellum wider than long (27 : 19); face slightly wider across eyes than length to apex of anteclypeus.

♀ genitalia : Seventh sternum yellow, rectangular, hind margin straight; pygofer yellow; ovipositor dark-brown.

Holotype ♂ (BISHOP 9709), New Guinea, Papua, Daradae Plantation, 500 m, 80 km N of Port Moresby, 4.IX.1959, T. C. Maa collector, sweeping. Allotype ♀, in BPBM, same data. Paratypes : 14 ♀♀ and 4 ♂♂ - 1 ♂ and 1 ♀ in USNM, 1 ♂ and 2 ♀♀ in JMC, others in BPBM; same data as holotype.

The rectangular spot between ocelli, details of the coloration of the clavus of the forewing, and the genitalia separates this species from *P. larvatus* new species, its closest relative. The trivial name *personatus*, from *persona*—masked, makes reference to the mask-like band across the ocelli.

Pedioscopus quadrilineatus Maldonado Capriles, new species Fig. 42-50.

♂ : Vertex yellowish, with vitreous area well defined; face above and along inner margin of eyes yellowish; from above ocelli to anteclypeal margin, anteclypeus, and lora black; gena, except below eyes black (fig. 48). Beak straw-colored. Pronotum pale yellowish, two large spots on disc inside level of inner margin of eyes. Scutellum yellow, brown along anterior margin, with an inverted T-shaped mark on disc. Thorax yellow, black above midcoxa. Legs pale straw-colored or yellowish, apex of foretibia blackish, metacoxa anteriorly blackish. *Forewing*: clavus hyaline with a pale brownish tinge, along commissural suture and inner margin broadly brown to near apex; corium with broad stripe along M, and costal margin, narrowly brown along veins of third and second apical cells, outer discal, and base of appendix; cells mesad from M with a brownish tinge, outward from M hyaline. Abdominal sterna yellowish, disc near apical margin brown.

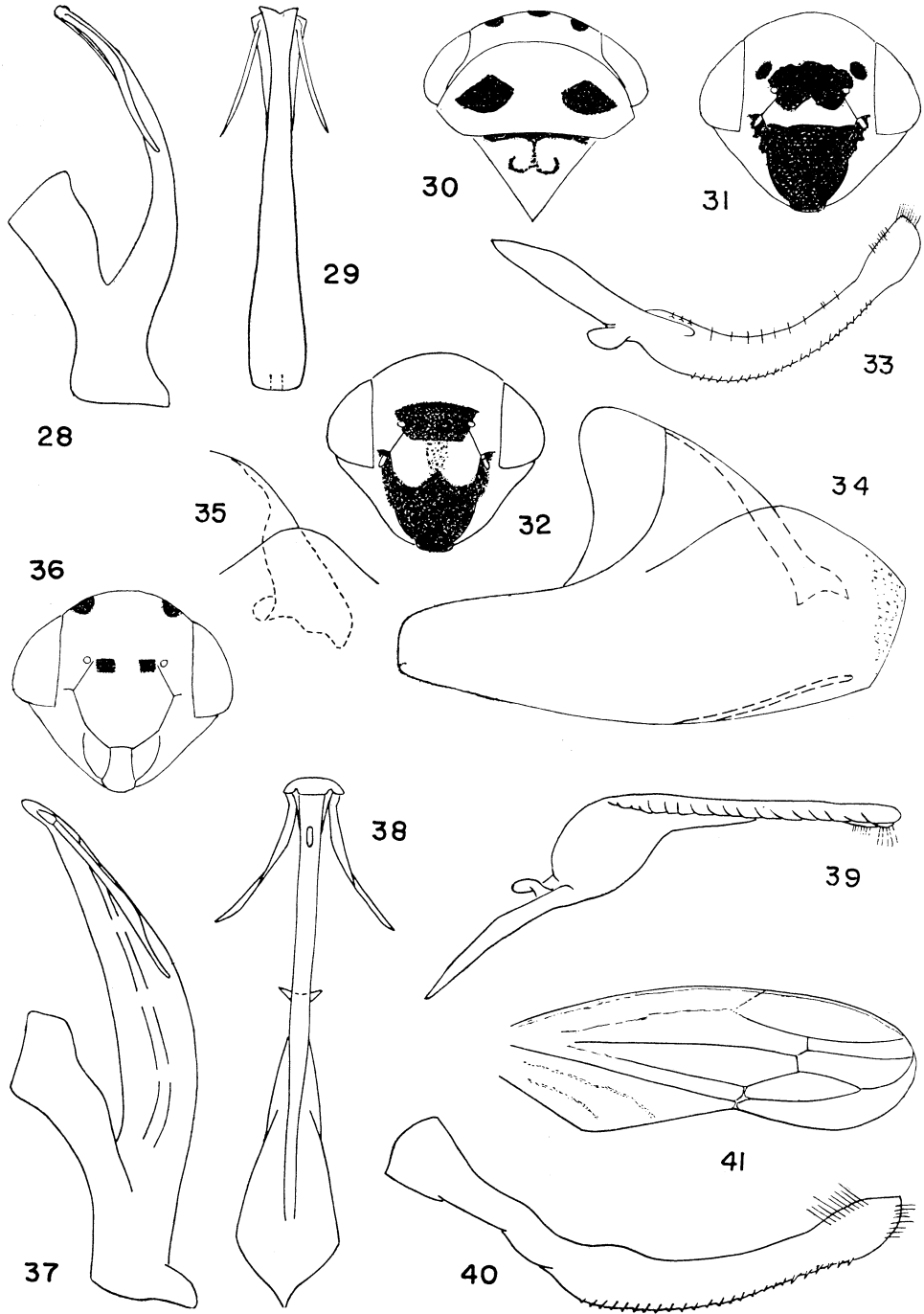
Vertex about 5 × as wide as long (23 : 5); face across eyes wider than long (38 : 35). Pronotum about 2.5 × as wide as long (34 : 13); scutellum 1.3 × as wide as long (24 : 18). Forewing as in fig. 50. Length 3.3-3.4 mm.

♂ genitalia as in fig. 42 to 46 and 49.

♀ : Vertex straw-colored, two spots near anterior margin (the same two high on face); two subrectangular spots between ocelli, postclypeus black apically (fig. 47). Anteclypeus and lora black. Gena black along side of postclypeus to antennal pit. Beak yellowish. Pronotum with two black spots in line with those on vertex. Scutellum straw-colored basally and yellow apically, a narrow inverted T-shaped median spot. Fore and midlegs yellowish; hind coxa blackish, femur brownish except for yellow base and apex. *Forewing*: clavus similar in coloration to ♂; corium similar to that of ♂, with second and third apical cells margined with brown. Abdominal sterna : first and penultimate yellow, second and third brownish, last brown.

Vertex 4 × as wide as long (24 : 6); face across eyes slightly wider than long (41 : 36). Pronotum 2.3 × as wide as long (36 : 16); scutellum wider than long (26 : 21). Length 3.8-3.9 mm.

Fig. 15-27. Fig. 15-20, *Pedioscopus larvatus* n. sp. : 15, aedeagus, lateral; 16, aedeagus, caudal; 17, valve, ♂; 18, pygofer, lateral; 19, style, lateral; 20, face, frontal, ♂. Fig. 21-27, *Pedioscopus lineatus* n. sp. : 21, valve, ♂; 22, aedeagus, lateral; 23, aedeagus, caudal; 24, style, lateral; 25, head, frontal, ♂; 26, head and thorax, dorsal, ♂; 27, head, frontal, ♀.



♀ *genitalia*: Seventh sternum with hind margin shallowly concave; pygofer longitudinally brown on disc; ovipositor black.

Holotype ♂ (BISHOP 9710), Solomon Is., Buka I., Gagan, 40 m, 8-11.XII.1959, T. Maa collector. Allotype ♀, in BPBM; from Solomon Is., NW Malaita, Dala, 8.VI.1964, R. Straatman, light trap. Paratypes 26 as follows: Choiseul Is. 6, Vela Lavela 4, San Cristobal 1, Kolombangara 2, Santa Isabel 1, Guadalcanal 9, and Malaita 3, Solomon Islands; 2 each from Guadalcanal in USNM and JMC, others in BPBM.

Closest to *P. maculifrons* and *P. septemmaculatus*, species with narrow longitudinal brown bands on forewing instead of broad as in *quadri-lineatus*. The trivial name makes reference to these four broad bands.

***Pedioscopus septemmaculatus* Maldonado Capriles, new species** Fig. 51-58.

♂: Vertex yellowish, vitreous area pale brownish. Postclypeus from apex to just above level of ocelli dark brown (fig. 51). Anteclypeus and lorae blackish. Gena mostly yellowish white, from above lora to antennal pit blackish. Beak straw-colored, first segment light-brown on basal half. Pronotum yellowish anteriorly, with a pale brownish tinge posteriorly, with two discal blackish spots, outer margin of spots in line with inner margin of eyes (fig. 52). Scutellum brownish, yellowish apically. Thorax yellow. Coxae and legs yellowish; foretibia yellowish, apex dark brown; mid and hind tibiae yellowish, foretarsi dark, other tarsi whitish yellow. Forewing smokey, from costal margin to M hyaline; clavus with inner and outer margins brownish; corium with three narrow longitudinal brownish stripes, one each along costal margin, commissural suture, and close to M; veins of second and third apical cells brownish. Abdominal sterna and genital capsule yellowish.

Vertex $5 \times$ as wide as long (25: 5); face across eyes slightly wider than long (43: 37); pronotum nearly $2.5 \times$ as wide as long (39: 15); scutellum wider than long (25: 21). Length 3.7 mm.

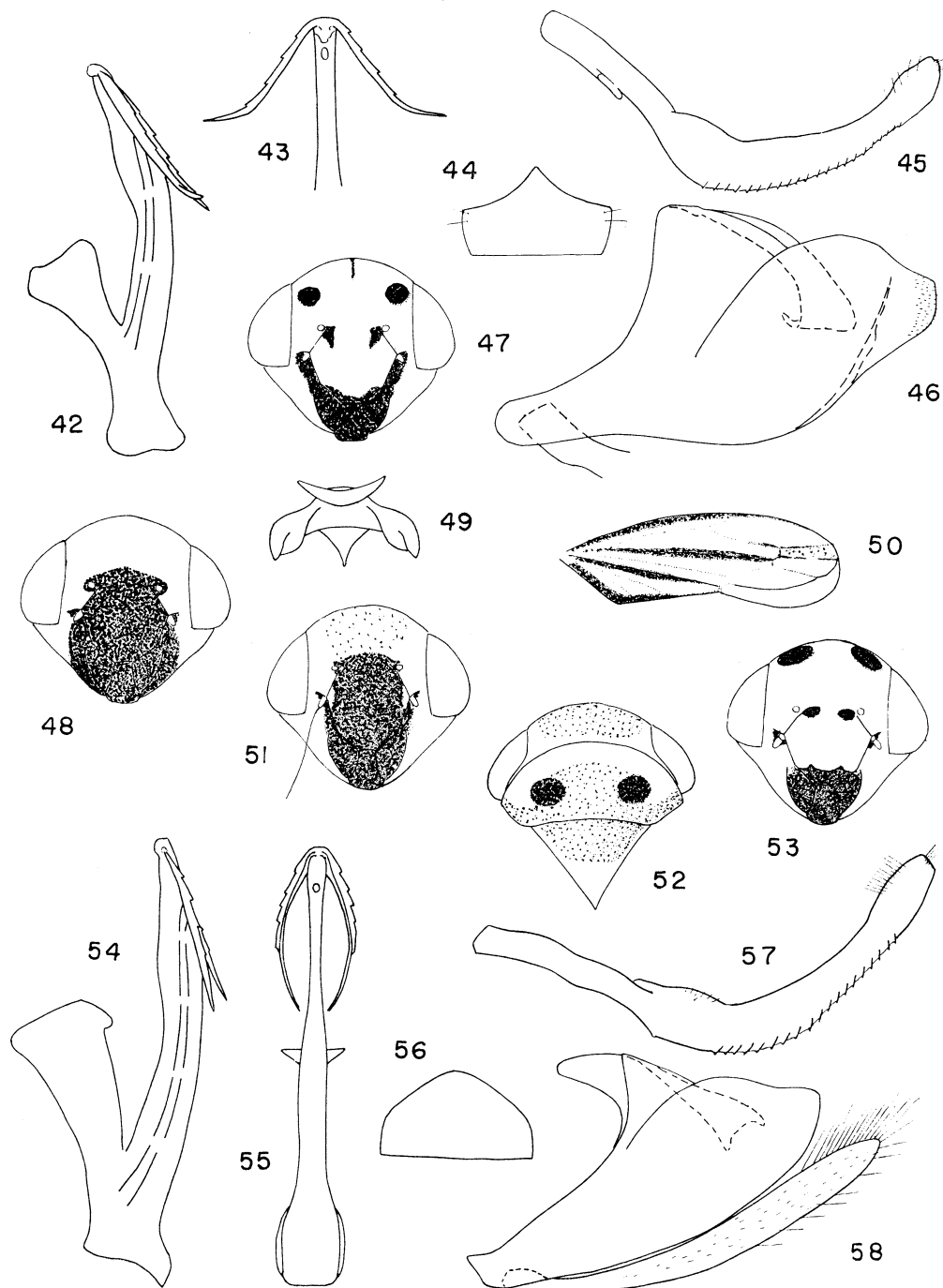
♂ *genitalia* as in fig. 54 to 58.

♀: Vertex yellowish, with two half-oval dark brown spots on anterior margin (the same two high on face); postclypeus yellowish, with oval spots high on face and two subquadrangular or oval spots contiguous to ocelli, black near anteclypeal margin. Anteclypeus black. Lora black except at upper extreme where it is yellow. Gena yellow; antennal pit black (fig. 53). Beak and legs yellow; hind coxa brownish. Pronotum yellowish, with two blackish spots on disc. Scutellum yellow-white, anteriorly pale brownish. Thorax pale yellow, above midcoxa blackish. *Forewing*: with a brownish tinge; clavus relatively broadly dark brown along inner margin to near apex where it is yellow; narrowly lined with brown along commissural margin, M, and costal margin. Abdominal sterna yellow; terga black, with a longitudinal yellow stripe before brownish margin.

Vertex $4.5 \times$ as wide as long (28: 6); face across eyes wider than long (44: 38). Pronotum $2.5 \times$ as wide as long (40: 16); scutellum wider than long (27: 21). Length 4.1 mm.

♀ *genitalia*: Seventh sternum and pygofer yellow; seventh sternum rectangular, hind margin straight. Ovipositor blackish brown.

Fig. 28-41. Fig. 28-34, *Pedioscopus personatus* n. sp.: 28, aedeagus, lateral; 29, aedeagus, caudal; 30, head and thorax, dorsal, ♀; 31, head, frontal, ♀; 32, head, frontal, ♂; 33, style, lateral; 34, pygofer, lateral. Fig. 35-41, *Pedioscopus philenor* Kirkaldy: 35, apodeme of pygofer, lateral; 36, head, frontal, ♂; 37, aedeagus, lateral; 38, aedeagus, caudal; 39, style, left, ventral; 40, style, right, lateral; 41, forewing.



Holotype ♂ (BISHOP 9711), New Hebrides, Efate Island (NW), limestone plateau, N of Maat, at 100 m, 18.VIII.1957, J. L. Gressitt collector. Allotype ♀, in BPBM, same data as holotype. Paratypes : 4 ♂♂, one each in JMC and USNM, and 2 in BPBM ; 5 ♀♀, one each in JMC and USNM, three in BPBM.

See last paragraph under *P. maculifrons* on how to separate this species from allied ones. The trivial name *septemmaculatus* makes reference to the 7 black areas on the ♀♀. A ♂ from Espiritu Santo, a small island south of Epate, with very different forewing but similar ♂ genitalia to that of *septemmaculatus* could be a separate species. The decision is postponed until females can be associated with this single ♂ specimen ; I have labeled it *Pedioscopus* A. ; in BPBM.

***Pedioscopus amabilis* Linnavuori**

Pedioscopus amabilis Linnavuori 1960 : 244.

Holotype, allotype in BPBM. Western Caroline Is. (Palau).

Linnavuori did not illustrate the distinctly shaped apodeme of the pygofer which would have helped for an exact generic placement of this species. I am basing my generic classification on the sexual color dimorphism, the position of the appendages on the stem of the aedeagus, the serrate margin of the apophysis of the style, and the four apical cells. This last character can be misleading if used alone. The very broad longitudinal bands on the forewing are distinctive.

"*Pedioscopus*" *balochoides* Maldonado Capriles

Pedioscopus balochoides Maldonado 1968 : 97.

According to the present definition of the genus this species is not a *Pedioscopus*. The subrectangular shape of the anteclypeus, the curved lateral margins of the postclypeus, and the greater proximity of the ocelli to the eyes exclude this species from *Pedioscopus*. Males should prove this species to belong to an undescribed genus.

"*Pedioscopus*" *busonioides* (Baker)

Balocha busonioides Baker 1915 : 330.

Pedioscopus busonioides (Baker). Maldonado Capriles 1961 : 308.

I removed this species from *Balocha* where it definitely does not belong, and incorrectly considered it a *Pedioscopus*. As can be seen from the illustration of the aedeagus in my paper of 1961 this species is not a *Pedioscopus*. At this moment I am not sure where it properly belongs.

Fig. 42-58. Fig. 42-50, *Pedioscopus quadrilineatus* n. sp. : 42, aedeagus, lateral ; 43, apex of aedeagus, caudal ; 44, valve, ♂ ; 45, style, lateral ; 46, pygofer, lateral ; 47, head, frontal, ♀ ; 48, head, frontal, ♂ ; 49, connective ventral ; 50, forewing. Fig. 51-58, *Pedioscopus septemmaculatus* n. sp. : 51, head, frontal, ♂ ; 52, head and thorax, dorsal, ♂ ; 53, face, frontal, ♀ ; 54, aedeagus, lateral ; 55, aedeagus, caudal ; 56, valve, ♂ ; 57, style, lateral ; 58, pygofer, lateral.

"Pedioscopus" tutuilanus Osborn

Pedioscopus tutuilanus Osborn 1934: 170.

This species and the next subspecies are not in *Pedioscopus*.

"Pedioscopus tutuilanus" curtulus Linnavuori

Pedioscopus tutuilanus curtulus Linnavuori 1960: 243.

Linnavuori correctly considered that *Idiocerus tutuilanus* Osborn is not an *Idiocerus* and, without then calling it a new combination, transferred it to *Pedioscopus* when he described subspecies *curtulus*. In another paper I am describing a new genus to include *P. tutuilanus*, *P. t. curtulus*, and many other new species all characterised by their conspicuous longitudinal broad black bands on the forewing.

"Pedioscopus" unimaculatus (Melichar)

Idiocerus unimaculatus Melichar 1903: 149.

Pedioscopus unimaculatus (Melichar). Baker 1915: 318.

This species should prove not to be a *Pedioscopus* because: the forewing is not separated into a hyaline and an opaque brownish area by a longitudinal stripe on M, it is "similar to *I. nigroclypeatus* (= *clypealis*) in form and size" according to Melichar, and the different general coloration.

Genus **Philipposcopus**, new genus

Pedioscopus Kirkaldy 1906: 349 in part.

Vertex, other parts of head, pronotum, and scutellum shagreen. Upper extremities of postclypeus well defined, not reaching ocelli and pointing to inner margin of ocellus of corresponding side. Filament of antenna hair-like. Anteclypeus with lateral sides parallel or subparallel. Lora slightly elevated above surface of gena, relatively narrow and short. Vertex $4 \times$ or slightly over $4 \times$ as wide as long. Pronotum with hind margin shallowly concave or nearly straight; $2 \frac{1}{3}$ to $2 \frac{1}{2} \times$ as wide as long; about $3 \times$ length of vertex. Scutellum slightly wider than long, as long as vertex and pronotum combined.

Forewing without anteapical cells; four apicals, the first and fourth wider than second and third; second and third rectangular or slightly wider apically, of nearly the same width throughout basal half (fig. 77). Hind tibia with spines as in *Pedioscopus*.

Coloration: straw-colored, pronotum slightly darker or darker.

Genitalia: ♂—as in fig. 72 to 76 and 78. Valve angularly produced medianly, with microsetae. Aedeagus flattened laterally, on lateral view narrower apically and basally and slightly curved; without socle, without appendages; gonopore opening caudad near apex. Pygofer as in figures 76 and 78, with a strongly sclerotized sharp projection on its upper mesal caudal angle that extends basally as a short sclerotized apodeme; without median fold; with short fine hairs below sclerotized projection. Anal tube of tenth segment well developed, lower basal margin extending below upper margin of pygofer. Style slender, curved outward and upward; apophysis slightly flattened laterally and keeled near base on lateral aspect; glabrous except for a few short hairs near base of apophysis. Plates long and relatively not broad or deep, with long hairs on upper margin of apical half, fewer on apical half of lower margin.

♀ : Shape and proportions of head, pronotum, and scutellum, and venation of forewing as in ♂. General coloration as in ♂. *Genitalia* : Seventh sternum rectangular or quadrangular, with hind margin medianly produced; pygofer smooth, apically acute or truncate on ventral view; ovipositor straight, slightly surpassing apex of pygofers.

Type-species : *Pedioscopus maquilingensis* Baker, 1915.

Can be separated from *Pedioscopus* by its shagreen vertex, subquadrangular anteclypeus, aedeagus differently shaped and without appendages, and the strongly sclerotized spine on inner-apical margin of pygofer. From *Angusticella* new genus, by not having the second apical cell of forewing pedunculate, the scutellum as long as vertex and pronotum together, and details of the ♂ genitalia. Additional details are compared in Table I.

Table I. Tabulation of generic characters.

	<i>Pedioscopus</i>	<i>Philipposcopus</i>	<i>Angusticella</i>
vertex	finely striate	shagreen	shagreen
Membraneous suture of pygofer	present	absent	absent
anteclypeus	bell-shaped	subrectangular	subrectangular
second apical cell	quadrangular	quadrangular	pedunculate
filaments on aedeagus	two long, apical	none	none or two short, subapical
apophysis of style-apex	pilose	bare	bare
apophysis of style-lower margin	serrate	smooth	smooth
anal tube of tenth segment	not developed	well developed	not developed
pygofer, apical margin	entire	with strong spine	entire
upper apodeme of genital capsule-origin	medianly above from base of pygofer	no apodeme	from tenth segment*
coloration : pronotum	two spots	unicolorous	unicolorous
clavus	brown longitudinal stripes	unicolorous	basal half opaque yellow

The name *Philipposcopus* is a combination of Philippines and *scopus* an ending commonly used in the names of the idiocerines.

***Philipposcopus maquilingensis* (Baker), new combination** Fig. 72-78.

Pedioscopus maquilingensis Baker 1915: 333.

With some modifications Baker's description follows: Length 5.3 mm; width of head 1.9 mm. Color ochraceous; the scutellum except margins, brownish, the basal lunulae darker, and two brown spots just anterior to lateral extremities of transverse impression; ovipositor brown. Forewing semitransparent, washed with very pale brownish, the veins golden brown.

Head wider than pronotum; length of vertex into width between eyes 4 times, the length at middle about the same as at eyes. Face a little longer than broad; distance between ocelli somewhat more than twice the distance between ocelli and eyes and $1\frac{1}{2} \times$ the width of anteclypeus at base; front longer than broad; anteclypeus broad and short, a little broader apically than basally, the tip emarginate; lorae shorter than clypeus and $\frac{1}{3}$ as broad. Width of pronotum $2\frac{1}{2}$ times the length, the length $2\frac{1}{2}$ times that the vertex. Scutellum as long as pronotum and vertex together; transverse impressed line strongly, angularly bent, open at apex, the lateral limbs strongly arcuated. Forewing without distinct punctures; second apical cell sessile. Hind margin of seventh sternum of ♀ broadly, strongly, medially produced, the apex emarginate.

Luzon, Mount Maquiling (coll Baker). *P. maquilingensis* is the largest species of the genus known in the Philippines. Peculiar to this species are the strongly curved supra-antennal ridges.

♂ genitalia as described for the genus are drawn from a specimen from the type locality: deposited in USNM. The ivory-yellow margin of the large brown scutellum serves to identify this species.

Philipposcopus modestus (Baker), new combination

Pedioscopus modestus Baker 1915: 333.

The main reason for calling this species a *Philipposcopus* is for removing it from *Pedioscopus* where definitely it does not belong. Just having four apical cells and a shagreen vertex is insufficient evidence to indicate it belongs in this new genus. Slight differences in the clypeus, size and form of the vertex and pronotum, make me suspect this may be still a different genus. Not having ♂ material at hand makes me postpone this decision.

Baker's description with some modifications follows: Length 3.5 mm, width of head 1.3 mm. Color ochraceous, pronotum slightly darker, mesopleurae black-spotted, abdomen more or less dark colored at base and above, first ventral segment in ♂ brown, hind tibiae with large black spots at bases of spines, the second tarsal joint apically brown; forewing washed with very pale brownish, nearly uniform throughout. Head wider than pronotum; length of vertex into width between eyes more than 4 times; length at middle about the same as at eyes. Face a little longer than broad; distance between ocelli three times the distance between ocelli and eyes and $1\frac{1}{2}$ the width of the clypeus at base; front about as broad as long; anteclypeus very broad, nearly as broad at base as at apex, the tip emarginate; lora longer than anteclypeus but $\frac{1}{2}$ as broad. Width of pronotum $2\frac{1}{3}$ times the length, slightly more than three times that of vertex. Scutellum about as long as head and pronotum together; transverse impressed line evenly and gently arcuate. Forewing with a few, remote, shallow punctures on clavus. Hind margin of seventh sternum of female broadly, strongly medially produced, the side plates angled apically; hind margin of valve of male truncate.

Mindanao, Butuan, Philippine Islands (coll Baker). I examined two specimens from the type locality; deposited in the USNM. The uniformly yellow scutellum helps to separate this species from *P. maquilingensis*.

Baker's couplet, on page 331, can be used to separate these species:

1. Lorae longer than clypeus; color yellowish ochraceous; length 3.5 mm... **P. modestus** (Baker)
- Lorae shorter than clypeus; color brownish ochraceous; length 5.3 mm **P. maquilingensis** (Baker)

Genus *Angusticella*, new genus

Pedioscopus Kirkaldy 1906: 349 in part.

♂: Vertex, other parts of head, pronotum, and scutellum shagreen. Upper extremities of clypeus well defined, not reaching ocelli and pointing to inner margin of ocellus of corresponding same side. Filament of antenna short, hair-like. Postclypeus with margins gently curved. Anteclypeus with lateral margins subparallel or slightly concave, usually slightly longer than wide. Lora slightly elevated above surface of gena, elongate and narrow. Pronotum with hind margin nearly straight; from 2.5 to 3 × as wide as long; from 1 1/4 to 2 × length of vertex. Scutellum slightly shorter than pronotum and vertex together.

Forewing without antepical cells; four apicals, first broad or very broad resulting from the frontward or backward position of Rs respectively, second apical pedunculate, third quadrangular, and fourth about as wide as third or slightly wider; an inconspicuous series of scattered fine punctures along claval veins. Spines of hind tibia as in *Pedioscopus*.

Coloration: Yellowish, straw-colored or ochraceous; anteclypeus blackish basal third of clavus opaque or with a yellow tinge.

Genitalia: Valve slightly angularly produced medianly, with microsetae. Aedeagus relatively thick, not flattened; on lateral aspect slightly humped near apex bent cephalad, and broad as seen from behind; opening of gonopore dorsally before apex; with or without a small pointed appendage on each side near apex or slightly below. Pygofer shorter than deep; caudal margin convex, with few scattered fine setae. Anal tube of tenth segment greatly reduced, produced ventrad into a leaf-like or elongate apodeme (fig. 62). Style slender, curved outward and upward, apophysis slightly flattened laterally, glabrous except for a few short hairs near base of apophysis (fig. 67). Connective on lateral aspect with or without a triangular semicircular median vertical flange on upper half, on ventral aspect long or short cross-shaped (fig. 64 and 70). Plates long, not too broad or deep, with long hairs on upper margin of apical half.

♀: Shape and proportions of head, pronotum, and scutellum, and forewing venation as in male. General coloration as in ♂. *Genitalia*: Seventh sternum diamond-shaped, anterior margin produced cephalad and posterior margin produced caudad; pygofer smooth, apically acute or slightly truncate on ventral aspect; ovipositor straight, slightly surpassing apex of pygofers.

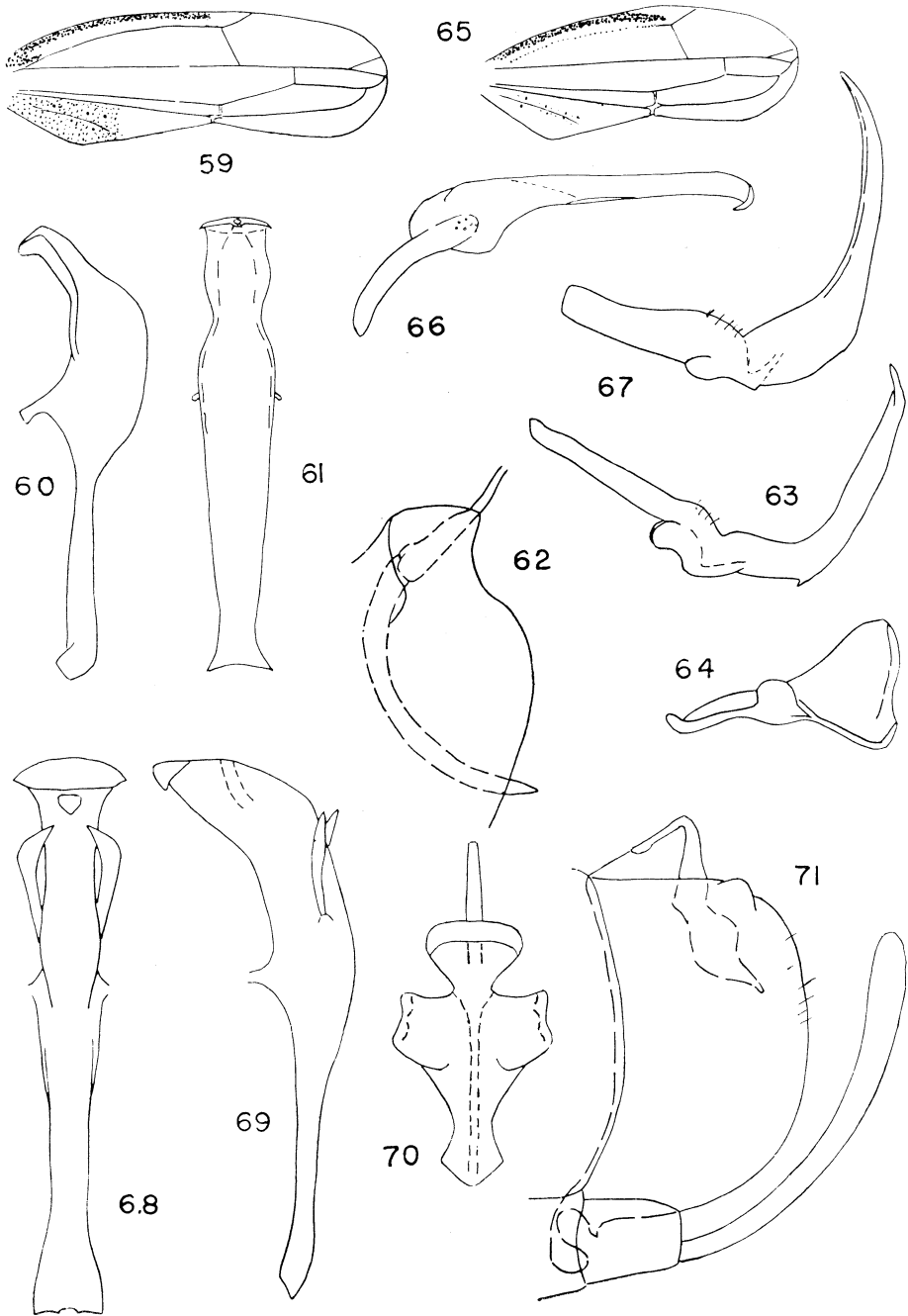
Type-species: *Pedioscopus coloratus* Baker, 1915.

This genus, as described above, seems to be polyphyletic. This is suggested by the marked differences between the venation of forewings of *A. similis* and *A. angustatus* on one hand and *A. simplex* and *A. coloratus* on the other, the slightly different anteclypei of these four species, and that the three examined aedeagi seem not to be variations of the same type or shape. The styles and connectives are quite similar in both groups; the anal tube is greatly reduced, and the apodemes projecting from the tenth segment have the same origin in the four species studied.

Angusticella is herein divided into two subgenera as follows:

1. Cross-vein of outer apical cell (Rs) intercepting second vein (M) before cross-vein (m-cu) of second apical cell (fig. 59) **Angusticella** new subgenus, s. str.
Cross-vein of outer apical cell intercepting second vein after cross-vein of second apical cell (fig. 79) (type-species: *Pedioscopus similis* Baker, 1915) **Upsicella** new subgenus

Angusticella, new genus, and *Balocha* are so far the only idiocerines having a pedunculate second apical cell. Their aedeagi, as well as other details of the male genitalia,



are totally different. In *Balocha* the first apical cell is shorter and broader, the pedunculate cell is smokey, the upper extremities of the postclypeus are short and point to slightly above the ocellus of the other side, and the species tend to be orange, while in *Angusticella* the first apical cell is longer and narrower, the pedunculate cell is not smokey, each upper extremity of the postclypeus almost reach the inner margin of the ocellus of the same side, and the species are mostly straw-colored.

KEY TO SPECIES OF SUBGENUS ANGUSTICELLA

1. Clavus all yellow, with a median, longitudinal black stripe **A. simplex**
 Clavus with basal half yellow, lacking black stripe, and sometimes part ivory-white or red brown **A. colorata**

Angusticella (Angusticella) colorata (Baker), new combination Fig. 59-64.

Pedioscopus coloratus Baker 1915 : 337.

Baker's description with some modifications follows: Length 4.5 mm, width of head 1.3 mm. Color of head and all below ochraceous; pronotum and basal field of scutellum pale clear brown; apical field of scutellum yellowish; small, irregular, evanescent spots adjoining ocelli below, lower portion of front, anteclypeus (with sometimes lorae and lower portion of genae), and ovipositor black (face concolorous in male); sides of dorsum dark brown; forewing semi-transparent, washed with very pale golden brown, darker basally, area of outer apical cell very clear, basal half of costa broadly, and the commissure, black; basal 2/3 of clavus opaque yellow, often margined with ivory-white, this area posteriorly subtruncate. Extreme tip of corium often more or less smokey.

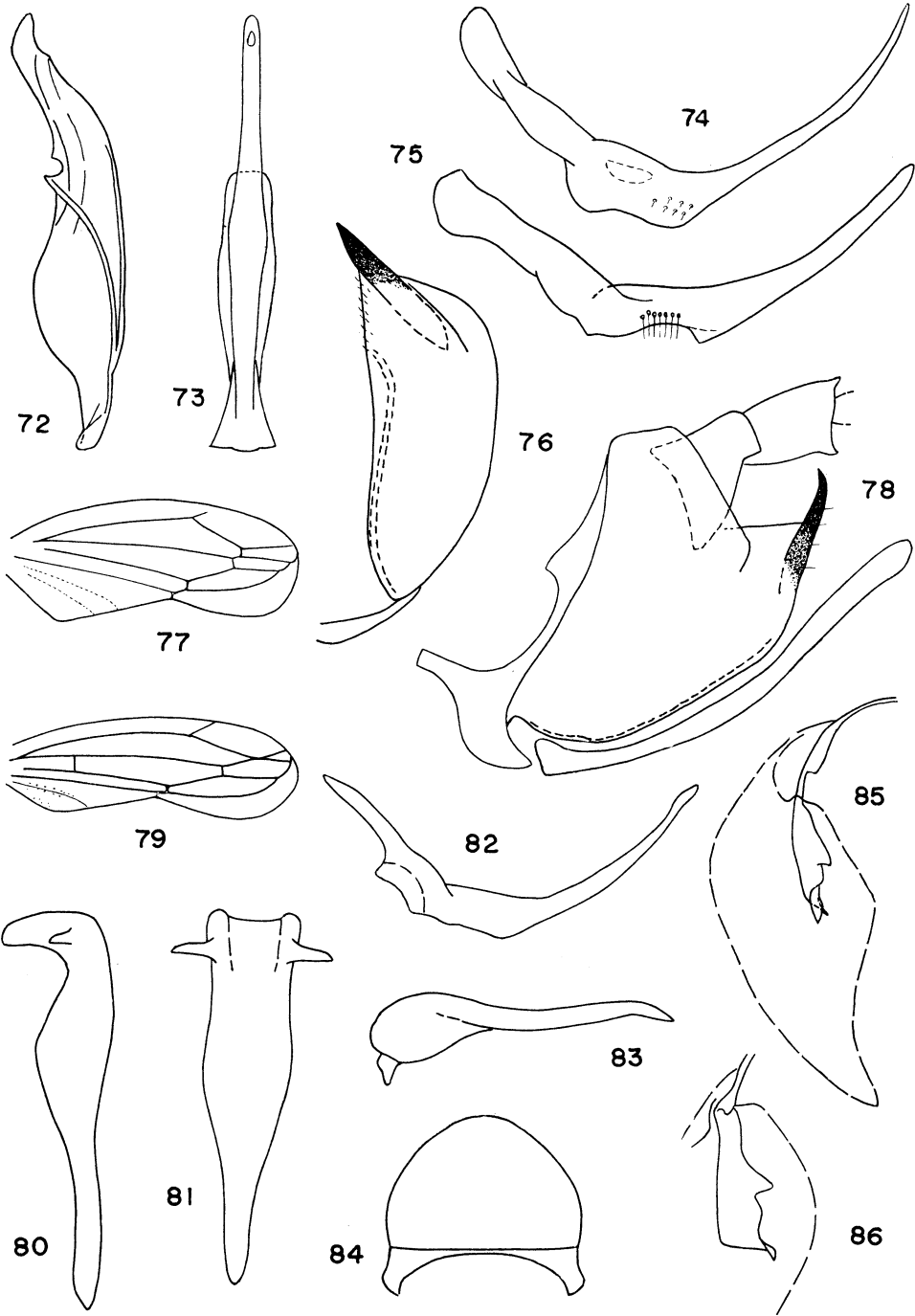
Length of vertex into width between eyes $2 \frac{3}{4}$ times, length at middle distinctly greater than at eyes. Face as long as broad; distance between ocelli three times the distance between ocelli and eyes and $1 \frac{1}{2}$ the width of clypeus at base; front longer than broad; clypeus of medium width, about as wide apically as basally, apex rather sharply emarginate; lora far longer than anteclypeus and about 1/2 of vertex together; surface broadly depressed at impressed line, this line angularly bent, open at apex, the lateral limbs not arcuate. Forewing with few, scattering, minute dark punctures on color portion of clavus; second apical cell long pedunculate. Hind margin of seventh sternum of female long produced medially and slightly emarginate or entire at tip. Hind margin of valve of male sinuate, the pygofer broad at base, narrowing to acute tips, the outer margins long-haired.

Luzón, Los Baños, Malinao; Mindanao, Butuan (coll Baker).

♂ genitalia as in fig. 60 to 64; drawn from a specimen from Los Baños, Phil. Is., in the USNM. Specimens from Mt. Makiling, Luzon; Camanines Sur, Mt. Iriga; Mindanao, Agusan, San Francisco; and Los Baños in BPBM (2 in JMC).

Baker described two forms of this species, namely, var. *mindanaensis* with very broad black commissural margins to anal portion of clavus and heavy black basal lunulae on scutellum and var. *bicolorata* with anal 2/3 of colored portion of clavus bright red-

Fig. 59-71. Fig. 59-64, *Angusticella (A.) colorata* (Baker): 59, forewing; 60, aedeagus, lateral; 61, aedeagus, caudal; 62, upper half of pygofer, caudal; 63, style, lateral; 64, connective, lateral. Fig. 65-71, *Angusticella (A.) simplex* (Baker): 65, forewing; 66, style, dorsal; 67, style, lateral; 68, aedeagus, caudal; 69, aedeagus, lateral; 70, connective ventral; 71, genital capsule, lateral.



brown and the remainder of this area a broad band along claval suture ivory-white.

Angusticella (A.) simplex (Baker), new combination Fig. 65-71.

Pedioscopus simplex Baker 1915 : 336.

Baker's description with some modifications follows: Length 5.2 mm, width of head 1.6 mm. Color yellowish ochraceous; small basal lunulae on scutellum, irregular spots, including the ocelli, apex of postclypeus, lorae except upper extremity, and all of anteclypeus (in female) black; mesopleurae black-spotted; ovipositor black; corium semitransparent, washed with very pale brownish, clavus opaque yellow; basal 2/3 of costa, a stripe along median vein extending to, and connecting with, a brownish spot in the second apical cell, brachial vein, and a longitudinal stripe passing through the clavus black.

Length of vertex into width between eyes 2 1/5 times, the length at middle distinctly greater than at eyes. Face broader than long; distance between ocelli and eyes 1 1/2 the width of clypeus at base; front much longer than broad; anteclypeus very broad, broadened apically, the anterior margin only slightly incurved; lorae far longer than anteclypeus and about 1/2 as broad. Width of pronotum about 2 1/2 times the length, the length about 1 2/3 that of the vertex. Scutellum as long as pronotum and a little more than half of vertex together; surface near impressed line broadly depressed, the impressed line angularly bent, apically open, the lateral limbs not arcuate. Forewing with a few remote punctures on clavus. Hind margin of valve produced medially and emarginate at tip as in *P. coloratus*.

Mindanao, Butuan (coll Baker).

♂ genitalia and forewing as in fig. 65 to 71; drawn from specimen from Mindanao; in the USNM.

KEY TO SPECIES OF SUBGENUS UPSICELLA

1. Forewing without black costa or apical black spot; clypeus white at tip in female; hind margin of seventh sternum of female very slightly and broadly produced.....
 A. (U.) **similis**
- Forewing with black costa and apical black spot; clypeus all black in female; hind margin of seventh sternum of female suddenly strongly produced to an emarginate apex
 A. (U.) **angustata**

Angusticella (Upsicella) similis (Baker), new combination Fig. 79-86.

Pedioscopus similis Baker 1915 : 334.

Baker's description with some modifications follows: Length 4.3 mm, width of head 1.3 mm. Color ochraceous, yellowish on pronotum and scutellum, basal half of clavus opaque yellow, this area distally irregularly abbreviated; corium semitransparent, faintly washed with brownish, the basal half of costa golden brown; small, round, blackened areas adjoining ocelli below; anteclypeus in female black, excepting the extreme tip (concolorous in male); ovipositor brown.

Fig. 72-86. Fig. 72-78, *Philipposcopus maquilingensis* (Baker): 72, aedeagus, lateral; 73, aedeagus, caudal; 74, style, dorsal; 75, style, lateral; 76, upper half of pygofer, caudal; 77, forewing; 78, genital capsule, lateral. Fig. 79-86, *Angusticella (U.) similis* (Baker): 79, forewing; 80, aedeagus, lateral; 81, aedeagus, caudal; 82, style, lateral; 83, style, caudo-ventral; 84, valve, ♂; 85, pygofer, caudal; 86, apodeme of pygofer, lateral.

Length of vertex into width between eyes $2 \frac{1}{4}$ times; length at middle distinctly greater than at eyes. Face broader than long; distance between ocelli about 3 times the distance between ocelli and eyes and $1 \frac{1}{3}$ the width of clypeus at base; front about as broad as long; anteclypeus very broad, as wide basally as apically, the tip emarginate; lora longer than clypeus and $\frac{1}{3}$ as broad. Width of pronotum 3 times the length, the length $1 \frac{1}{4}$ times that of the vertex. Scutellum as long as pronotum and $\frac{2}{3}$ of vertex together; transverse impressed line strongly, angularly bent, open at apex, the lateral limbs arcuate. Forewing with a few scattered, minute dark punctures on the opaque yellowish part of clavus (fig. 79). Hind margin of seventh sternum of female longer at middle than at sides and minutely emarginate at apex; hind margin of valve of male very strongly rounded, the pygofers thin, straight, and long-haired.

Mindanao, Dapitan (coll Baker).

♂ genitalia and forewing (fig. 79 to 86) drawn from specimen from type locality, in the USNM.

Angusticella (U.) angustata (Baker), new combination

Pedioscopus angustatus Baker 1915: 335.

Most of Baker's description follows: Length 4.5 mm; width of head 1.3 mm. Pale brown; small elongated spots extending from ocelli toward scrobes, and clypeus, except base (in female), black; ovipositor black; forewing translucent, washed with pale brown, darker basally, the basal half of costa blackish; a spot at apex of second apical cell smoky; clavus with inner half opaque yellowish, this area reaching in an acute point to half the length of the commissure.

Length of vertex into width between eyes $1 \frac{4}{5}$ times, length at middle distinctly greater than at eyes. Face broader than long; distance between ocelli 3 times the distance between ocelli and eyes and $1 \frac{1}{3}$ the width of the clypeus at base; front about as broad as long; clypeus very broad, little widened apically, the tip emarginate; lora about as long as clypeus and less than $\frac{1}{3}$ as broad. Width of pronotum $2 \frac{3}{5}$ times the length, the length about $1 \frac{1}{4}$ times that of vertex. Scutellum as long as pronotum and $\frac{1}{2}$ of vertex, together; transverse impressed line strongly, angularly bent, open at apex, the lateral limbs arcuate. Forewing with a few scattering, minute, dark punctures on opaque yellowish part of clavus. Hind margin of seventh sternum of female strongly produced medially and emarginate at apex.

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BOOK REVIEW

Entomological essays to commemorate the retirement of Professor K. Yasumatsu. 1971. 389 pages. Hokuryukan Publishing Co., Ltd., Chiyoda-ku, Tokyo. \$ 17.00 (Japan: ¥ 4,500).

This commemorative volume of 28 papers from 33 contributors in 10 countries reflects the broad following Dr. Yasumatsu has in entomology. Especially, they compliment his wide interests and expertise in, and his extensive contributions to the fields of systematics, biological control and ecology. Three of the 28 papers are in Italian, Russian and French, and these have English summaries. Fifteen of the papers deal with some aspect of systematics and evolution, and they contain taxonomic papers on Hymenoptera, Homoptera, Coleoptera and Diptera.

Almost half of the papers are on Hymenoptera. These contain the following systematic contributions: on new taxa of Mutillidae from New Guinea, Bismark Archipelago and Solomon Islands, by Krombein (USA); on the African Xylocopine bee genus *Macrogalea*, by Michener (USA); on new taxa in the ant genus *Strumigenys* from Melanesia and peripheral areas, by Brown (USA); on some *Polistes* subgenera from the Solomon Islands, by van der Vecht (Netherlands); on a new subfamily of Cynipoid wasps from Australia, by Riek (Australia); a history of vespidae systematics of the Old World, by Guiglia (Italy); and on some encyrtids from Afghanistan, by Trjapitzin (USSR). There is a review of nest-making in solitary aculeates, especially pompilids, by the late Guido Grandi (Italy). There is a short contribution by Wilson (USA) on caste evolution as a function of mature colony size in social Hymenoptera, some ethological notes on Japanese *Vespa*, by Iwata (Japan) and two papers—parasites of a yponomeutid moth defoliating Cembran pine in the Alps, by Delucchi & Aeschlimann (Switzerland), and on differential encapsulation of an ichneumonid's eggs as a determinant of 2 very closely related weevil species, by van den Bosch (USA)—which are of interest in biological control. The higher classification especially of aculeates, stressing thoracic spiracle location, is reviewed by Richards (UK).