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THE SPHECIDAE (HYMENOPTERA) OF THE RENNELL AND BELLONA ISLANDS

BY

OLE C. LOMHOLDT

ZOOLOGICAL MUSEUM, COPENHAGEN, DENMARK

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The Sphecidae collected by the Danish Noona Dan Expedition in 1961-62, and by TORBEN WOLFF assisted by the Rennellese KASIPA on Bellona in 1965, was placed at my disposal. This material comprises only 28 specimens, two of which represent an undescribed genus. No previous account on the Sphecidae from these islands have ever been published. The nomenclature follows R. M. BOHART & A. S. MENKE, 1976.

All material is kept at the Zoological Museum in Copenhagen.

TRYPOXYLONINI

Genus ***Aulacophilinus***[1] n.gen.

Type species: *Aulacophilinus rennellensis* n.sp. By monotypy.

Diagnosis of the genus: Close to *Aulacophilus* F. Smith, 1869, but differing in the following characters: In the forewing the first recurrent vein is received by the first submarginal cell well before its apex (Fig. 1). Antennae long and slender in both sexes. Mesopleuron smooth, punctate. The lateral arms of the occipital carina contiguous ventrally.

This new genus also becomes easily detectable from other Trypoxylonini by changing couplet 3 in BOHART & MENKE (1976:330) to

3. Gaster petiolate, segment I rodlike (tergum nodose at apex) 3A
Gaster compact, sessile, segment I not petiolate or at most pedunculate in dorsal view 4

1. *Aulacophilinus* is diminutive of *Aulacophilus*.

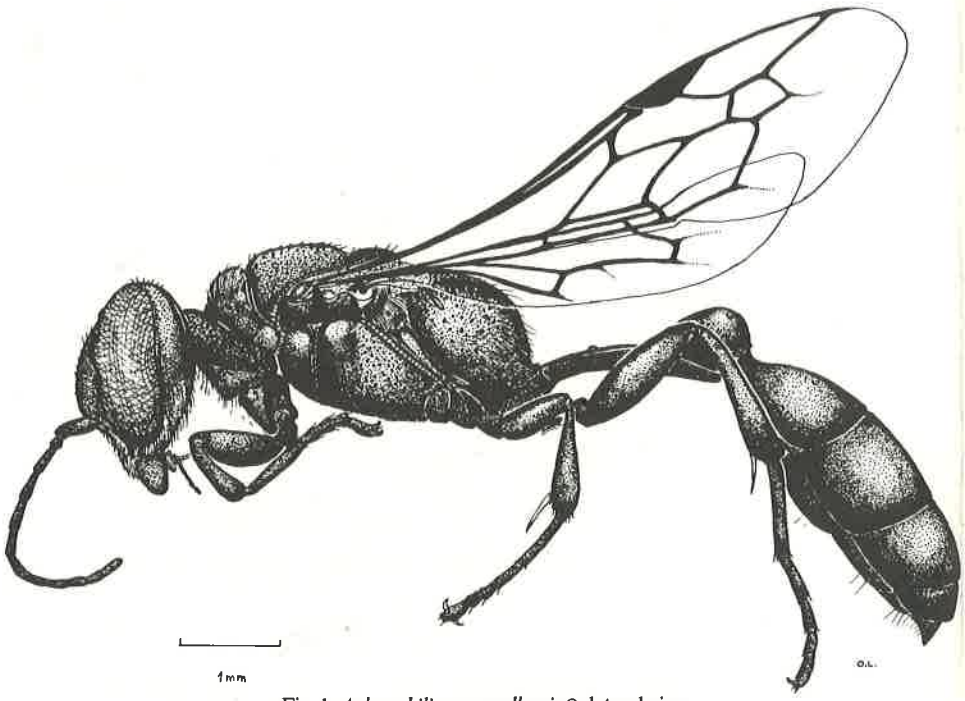

Fig. 1. *Aulacophilinus rennellensis* ♀, lateral view.

3A. Mesopleuron with many coarse horizontal ridges. Occipital carina incomplete, obsolete near hypostomal carina. Antennae dilated distally .... *Aulacophilus* F. Smith, 1869
Mesopleuron smooth, without ridges, punctate. Occipital carina complete. Antennae filiform, not dilated distally ..... *Aulacophilinus* n.gen.

Aulacophilinus rennellensis n.sp.
(Figs. 1-3)

RENNELL: Hutuna, 17 March 1965. TORBEN WOLFF leg. Malaise Trap I. 1 ♀, 1 ♂. (On top of hill behind village; recently cleared forest with some scrub left, see WOLFF, 1968).

Description

♀: Body length, 9 mm, length of forewing, 7 mm. HOLOTYPE.

Head in front view as Fig. 2. Frons strongly convex, the frontal line only represented by a weak longitudinal impression above the antennal sockets. Punctation of frons strong (Fig. 2), microsculpture reticulate, easily perceptible at fifty times magnification. Clypeus weakly convex, anterior margin laterally slightly concave, central portion rounded, protruding. Clypeus, lower face, and a pile along inner orbits to the emargination, with dense, silvery pilosity consisting of slightly depressed hairs. Frons with sparser and more erect and thinner hairs. Ocelli placed in an acute angle

(POL:POD = 7:11, POL:OOL = 7:1, POL:SOL = 7:14[1]). Anterior ocellus smaller than the lateral (= posterior). The latter slightly deformed, their longitudinal axis being a little longer than the transversal. Mandibles dull, densely haired, edentate, distinctly widened distally. Labrum small, only the apex visible. Antennae long and slender, median flagellomeres more than twice as long as wide distally. 2nd flagellomere a little more than three times longer than wide (17×5), 3rd, 16×5.5. Maxillary palps long, as long as the first three flagellomeres combined. Pronotum much wider than long, the posterior transverse furrow distinct. Pronotum, scutum, and scutellum with a dull appearance due to the reticulate microsculpture. Scutal punctation a little finer and more sparse than on frons. Admedian lines short, parapsidal lines short and weak. Scutum along posterior margin with a series of strong, longitudinal ridges. The lateral margin somewhat raised, medially bordered by a strongly depressed, pitted (foveolate) furrow. Mesopleuron shining, the microsculpture fine, the punctation stronger than on frons, more sparse than on scutum. Episternal and precoxal sulci strongly pitted; a weak horizontal depression extends anteriorly from the latter (reminiscence of the hypersternaulus). Propodeum with a strong, straight median carina and somewhat irregular, arcuately outwardly extending rugae. Interstices finely punctate. No lateral propodeal carinae. Lateral faces of propodeum strongly and densely punctate, interstices smaller than the punctures, almost forming rugulae. Posterior face of propodeum with a deep, median furrow. Thorax and propodeum with a thin, slightly silvery shining pilosity. A few brownish hairs on scutum. Petiolus in lateral view almost straight, length: 87, maximum width: 28, spiracles in a distance of 27 from propodeal articulation. Remaining gaster elliptic. Tergum VI with a short, weak longitudinal carina apically. In the forewing cu-a is strongly postfurcal (Fig. 1). 1 m-cu joins 1st submarginal cell at a distance subequal to the length of 1 r-m. Venation of the hindwing of the usual larrine pattern. Hamuli in two groups, five in each. Legs like in other Trypoxylonini.

♂: Body length, 8.5 mm, length of forewing, 6 mm. PARATYPE.

Considerably more slender than female. Clypeus shorter, the anterior margin shallowly concave on each side of the blunt median tooth (Fig. 2). Mandibles with an almost right-angled subapical tooth. Morphology and pilosity of the head like that of the female. Antennae more slenderly built, flagellomeres 2-5 ventrally with shining tyloidea which on 2 extend almost throughout its length. On 5 the tyloidea are shorter than half the length of the flagellomere. Thorax and propodeum as in female. Petiolus relatively longer (80×25). Tergum II and III with subapical depressions arranged in pairs. Sternum VIII as Fig. 3, its apical margin angularly excised, the excision bordered by a row of three long, bristlelike setae (as in *Aulacophilus).* Hindwing with four hamuli in each group. Terminalia as Fig. 3. Aedeagal valves dorsally

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1. POD = Post Ocellar Diameter
   POL = Post Ocellar Length (= distance between lenses of lateral ocelli)
   OOL = Ocellar-Ommatidial length (= distance between a lateral ocellus and the corresponding compound eye)
   SOL = distance between lenses of anterior and lateral ocelli.

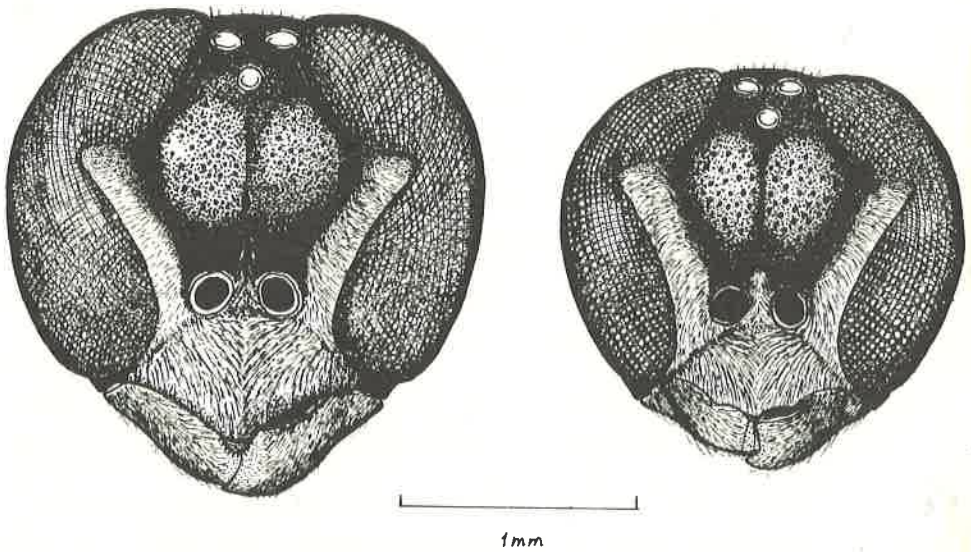

Fig. 2. *Aulacophilinus rennellensis.* Left: Head of ♀, facial view. Right: Head of ♂, facial view.

coalesced throughout their length, the distal half of the ventral margin very weakly crenulate (100 times magnification). Volsella immovably fused with gonostylus, not exceeding the length of the broad ventro-caudal lobe of the gonostylus. It is remarkable that the distal setae of this lobe are strongly bent apically.

Discussion

It is evident that *Aulacophilinus* is most closely related to *Aulacophilus*. This is based on 1) the petiolate gaster, 2) the venation of the forewing, and 3) the lack of lateral propodeal carinae. It seems logical to assume the much longer petiolus in *Aulacophilus* representing a higher degree of specialization than the shorter of *Aulacophilinus*. The former lacks a median longitudinal carina on propodeum, and the lateral faces of mesopleuron are supplied with strong horizontal ridges. I therefore consider *Aulacophilinus* the more primitive of the two.

The sister group of the monophyletic entirety constituted by *Aulacophilus* + *Aulacophilinus* must possess the following characteristics: 1) gaster elongate, pedunculate or clavate; 2) mandibles without externoventral notch; 3) female tergum 6 without pygidial plate; 4) two submarginal cells. Among the Trypoxylonini, three taxa share these characters, namely *Pisonoides, Trypoxylon,* and *Pisoxylon.* Because of the very deep eye-emargination also shared by the two last-mentioned genera, *Aulacophilus* + *Aulacophilinus* are suggested to be closer related to these than to any other taxa of Trypoxylonini.

Aulacophilus is confined to South America and Mexico and comprises three species which are very insufficiently known. The strongly allopatric occurrence of the two genera combined with the relatively unspecialized type residing on an isolated island points towards *Aulacophilinus rennellensis* being a relic. Judging from the morphology

and the biotope in which *Aulacophilinus* was captured, a hypothesis predicting arboricolous nesting-habits is obvious.

LARRINI

Liris festinans (F. Smith, 1859)

Larrada festinans F. Smith, 1859:17.
For full synonymy, see BOHART & MENKE, 1976.

RENNELL: Hutuna, Kagaba, and Tigoa, 16, 17, 25, 27, and 30 March, 2, 3, and 6 April 1965. 8 ♀♀, 7 ♂♂. TORBEN WOLFF leg. Malaise trap.
BELLONA: Matahenua: April, 13, 18, 20, and 25 May 1965. 5 ♀♀, 4 ♂♂. KASIPA leg.

The species has a very wide distribution area covering Celebes, Philippines, Marianas, Carolines, Australia, Fiji, Samoa, New Caledonia, Solomons, Borneo, Amboina, Singapore, and Penang.

Liris esakii Yasumatsu, 1941

Liris esakii Yasumatsu, 1941: 46.

RENNELL: Niupani, 24 Aug. 1962. 1 ♀. Noona Dan Exp. 1961-62. Caught in Malaise trap.

This species is very characteristic due to the strong propodeal sculpture. The Rennell specimen deviates slightly from the original description and from the notes given by KROMBEIN, 1949, in having the wings somewhat paler, only with very inconspicuous violet tinge.

The species was formerly only recorded from the Caroline Islands; until more material (especially males) is available, a possible subspecies-status of the Rennell-population cannot be discussed.

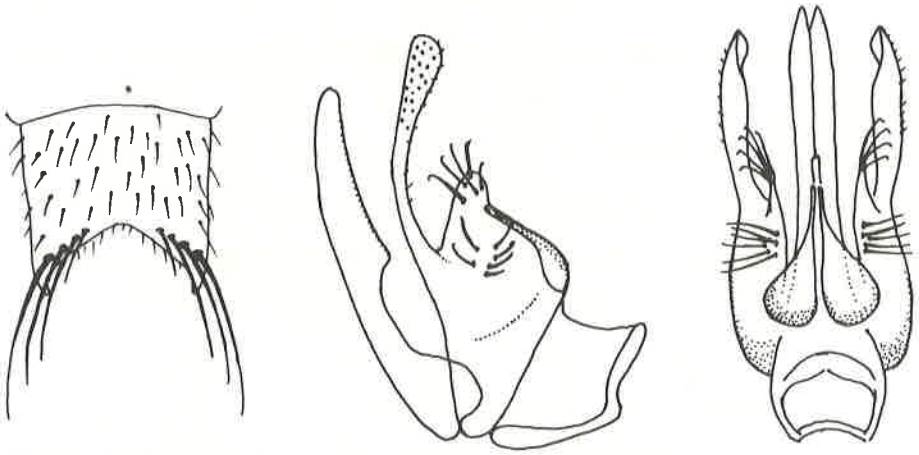

Fig. 3. *Aulacophilinus rennellensis* ♂. Left: Sternum 8, ventral view. Middle and right: Terminalia in lateral and ventral view.

Liris sp. aff. *krombeini* Menke, 1976

Liris krombeini Menke, 1976: 246.
New name for *williamsi* Krombein, 1949. Nec Rohwer, 1919, nec Tsuneki, 1976.

RENNELL: Tigoa, 22 March 1965. 1 ♀. TORBEN WOLFF leg.

The specimen only differs from the original description by its larger size (15 mm). In the key presented by TSUNEKI (1976) it runs to *cupreohirta* Tsuneki, but is readily separated from that species (named *aureohirta* n. sp. in textfig. 63, p. 67) by the sculpture of clypeus and the size of the placoids (rhinaria) that are about as long as the width of the antennal segments. It was compared with the type.

Liris (s. s.) n. sp.?

RENNELL: Niupani, 25 and 26 Aug. 1962. 2 ♂♂. Noona Dan Exp. 1961-62.

I hesitate to describe this apparently new species before any females are discovered. The species is close to both *aurulenta* (Fabricius) and *mindanaoensis* Williams, but several very distinct characters separate it with certainty.

SUMMARY

Based on the material (28 specimens) collected by the Danish Noona Dan Expedition (1961-62) and by TORBEN WOLFF (1965) the following five species of Sphecidae (Larrinae) are recorded: *Aulacophilinus rennellensis* n. gen., n. sp. (Trypoxylonini), *Liris festinans* (F. Smith, 1859), *Liris esakii* Yasumatsu, 1941, *Liris* sp. aff. *krombeini* Menke, 1976, and *Liris* (s. s.) n. sp.? (Larrini). The systematic position of *Aulacophilinus* is rather thoroughly discussed.

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