

## A Review of the Genus *Larrisson* Menke (Hymenoptera : Sphecidae)

A. S. Menke

Systematic Entomology Laboratory, IIBIII, Federal Research, Science and Education Administration,  
U.S. Department of Agriculture, Washington, D.C., U.S.A.

### Abstract

A key and illustrations are provided for the identification of the four species in the endemic Australian genus *Larrisson*. Three of the species are described as new: *azyx*, *nedymus* and *rieki*.

### Introduction

*Larrisson* is a peculiar genus of miscophin wasps (Larrinae) endemic to Australia. When I described the genus (Menke 1967), one species, represented by males only, was known. Subsequently, during two expeditions to Australia, Howard Evans of Colorado State University and Robert Matthews of the University of Georgia collected males and females representing several different species. These specimens have enabled me to produce a more meaningful generic description than that given in Bohart and Menke (1976). Three new species are described and a key is provided for identification of the four species now known in *Larrisson*. The key is preliminary because females are unknown for two of the species.

I would like to thank M. Day and C. Vardy of the British Museum (Natural History) for lending the type of *Larrisson abnormis* (Turner). Holotypes of two of the new species will be deposited in the Australian National Insect Collection, Canberra (ANIC), and the third will go to the University of California, Davis (UCD). Paratypes will be placed in the Museum of Comparative Zoology, Cambridge, Massachusetts (MCZ), and the National Museum of Natural History, Washington, D.C. (USNM). Linda Heath rendered most of the illustrations.

### Genus *Larrisson* Menke

#### Description

Small (5-8 mm), stout-bodied, black wasps with yellow or amber legs and commonly with yellow or amber bands on the terga; tegula largely translucent but with yellow or amber spot anteriorly; body except gastral venter generally very closely punctate (punctures mostly separated by less than a puncture diameter) and covered with short, appressed setae. Inner orbits bowed toward midline of face, frons narrowest near middle; eye facets becoming larger toward middle of inner orbit; scape usually long, flagellomeres unmodified and about as long as wide except terminal article longer than wide; clypeus with arcuately truncate median lobe; labrum small, hidden, margin arcuate, entire; inner margin of man-

dible with subapical tooth and mesal angulation or tooth, except one species with 2 teeth near middle and no subapical tooth, lateroventral margin notched; mouthparts short; occipital carina ending just before reaching hypostomal carina. Collar short; mesopleuron without scrobal sulcus; metanotum usually with median tubercle; propodeum shorter than wide, dorsum with triangular enclosure which contains short, longitudinal or divergent ridges, those at midline usually irregular, propodeum usually with tubercle behind spiracle in male. Both sexes with foretarsal rake composed of stout spines; forecoxa and trochanter usually simple in male; mid coxae widely to narrowly separated, hind coxae essentially contiguous; femora stout, hind femur in male sometimes bearing carinae or processes near outer apex, along venter, or both; mid and hind tibiae with 2 or 3 rows of stout spines which at least on hind tibia are borne on prominent tubercles; tarsomeres II-IV dorsoventrally compressed, tarsomere V usually not inflated, arolium moderate to large. Marginal cell narrowly rounded or truncate apically, 3 submarginal cells, II not petiolate, 1st recurrent vein received by submarginal cell I, 2nd recurrent vein received by II, forewing media arising before, at or after crossvein *cu-a*; hindwing jugal lobe small, less than  $\frac{1}{2}$  length of anal area. Sloping face of tergum I concave; female with setose pygidial plate which is delimited by an angle rather than a carina, last male tergum punctate, setose, with flattened pygidial area or surface convex; sternum II sometimes with transverse welt or a flange; sternum VIII of male thick, broad, apex rounded or bilobed; gonostyle usually with accessory lobes on inner face, and elaborate fringes of long setae, volsella usually long, slender, and fringed with setae, but volsella greatly reduced in one species, aedeagal head usually simple but with ventral row of teeth in one species.

### Discussion

It is now clear that a number of features considered to have possible generic importance (see Bohart and Menke 1976) are specific in nature: arrangement of mandibular teeth; scape length; mesopleural tubercle; propodeal process; flange on sternum II; setose carina on hind femur; and the general structure of the male genitalia. The diagnostic generic characters of *Larrisson* are: the inwardly bowed inner orbits, clypeus with truncate median lobe, mandible notched, male with 11 flagellomeres, occipital carina incomplete, collar short, propodeum short and with longitudinal carinae dorsally, hind tibia with rows of spines, tarsi flattened, 3 submarginal cells, 2nd submarginal nonpetiolate and receiving only 2nd recurrent vein, and last tergum with setose pygidial area.

The female poses no generic problems. There is little sexual dimorphism in facial structure in *Larrisson*. The pygidial plate is more clearly defined in the female, but the propodeal process and sternal welts, etc., are usually less pronounced in this sex.

The affinities of *Larrisson* have not been made more clear by the discovery of females and additional species, except to confirm that it belongs in the Miscophini. The generally compact body, the facial appearance including clypeal and antennal details, the gross thoracic structure, and the form of the leg suggest an oxybelin wasp such as *Enchemicrum* or *Belomicrus*, but wing venation, among other things, is quite different. Nevertheless, these similarities suggest a common ancestry and bolster Evans' (1964) contention that the Crabroninae should be included in the Larrinae. The metanotal tubercle of *Larrisson* could be a precursor of the squamae

found in oxybelins. Similarities between *Larrisson*, *Palarus*, and *Heliocausus* resulting from convergence have been discussed by Menke (1967) and Bohart and Menke (1976). One of the species described below, *nedymus*, has a face (Fig. 1) suggestive of the miscophin genus *Solierella*, but *Larrisson* is probably best regarded as a rather isolated genus.

The species of *Larrisson* segregate naturally into two very distinctive groups, which are described below. The most obvious species characters are found in the scape length in relation to the flagellum; the appearance of the frons, particularly the orientation of the setae; the presence or absence and the form of the mesopleural protuberances, and the sculpture and nature of the mesopleural venter; the propodeal sculpture including the presence or absence of a postspiracular tubercle; the point of divergence of the forewing media; the sculpture of the abdominal venter; and the form of the male hind femur. Clypeal shape is fairly similar among the species. The complex genitalia in the *abnormis* group appear to differ little among species although I have not dissected any of them to see if the aedeagus and other structures individually display distinctions.

### ***Nedymus* Species-group**

#### *Diagnosis*

Scape short; no glabrous zone above antennal socket; inner margin of mandible with 2 teeth near middle (distal tooth smaller, sometimes indistinct); stipes and prementum elongate, latter a little more than twice as long as wide; forecoxa and trochanter modified in male; metanotum without median tubercle; apex of male sternum VIII bilobed; gonostyle without accessory lobes or elaborate setal fringes, volsella greatly reduced; aedeagal head with ventral row of teeth.

I regard the *nedymus* group as the more generalized of the two species assemblages in *Larrisson*. At least the mandible is more typically miscophin in the *nedymus* group than it is in the *abnormis* group. The short scape is immediately diagnostic, but the *nedymus* group differs markedly in most of the above features from the *abnormis* group. The single species is described below.

#### *Larrisson nedymus* Menke, sp. nov. (Figs 1, 7, 11-13, 16)

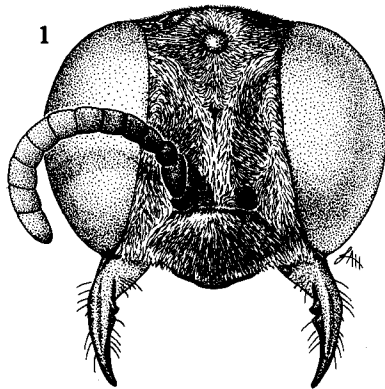
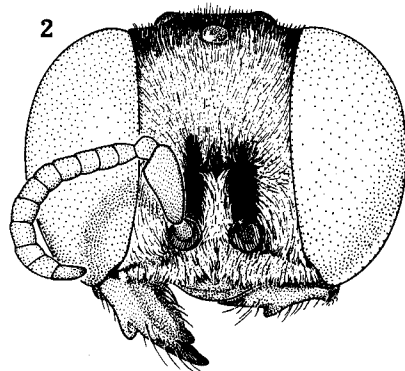
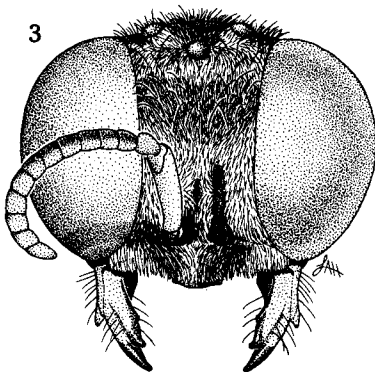
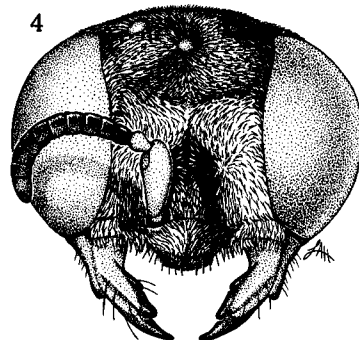
#### *Description (holotype female)*

*Colour.* Following are amber: flagellomeres III-X beneath, III weakly so; mandible except apex; apex of pronotal lobe; all tibiae and tarsi, fore femoral apex and all of mid and hind femora; hind margin of terga I-V and sterna II-V, all of segment VI.

*Vestiture.* Clypeus and frons densely covered with silver, scale-like appressed setae which obscure integument, clypeal setae arranged in a fanlike pattern, frontal setae oriented in a way which reflects a V-shaped pattern in head on view; vertex, gena, and most of thorax with sparser appressed pale setae; pubescence of terga forming apical transverse silver fasciae; pygidial plate setae golden.

*Structure.* Face much broader across clypeus than across vertex: 59 : 44; least interocular distance 37; frons with weak V-shaped swelling; scape length (exclud-

ing basal ball) 13, width 8, length equal to combined lengths of flagellomeres I-II; gena not uniformly rounded, but with angular bulge near middle; median lobe of clypeus sinuately arcuate (Fig. 1); prepectus abruptly angular below pronotal lobe delimiting a preomaulal area although omaulus absent; mesosternum broadly, roundly, longitudinally depressed, largely glabrous, sparsely punctate, polished; propodeum without posterolateral tubercle; propodeal side impunctate and pol-

*nedyms**rieiki**azyx**abnormis*

Figs 1-4. Faces of *Larrisson*: 1, female; 2, 3, male; 4, female.

ished along metapleural sulcus but becoming punctate posterad, 2 parallel ridges beneath spiracle and several more above mid coxa; propodeal hind face closely punctate but with some horizontal ridging laterally, and a narrow median groove that broadens dorsad; tergum I with small, angular lamella at base just above lateral carina; vertical slope of tergum I punctate, but punctures evanescent toward median longitudinal pitted line; punctures of pygidial plate a diameter apart or less, elongate posterad, each puncture bearing a short, appressed, scale-like seta, apex rounded and narrowly impunctate, shining (Fig. 16); sterna II-V sparsely punctate, shining, II with slight, transversely arcuate welt near distal margin; fore-

wing media diverging before *cu-a*; forebasitarsus with 7 blade-like rake spines, fore tarsomere II with 2 rake spines which are apical. Length 6 mm.

*Male.* As in female except as follows: flagellomeres II–XI amber beneath, II weakly so. Width of face across clypeus and vertex: 42 : 31; least interocular distance 29; gena without angular bulge; clypeal outline as in Fig. 11; tergum VII slightly convex, without definite pygidial plate but punctation and setae same as female pygidial plate except punctures continue to apex, the latter roundly truncate; sternum VIII bilobed apically, toothed laterally (Fig. 12); fore coxa with posteromedian finger-like process tipped with a few setae, fore trochanter with angular projection on inner side opposite coxal process (Fig. 7); fore basitarsus with 4 or 5 rake spines, fore tarsomere II with 1 rake spine; genital capsule as in Fig. 13. Length 5.0 mm.

### *Etymology*

The name *nedymus* is derived from the Greek word *nedymos* (= delightful).

### *Discussion*

*Larrisson nedymus* is readily identified by the short scape, the dentition of the mandible, the strongly depressed mesosternum, the absence of a metanotal tubercle, the lamella at the base of tergum I, the absence of ridges on the anterior part of the propodeal side, and the divergence of the forewing media before *cu-a*. The genitalia and last sternum of the male, and the glabrous, polished margin of the female pygidial plate are also distinctive.

### *Types*

Holotype ♀: Western Australia: Nilemah station, 50 miles S. of Denham, 8–9.x.1969, Malaise trap, H. Evans and R. Matthews (ANIC). Paratypes: 2 ♀, 2 ♂, same data (USNM, MCZ).

### *Abnormis* Species-group

#### *Diagnosis*

Scape very long; a glabrous, linear, polished zone on frons above each antennal socket; inner margin of mandible with subapical tooth and a smaller angulation or tooth near middle; stipes and prementum not elongate, latter less than twice as long as wide; fore coxa and trochanter simple in male; metanotum with angular median tubercle; apex of male sternum VIII rounded; gonostyle with accessory lobes and elaborate setal fringes; volsella long, slender; aedeagal head without teeth.

The subapically dentate mandible is atypical for the *Miscophini*, and the species of the *abnormis* group have a variety of protuberances on the thorax and gaster which are peculiar. Three species are known, two of which are newly described below.

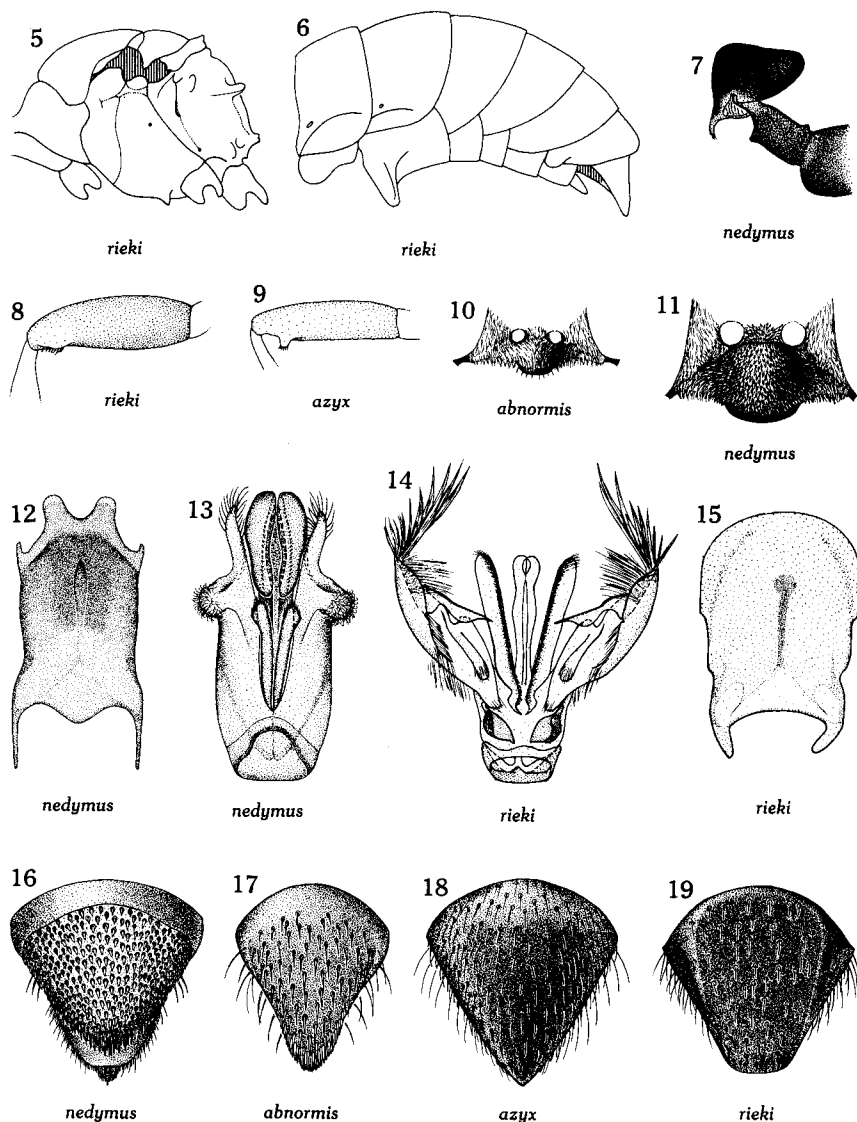
#### *Larrisson rieki* Menke, sp. nov.

(Figs 2, 5, 6, 8, 14, 15, 19)

*Larrisson abnormis* (Turner), Menke, 1967, p.29, misidentification. Bohart and Menke, 1976, p.305, figs 83E, 86B, 87B, 88C–D, 90F, misidentification.

*Description (holotype male)*

*Colour.* Following are yellow: antenna, clypeal lobe, mandible except apex, pronotal lobe, legs except fore coxa, upper surface of mid and hind coxa, and



**Figs 5-19.** Details of *Larrisson*: 5, male thorax, left side; 6, male gaster, left side, rotated slightly along longitudinal axis; 7, male left fore coxa, trochanter and base of femur, ventral view; 8, 9, male right hind femur in profile; 10, 11, male clypeus and lower frons; 12, male sternum VIII; 13, 14, male genital capsule, ventral view; 15, male sternum VIII; 16, 17, female tergum VI; 18, 19, male tergum VII.

tarsomere V of mid and hind leg; following are amber: distal bands on terga I-VI, all of tergum VII, sterna II-VII but each with lighter distal band.

*Vestiture.* Clypeus and frons densely covered with appressed golden setae which

obscure integument, clypeal and lower frontal setae directed toward free clypeal margin, upper frontal setae directed toward vertex, those setae adjacent to eyes oblique; glabrous zone above antennal socket about as long as scape; vertex, gena and most of thorax with sparse, pale, appressed setae, setae on lower mesopleuron and its venter silver, dense; pubescence of terga I–VI silvery, forming distal fasciae, tergum VII sparsely setose; sterna II–VI each with a transverse row of long, erect setae, otherwise largely asetose; sternum VII with many erect setae on apical half.

*Structure.* Width of face across clypeus and vertex: 58 : 54; least interocular distance 44; frons flat; scape more than twice as long (excluding basal ball) as wide (25 : 10), length about equal to combined lengths of flagellomeres I–IV; gena uniformly rounded; median lobe of clypeus arcuate (Fig. 2); prepectus not angular; mesopleuron with sharp downward projecting tubercle in front of mid coxa (Fig. 5); mesopleural venter slightly depressed; propodeum with long, digitiform process behind spiracle (length more than twice width); propodeal side impunctate but with many parallel ridges which continue onto hind face, the latter with shallow, oval fovea along midline; lateral carina of tergum I continued mesad at base by a short, oblique carina; concave vertical face of tergum I impunctate, with a low median tubercle at top; humeral area of tergum I with 2 dimplelike depressions which give a lumpy appearance to this area in dorsal view; tergum VI with rounded tubercle at lateral margin; tergum VII flattened, sparsely punctate, punctures several diameters apart, interspaces polished, apex roundly truncate (Fig. 19); sternum II with thick, transverse, subbasal flange (Fig. 6); sterna II–V impunctate, polished; forewing media diverging at *cu-a*; fore basitarsus with 4 well spaced rake spines, fore tarsomere II with 1 rake spine; mid femur with short, longitudinal carina beneath near middle; hind femur with sharp, longitudinal carina beneath that extends from base to near apex, and a short, setose ridge on outer side near apex (Fig. 8), inner (posterior) surface glabrous, impunctate, polished except at apical  $\frac{1}{4}$ . Length 7.5 mm.

The female of *rieki* is unknown.

### *Etymology*

This species is named in honor of Edgar Riek, who furnished valuable Australian sphecoid material to R. M. Bohart and me during our generic revision of the family.

### *Discussion*

The large flange on sternum II, the acute mesopleural tubercle in front of the mid coxa, the ventral carina on the hind femur, and the finger-like propodeal process readily identify the male of this species. Only one specimen is known.

Turner's (1914, p.352) description of *abnormis*, in which he said the second sternum had a 'strongly raised transverse carina near the middle', caused me to identify his species as the one here described as *rieki*.

### *Type*

Holotype ♂ : Western Australia: 10 miles W. of Mullewa, 2.xi.1958 (UCD).

*Larrisson azyx* Menke, sp. nov.

(Figs 3, 9, 18)

*Description (holotype male)*

*Colour.* Following are yellow: scape, pedicel, mandible except apex, pronotal lobe, venter of coxae and trochanters, femora except for basodorsal black spot, tibiae and tarsi except tarsomere V of mid and hind leg black; flagellum amber beneath.

*Vestiture.* Upper frons, vertex, gena, most of thorax, venter of gaster, and lower face of coxa, trochanter and femur of fore and hind leg with long, erect, pale hair; clypeus and frons densely covered with appressed setae which obscure integument, setae on clypeus and lower frons silver, directed toward free clypeal margin, those on upper frons gold and directed toward vertex, these 2 groups of setae sharply divided by a diagonal 'line' laterally; glabrous zone above antennal socket very narrow, c.  $\frac{1}{2}$  as long as scape; collar, scutum, scutellum and metanotum with sparser, weakly golden, appressed setae; lower mesopleuron, including venter, densely covered with appressed silver setae which obscure sculpture; pubescence of terga I–VI tarnished silver, forming fasciae.

*Structure.* Width of face across clypeus and vertex: 57 : 47; least interocular distance 33·5; frons flat; scape 3 times as long (excluding basal ball) as wide: 31 : 10, length about equal to combined lengths of flagellomeres I–V; gena uniformly rounded; median lobe of clypeus arcuate, corners angulate (Fig. 3); parapsidal line a raised, polished welt; prepectus not angular; mesopleuron with impunctate, glabrous, polished, rounded tubercle in front of mid coxa, it and glabrous, polished, welt-like signum conspicuous amid dense setation of venter; mesopleural venter flat; propodeum with prominent, digitiform tubercle behind spiracle; propodeal side impunctate but with many parallel ridges which continue onto hind face where they are mixed with punctures; hind face with a roughly circular fovea above middle; lateral carina of tergum I continued mesad at base by a short, oblique carina; vertical face of tergum largely impunctate, shining; tergum VII somewhat flattened, apex triangular (Fig. 18) but without definite pygidial plate, surface punctate, punctures 1–2 diameters apart, interspaces minutely etched, subshining; sternum II with polished, impunctate, transverse welt whose ends are roundly tuberculiform, sternum II closely punctate either side of welt; sterna III–VI shining, moderately punctate posteromedially but sparsely punctate laterally; forewing media diverging after *cu-a*; forebasitarsus with 4 well spaced rake spines, fore tarsomere II with 1 rake spine; mid and hind femora not carinate beneath; hind femur with apicoventral process (Fig. 9), lower  $\frac{1}{2}$  of inner (posterior) face glabrous, polished, upper  $\frac{1}{2}$  setose. Length 7·6 mm.

The female is unknown.

*Etymology*

*Azyx* is a Greek word that means alone, without a wife, which refers to the fact that the female of the species is unknown.

*Discussion*

*Larrisson azyx* is the only species of the genus currently known with a black



abdomen. The tergal margins are not banded although there is a suggestion of amber there. The thoracic venter is densely silvered and the venter of the fore and mid legs are especially covered with long, erect hair. The downward process near the apex of the hind femur and the triangular pygidial apex are distinctive in the male.

### *Types*

Holotype ♂: Western Australia: Kununurra and vicinity [Lily Creek], 14–16.ix.1972, H. Evans and R. Matthews, Evans' biol. note No. A-448 (ANIC). Two paratypes with same data as type except Evans' biol. note No. A-449 (USNM).

Evans' biological note numbers indicate that these specimens were taken as prey by *Bembix moma* Evans & Matthews. The specimens were listed in Evans and Matthews (1973, p.200) as *Larrisson* sp. According to these authors, the collecting site was Lily Creek near Kununurra.

### *Larrisson abnormis* (Turner) (Figs 4, 10, 17)

*Sericophorus abnormis* Turner, 1914, p.352. Holotype ♂, Yallingup, Western Australia (BMNH).

### *Description*

*Colour.* Following are yellow: scape, pedicel, mandible except apex, pronotal lobe, tibiae and tarsi, apex of femora, hind margin of terga I–V and sterna II–III or II–IV. Following are amber: flagellum beneath, basal half of mid and hind femora, segment VI.

*Vestiture.* Clypeus and lower  $\frac{2}{3}$  of frons covered with silver, appressed setae which obscure integument; clypeal and lower frontal setae directed toward free clypeal margin, those on middle  $\frac{1}{3}$  of frons directed toward vertex, those on upper  $\frac{1}{3}$  of frons directed toward clypeus, sometimes obliquely so, the interfaces of these setal patterns often whorl-like; glabrous zone above antenna socket about as long as scape; upper frons, vertex, gena and most of thorax with sparser appressed pale hair, that of upper frons, vertex and thoracic dorsum weakly golden or tarnished; pubescence of terga not forming fasciae; pygidial setae golden.

*Structure.* Width of face across clypeus and vertex: 54 : 46, least interocular distance 41; frons convex but with impressed frontal line; scape more than twice as long (excluding basal ball) as wide: 21 : 9, length slightly more than combined lengths of flagellomeres I–IV; gena uniformly rounded; median lobe of clypeus arcuate, corners angulate (Fig. 4); prepectus roundly angular, weakly delimiting a preomaulal area; mesopleural punctures of uniform size ventrad; mesopleuron with punctate, angular bulge just in front of midcoxa; mesosternum slightly depressed, densely punctate, setose; propodeum without or with a very weak posterolateral tubercle; propodeal side impunctate but with many parallel ridges which continue weakly onto hind face where they become mixed with punctures; hind face with circular fovea above middle; lateral carina of tergum I continued mesad at base by a short carina; vertical face of tergum I densely punctate, setose; punctures of pygidial plate separated by 1–3 diameters, each bearing an appressed seta, pygidial surface flat, shining, narrowly rounded (Fig. 17); sternum II finely, closely

punctate and setose, disc of sterna III–V sparsely punctate, shining; forewing media diverging after *cu-a*; fore basitarsus with 4 long, fine, well spaced rake spines, fore tarsomere II with 1 rake spine. Length 5.5 mm.

*Male.* As in female except as follows: all femora sometimes yellow except at base; hind margin of terga I–VI and sterna II–VII yellow banded, bands on sterna much narrower than those on terga; flagellum almost entirely amber in one specimen. Width of face across clypeus slightly greater than across vertex: 45.5 : 44 to 54 : 50, least interocular distance equal to about  $c. \frac{3}{4}$  facial width across clypeus; scape about as long as 1st 5 flagellomeres combined; clypeus as in Fig. 10; mesopleural venter usually with small, impunctate, polished area lateral to midline; propodeum with angular tubercle behind spiracle; tergum VII without definite pygidial plate although somewhat flattened, punctation similar to female; sternum II with polished, sparsely punctate, transverse welt near distal margin; mid femur with suggestion of carina about midway ventrally, hind femur sharply, longitudinally angulate posteroventrally, the angle becoming a carina toward apex, inner (posterior) surface micropunctate, setose, dull. Length 5.0–6.5 mm.

### Discussion

One female has yellow bands on sterna II–IV, but those on III–IV are interrupted at the midline. This same specimen has a very weak tubercle behind the propodeal spiracle. This tubercle is stronger in four of the five males. Turner's type and the male from Edeowie lack the two small, impunctate areas found on the mesopleural venter of the three Musgrave Park males. Also, in these two males the angular bulge on the mesopleuron in front of the midcoxa is more pronounced, almost ridge-like, and in the Edeowie specimen it is impunctate along its crest. However, the bulge is partly impunctate in one of the Musgrave Park males.

*Larriison abnormis* is identified chiefly by the absence of the various appurtenances found in the other species of the *abnormis* group. The mesopleuron and sternum II of the female are merely punctate, and the propodeal tubercle is absent or weakly developed in this sex. The male hind femur has no apical process and the ventral carina is short. The arrangement of the frontal setae is distinctive.

Turner's (1914, p.352) description is misleading. The transverse welt on sternum II of the male type can hardly be construed as a 'strongly raised carina'. Turner also incorrectly described the ocellocular distance. The hind ocelli are twice as far from each other as from the eyes.

I have a female (USNM) from Edeowie Homestead, S.A., which may be *abnormis* but the clypeal lobe is more arcuate, the corners rounded, and the mesosternum has a polished, impunctate area lateral to the midline. The width of the face across the clypeus and vertex is nearly the same (56 : 54), unlike that of typical *abnormis* females. Colour in this female differs from *abnormis* also: the scape is yellow only beneath and the pedicel and flagellum are black, although the flagellum is weakly amber beneath; the mid and hind legs except the coxae and trochanters are amber, although the apex of the mid femur is yellow; tergum I and sterna I–II are amber; terga II–V and sterna III–V are amber-banded apically. In other respects this specimen agrees with *abnormis*, but it may represent a closely related species.

*Material Examined* (5 ♂, 2 ♀)

**South Australia:** 15–25 miles SE. of Musgrave Park, 16.x.1972, H. Evans (USNM, MCZ); Edeowie Homestead, near Wilpena Pound, 29.x.1972, on flowers of *Heterodendron oleifolium*, H. Evans (USNM).  
**Western Australia:** Yallingup, 9.xii.1913, R. Turner (BMNH).

**Key to Species of *Larrisson***

1. Females: antenna with 12 articles and gaster with 6 segments.....2  
    Males: antenna with 13 articles and gaster with 7 segments.....3
- 2(1). Scape length shorter than combined lengths of flagellomeres I–III; metanotum without median tubercle..... *nedymus* Menke  
    Scape length longer than combined lengths of flagellomeres I–III; metanotum with median tubercle..... *abnormis* (Turner)
- 3(1). Hind femur with ventrally directed process near apex (Fig. 9); tergum VII apex triangular (Fig. 18); gaster entirely black..... *azyx* Menke  
    Hind femur with subapical carina (Fig. 8) or simple; tergum VII apex truncately rounded; gaster yellow or amber-banded.....4
- 4(3). Scape length shorter than combined lengths of flagellomeres I–III (Fig. 1); sternum VIII bilobed apically (Fig. 12); fore trochanter with an inner tooth; metanotum without median tubercle..... *nedymus* Menke  
    Scape length more than combined lengths of flagellomeres I–III; sternum VIII rounded apically (Fig. 15); fore trochanter without tooth; metanotum with median tubercle.....5
- 5(4). Sternum II with thick, transverse flange (Fig. 6); inner (posterior) surface of hind femur impunctate, asetose, polished on basal  $\frac{3}{4}$ ..... *rieki* Menke  
    Sternum II without transverse flange; inner (posterior) surface of hind femur micropunctate, punctures bearing fine, decumbent setae, dull..... *abnormis* (Turner)

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