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Aculeate Wasps of Fiji

By FRANCIS X. WILLIAMS

EXPERIMENT STATION, HAWAIIAN SUGAR PLANTERS' ASSOCIATION, HONOLULU

INTRODUCTION

In his Hymenoptera of Fiji, Dr. R. E. Turner (Ent. Soc. London, Trans., 334-346, 1919) lists 15 species of aculeate wasps. More recent studies relegate one of them to synonymy, *Pison rechingeri* Kohl having been made a synonym of *Pison tahitense* Saussure (Perkins and Cheesman, Ins. Samoa 5 (1) : 26-27, 1928). In 1917, the Philippine *Campsomeris marginella* (Klug) subspecies *modesta* (Smith) (= *Scolia manilae* Ashmead) was purposely introduced from Hawaii into Fiji by Robert Veitch to prey upon scarabaeid beetle grubs in the sugar-cane fields, and has become established there (Veitch, Dept. Agric. Fiji, Agric. Circ. 5 (1) : 66-67, 1924). In 1928, *Tachysphex vitiensis* was described by Williams (Haw. Sugar Plant. Assoc. Expt. Sta., Ent. Bull. 19 : 166-168, 1928). Haupt (Zeitsch. f. Naturwis., Halle 9 : 134-135, 1937) reports *Chrysocurgus nitidus* (Fabricius) (= *Priocnemis Wakefieldi* Kirby) from Fiji (New Zealand and Queensland). In 1940, *Sceliphron caementarium* was first reported from Fiji by Lever (Dept. Agric. Fiji, Agric. Jour. 11 (2) : 41, June 1940).

The present collections, consisting of specimens taken by C. E. Pemberton in 1920, and those in the B. P. Bishop Museum, by various collectors, bring the number of species to 25, as follows :

SCOLIIDAE

- | | |
|---|--|
| 1. <i>Campsomeris ovalauensis</i>
(Saussure) | 2. <i>Campsomeris marginella</i> (Klug)
subspecies <i>modesta</i> (Smith) |
|---|--|

VESPIDAE

- | | |
|---|---|
| 3. <i>Eumenes ovalauensis</i> Saussure | 6. <i>Odynerus (Rygchium) rufipes</i>
Saussure |
| 4. <i>Pachymenes bicinctus</i> (Fabricius) | 7. <i>Alastor graeffei</i> Saussure |
| 5. <i>Pachymenes mediocinctus</i>
(Turner) | 8. <i>Polistes olivaceus</i> (Degeer) |

POMPILIDAE

9. *Cyphononyx vitiensis* Turner
 10. *Chrysocurgus nitidus* (Fabricius)
 11. *Pompilus elatus* Smith
 12. *Dendropompilus vitiensis*, new genus and species
 13. *Nesopompilus vitiensis*, new genus and species

SPHECIDAE

14. *Sceliphron caementarium* (Drury)

TRYPOXYLONIDAE

15. *Pison ignavum* Turner
 16. *Pison iridipenne* Smith
 17. *Pison hospes* Smith
 18. *Pison tahitense* Saussure

LARRIDAE

19. *Notogonidea liriformis*, new species
 20. *Notogonidea subtessellata* (Smith)
 21. *Notogonidea manilae* (Ashmead)
 22. *Tachysphex vitiensis* Williams

CRABRONIDAE

23. *Crabro veitchi* Turner
 24. *Rhopalum oceanicum* (Schulz)

STIZIDAE

25. *Stizus inermis* Handlirsch

Distribution of Aculeate Wasps in Tropical South Pacific and Hawaii to April 1947 (See map, figure 1)

	NEW CALEDONIA	FIJI	SAMOA	SOUTH- EASTERN POLYNESIA	HAWAIIAN ISLANDS
Mutillidae	1	.....	.....	.....	.....
Thynnidae	3	.....	.....	.....	.....
Scoliidae	1	2(1)*	.....	.....	(2)
Vespidae	6	6	3	7	120
Pompilidae	12	5	1	.....	1
Ampulicidae	1	.....	.....	.....	(2)
Sphecidae	3	1	1	1	4
Trypoxylonidae	5	4	5	6	5
Larridae	4	4	3	1	6(2)
Astatidae .....	.....	.....	.....	.....	1
Mimesidae .....	.....	.....	1	.....	10
Pemphredonidae .....	.....	.....	.....	.....	1
Crabronidae	1	2	.....	.....	19
Oxybelidae .....	.....	.....	.....	1	.....
Stizidae .....	.....	1	.....	.....	.....

* () = purposely introduced.

COMMENTS

MUTILLIDAE: Females wingless. Parasitic on aculeate Hymenoptera, and so forth. Species endemic.

THYNNIDAE: Females wingless, carried about by the male. They appear generally parasitic on the grubs of scarabaeid beetles which become few in species and disappear the more distant the island is from a large land mass. Endemic.

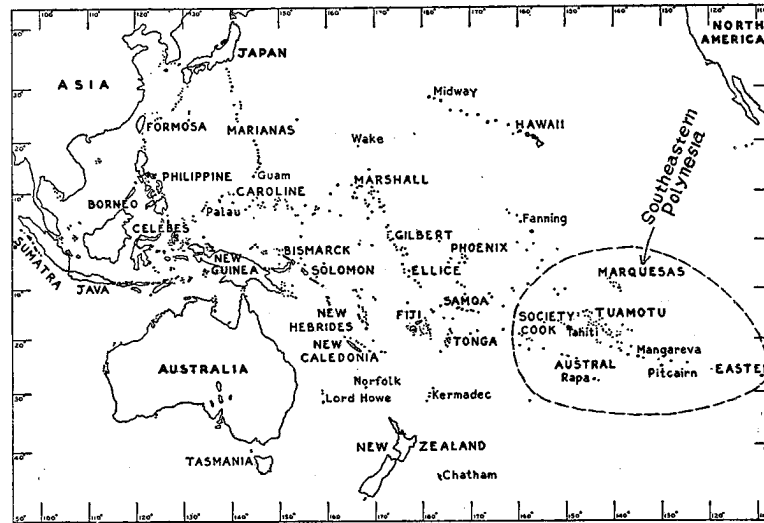


FIGURE 1.—Map showing tropical Pacific islands.

SCOLIIDAE: Strong though often rather heavy flyers. Parasitizing scarabaeid beetle grubs.

VESPIDAE: The social wasps, represented by the genera *Polistes*, *Ropalidia* (*Icaria*), and *Vespa* (*V. occidentalis* Cresson, recently from the west coast of America), comprise a few species that prey upon caterpillars and other insects. The majority have been accidentally introduced by man, although one or two have become differentiated into geographical races or subspecies. They are chiefly oriental or Australian, one *Polistes* and the *Vespa* being from the west coast of America. The solitary species, or Eumeninae, prey upon caterpillars and may nest on or in buildings, furniture, hollow twigs, in old beetle borings, nail holes, rock cavities, in the ground, and occasionally construct free cells. A good proportion (including two species of *Eumenes*) are endemic in the Pacific and, with the exception of one very recent

immigrant, the numerous Hawaiian *odyneri* are found nowhere else in the world.

POMPILIDAE: Wasps preying upon spiders and nesting in the ground, in various hollows, on trees, and so forth. The absence or rarity of the largest types of spiders (*Aviculariidae*) on the islands under consideration precludes the presence of the larger *Pompilidae* there. Chiefly endemic or natural immigrants.

AMPULICIDAE: Preying upon cockroaches. One more or less domiciliary species from Africa and Asia has reached New Caledonia, probably in shipping.

SPHECIDAE: Large wasps; the mud-daubers *Sceliphron* and *Chalybion* store spiders in their cells; *Chlorion* and *Isodontia* prey upon Orthoptera. Not endemic species.

TRYPOXYLONIDAE: Represented chiefly by the genus *Pison* (two species of oriental *Trypoxylon* in Hawaii). They are rather small and commonly domiciliary wasps that prey upon spiders and are typically Pacific island insects, rather few in species and generally not endemic. From the Australian and oriental regions.

LARRIDAE: Strong flyers, usually nesting in the ground and preying upon crickets, grasshoppers, more rarely upon small cockroaches. *Nitela* probably preys upon Psocidae. Some endemic.

ASTATIDAE: Bug hunters. One very recent arrival from the west coast of America.

MIMESIDAE: Prey upon homopterous bugs and nest mostly in the ground. Endemic.

PEMPHREDONIDAE: Prey upon homopterous bugs. Nest in wood, and so forth. One very recent arrival to the Hawaiian Islands.

CRABRONIDAE: Preying chiefly upon flies. Nest in wood or in the ground. Endemic.

OXYBELIDAE: Preying chiefly upon flies; some upon small beetles. Nest in ground. Endemic.

STIZIDAE: Nest in the ground; probably store homopterous bugs. Endemic.

The table of distribution presents a very imperfect picture. It shows a mixture of endemic forms, apparently natural immigrants of long standing that have not, or have scarcely been modified, and immigrants through modern commerce, arriving almost literally from day to day. This table does show, however, how certain groups of endemic wasps extend only so far into the Pacific, thinning out and some disappearing,

from west to east, as they become more distant from the Indo-Australian land masses (Mutillidae, Thynnidae, Pompilidae, and Larridae). Hawaii as a group apart does not fit into this picture.

The purposely introduced species, indicated in the table by parentheses, are:

Campsomeris marginella (Klug), subspecies *modesta* (Smith), introduced from the Philippine Islands into Hawaii and thence into Fiji; *Tiphia segregata* Crawford, from the Philippines into Hawaii; *Dolichurus stantoni* (Ashmead), from the Philippines into Hawaii; *Ampulex compressa* (Fabricius), from New Caledonia into Hawaii; *Larra luzonensis* Rohwer, from the Philippines into Hawaii; and *Notogonidea subtessellata* (Smith), from the Philippines into Hawaii.

SCOLIIDAE

Campsomeris ovalauensis (Saussure).

Discolia Ovalauensis Saussure, Ent. Zeitung 30: 62, 1869 (male and female).

Scolia ovalauensis, Turner, Ent. Soc. London, Trans., 340, 1919.

Campsomeris ovalauensis, Betrem, Treubia 9, Suppl.: 91-92, 1928.

Fiji, one male. Viti Levu: Singatoka, Aug. 12, 1913, one female; Rewa, 1920, one male, C. E. Pemberton; Nandarivatu, October 1937, two females and three males, J. M. Valentine; Nandarivatu, Sept. 1, 1938, one male, and road west of Nandarivatu, alt. 2,800 ft., Sept. 11, 1938, one male, beating on shrubs, E. C. Zimmerman. Kandavu: Yawi, April 28, 1941, one male, N. L. H. Krauss.

This rather glabrous black and orange wasp measures up to about 20 mm. long, and is quite different in appearance from *C. novocaledonica* Turner of New Caledonia.

Campsomeris marginella (Klug), subsp. *modesta* (Smith).

Scolia marginella Klug, Beitr. z. Naturk. 2: 214, n. 44, 1810 (male).

Scolia modesta Smith, Cat. Hymenopt. Ins. Brit. Mus. 3: 91-92, 1855.

Scolia manilae Ashmead, New York Ent. Soc., Jour. 12: 8-9, 1904 (female).

Scolia (*Scolia*) *manilae*, Rohwer, Philippine Jour. Science 19: 81-82, 1921.

Campsomeris marginella (Klug), subsp. *modesta* (Smith), Betrem, Treubia 9, Suppl.: 135-137, 1928.

This is one of the smaller species of *Campsomeris*, measuring up to about 12 mm. It was introduced from the Philippine Islands into the Hawaiian Islands by F. Muir in 1916, as an enemy of the larva of *Anomala orientalis* Waterhouse, a pest of sugar cane. It is also an effective enemy of *Adoretus sinicus* Burmeister, another immigrant scarabaeid beetle (Muir, F., Ent. Soc. Am., Ann. 10: 207-210, 1917). It was introduced from Hawaii into Fiji by R. Veitch in 1917 and has become established there (Dept. Agric., Fiji, Agric. Circ. 5 (1): 66-67, 1924).

VESPIDAE

***Eumenes ovalauensis* Saussure.**

Eumenes Ovalauensis Saussure, Stett. Ent. Zeitung, 30: 53, 1869 (female). "Habite: Les îles Viti. Ovalau (Gräffe)."

Belonogaster bidentatus Kirby, Ann. Mag. Nat. Hist. V, 13: 410, 1884 (female). "Pandana, Fiji, Aug. 1874."

Viti Levu: Lawaga, April 3, 1915, female; Cuvu, Feb. 1918, one male, Veitch; Suva: mountain slope, Feb. 1, 1933, one female, C. H. Edmondson; Tailevu: Korovou; Aug. and Sept. 1937, two males and one female, Valentine; Belo, May 31, 1941, one male, Otto Degener. Vanua Levu, Savu Savu Bay, Balanga, Feb. 1941, one male, Degener. Ovalau: Draiba Trail, alt. 600-800 ft., July 8, 1938, one male and four females, Zimmerman; near Vuma, alt. 100-200 ft., July 14, 1938, one male and one female, Zimmerman. Moala: Naroi, beating shrubs, alt. 500-800 ft., Aug. 24, 1938, one female, Zimmerman. Vanua Mbalavu: Mvana, seashore, Aug. 9, 1938, two males, Zimmerman.

This is a shining black wasp with a yellow frons, orange on thorax and legs, except coxae; length up to about 20 mm. Saussure says of it (Stett. Ent. Zeitung 30: 53, 1869): "Formes de l'*E. esuriens*. . . ." *E. esuriens* was described by Fabricius from the East Indies. *E. ovalauensis* is not closely related to the large *Eumenes germaini* Lucas of New Caledonia.

***Pachymenes mediocinctus* (Turner) (fig. 2, d).**

Odynerus (Leionotus) mediocinctus Turner, Ent. Soc. London, Trans., 339, 1919. "Hab. Fiji (R. Veitch). 1 ♀."

Viti Levu: Nandi, June 28, 1913, one male, J. F. Illingworth; Suva, Aug. 25, 1913, one female, Illingworth; Qacabula, Sept. 3, 1937, one female, Valentine; Bulu near Sovi, Apr. 24, 1941, one male, Krauss; near Suva, Lami Quarry, July 24, 1938, one female, Zimmerman. Ovalau: Wainiloka, July 10, 1938, one female, Zimmerman.

This wasp measures to about 10 mm. long; it is shining black, with head and thorax strongly punctate, and the clypeus, pronotum, large mesopleural spot, scutellum, legs, and first abdominal segment reddish yellow to reddish. The specimen from Qacabula, however, has less reddish on the thorax, the scutellum being entirely black while the first abdominal segment is chrome yellow.

This species seems restricted to the Fiji Islands.

Pachymenes bicinctus (Fabricius) (fig. 2, c).

Vespa bicincta Fabricius, Spec. Ins. 1: 465, n. 39, 1781.

Odynerus bizonatus Boisduval, Voy. Astrolabe, Zool., 658, 1833 (male).

Odynerus bizonatus Boisduval, Saussure, Monogr. Guepes Solitaires, ou de la Tribu des Eumeniens, I, on pp. 156-157, 1852 (male, female). "Habite: Les îles de l'Océan pacifique: selon Fabricius, La Nouvelle Hollande." (Saussure in part three of his Monograph of the Vespidae, p. 224, 1856, writes under additions and changes in species of the subgenus *Odynerus* "Page 156 . . . *O. bizonatus*. Changez son nom en **O. bicinctus**.")

Odynerus (Leionotus) bizonatus (Boisduval), Saussure, Reise Novara, Zool., Hymenopt. 2 (1): 9-10, 1867. "Otahiti."

Vanua Mbalavu: Mvana, Aug. 9, 1938, three females, Zimmerman.

Oneata: Dakuiloa, Aug. 21, 1938, two females, Zimmerman.

Pachymenes bicinctus ranges from Fiji eastward to Samoa, the Society Islands, the Australs, Marquesas, Tuamotus, and Mangareva. Fabricius also credits it from Australia.

L. E. Cheesman (Ann. Mag. Nat. Hist. X, 1, 1928) in referring to this insect (*Odynerus bicinctus* F.) as found in the Tuamotu Archipelago, the Marquesas, and the Society Islands states that it is extremely common on all the islands, "Burrows in wood, sometimes in the holes bored by *O. rufipes*."

Pachymenes bicinctus is about 10 mm. long; the body is black with yellow markings (ochraceous markings are found on some specimens), and the legs are mainly reddish. It is quite closely related to *Pachymenes quodi* (Vachal) from New Caledonia, but *P. quodi* is somewhat less shining, more finely punctate, and the legs are blackish.

Pachymenes mediocinctus is also related to *P. bicinctus* and to *P. quodi*, differing from these two in its more evenly rounded second tergite—this being tumid in *bicinctus* and *quodi*—and the more heavily punctate second sternite and in the entirely ochraceous second sternite.

Odynerus (Rygchium) rufipes (Fabricius).

Vespa rufipes Fabricius, Syst. Ent., 367, 1775 (male, female).

Rygchium rufipes Saussure, Monogr. Guepes Solitaires, 115-116, 1852 (female). "Habite: l'Ile d'Otahiti et de la Nouvelle Guinee..."

Viti Levu: Nausori, June 1913, two males, Illingworth; Fiji, 1913; Nandi, 1913, 1 female, Illingworth; Cuvu, June 1915, one female and 1918, one female, Veitch; Fiji, 1919, two females, Illingworth; Rewa and Lami, 1920, two males, Pemberton; Tailevu: Korovou, Aug. 1937, two males and three females, Valentine; Nandranga, Singatoka, Sept. 2, 1937, one female, Valentine; near Suva, July 24, 1938, one female, Zimmerman; Singatoka, April 18, 1941, one male, and Natubakula, near Singatoka, April 19, 1941, two females, Krauss. Ovalau: Draiba Trail, July 8, 1938, one male and one female, Zimmerman. Moala I.: Naroï, July 25, 1938, beating shrubs, alt. 0-500 ft., two females, Zimmerman. Oneata I.: Dakuiloa, Aug. 21, 1938, two females, and Loma Loma (Lau group), Aug. 5, 1938, E. C. Zimmerman. Kandavu: Waisalima, April 30, 1941, one female, Krauss.

The largest specimen before me is 16 mm. long. A strongly punctate black wasp, the dark wings with a purple iridescence, and the legs mainly rufous. The second sternite is steeply elevated-subtuberculate mesad at its base.

This species occurs also in Samoa, the Ellice Islands, the Society Islands, the Marquesas, and the Ryukyu Islands.

Alastor graeffei Saussure.

Alastor Graeffei Saussure, Stett. Ent. Zeitung, 55-56, 1869 (female). "Habite: Les iles Viti..."

Alastor (Paralastor?) graeffei, Turner, Ent. Soc. London, Trans., 339, 1919.

I am not familiar with this wasp, which appears rare. It is 10 mm. long, black, marked with orange and yellow.

The genus *Alastor* has the second submarginal cell petiolate.

Polistes olivaceus (Degeer).

Vespa olivacea Degeer, Mem. Hist. Ins. 3: 582, 1773.

Vespa hebraea Fabricius, Mant. Ins. 1: 292, 1787.

Viti Levu: Nausori, June 1913, two males and seven females, Illingworth; Cuvu, Jan. 1915, one male, Veitch; Fiji, 1919, one female,

Illingworth; Matavailevu, Aug. 1937, one male and one female, H. St. John; Tailevu: Korovou, Aug. 1937, two females; Nandarivatu, October 1937, one female, Valentine; Natubakula, near Singatoka, April 19, 1941, two females, Krauss. Ovalau: Draiba Trail; July 7 and 8, 1938, one female and one male, alt. 600-800 ft., Zimmerman.

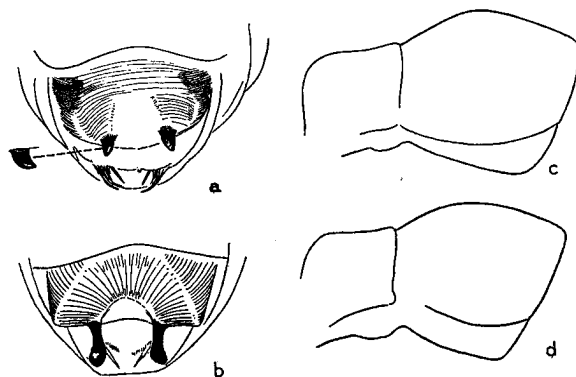


FIGURE 2.—a, *Polistes macaensis*, male, 7th sternite (from Mangareva); b, *Polistes olivaceus*, male, 7th sternite; c, *Pachymenes bicinctus*, female, profile of abdominal segments 2 and 3; d, *Pachymenes mediocinctus*, female, profile of abdominal segments 2 and 3.

Figure 2, b shows the protuberances on the seventh sternite of the male of *Polistes olivaceus* from Ovalau, Fiji. Compare with figure 2, a which shows the protuberances on the seventh sternite of the male of *Polistes macaensis* (Fabricius) from Taraururua, Mangareva. These two species are sometimes confused.

POMPILIDAE

Cyphononyx vitiensis Turner, Ent. Soc. London, Trans., 78-80, 1917 (male, female).

Viti Levu: Nandi, June 1913, two males; Nausori, June 1913, one female, Illingworth; Rewa, 1920, two females and two males, Pember-ton; Nandarivatu, Oct. 1937, one female and two males; Nandronga, Singatoka, Nov. 1937, one female; Tailevu: Waito, Oct. 1937, one male; Qacabula, Nov. 1937, one female, Valentine; Nandarivatu, Oct. 1938, one male, at light, one female, Zimmerman; Bulu near Sovi, April 1941, one female, Krauss. Vanua Levu: near Salt Lake, Jan. 1940, one female, O. Degener.

This evidently rather common species varies considerably in size and may reach a length of 21 mm. It is black, the abdomen very polished, most of the head, part of the thorax, the legs except coxae, and the apex of the abdomen are reddish orange. The wings are orange with a black band and the apical margin blackish.

A large male from Nandi, 1913, has the body nearly all black, the legs more or less infuscate, and the wings entirely blackish.

C. vitiensis is also recorded from the Solomon Islands and New Caledonia (Banks, B. P. Bishop Mus., Occ. Papers 16: 428, 1941).

***Chrysocurgus nitidus* (Fabricius).**

Sphex nitida Fabricius, Syst. Ent., 351, n. 28, 1775.

Pompilus nitidus, Fabricius, Suppl. Ent. Syst., 250, n. 26, 1798.

Priocnemis Wakefieldi Kirby, Ent. Soc. London, Trans., 39, 1881.
New Zealand.

Chrysocurgus nitidus (Fabricius), Haupt, Zeitsch. f. Naturwis., Halle 91: 134-135, 1937: "Bekannt von Queensland, Neu-Seeland und den Fidji-Inseln."

The genus *Chrysocurgus* was erected by Haupt (loc. cit.) for the above species, which he places in his subfamily Claveliinae which he describes in Mitt. Zool. Mus. Berlin 15: 110-111, 1930.

This wasp is reddish brown with orange wings and golden pubescence and measures up to 20 mm. long. It is figured by Tillyard (Insects of Australia and New Zealand, pl. 20, fig. 2, 1926) as *Salius wakefieldi* Kirby. I have not seen this insect.

***Pompilus elatus* Smith, Linn. Soc. Zool. Jour. 8: 82, no. 5, 1864. Asia: Morty Island.**

Pompilus inquirendus Vachal, Rev. d'Ent. 26: 117, 1907. New Caledonia.

Recorded from Fiji by R. E. Turner (Ent. Soc. London Trans., 340, 1919).

I have seen specimens of this black and silvery wasp only from New Caledonia. In these the second submarginal cell varies from narrow to short-pedicellate (in a male) on the marginal cell.

The tarsal comb is poorly developed in this species, but there is a spine on the middle length of the second tarsal joint, a low ridge indicates the poststigmatal tubercle, and the apex of the abdomen has some stiff hairs.

Genus **Nesopompilus**, new genus

Belongs to the subfamily Pompilinae. Eyes gently emarginate within, converging slightly toward vertex; clypeus subtruncate and extending under eyes; antennae arising directly from frons, there being no antennal tubercles. Pronotum shorter than scutum and with it forming an almost even curve to the collar, the lower pronotal lobes rather broadly rounded; mesepimera somewhat tuberculate on lower outer side; postnotum transversely striate, depressed mesad; propodeum smooth, poststigmatal tubercle present; posterior edge of propodeum finely wrinkled within, its lateral lobes, as viewed from the side, forming greater than a right angle with the propodeal-metanotal suture. Marginal cell acute, recurrent nervures entering submarginal cells 2 and 3, respectively; pocket on the lower basal corner of second discoidal cell not well-developed; in hind wings the anal vein ends before cubital fork. Legs slender, weakly spinose, mid and hind femora above with one or two small spines and (or) spine pits toward apex; spines at apex of tibiae unequal, parallel or slightly diverging; a small, pre-apical dorsal spine on fore tibiae; mid and hind tibiae with two rows of spines; no tarsal comb, but there is a spine from about the middle of the second tarsal joint; last joint of all tarsi with the ventral spines few and median; all the claws rather shallowly cleft, acute. Abdomen sessile; second sternite with a well-marked though rather shallow transverse groove that is ill-defined mesad; apex of abdomen with bristles.

Male unknown.

Related to *Pompilus* but differs from that genus chiefly in having the second sternite transversely grooved; it also lacks a tarsal comb, the bristles being scarce and as long as the width of the joints.

Nesopompilus vitiensis, new species (fig. 3, *h-l*).

Length 7.5 mm. Rather slender; head and thorax finely coriaceous, rather shining, abdomen polished. Black; mandibles except tip, palpi, clypeal margin broadly, antennae, pronotum, tegulae and sclerite beyond, scutum except apex, scutellum, propodeum except extreme sides and the large dusky brown disk, legs except coxae, and apex of abdomen pale brown to reddish, spines darker red. Clypeus broadly subtruncate with a very shallow median emargination; last three joints of maxillary palpi moderately slender and subclavate, the fifth joint shorter than 3 or 4; an impressed line from between the base of the antennae extending to less than half way to fore ocellus; antennae rather slender, joint 3 longer than 4, which is slightly longer than 5; interocular space at vertex about equal to joints 2 plus 3; ocelli forming nearly an equilateral triangle. Pronotum rather bulging at humeri, the posterior margin rather angularly emarginate, this margin thin and of some width. Propodeum with a shallow impressed line extending part way down its convex disk. Wings with transverse-median and basal nervure interstitial. Abdomen with second sternite rather sparsely punctured for its basal part. Vestiture: rather sparse silvery pubescence; a few erect or suberect hairs on clypeus, mandibles, vertex, propleura, fore coxae, and abdomen beneath; only sparse fine pile on propodeum.

Type female, Fiji: Viti Levu; Nandarivatu, Oct. 1937, Valentine.

Genus *Dendropompilus*, new genus

Belongs to the subfamily Pompilinae and seems nearest to *Pompilus*. Eyes gently emarginate within and converging toward vertex; clypeus extending under eyes, subtruncate; mandibles with two teeth within toward apex; antennae arising almost directly from frons; ocelli forming nearly an equilateral triangle.

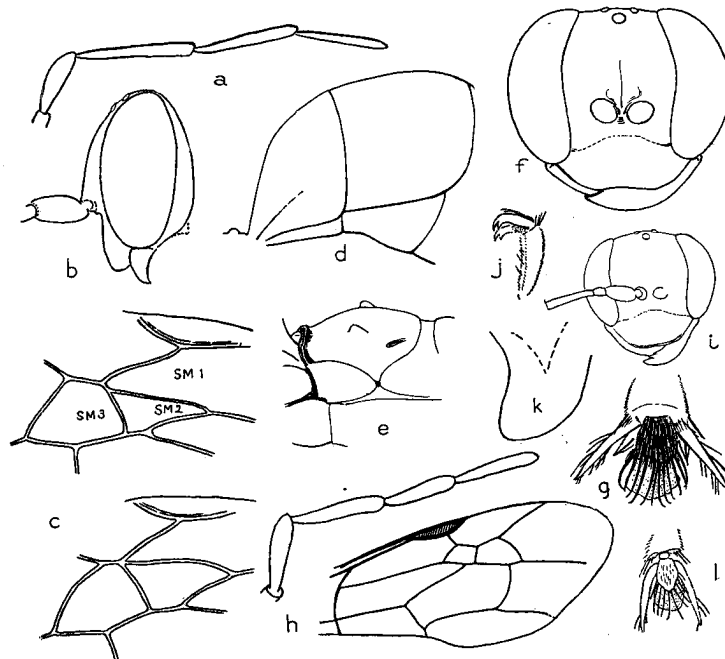


FIGURE 3.—Fijian Pompilidae. a-g, *Dendropompilus vitiensis*: a, last 4 joints of maxillary palpus; b, head, from side; c, portion of venation of forewings to show variation in the 2d and 3d submarginal cells; d, fore part of abdomen, from side; e, propodeum slightly inclined forward from side; f, head; g, tarsal claws of 3d pair of legs. h-l, *Nesopompilus vitiensis*: h, last 4 joints of maxillary palpus, forewing; i, head; j, tarsal claws of 3d pair of legs; k, lower lobe of pronotum; l, tarsal claws of 3d pair of legs.

Pronotum shorter than scutum, falling rather steeply to collar and angularly emarginate posteriorly, the lower lobes rather broadly rounded; propodeum with sparse fine erect hairs at sides, rather evenly rounded, with a poststigmatal nipple, lateral lobes of the well-raised posterior border forming rather greater than a right angle with the propodeal-metanotal seam; mesepisternum somewhat tuberculate at lower corner. Second submarginal cell small, subtriangular, sessile to short-petiolate on the marginal cell; median vein of forewings extending close to margin of wing; pocket on lower basal side of second discoidal cell not well-developed; in the hindwings the anal vein ends before the cubital fork. Legs sparsely spinose, all tarsal claws with one tooth beneath; tarsal comb hardly

differentiated, the spines about as long as the width of the joints, second tarsal joint of forelegs with a spine at about its middle length; no spines above on fore tibiae; on the hind tibiae there are four rows of sparse spines, the ventral row quite small; a few short spines or spine pits above toward apex of mid and hind femora (this character is variable). Abdomen not pedicillate, the second tergite the widest and with a rather weak non-angulate transverse depression before its middle length; apex of abdomen with some stiff hairs. Vestiture: a few long erect hairs on head, prosternum, dorsulum and beneath the abdomen; head, thorax and abdomen, and appendages in part covered with very small appressed shining scales.

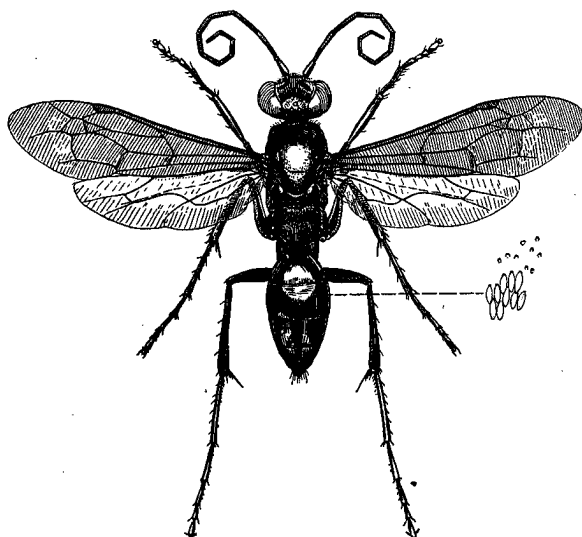


FIGURE 4.—*Dendropompilus vitiensis*, type female.

***Dendropompilus vitiensis*, new species (figs. 3, a-g; 4).**

Length 11 mm. Black; mandibles reddish toward apex, forewings infusate, the hind pair nearly hyaline. The general metallic-green color with blue or purple reflections is caused by the dense covering of very fine appressed, long-oval scales somewhat pointed at either end, as on the abdomen; these scales are present on the basal joint of the antennae, head, thorax and abdomen (except the lower sides), the mid and hind tibiae above, the tegulae and sclerite beyond, and the basal portion of the vein there. Clypeus very shallowly emarginate, an impressed line from between the base of antennae to anterior ocellus; third joint of antennae longer than fourth, the fourth slightly exceeding the interocular space at vertex. Pronotum with a strong incised line toward base of lower lobe, and an oval depression near base of lateral lobe. Postnotum shining and with some fine transverse carinulae. Propodeum, except for tubercle, smooth and evenly rounded. Tarsi lightly spinose beneath; on the last joint of the tarsi there are a few ventral spines along the median line and a foliose 3-costate acuminate spine each ventral side at apex; tips of tibiae with two pairs of rather short diverging spines, the outer spines the stronger. Abdomen smooth.

Type female, Fiji: Viti Levu, Nandarivatu, Oct. 1937, Valentine. Paratypes, four females, Viti Levu, Nandarivatu, Oct. 1937, Valentine; one female, Nandarivatu, Aug. 8, 1925, W. H. Ford; one female; ridge west of Vatutaere, alt. 2,600-3,000 ft., Sept. 3, 1938, Zimmerman; one female, Nandarivatu, alt. 3,000 ft., beating shrubbery, Aug. 3, 1938, Zimmerman.

The scales that form the vestiture of this beautiful wasp are quite different from the relatively larger broadened hairs of metallic-green or golden-green color that adorn the body of *Anoplius spirohirtus* Perkins and Cheesman from Samoa, and very unlike the large straplike scales of the genus *Episyron*, also of the Pompilinae.

SPHECIDAE

Sceliphron caementarium (Drury).

Sphex caementaria Drury, Illus. Nat. Hist. 1: 105, 1770.

This American mud-dauber was first recorded from Fiji by Lever (Dept. Agric., Fiji, Agric. Jour. 11 (3): 41, June 1940). Of it, Lever says in part: "The first specimen in Fiji was taken by the author on Christmas Day last year and it can be presumed that this insect arrived from Hawaii. . . ." Lever also records it from Samoa (Dept. Agric., Fiji, Agric. Jour. 17 (1): 12, March 1946), and it is known from the Marquesas and Society Islands (Cheesman, Ann. Mag. Nat. Hist. X, 1: 171-172, 1928).

TRYPOXYLONIDAE

Pison ignavum Turner, Zool. Soc. London, Proc., 511-512, 1908 (male, female). Williams, B. P. Bishop Mus. Bull. 98: 152-153, 1932; Haw. Ent. Soc., Proc. 12: 440, figures, 1945.

Pison argentatum Shuckard, var. *ignavum* Turner, Zool. Soc. London, Proc., 355, 1910.

Fiji, 1914, one male, Veitch. Viti Levu: Rewa and Lautoka, 1920, Pemberton; Bua, Feb. 1933, one male and one female, Edmondson; Nandarivatu, Oct. 1937, one female, Valentine; Korovou: Tailevu, Aug. 1937, one female, Valentine; Vunidawa, May 1941, one male and eight females, Krauss.

P. ignavum is also found in Australia, New Caledonia, Samoa, the Marquesas, and the Society Islands. Closely allied to *P. argentatum*.

Pison iridipenne Smith, Linn. Soc. Zool., Jour. 14: 676, 1879.

Pison iridipennis Smith, Perkins and Cheesman, Ins. Samoa 5 (1): 6, 28, 1928.

P. iridipenne is also recorded from Australia, Samoa, the Society Islands, the Tuamotus, and Hawaii. I have seen no specimens from Fiji.

Pison hospes Smith, Linn. Soc. Zool., Jour. 14: 676, 1879. Perkins and Cheesman, Ins. Samoa 5 (1): 6, 27, 1928.

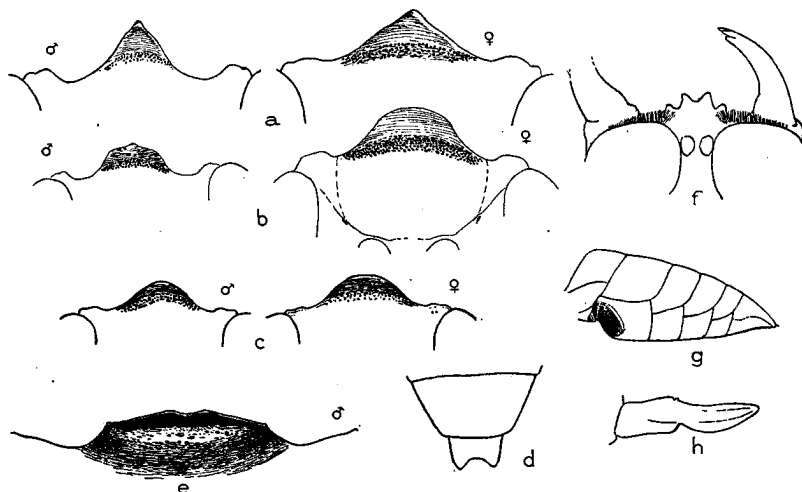


FIGURE 5.—Fijian sphecoid wasps: a, *Pison hospes*, clypeus (from Society Islands); b, *Pison tahitense*, clypeus; c, *Pison iridipenne* (from Society Islands); d, *Tachysphex vitiensis*, apex of abdomen; e, *Tachysphex vitiensis*, clypeus; f, *Crabro veitichi*, female, lower face; g, *Notogonidea liriformis*, abdomen from side; h, *Notogonidea liriformis*, mandible from side.

P. hospes is also recorded from Cocos-Keeling Island, Singapore, Australia, Samoa, the Society Islands, the Marquesas, and Hawaii.

I have not seen specimens from Fiji.

Pison tahitense Saussure, Reise Novara, Zool., Hymenopt. 2 (1): 65, 1867. Perkins and Cheesman, Ins. Samoa 5 (1): 26-27, 1928.

Pison rechingeri Kohl, Denk. K. Akad. Wiss. Wien, Math.-Nat., Kl. 81: 309, 1908 (female).

Viti Levu: Nandi, Aug. 1912; June 1913, one male and one female, Illingworth; Rewa, 1920, four females, and Lami, alt. 100 ft., 1920, one female, Pemberton; Bau, Feb. 13, 1933, one male, Edmondson;

Nandarivatu, Oct. 1937, two females, Valentine; Vunidawa, May 1941, one male, Krauss.

Lau Islands: Mango I., Marona, alt. 200 ft., Aug. 1938, two females, Zimmerman. Oneata: Dakuiloa, Aug. 1938, one female, Zimmerman.

P. tahitense occurs also in Samoa, the Society Islands, the Ellice Islands, and the Marquesas.

LARRIDAE

Notogonidea liriformis, new species (figs. 5, *g*, *h*; 6).

Length 14.5 mm. Black, thin portion of mandibles reddish, wings lightly infuscate, with purple reflections. Shining, with little pilosity. Clypeus broadly produced, subtruncate, depressed behind the small median notch, the disk smooth and shining with faint submarginal punctures and a row of large setigerous punctures across the middle width; mandibles less strongly notched than usual in the genus; antennal joints 3 and 4 subequal, the interocular space at vertex narrow, about two-thirds the length of antennal joint 3; posterior ocelli more aborted than usual, the postocellar depression very narrow, tapering acutely, polished. Head and thorax minutely though not densely punctate. Marginal cell narrowly truncate, the truncation very slightly oblique; second submarginal cell very narrow along radius, the two recurrent veins joining at the second submarginal cell. Dorsal carina and spines of posterior tibiae strongly developed. Disk of propodeum with some fine transverse subobsolescent carinulae and a wide shallow

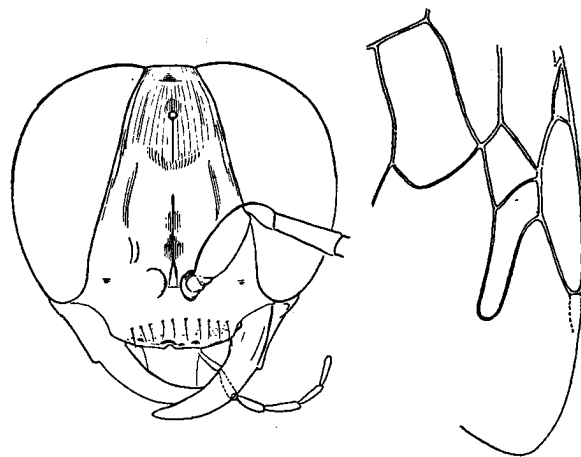


FIGURE 6.—*Notogonidea liriformis*, head and apical half of wing.

sulcus containing a carina that extends nearly to apex, the pleura smooth and polished, the posterior face with a strong narrow sulcus somewhat wider above, some strong transverse carinae just above this furrow to where the posterior face and the disk meet. Abdomen shining, *Larra*-like, with some scattered punctures;

the first tergite sloping steeply to pedicel, the second sternite carinate and sloping abruptly for its basal portion, with a wide patch of silvery pile bordering the carina. Pygidium rather narrow, the disk with strong brown (?) bristles, some of which are erect. Vestiture: sparse short silvery pile, with indications of banding on sides of the abdomen; pile at base of posterior tibiae pale golden.

Type female, Fiji: Viti Levu, Nandarivatu, Oct. 1937, Valentine.
Paratype, Fiji: Viti Levu, Belt Road, 16-18 miles west of Suva, beating shrubs, July 22, 1938, Zimmerman.

This fine insect has much the facies of a *Liris* in its rather shallowly notched mandibles and the form of the abdomen. In Turner's key to the Australian species of *Notogonia* (Ann. Mag. Nat. Hist. VIII, 18: 279-281, 1916) it runs to *N. abbreviata* Turner of Queensland (Zool. Soc. London, Proc. 31: 481-482, 1908, female), but differs from the description of that species in its decidedly shining, instead of a more or less opaque, appearance. Turner describes the clypeus as having its apical margin depressed strongly mesad; in *liriformis* the clypeus is depressed behind the small median notch, as figured.

Notogonidea subtessellata (Smith).

Larrada subtessellata Smith, Cat. Hymenopt. Brit. Mus. 4: 277-278, 1856, female.

Notogonia subtessellata, Bingham, Fauna Brit. Ind., Hymenopt. 1: 202-203, 1897, male, female.

Notogonidea luzonensis Rohwer, Haw. Sugar Plant. Assoc. Expt. Sta., Ent. Bull. 14 (1): 9, 1919, female.

Notogonidea subtessellata, Williams, Haw. Sugar Plant. Assoc. Expt. Sta., Ent. Bull. 19: 76-77, 1928.

Viti Levu: Nandarivatu, Oct. 1937, one male, Valentine; Vunidawa, May 1941, two females, Krauss.

N. subtessellata is a common oriental wasp now first reported from Fiji. It measures up to about 15 mm.

Notogonidea manilae (Ashmead).

Notogonia retiaria Turner, Zool. Soc. London, Proc. 31: 479-489, 1908.

Notogonidea williamsi Rohwer, Haw. Sugar Plant. Assoc. Expt. Sta., Ent. Bull. 14 (1): 9, 1919.

Notogonidea manilae (Ashmead), Williams, Haw. Sugar Plant. Assoc. Expt. Sta., Ent. Bull. 19: 75-76, 1928.

Notogonidea manilae (Ashmead), Williams, Haw. Ent. Soc., Proc. 12: 444, 1945.

N. manilae is widely distributed, extending from the coast of Asia to Australia, and into the Pacific to Guam and Samoa.

It should be compared with *N. tristis* (Smith), which measures 8-11 mm. long and which was described from Borneo and extends to Tenasserim into the Malay region.

Tachysphex vitiensis Williams, Haw. Sugar Plant. Assoc. Expt. Sta.
Ent. Bull. 19: 166-168, 1928 (female). (See figure 7.)

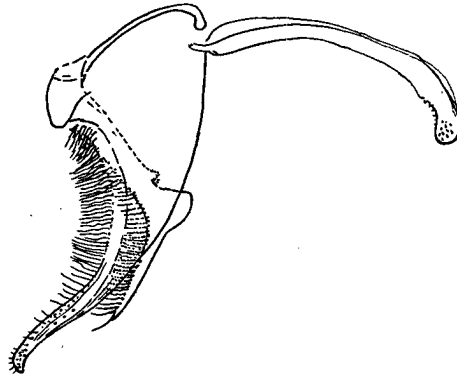


FIGURE 7.—*Tachysphex vitiensis*, male aedeagus from side.

Male. Length, 6.5 mm. Black; head and thorax generally semi-opaque, abdomen shining, apex of mandibles reddish, wings lightly infuscate. Clypeus subtruncate, gently emarginate mesad, marginal part shallow, lateral angles sharp, disk moderately convex with sparse large punctures. Interocular space at vertex hardly one-half as wide as at clypeus. Antennal joint 4 longer than 3, together about equaling interocular space at vertex. Face and vertex with fine well-spaced punctures on a tessellated surface; a short frontal impressed line just above antennal tubercles; ocellar tubercle simple, the posterior depression semi-circular, slightly arcuate posterad, whence proceeds a very short impressed line. Scutum not so finely punctured as head, finely foveate along apical margin because of the short parallel carinulae. Scutellum shining, with sparse fine punctures. Postnotum finely rugulose posterad. Disk of propodeum rather coarsely rugose reticulate, the median carinulae the more extensive ones; laterad and posterad the disk is margined; pleurae finely rugulose above, smoother ventrad and posterad; posterior face with the disk rugulose and a strong longitudinal impressed line that is slightly wider above. Legs stout; fore femora without emargination beneath near base; mid and hind tibiae with some rather strong spines. Wings with abscissae in increasing length, as follows: 4, 2, 3 and 1—2, 3 and 1 being nearly equal; marginal cell narrowly truncate. Pygidium (7th tergite) flat, with rows of rather coarse piliferous punctures. Armature: claspers (lateral view) slightly upturned at tip, with a comb of hair on inner curve; sagittae elbowed at nearly right angles, apical portion nearly straight; practically

the entire inner curve hair-fringed; basal portion widened into approximated plates; uncus gently curved, the excavate subapical part with some fine teeth. Vestiture: silvery pile.

One male, from Rewa, Fiji, 1920, Pemberton. The female, which is the type specimen, was taken at Suva Bay, Viti Levu, July 13, 1923, by O. H. Swezey. It has the disk of the pygidium provided with fine bristles.

CRABRONIDAE

Crabro veitchi Turner, Ent. Soc. London, Trans., 84, 1917 (female).

"Hab. Fiji, Natova, (R. Veitch), April." (See figure 5, f.)

Viti Levu: Qacabula, Nov. 13, 1931, one female (minus antennae), Valentine.

Length about 11 mm.; mainly black with some yellow and red; the abdomen is shining and pedicellate and the pygidial area narrow. It somewhat resembles wasps of the genus *Dasyproctus* but, according to Turner (loc. cit.), does not belong there, and it appears to be rather isolated in the Crabronidae.

Rhopalum oceanicum (Schulz).

Crabro (*Rhopalum*) *oceanicum* Schulz, Spolia Hymenopt., 202, 1906.

Rhopalum oceanicum (Schulz), Turner, Ent. Soc. London, Trans., 337, 1919.

No specimens of this wasp were seen.

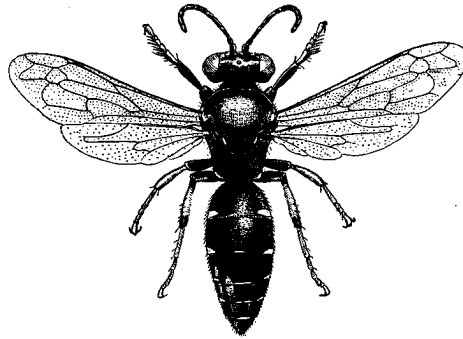


FIGURE 8.—*Stizus inermis*, female.

STIZIDAE

Stizus inermis Handlirsch, Sitzungsb. Akad. Wiss., Wein 101:91, 1882 (male) (fig. 8).

Stizus pacificus Turner, Ent. Soc. London, Trans., 82-83, 1917 (female).

Viti Levu: Nandi, June 1913, 14 females, Illingworth. Kandavu: Waisalima, April 30, 1941, five females, Krauss.

This wasp is about 10 mm. long; black, marked with yellow. Dr. Turner states that *Stizus inermis* is near the *tridens* group. *S. tridens* is a European and North African species.