

conical and strongly chitinous teeth which do not seem to be segregated in distinct divisions. Ventral pores present in a circular area on sternites of anterior region but absent from middle and posterior regions, last ventral plate wide. Coxal gland one on each side, this homogeneous, and, while large, was evident in the type only after clearing of the specimen. Anal legs long, with well developed claws, with sparse stiff hairs over surface in general and numerous finer and shorter ones on ventral surface of proximal joints in particular, as usual, e. g. in species of *Nyctunguis*. Palpus of second maxilla rather short and stout; claw short, excavated, pectinate along the edge to and around the end, the setæ long. Number of pairs of legs, in female, fifty-five. Length, about 18 mm.

PARASITIC HYMENOPTERA FROM THE FIJI ISLANDS.¹

By CHARLES T. BRUES.

Several years ago when Dr. Wm. M. Mann visited the South Seas, he collected extensively in the British Solomons and in Fiji where he obtained a small number of Parasitic Hymenoptera. These he very kindly gave me for study and those from the Solomons have already been dealt with.² Meanwhile Turner has published a list and descriptions of some new Hymenoptera from Fiji in which he enumerates 53 species.

Of Mann's material there remains a smaller, but perhaps even more interesting series from Fiji and many of these are treated in the present paper. I have also included one particularly curious genus contained in a small lot of Serphoidea from Fiji sent me by Mr. F. Muir who collected it when he visited these islands in 1905.

As will appear evident from the context, these groups at least, show a strong Australian element in the fauna, but suggest the probable occurrence of a considerable number of peculiar endemic genera.³

¹Contribution from the Entomological Laboratory of the Bussey Institution Harvard University, No. 197.

²Bull. Mus. Comp. Zool., vol. 62, No. 3, pp. 97-130, pl. 1 (May 1918).

³Turner (Trans. Ent. Soc. London, 1913, p. 334) has expressed a similar opinion, based mainly on the aculeata of these islands.

*Family Evaniidae.**Hemifænus extraneus* Turner.

Trans. Ent. Soc. London, 1918, p. 342 (*Hyptiogaster*).

♂ Length 7-8 mm. Dark reddish brown, varied with lighter brown, the paler markings, not very sharply defined, as follows: head below the antennæ, entire orbits, vertex, neck behind, irregular streaks on mesonotum, margin of propleura, mesopleura except behind, propodeum except for a median dark line, lateral spot at middle of first and at tip of first, of second and of third abdominal segments, posterior margin of following segments, base of antennal scape and four anterior tibiæ; hind legs with the femora and tibiæ lighter on the lateral surfaces. Wings hyaline, stigma and veins piceous. Head distinctly wider than the thorax, one-half broader than thick, occipital margin sharp, but not strongly elevated; ocelli in a triangle, as far from one another as from the eye-margin. Eyes with their facial margins parallel, surface sparsely but distinctly hairy; almost touching the base of the mandibles. Occiput irregularly, transversely aciculate, the striæ oblique to the side of the ocelli and very fine and more or less concentric about the base of the antennæ; clypeus and face below antennæ smooth, except for very delicate dense punctures at the sides just below the antennæ. Mandibles large, the basal and the apical tooth long. Antennæ inserted just above the middle of the eye: scape and first flagellar joint about equal, each two and one half times as long as the pedicel; second and third flagellar joints equal, together barely one-third longer than the first, each nearly twice as long as thick; following gradually decreasing in length, the penultimate but little longer than thick. Head behind the eyes smooth, the foraminal margin higher than on the occiput, transparent. Neck barely as long as the distance from tegula to anterior margin of mesonotum, with a very strong median carina below. Mesonotum with a V-shaped impression formed by the parapsidal furrows which originate on the sides at the anterior third and meet medially behind at the posterior third; between them near the anterior margin are traces of two delicate impressed longitudinal lines; surface coarsely transversely striate,

these striæ curving backwards on the lateral lobes; scutellum flat, the postscutellum concave with raised lateral and posterior margin, almost contiguous with the tubercle upon which the abdomen arises. Thorax in lateral view slightly higher than long, the propodeum almost vertical behind. Propleura smooth except for a few short coarse horizontal striæ centrally, below, and along the posterior margin; mesopleura punctulate, but smooth and polished behind; metapleura smooth and polished; propodeum reticulate, more coarsely so medially in front, with a distinct transverse carina just behind the middle (obliterated in some specimens). Abdomen three times as long as the thorax; petiole smooth, as long as the three following segments together, the spiracle at the middle; second to sixth of about equal length, the whole abdomen formed as in *Gasteruption*; polished basally and subopaque beyond. Hind coxæ striate above, smooth below; femora slender, the tibiæ constricted at base, but not greatly swollen apically, not broader than the femora; hairy, but without any short stiff spinules; longer tibial spur a little more than half the length of the metatarsus, the latter at least four times as long as thick and as long as the following joints together; claws long, slender, simple. Wings with the basal nervure arising considerably to the base of the stigma; cubitus arising just behind the middle of the basal; first section of radial vein two-fifths as long as the second which is reduced in thickness on its apical half; recurrent nervure entering the first cubital cell just beyond the basal third; anterior discoidal cell more than twice as long as the posterior one which is open behind; nervulus interstitial. Hind wing with three frenulum hooks.

Six males from Fiji (W. M. Mann). One specimen is from Navai and all the others from Nadarivatu. Turner records Cuvu.

Turner (*loc. cit*) has placed this species in *Hyptiogaster* and compared it with *H. darwini* Westw. If Kieffer's genus *Hemifœnus* is distinct, it seems to me that the Fijian form must be placed there on account of the very short thorax. *H. darwini* was unknown in nature to both Schletterer and Kieffer, and the latter author (*Das Tierreich*, Lief. 30, p. 212) refers it to *Pseudo-*

foenus, giving a translation of Westwoods original description which did not enable him to place the species generically.

The type and only species so far referred to Hemifœnus is from Australia. No specimens are available for comparison, but from Kieffer's comprehensive description¹ it is evident that the Fijian species differs in several respects from his *H. brevithorax*. The eyes are pubescent, not bare and the posterior femora are but slightly swollen, scarcely "keulenförmig" as in *H. brevithorax*. Unfortunately all the known examples are males and the type species is known in the opposite sex only, which might account for these rather pronounced differences. Turner's type is also a male although both sexes of *darwinii* are known.

Evania impressa Schletterer.

Ann. Hofmus. Wien, vol. 4, p. 153 (1889)

Enderlein, Arch. Naturges. 1901, p. 191.

Bradley, Trans. Amer. Ent. Soc., vol. 34, p. 173 (*Acanthinevania*)

Kieffer, Das Tierreich, Lief. 30, p. 109 (1912).

Turner, Trans. Ent. Soc. London, 1918, p. 342.

Two males and two females from Lasema, Fiji (W. M. Mann). Both females and one male show a distinct, although very short, median keel on the face just below the antennæ and the abdominal petiole in all is distinctly longer than the distance from its base to the base of the propodeum. The Fijian examples therefore approach the Australian *E. angulata* Schlett. which I am inclined to believe is not a distinct species.

Family Braconidæ.

Exobracon nitidulus sp. nov.

♀ Length 7-9 mm.; ovipositor 4-5 mm. Head, prothorax and first segment of abdomen, except tip, pale yellow; thorax bright ferruginous; abdomen, beyond petiole black above, except for a narrow white band just before apex; venter white between the small, white sclerites; sheaths of ovipositor black; antennal

¹Ann. Soc. Ent. France, vol. 80, p. 182 (1911) and Das Tierreich, Lief, 30, p. 192 (1912).

scape black, flagellum brown; wings very dark brown, yellowish, and with the veins lighter, near their bases; body sparingly clothed with short, sparse yellowish brown hairs. Head but little wider than long, the temples broadly rounded and the occiput weakly excavated; front with a slight impression above the antennæ ocelli small, very close together. Eyes large, distinctly emarginate opposite the base of the antennæ; malar space short, with a weak furrow; mandibles bidentate, black at tips; head smooth, except for some very minute punctures on the face. Scape of antennæ simple, twice as long as thick; first flagellar joint less than twice as long as thick; second and all the following, quadrate or nearly so. Prothorax entirely smooth, above with a sharp transverse groove which extends to the middle of the propleuræ. Mesonotum highly polished, the parapsidal furrows impressed, but not very deep. Propodeum smooth and polished, with a linear groove just below the small, round spiracle. Abdomen smooth and shining, with few minute scattered punctures on the second and following segments. Median area of first segment nearly as broad as long, side pieces with a longitudinal groove, the segment about as long as wide; second segment twice as wide as long, with a large basal median area that is as long as wide and reaches nearly to the posterior margin, just outside it is an oblique furrow, parallel with the lateral margin of the segment and not attaining the posterior margin; third segment a little shorter and considerably wider than the second, anterior corners produced forward; but not separated by a furrow; fourth and fifth segments narrower, but nearly as long as the third; following very short. Hypopygium cultriform, but not exceeding the pygidium. Pleuræ smooth, the metapleura indistinctly punctulate. Sheaths of ovipositor nearly bare. Legs stout, but not thickened; hind coxæ short, flattened and much expanded inwardly at the base. Radial vein arising at the middle of the rather broad stigma, not attaining the wing tip, third section as long as the other two combined; cubitus bent at base, recurrent nervure interstitial with the very oblique first transverse cubitus; second cubital cell scarcely half as high as long above, the sides parallel; nervulus postfurcal,

not oblique; nervellus arising below the middle of the cell; submedian cell in hind wing very short.

♂. Length 7 mm. Similar, but with the middle part of the first abdominal segment longer and blackened on the apical half. Eyes no longer than those of the female.

Type from Lobasa, Fiji; eleven female and one male paratype from Lobasa, Navai and Vunisea, Fiji (W. M. Mann).

I have not been able to compare this with any other species of the genus, but am satisfied that it is properly placed. It differs from *Archibracon* (*Pseudobracon*) in the basally bent cubitus, shorter, distinctly ovate abdomen and more clearly cubical head. It is evidently a common Fijian species.

Palinzele Gen. nov.

Related to *Zelee* Curtis, but differing in the immargined head, non-convex propodeum, with the abdomen inserted well above the hind coxæ. Malar space as long as the basal width of the mandible; hind coxæ long and slender; nervulus post-furcal; second cubital cell elongate; ovipositor very short; spur of hind tibia half as long as the metatarsus; tarsal claws simple.

Type: *Palinzele oceanica* sp. nov.

This genus is similar to *Zelee*, but differs in the absence of a margin on the head behind and in the higher insertion of the abdomen. The slender hind coxæ as well as the other two characters just mentioned are similar to *Macrocentrus* and the several genera grouped about it. On account of the very short ovipositor and habitus, however, the type appears to approach *Zelee* and its allies more closely.

Palinzele oceanica sp. nov.

♀. 8-8.5 mm. Pale ferruginous, the face and anterior legs paler yellowish; flagellum of antennæ, ocellar space and sheaths of ovipositor black; hind tibiæ, except knees, and hind tarsi piceous; wings subhyaline, with a brownish tinge, stigma and veins very dark brown. Head more than twice as broad as thick, not margined behind; its surface smooth, except for minute punctures on the face, more conspicuous medially and on the clypeus;

clypeal foveæ deeply impressed, nearly as far from one another as from the eye; face slightly tuberculate above each fovea and clypeus strongly elevated centrally; malar space one-fourth the eye-height, with a distinct furrow; mandibles large, inner tooth well developed; palpi short, third joint of the maxillary ones scarcely two-thirds as long as the first flagellar joint; ocelli well separated, the lateral ones separated by their own length from one another and from the eye margin. Antennæ with about 55 joints, considerably longer than the body; second joint of flagellum practically as long as the first, the following growing very slightly shorter. Mesonotum and scutellum smooth; median lobe highly convex; furrows crenulate, basal scutellar impression cross-striate. Propodeum granulate, finely reticulate apically; the subspiracular carina complete, but the transverse one entirely wanting; spiracle small, oval; upper surface oblique, not convex in profile, the abdomen inserted well above the hind coxæ. Pleuræ sparsely, minutely punctate, the propleura smooth, except at center. Abdomen slightly longer than the head and thorax together, compressed apically; first segment as long as the scutellum and propodeum; four times as long as broad at apex which is twice as wide as the base, spiracles at the basal fourth; entire abdomen smooth, conspicuously yellowish pilose apically. Legs rather long and slender, the hind coxæ about three times as long as broad. Hind tibiæ and tarsi very slender, but the longer apical spur fully half the length of the metatarsus; the tibia distinctly flattened, except on the basal third. Radial cell not attaining the wing tip; first section of radius more than half as long as the second which is less than half as long as the third; first discoidal cell not petiolate; nervulus perpendicular, distinctly postfurcal; recurrent nervure entering half its length before the tip of the first cubital cell; second cubital cell narrowed apically, the second transverse cubitus half as long as the first and three fourths as long as the second section of the radius; nervulus arising at the lower fourth of the discoidal cell; last section of cubitus imperfectly chitinized. Radial cell of hind wing enlarged basally and constricted, but not divided medially.

Type and paratype from Fiji (W. M. Mann); the former from Vunisea and the latter from Levuka.

Aulacocentrum Gen. Nov. (Fig. 1, A, B, C.)

Related to *Macrocentrus*, but differing especially in the following particulars: mandibles very small and acute, with the apical tooth very small; clypeus highly convex, not distinctly separated from the face; first segment of abdomen somewhat longer than the distance from the tegulæ to the apex of propodeum, six times as long as wide at the apex which is but little wider than the base, its spiracles projecting as tubercles at the basal third; second and third segments equal, together one-third longer than the first and very narrow; radial cell in hind wings divided by constriction, the apical part narrow, the basal broad, with the radial vein thick and heavily chitinized.

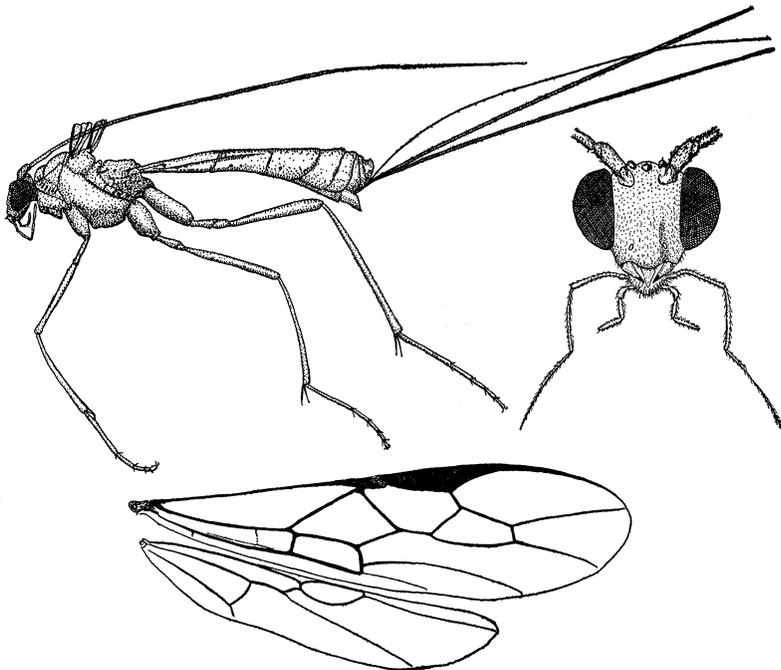


Fig. 1. *Aulacocentrum pedicellatum* sp. nov. ♀; profile view of body, front view of head and wings.

Head three times as wide as thick; not margined behind; ocelli very large; maxillary palpi long, five jointed; labial palpi 4-jointed; eyes large and strongly projecting, antennæ thin, longer than the body. Mesonotum strongly trilobed; propodeum and pleuræ finely sculptured; spiracle minute, circular. Legs very slender; ovipositor longer than the body. Recurrent nerve entering the first cubital cell; first discoidal cell barely sessile above; nervulus postfurcal; nervellus issuing at the lower third of the discoidal cell.

Type: *A. pedicellatum* sp. nov.

Aulacocentrum pedicellatum sp. nov.

♀ Length 13 mm.; ovipositor 15 mm. Dull ferruginous; antennæ black, except on scape above; lateral lobes of mesonotum, tegulæ, four anterior legs beyond coxæ and abdomen toward tip, flavous. Wings hyaline at base, the apical half distinctly infuscated; venation piceous, the stigma dark, but with a pale central streak. Ovipositor ferruginous, its sheaths black. Face faintly punctate, shining; malar space one-fifth as long as the eye-height; vertex and head behind smooth. Antennæ with about 55 joints, the first flagellar joint nearly as long as the eye-height, following decreasing in length, those near the middle of the flagellum thrice as long as thick. Mesonotum shining, the furrows deeply crenate, meeting near the middle; lobes smooth and shining. Scutellum highly convex; finely, closely punctate. Propodeum above minutely rugulose-reticulate, irregularly transversely striated behind the spiracle; anteriorly below the spiracle with a longitudinal carina; sides below confluent punctate; margin next to the mesopleura impressed, cross-striated; spical angle at base of the hind coxa produced. Mesopleura with an oblique impression, below sparsely punctate. Propleura smooth, with a median impression. First segment of abdomen transversely aciculate (as in *Stephanus*); second segment and base of third somewhat irregularly longitudinally aciculate; apical segments faintly punctulate. Tibial spurs of hind leg less than half as long as the first tarsal joint; claws minute, simple. Second section of radius twice as long as the first, third longer than the other two; nervulus received less than

half its length from the base of the first discoidal cell; recurrent nervure entering nearly its own length before the apex of the first cubital cell; second transverse cubitus half as long as the first; basal part of radial cell in hind wing oval, one third as broad as long.

Type from Suene, Fiji (W. M. Mann).

Family Ichneumonidæ

Echthromorpha immaculata Krieger.

Mitt. Zool. Mus. Berlin, vol. 4, p. 331 (1909).

Morley, Revis. Ichneum. British Mus., pt. 2, p. 47 (1913) (*diversor*).

Bridwell, Proc. Hawaiian Ent. Soc., vol. 4, p. 110 (1919).

Turner, Trans. Ent. Soc. London, 1918, p. 344.

There are numerous specimens of both sexes from Vunisea, Labasa, Somo-somo, Wainunu, Vagasau, and Ovalau. Bridwell records Viti Levu from material collected by Muir, and lists *E. diversor* described from the Solomons or New Hebrides as a synonym.

Paniscus fijiensis sp. nov.

♀ Length 14-16 mm. Uniformly pale dull ferruginous, with the head, except ocellar tubercle and posterior margin pale yellowish; antennæ blackened, except at extreme base; wings hyaline, with the stigma ferruginous and the venation piceous. Face very slightly narrowed below; clypeal foveæ contiguous to the eyes; emargination of eyes strong and acute. Ocelli separated by distinctly less than their diameter, the posterior ones touching the eye margin. Apex of mandible long and acute, inner tooth short and blunt. First joint of flagellum fully one-half longer than the second which is barely longer than the third. Thorax more noticeably pubescent than usual, its surface appearing dull and conspicuously silvery; sculpture very delicate, consisting of dense, very minute punctures; on the upper side of the propodeum these merge to form extremely fine transverse aciculations. Transverse carina of propodeum indicated only as a lateral tubercular ridge; subspiracular carina complete,

delicate; profile of propodeum oblique, only slightly curved. Tibiæ and tarsi of all legs spinulose; external hair brush of hind tibiæ distinct, extending from the constriction at basal fourth to the apex. Nervulus postfurcal by two-thirds its own length, strongly arcuate above, but scarcely oblique; second recurrent nervure bifenestrate; apical vein of areolet obsolete below, not produced apically; tip of recurrent nervure distinctly beyond the hayline side of the areolet.

♂ Differs only by having the aciculations of the propodeum more clearly indicated medially, and by the white face and orbits, as well as the larger ocelli. The lower outer side of the areolet is more distinct.

Type, six paratype females and six males from Vunisea, Fiji and one male from Lau, Fiji (W. M. Mann).

This is evidently related to *P. productus* Brullé, with which it shares the externally angulate, although not appendiculate areolet. The propodeal striæ are, however, not "very distinct" as described by Brullé for his species, and the stigma is not red as described by Morley from Tasmanian examples, this island being the type locality for *productus*. From *P. contrarius* Morley, the present form differs entirely in the position of the nervulus, the only character which he gives to separate this Queensland species from *productus*. Turner has recorded the widespread *P. opaculus* (*testaceus*, var.) from Fiji, but the present series do not belong to that species; the propodeum is scarcely curved above, the tibial spinules more sparse and the second flagellar joint longer.

Henicospilus turneri Morley.

Revis. Ichneum., vol. 1, p. 51 (1912).

One female from Vunisea (W. M. Mann).

Henicospilus apicifumatus, Morley.

Entomologist, vol. 48, p. 139 (1915).

One female from Labasa (W. M. Mann).

*Family Scelionidæ.**Platyscelio* Kieffer.

Ann. Mus. Civ. Genoa, Ser. 3, vol. 2 (42), p. 11 (1905).

This remarkable genus of Scelionidæ, with greatly flattened body was first found in New Guinea from whence Kieffer (*l.c.*, p. 12) described the type, *P. pulchricornis* in 1905. Since then it has been found in Indo-malaya, Australia and Polynesia (Guam). All of the species so far described appear to be very

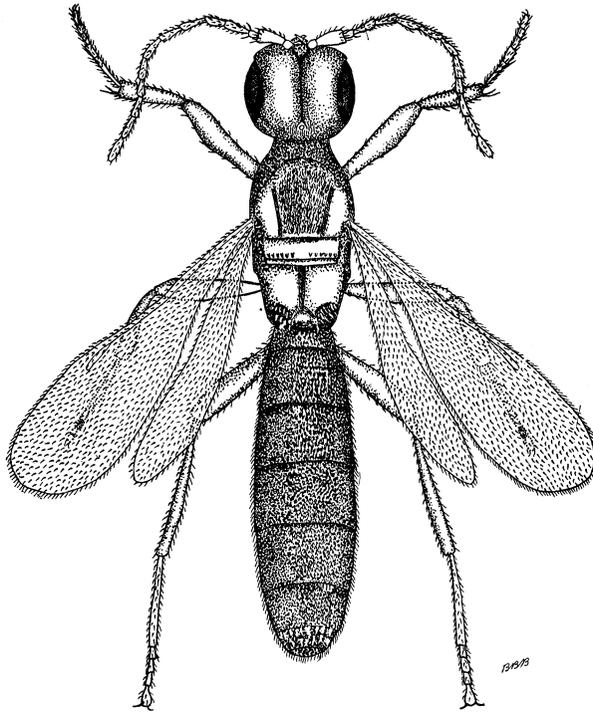


Fig. 2. *Platyscelio* sp. ♂

closely related, and from the several descriptions I have been unable to distinguish clearly two male specimens from Fiji which quite possibly represent an undescribed species. These were collected on Rewa of the Fiji group by Mr. F. Muir in 1905. As the genus has never been figured, except for a diagram of the

female antenna by Kieffer (*l.c.*). I have taken this opportunity to publish a figure (Fig. 2) of the complete insect which was drawn by my wife several years ago.

As Fiji is so far removed from the localities where the other species have been taken, it would appear probable that the present species is new. From the Australian *P. mirabilis* Dodd (Trans. Roy. Soc. So. Australia, vol. 37, p. 132 (1913) and *ibid.* vol. 39, p. 444 (1905) it differs in having the propodeal groove strongly crenate and also in having the apical abdominal segments entirely punctate. However, my only specimen of the Australian species is a female, and the male may be still more similar. From the type species, *P. pulchricornis* Kieffer (*l.c.*) it differs by the presence of oblique striæ on the propodeum behind and by a longer marginal vein (six times as long as thick) which extends only to the middle of the wing. From *P. abnormis* Crawford (Proc. U. S. Nat. Mus., vol. 38, p. 126 (1910) known from Manila, it differs by lacking distinct punctures in the groove along the anterior orbits and the antennæ are blackened apically. From Fullaway's, *P. wilcoxi* found on Guam, (Proc. Hawaiian Ent. Soc., vol. 2, p. 283 (1913) it differs in having the abdomen entirely black and in having the apical antennal joints elongate; it is possible however, that Fullaway may have had a female and not a male as he supposed at the time the description was written; *P. punctatus* Kieffer. (Insecta Rennes, vol. 3, p. 321, (1914) may be the same species.

So far the habits of these strangely flattened insects do not appear to have been observed. Neither have those of the Australian *Platytelenomus* Dodd (Ent. News, vol. 25, p. 126 (1914) which is modified in the same way. Dodd refers to the latter as common in "forest country" and as it is probably an egg parasite, the females may find their hosts beneath bark as appears to be the case with the greatly flattened although much larger Braconids of the genus *Platybracon*.



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