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ON SOME *CERCERIS* FROM AUSTRALIA, WITH A TENTATIVE KEY TO THE AUSTRALIAN SPECIES (HYMENOPTERA, SPHECIDAE)

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ON SOME *CERCERIS* FROM AUSTRALIA, WITH A TENTATIVE KEY TO THE AUSTRALIAN SPECIES (HYMENOPTERA, SPHECIDAE)*

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The Australian species of the genus *Cerceris* Latreille, 1802, were first fragmentarily described by H. de Saussure (1854) and F. Smith (1856) and then more or less collectively by F. Smith (1873) and R. E. Turner (1908, 1810a and b). In 1912 Turner revised the Australian *Cerceris* known up to that time, described a number of species and arranged them in the improved key which was emended from that of 1910. Since that time further species were described by C. T. Bingham (1912), R. E. Turner (1914, 15, 16, 17 and 36,), T. D. A. Cockerell (1930) and T. Rayment (1947), and the species of *Cerceris* known up to date from Australia reach 34 in number. Of course, many species must be awaiting description. The species of *Cerceris* dealt with by these investigators except Bingham, however, are practically confined to the female sex only. Turner said in his 1912 paper "I have not given a key to the male, partly because the number known is small, but also because I do not wish to give facilities for describing new species from the male alone, a practice which is undesirable in this genus". In fact almost all the males of the Australian *Cerceris* remain neglected, being simply given descriptions on some characters which are not always specific, or more reluctantly as "feminae similis".

It is true that the specific difference in the male of this genus is usually comparatively slight, sometimes detected only with difficulty and in some cases completely impossible from the external characters alone. Further, in some species even the combination of sexes is also quite difficult. But the facts, of course, do not justify to put the males outside the investigation. On the contrary, the more the difficulty the further we should investigate the characters of the males, using the method not only of the comparative studies of the pinned specimens, but also of the field observations on their behaviour and microdistribution.

Apart from the male, however, it must be mentioned that the descriptions of the females of the Australian species are not always clear-cut. Especially the lack of the detailed explanations and figures on the structure of the clypeus except a few very characteristic species is a fatal defect. Very frequently we can not have confidence about the result of our identification. It was simply shown by the folowing fact: Before the commencement of my investigation I attempted to arrange the known species into a key basing upon the literature and tried the various forms of the key structure according to the modern knowledge of the genus. Every attempt, however, failed and it was made clear that the only way left was to insert the later described species in the key of Turner above mentioned as far as possible. But even so tried the difficulty was very frequently come across early in the classification based upon the structural characters and the sole way to cut through was to refer to the colorific distinctions which were always described in detail, although sometimes with the rightful remarks on their marked variations.

The key thus made was completely for my personal use. But as it seemed to be of some use, at least for the provisional purpose, to the future investigators, it was given, with some corrections and additions from my own observations, in the present paper. In order to lessen as far as possible the probable errors and uncertainties of the key, some of the *important* characters of each species were added within parentheses as the explanation of the species.

The material used in the present investigation was the specimens brought together by Dr.

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Herman A. Scullen, Professor Emeritus of Oregon State University, from various Museums and Institutes of the United States, together with those of his own collection and sent to me for study. It involved 50 specimens including 14 species, of which six were considered new to science.

Before going further I wish to express my hearty thanks to Dr. H. A. Scullen to give me a chance of investigation of these interesting specimens. I am also indebted much to Dr. B. Doubleday, Chief Librarian, of the Commonwealth Scientific and Industrial Research Organization at Melbourne, and to Dr. S. C. Biswas, Librarian of the State Paper Room, British Museum, London, for their kindness in helping me to obtain some of the literature.

In the following descriptions the abbreviations as given below will be used:

OOD ... Ocellocular distance. POD ... Postocellar distance. OCD ... Ocelloccipital distance. OAD ... Oculo-antennal distance. IAD ... Interantennal distance. WAS ... Width of antennal socket. ACD ... Antenno-clypeal distance. AOD ... Antenno-ocellar distance. OTD ... Oculo-tentorialpit distance (distance beteen inner orbit and inner margin of the tentorial pit). ITD ... Intertentorialpits distance (distance between inner margins of the tentorial pits, showing the width of the medial lobe of clypeus). WH ... Width of head. IOD ... Interocular distance. LC ... Length of clypeus (distance between basal line of clypeus and median apex of it, in ♂ usually till apex of median tooth). In the measurement relating to the antennal socket always the hole itself was measured, not including the peripheral incrassate ring.

The figures given in the present paper were drawn by myself according to the measurements of the parts. Conversely, therefore, measurements can be taken from the figures, if necessary.

ANNOTATED TENTATIVE KEY TO THE AUSTRALIAN SPECIES OF *CERCERIS* (♀)

1 Mesopleuron with an acute spine (clypeus with lamina free at apex and porrect, ACD : AOD=2 : 1, petiole with ratio of length to width about 1 : 2, abdominal tergites 2 and 5 orange), length 16 mm. Adelaide, S. A. ***spinipleuris* Turner, 1918**
(= *varipes* Smith, 1873, nec 1858)

– Mesopleuron without an acute spine, tuberculate or simply rounded 2

2 Mesopleuron tuberculate or subtuberculate 3

– Mesopleuron without tubercle, simply rounded 8

3 Clypeus with a pair of tubercles near middle, apical half of clypeus depressed 4

– Clypeus without tubercles 6

4 Pronotum transverse (apical margin of clypeus obtusely 4-dentate, mesopleuron bi-tuberculate, area dorsalis smooth, petiole more than 1.5 times as broad as long; orange, mesonotum and abdominal tergites 3 and 4 black), length 16 mm. Cairns, Q.
***victrix* Turner, 1910**

– Pronotum subemarginate anteriorly (tuberculate area of clypeus raised and emarginate)... 5

5 Pronotum with a minute spine on each side, thorax and propodeum sparsely punctured, shining (clypeus short, strongly porrect and broadly emarginate at apex, mesopleuron subtuberculate, area dorsalis polished, petiole nearly twice as broad as long, pygidial area with sides subparallel, hind trochanter beneath without a spine; two small latero-basal maculae on tergite 2 and tergites 4-6 castaneous), length 12 mm. Cairns, S. Q.
***perkinsi* Turner, 1910**

– Pronotum without spines, thorax and propodeum closely punctured (clypeus strongly depressed from middle apically, apical margin truncate, raised basal portion slightly porrect

and broadly emarginate, with a strong tooth on each side at the angles of emargination, mesopleuron bituberculate, area dorsalis smooth and polished, petiole nearly twice as broad as long, pygidial area gradually narrowed apically, hind trochanter with a spine beneath; two lateral maculae on tergite 2, sides of 3, 4 except basal line and 5 and 6 wholly ochreous yellow), length 22 mm. Rockhampton, Q. ***froggatti* Turner, 1912**

6 Area dorsalis transversely finely striate (clypeus convex, subtuberculate below middle, thence apically depressed, ACD less than half as long as AOD, pronotum rounded at angles, petiole twice as broad as long, pygidial area strongly narrowed apically, dorsum of thorax and basal 3 abdominal segments almost smooth; orange with black maculae), length 12 mm. Swan Riven, W. A. ***fluvialis* Smith, 1873**

– Area dorsalis smooth 7

7 Pronotum rounded at angles, petiole a little broader than long (clypeus without lamina, simply convex, with apex broadly truncate, inner orbits slightly divergent toward clypeus, OOD : POD : OCD=4 : 3 : 4, pygidial area slightly narrowed toward apex, widest at base; black marked with yellow and ferruginous colouring), length 14 mm (exp. 24 mm). Mackay, Q. ***inexpectata* Turner, 1908**

– Pronotum acutely subtuberculate at angles, petiole twice as broad as long (clypeus with apical half obliquely depressed, with apex truncate, inner orbits parallel, pygidial area with sides rounded, widest in middle; black, marked with reddish ferruginous), length 13 mm. Merredin, W. A. ***merredinensis* Turner, 1936**

8 Clypeus with a free lamina springing from the base or above middle 9

– Clypeus with lamina free only at apex, if at all 15

9 Lamina of clypeus free from base 10

– Lamina of clypeus free from near middle, short and narrowed apically 14

10 Lamina longer than broad, at first rising vertical to the surface then curved, with apex truncate (ACD : AOD≒1 : 2, pronotum with angles transversely carinate, area dorsalis smooth, at base crenate, petiole twice as broad as long, pygidial area with sides subparallel, twice as long as wide; orange, mesonotum and tergite 4 black), length 12–14 mm. S. A. and N. S. W. (Figs. 1-5) ***aurantiaca* Smith, 1873**

– Lamina subquadrate or shorter than broad 11

11 Area dorsalis smooth and polished, petiole at least twice as broad as long (eyes divergent below) 12

– Area dorsalis not polished, petiole not so long 13

12 Lamina quadrate, with apical margin very widely and deeply emarginate (pygidial area longer than maximum width, with sides moderately convergent toward truncate apex; black, with ferruginous maculae), length 17 mm. Dedari, W. A. ***dedariensis* Turner, 1936**

– Lamina short, convergent apically, with apex truncate (pygidial area broad, with sides subparallel, apex broadly truncate; ochreous ferruginous, with black maculae), length 15 mm. W. A. ***adae* Turner, 1936**

13 Apical margin of clypeus proper broadly truncate, petiole more than 1.5 times as long as broad, pygidial area twice as long as broad (Lamina short, broadly emarginate at apex, area dorsalis obliquely striate at base, opaque, microscopically punctured at apex; tergite 5 brownish orange), length 10 mm. Mackay, Q. ***gilberti* Turner, 1916**

– Apical margin of clypeus proper 4-dentate, inner pair very strong, petiole distinctly longer than broad, pygidial area only slightly longer than wide, subcircular (Lamina subquadrate, slightly shorter than wide, obliquely raised, apical margin triangularly emarginate,

area dorsalis opaque, at base and angles obliquely striate, median furrow strongly crenate, disc at sides sparsely punctured; tergites 4-6 black), length 17 mm. Bougainville Is. (the Solomons) ***bougainvillensis* sp. nov.**

14 Clypeal lamina with apex truncate, area dorsalis longitudinally striate, petiole more than twice as broad as long (ACD : AOD=2 : 3, pygidial area gradually narrowed apically, twice as broad at base as at apex, nearly thrice as long as maximum width; black marked with yellow), length 10 mm. Victoria ***opposita* Smith, 1873**

– Clypeal lamina with apex bifid, ending in a pair of shining nodules, area dorsalis smooth and polished, weakly obliquely striate at sides, petiole broader than long (apical margin of clypeus obtusely 4-dentate, pygidial area broad, but narrowing apically; black marked with red and ferruginous), length 13-15 mm. Tooloom, N. S. W. ***hackeriana* Cockerell, 1930**

15 Clypeus at base a little raised and bidentate, rest of clypeus almost flattened, with apex truncate (inner orbits parallel, pronotum with angles rounded, area dorsalis longitudinally coarsely striate, petiole twice as broad as long, pygidial area broad, strongly convergent apically; black with yellow maculae), length 15 mm. Victoria ***raymenti* Turner, 1936**

– Clypeus at base not bidentate 16

16 Disc of clypeus with an extended conical pointed spine, its apical part black (apical margin of clypeus proper with a small median tooth, area dorsalis obliquely rugoso-punctate, moderately shining, petiole broader than long, pygidial area broad; black marked with creamy white with a little red, thorax-complex black except two reddish pronotal maculae), length 8 mm. Darra, Brisbane ***darrensis* Cockerell, 1930**

– Disc of clypeus without an extended conical pointed spine 17

17 Clypeus with apical margin with a tooth in middle (clypeus with lamina) 18

– Clypeus without a tooth on apical margin in middle 19

18 Area dorsalis very finely obliquely striate, pygidial area with sides subparallel, petiole distinctly broader than long (clypeus with apical margin broadly rounded; black with rich reddish orange maculae on head and thorax-complex, abdomen except segment 3 wholly reddish orange), length 12 mm. Borroloola, N. T. ***alastroides* Turner, 1914**

– Area dorsalis subopaque, impunctate, pygidial area elongate ovate, petiole a little longer than its maximum width (clypeus flattened, apex weakly emarginate, ACD : AOD≒1 : 2; black, with yellow maculae, body strongly closely punctured), length 9 mm. S. Quennsland ***unispinosa* Turner, 1917**

19 Area dorsalis smooth and polished 20

– Area dorsalis not smooth and polished 21

20 Clypeus with median lobe twice as broad as long, more strongly porrect, apical margin deeply and widely emarginate, abdomen smooth and shining (OOD : POD=2 : 1, petiole more than 1.5 times as broad as long, pygidial area elliptic, slightly broader at base than at apex; black, maculated with orange yellow, partly ferruginous), length 11 mm. Cairns, Q. ***euchroma* Turner, 1910**

– Clypeus with median lobe more than twice as broad as long, slightly porrect at apex, apical margin shallowly and not widely emarginate, 4-dentate, abdomen punctured (inner orbits subparallel, OOD slightly greater than POD, petiole broader than long, pygidial area twice as long as broad, with sides subparallel; black marked with dull brownish orange), length 14 mm. Mackay, Q. ***multiguttata* Turner, 1908**

21 Abdomen almost smooth, only very sparsely and finely punctured (clypeus with a lamina near apex as given in Fig. 65 , area dorsalis on anterior half finely striate, remaining por-

tion delicately punctate, pygidial area elongate ovate; black, orange maculated, abdomen orange, with tergites 1 and 3 only black), length 13 mm. N. S. W., V., Q.
***australis* Saussure, 1854**

– Abdomen more closely punctured 22

22 Petiole about twice as broad as long 23

– Petiole subquadrate or longer than broad 25

23 Black, with orange red maculae, at least abdominal tergite 4 wholly black (clypeus subporrect, angularly emarginate, area dorsalis delicately punctulate, with angles striate, pygidial area subovate, elongate and truncate at apex, as broad at base as at apex), length 11 mm. Claremont, W. A. ***gilesi* Turner, 1910**

– Black, marked with yellow, yellowish white and reddish ferruginous colouring, at least abdominal tergite 4 not wholly black 24

24 Abdominal tergites 1–3 ferruginous, 2 and 3 with yellowish white markings (clypeus with lamina on apical portion, narrowed apically, with apex truncate, lower margin 4-dentate, outer pair large and strong, ACD : AOD≒1 : 3, area dorsalis with basal angles obliquely, 16 apical angle transversely striate, median furrow strongly crenate, pygidial area with sides rounded, as wide at base as at apex, apex gently rounded; black, marked with whitish yellow, orange yellow (pronotal maculae) and reddish ferruginous), length about 7 mm. Prince of Wales Is. ***windorum* sp. nov.**

– Abdominal tergites 2, 4, 5 and apex of 3 ferruginous, 4 and 5 with yellow markings (clypeus subporrect, very short, apical margin broadly emarginate, with lateral corners strongly 17 dentate, ACD : AOD≒1 : 3, area dorsalis subopaque, very delicately punctulate, pygidial 18 area elongate ovate, rather broadly truncate at apex; black, marked with yellow and brown 19 or ferruginous colouring). length 8 mm. S. Q. ***armigera* Turner, 1917**
(with subsp. *rufo-fusca* Turner, 1936)

25 Body yellow, with black maculae, mesonotum yellow with three black stripes (clypeus with median lobe broader at base than long, slightly porrect at apex, the margin broadly shallowly emarginate, area dorsalis smooth, with a median furrow, a few large punctures at base and on sides, pygidial area elongate ovate, narrowly truncate at apex), length 7 mm. Kuranda, N. Q., Babinda, Q. ***calida* Turner, 1915**

– Body black, marked largely with yellow and partly with red 26

26 Thorax-complex wholly black (sometimes with small maculae on pronotum and tegulae 20 yellowish) 27

21 – Thorax-complex marked with rich yellow, whitish or ferruginous colouring 31

27 Abdominal tergites 2, 4 and 5 wholly orange-yellow, punctures on abdomen comparatively sparse, with averaged intervals as large as punctures (clypeus: Fig. 36, ACD : AOD≒2 : 3, pronotum with angles rounded, area dorsalis opaque, with crenate weak median furrow, angles obliquely striate, pygidial area: Fig. 39), length about 11 mm. N. S. W.
***sculleni* sp. nov.**

– Abdominal tergites 4 and 5 black, with more or less yellow or ferruginous area, punctuation different 28

28 Abdominal tergite 3 not wholly black, with apical yellow band (tergites 4 and 5 closely punctured as on the others, area dorsalis enclosing fine radiating rugae, pygidial area elliptic, with apex rounded; tergite 1 with two lateral yellow marks, changing to red apically, tergites 2 and 5 with yellow band apically), length 11 mm. Emerald, Victoria
***ziegleri* Rayment, 1947**

– Abdominal tergite 3 wholly black 29

29 Abdominal tergite 2 wholly ferruginous (Clypeus somewhat narrowed towards apex, shallowly emarginate, with lateral angles prominent, ACD : AOD=2 : 3, antennal joints 3 and 4 equal in length, area dorsalis very finely punctured, with a few indistinct striae, petiole subquadrate, pygidial area elongate ovate; black, marked with yellow and ferruginous, thorax immaculate, tergite 3 black, 2 and base of 5 ferruginous, 4 and 5 apically yellow), length 10 mm. Woolfora, N. S. W. ***antipodes* Smith, 1856**

– Abdominal tergite 2 not wholly ferruginous, variegated with yellow and black 30

30 Petiole longer than wide (clypeal lamina broad and short, broadly shallowly emarginate at apex, with a dark rounded tubercle at each side, area dorsalis somewhat shining, with a median crenate furrow, surface finely plicatulate with some punctures, pygidial area broad; black, with yellow maculae, legs partly reddish or ferruginous, petiole with hind margin red), length 8.3 mm. Stanthorpe, Q. ***goodwini* Cockerell, 1930**
(?=*saeba* Turner)

– Petiole nearly as wide as long (clypeus: Fig. 20 , ACD : AOD=2 : 3, area dorsalis delicately punctulate, opaque, with basal angles obliquely striate and with median furrow crenate, pygidial area: Fig. 25 ; black marked with yellow and dull red, tergite 2 laterally reddish ferruginous, with two yellow maculae at base, tergite 4 on apical half and 5 at apex yellow) length 8 mm. Victoria, N. S. W. ***saeba* Smith, 1873**

31 Area dorsalis obliquely striate almost to the apex (clypeus porrect at apex, as long as broad and apical margin incised and subtuberculate on each side, pygidial area narrow, elongate ovate, closely and finely punctured all over; black, marked with yellow and ferruginous), length 9 mm. Mackay, Cairns, Q. ***lubeculata* Turner, 1908**

– Area dorsalis not so broadly striate, only in the angles, if at all 32

32 Clypeus strongly porrect at a pex (Fig. 73) (ACD : AOD=2 : 3, area dorsalis opaque, in angles striate, petiole subquadrate, apically narrowed, pygidial area elongate ovate, with apex truncate, punctures on body close but not very coarse; black, marked with yellow and partly ferruginous, tergites 1 (except base), 2 (red in middle), 4 and 5 yellow, 3 black), length 11 mm. Mackay to Cairns, Q. ***venusta* Smith, 1873**

– Clypeus not so strongly porrect, with a short lamina near apex 33

33 Abdominal tergite 3 wholly black (lamina below middle of clypeus, broad, deeply emarginate, ending on each side in a dark rounded angular projection, apical margin of lower part 4-dentate, area dorsalis dull, minutely roughened, pygidial area broad, apical corners angulate; petiole black at base, pale yellow in middle and red at apex, pygidial area broadly ferruginous), length 10 mm. Dunk Is., Q. ***goddardi* Cockerell, 1930**

– Abdominal tergite 3 with maculae or a band 34

34 Petiole about as long as wide (tergite 4 wholly black) 35

– Petiole much longer than broad 36

35 Area dorsalis most delicately punctulate, with obscure transverse striae (clypeus with apical lamina, apex angularly emarginate, pygidial area elongate ovate, densely coarsely punctured; black, marked largely with yellow and partly with ferruginous, tergites 2 and 3 at base ferruginous, 2 and 5 latero-posteriorly yellow, legs ferruginous, variegated with yellow), length 7–8 mm. N. E. and Central A. ***minuscula* Turner, 1910**

– Area dorsalis very coarsely punctured on lateral and median furrows, remaining only narrow interspaces where finely punctulate (clypeus: Fig. 43, OOD : POD÷4 : 3, pygidial area: Fig. 47; black, marked with yellow only, tergite 2 at base, 3 except medio-basal

lunate black and 5 nearly wholly yellow), length 8.5 mm. Prince of Wales Is.
***koala* sp. nov.**

36 Abdominal tergite 4 wholly black (clypeus convex, depressed on the anterior margin, widely and shallowly emarginate, the median lobe twice as broad at apex as long, OOD : POD=4 : 3, antennal joint 3 slightly longer than 4, inner orbits subparallel, pygidial area elongate oval; black, yellow maculated, tergite 2 at base, 3 except medio-basal black macula, 5 nearly wholly yellow), length 7 mm. Mackay, Q. ***praedura* Turner, 1908**

– Abdominal tergite 4 dull pale yellow, at base black (clypeus with lamina broad and short, broadly shallowly emarginate at apex, with a dark rounded tubercle at each side, antero-lateral to these on the true margin is a shining dark tubercle, area dorsalis finely irregularly plicatulate all over; black, maculae largely pale yellow, legs largely light red testaceous, petiole pale dull reddish), length 6.5 mm. Darra, Brisbane ***brisbanensis* Cockerell, 1930**

(It must be added here that all the specimens dealt with in this investigation are not provided with the longitudinal carina on the hind coxae.)

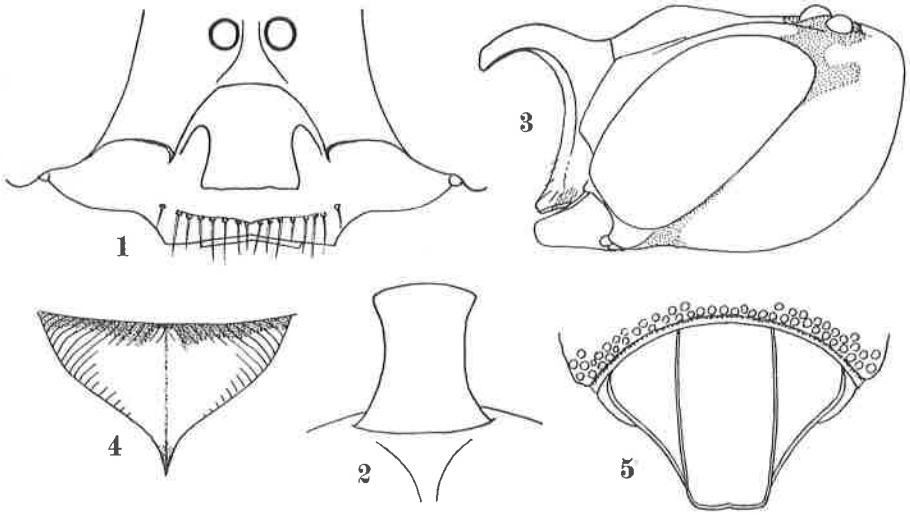
RECORDS AND DESCRIPTIONS OF THE SPECIES EXAMINED

1. *Cerceris aurantiaca* Smith, 1873

Cerceris aurantiaca Smith, Ann. Mag. Nat. Hist., (4), 12: 414, 1873 (♀, S. Australia).
Cerceris aurantiaca: Turner, Trans. Ent. Soc., London, 1910 (4): 420, 1910.
Cerceris aurantiaca: Turner, Proc. Linn. Soc. N. S. Wales, 36: 666, 1912 (♀♂, Adelaide, S. A.).

Specimens examined: 2 ♀♀, N. S. Wales (Coll. Amer. Mus. N. H., No. 407)

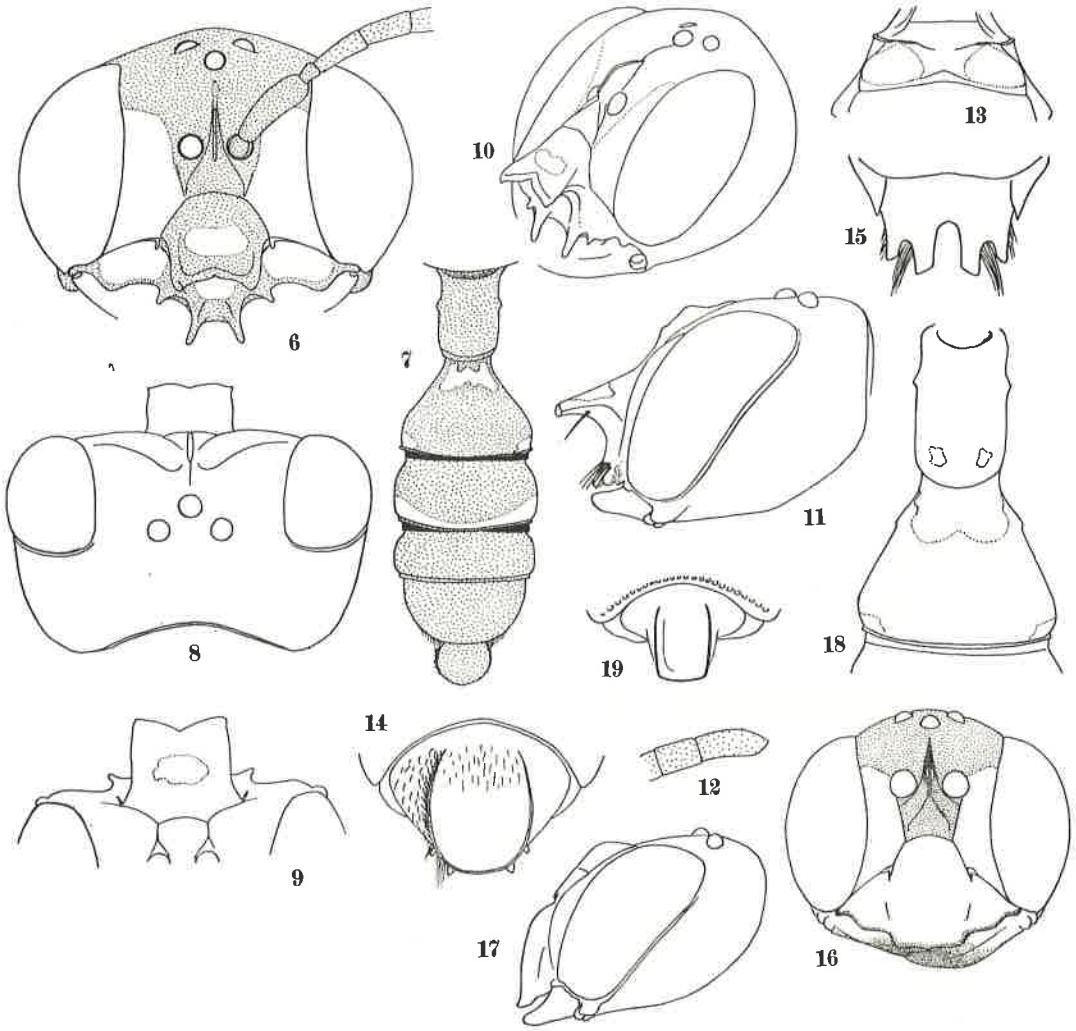
Remarks. ♀. Lamina of clypeus seen in front: Fig. 1, seen vertically from above: Fig. 2, seen in profile: Fig. 3; apical margin of clypeus proper can be said "shortly quadridentate" (Fig. 1); area dorsalis: Fig. 4, in part obliquely striate, without puncture, with medial furrow fine and shallow; abdominal segment 1 slightly less than twice as wide as long, with lateral margins subparallel; pygidial area: Fig. 5, sternite 7 with 2 pairs of posterior processes, the outer slightly smaller.



Figs. 1–5. *Cerceris aurantiaca* Smith, ♀.
1, Clypeus seen in front. 2, Ditto, lamina seen from above. 3, Head seen in profile. 4, Area dorsalis on propodeum. 5, Pygidial area.

2. *Cerceris bougainvillensis* sp. nov.

Belongs to the typical Australian group, with the abdominal maculae not regular (♀♂), having well developed clypeal lamina (♀), but without the medio-apical small impression on any tergite (♀♂) and with sternites 6 and 7 not adorned with the lateral or marginal tuft of hairs (♂), The female of this species is characterized by that the clypeal lamina is subquadrate and obliquely raised from base, area dorsalis sparsely punctured, the lst abdominal segment much longer than broad and the pygidial area markedly broader, approaching circular in form. The male is very characteristic in lacking the dense fringe of hairs on the anterior margin of the lateral lobes of the clypeus, and in having abdominal sternites 4 and 5 adorned with a dense



Figs. 6–19. *Cerceris bougainvillensis* sp. nov., 5–15, ♀; 16–19, ♂.
6 and 16, Head seen in front (dotted area black, sparsely dottd area ferruginous). 7, Abdomen showing the form and maculation (dotted area black). 8, Head seen from above. 9, Lamina of clypeus seen vertically from above. 10, Head seen obliquely from above. 11 and 17, Head seen in profile. 12, Apical two joints of antenna. 13, Pronotum. 14 and 19, Pygidial area. 15, Caudal sternite. 18, Basal two segments of abdomen.

fringe of short curved hairs throughout the apical margin, as well as the broad median lobe of clypeus and long petiole of the abdomen.

♀. Length 15.0 mm. Black, with the following portions yellow: Sides of lower frons broadly, a macula on and beneath lamina, lateral lobes of clypeus, mandibles at base externally (Fig. 6), lateral maculae on pronotum, tegulae of wings, postscutellum, two rounded maculae on posterior aspect of propodeum, a small spot on each side near apical margin of tergite 1, medio-basal macula and two latero-posterior spots on tergite 2, apical narrow band (laterally broadened) on tergite 3 (Fig. 7), mid and hind trochanters, fore and mid tibiae except inside, base externally of hind tibiae and all metatarsi at base more or less. Ferruginous: Mouth parts, antennal joint 1 at apex, flagellar joints beneath, apex of fore and mid femora, and remaining portions of all tarsal joints. Wings fairly strongly fuscous, anteriorly more markedly so, especially radial cell and its external area strongly darkened, veins and stigma dark brown.

Head seen from above: Fig. 8, OOD : POD : OCD=19 : 12 : 30 (ocellus relatively 7); head seen in front: Fig. 6, apical margin of clypeus proper quadridentate, median pair much longer; head seen obliquely from above and in front so as to make lamina perpendicular: Fig. 9, lamina subquadrate, sometimes distinctly convergent apically, with apical margin always broad-triangularly incised, WH : IOD=125 : 63, OTD : ITD=18 : 38, ACD : AOD=13 : 23, OAD : WAS : IAD=18 : 9 : 9, head seen obliquely from above and side: Fig. 10, head seen in profile: Fig. 11, lamina forming an angle of approximately 60° with the ground surface, temple slightly wider than eye. All joints of antennae longer than wide (joint 2 very slightly so), joint 3 about 2.5 times as long as wide at apex (Fig. 6), joint 7 about 1.4 times so, ultimate joint angularly pointed at apex in lateral view (Fig. 12). Pronotum: Fig. 13, mesopleuron with scrobal furrow deep but not sharply outlined, with the areas above and below only roundly swollen, without precoxal spine; area dorsalis on propodeum at base transversely broadly furrowed, on sides distinctly marginated by fine carinae accompanying broad furrow inside, slightly lower than equilateral triangle in form, medianly with broad crenate furrow; abdomen: Fig. 7, comparatively narrow, petiole nearly 1.5 times as long as its maximum width, with extreme apical margin very narrowly raised, ratio of width of tergite 2 to WH 86 : 125, pygidial area: Fig. 14, sternite 6: Fig. 15. Legs normal, all tibiae and fore tarsi strongly spinose.

Vertex and frons closely coarsely punctured, subreticulate, lamina and lateral lobes of clypeus sparsely coarsely punctured, with intervals covered with micropoints and, further, with more minute coriaceous sculpture, the surface not shining, the area beneath and below lamina smooth but not polished owing to the delicate microsculpture; mesonotum punctured as on vertex, but punctures somewhat sparser, with more or less intervals, mesopleuron reticulate, metapleuron longitudinally finely closely striate, area dorsalis with basal furrow coarsely crenate by a series of elongate foveae, disc on lateral and apical area scattered sparsely with coarse punctures, intervals and remaining area delicately coriaceous, rest of the segment uniformly (somewhat rugosely) reticulate, the meshes as large as those on vertex or mesopleuron. Abdominal tergites subreticulate with similar sized punctures, pygidial area irregularly wrinkled; sternite 2 laterally coarsely, rather sparsely punctured, remaining sternites with latero-posterior areas and ante-apical margin sparsely scattered with coarse punctures. Lower frons and lateral lobes of clypeus covered sparsely with silvery pubescence, long stiff hairs shot out of a series of coaese punctures located slightly behind the apical margin of clypeus; pygidial area with lateral margins covered with erect curved bristles arising from lateral areas of the segment; other sternites provided with a series of ante-apical bristles, sternite 6 adorned with bundles of bristles and hair tufts as given in Fig. 15.

♂. Smaller than ♀, measuring about 10–13 mm. Black, yellow on face: Fig. 16, a spot on

interantennal carina yellow, yellow on thorax and abdomen as in ♀, with addition of a narrow band on tergite 6; legs with all trochanters and apical half beneath of fore and mid femora yellow; tibiae and tarsi as in ♀; ferruginous areas as in ♀. Wings also similar to ♀.

Head seen from above, OOD : POD : OCD=13 : 9 : 22, postocellus relatively 7. Head seen in front: Fig. 16, WH : IOD=94 : 42, OAD : WAS : IAD=10 : 8 : 7, OTD : ITD=9 : 28, ACD : AOD=13 : 20, while LC relatively 37; frons comparatively narrow and median lobe of clypeus comparatively broad, at the level of tentorial pits more than twice as broad as distance to eye. disc roundly raised (Fig. 17), with anterior margin truncate and provided with a blunt median tooth. Head seen in profile: Fig. 17, temple approximately as wide as eye. Antennal joint 3 in dorsal view 2.5-times as long as wide, in lateral view twice so, slightly longer than 4 (17 : 15), joint 7 about 1.3-1.4 times as long as wide, ultimate joint formed as in ♀, but comparatively slightly longer. Pronotum, mesopleuron, propodeum constructed as in ♀, but as to area dorsalis lateral as well as median furrows more or less disturbed by coarse punctures sparsely scattered; abdominal segments 1 and 2: Fig. 18, relative width of head and segment 2 respectively 94 and 66. Pygidial area: Fig. 19, sternite 7 with only a pair of apical processes.

Punctuation as in ♀, but median lobe of clypeus closely coarsely punctured, and area dorsalis with coarse punctures sparsely scattered not only on disc but also on the furrows, interspaces filled with much finer punctures, but fairly glossy, sometimes coarse punctures only a few in number always on the furrows and remaining broader space covered with micropoints only; punctuation on abdomen as in ♀. Lateral lobes of clypeus without the fringe of dense silky hairs on anterior margin, apical portion sparsely covered with golden pubescence of moderate length, also abdominal sternites 6 and 7 without particular tufts of hairs, but characteristic in the presence of dense fringe of curved erect haris, not long, on apical margins of sternites 4 and 5, just as in some species of Psenini (Pemphredoninae).

Holotype: ♀, Bougainville Is, the Solomon Islands, 2, V. 1928 (Coll. Amer. Mus. Nat. Hist., Ac 28250).

Paratypes: 1 ♀, the same place, 4. V. 1928 ; 5 ♂♂, the same place, 2, 5. V. 1928. (Coll. Amer. Mus. Nat. Hist., Ac 28250).

Remarks. Measurements (relative value) of the five male specimens: Table 1.

Table 1. Measurements on *C. bougainvillensis*, ♂♂.

Specimen	OOD	POD	WH	IOD	OAD	WAS	IAD	OTD	ITD	ACD	AOD	LC
1	13	9	94	42	10	8	7	9	28	13	20	37
2	13	8.5	92	40	10	7.5	6.5	9	28	14	20	36
3	11	8	77	34	8	6.5	6	8	23	12	18	30
4	11.5	8	83	35	8	6,5	6	8	24	13	18	32
5	12	8	83	35.5	8	7	6	8.5	24	13	18	32

The median tooth on the apical margin of the clypeus is sometimes very weak and inconspicuous.

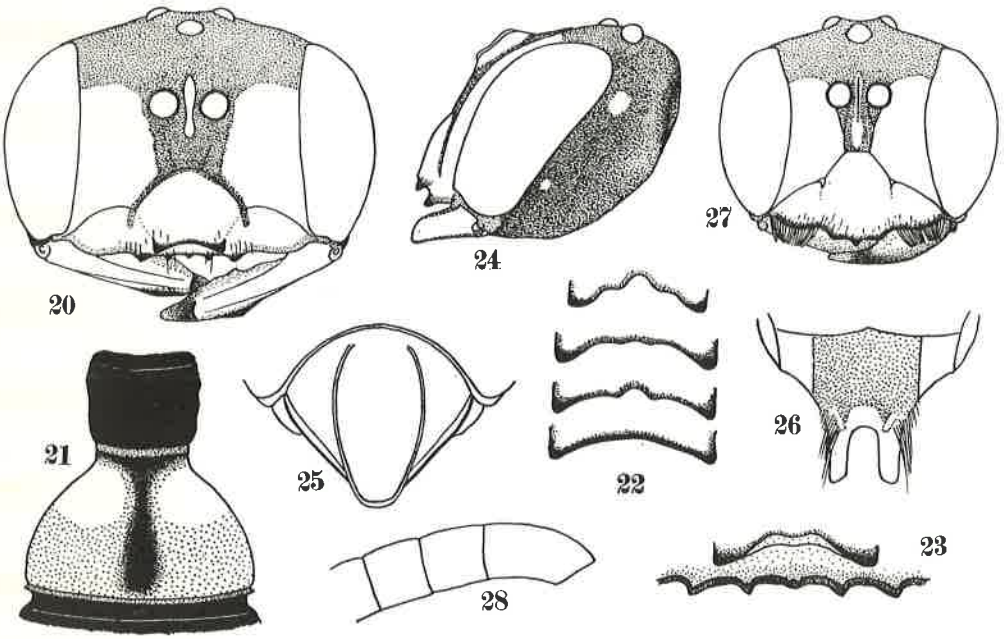
3. *Cerceris saeba* Smith, 1873

Cerceris saeba Smith, Ann. Mag. Nat. Hist., (4), 12: 414, 1873 (♀).
Cerceris saeba: Turner, Proc. Linn. Soc. N. S. Wales, 36: 675, 1912.
? *Cerceris goodwini* Cockerell, Mem. Queensl. Mus., 10: 35, 1930 (♀).

This species belongs to the group having the clypeus provided with the lamina free only at the apex (♀), the abdomen not regularly maculated and lacking the mesopleural protuberances and platform on the 2nd abdominal sternite (♀♂).

♀. Length 9.0-9.7 mm. Black. Ivory white with sometimes a more or less yellowish tinge: Mandibles externally except apex and peripheral areas, clypeus except apical margin of itself and of lamina, large lateral maculae on face, antennal scape on top (Fig. 20), a spot each on upper

and lower temple behind eye (sometimes the lower lacking), a spot on apical portion of antennal joint 1 (sometimes dark brown), oblique patch on each side of pronotum (sometimes absent), tegulae (posteriorly pale reddish ferruginous), a large rounded macula on each side at base of abdominal tergite 2, a narrow apical band on 3 (sometimes ferruginous), much broader apical band on 4 and 5 (on 5 dorsally narrowed), apical short line on each side of sternite 4, medianly interrupted narrow band on sternite 5, and front and mid tarsi (apically more or less dirty white). Yellowish red: Tegulae posteriorly and apical half of tergite 2 except the median area which is brownish black (Fig. 21), anterior margin narrowly of yellow bands of tergites 3, 4 and 5, sternite 2 sometimes wholly, sometimes on both sides only and sometimes laterally very obscurely, apex of all femora, all tibiae in front (the area yellowish and hind tibiae exterally on apical half dark brownish). Antennae above dark brown, beneath and apex light ferruginous; palpi, membraneous apex of each tergite and hind tarsi also ferruginous to brown. Wings hyaline, anterior margin darkened till apex as in most of the Australian species, veins and stigma brown to dark



Figs. 20–28. *Cerceris saeba* Smith, 20–26, ♀; 27–28, ♂.
20 and 27, Head seen in front (dotted areas black). 21, Basal two segments of abdomen (dotted area ferruginous red, densely dotted area dark brown, white areas yellow). 22, Variation in the form of the lamina. 23, Apex of clypeus and lamina seen from beneath). 24, Head seen in profile (dotte area black). 25, Pygidial area. 26. Caudal sternite. 28, Apical three joints of antenna.

brown. Hairs on lower frons and clypeus very sparse, pale yellowish, those on apical margin of lateral lobes and of lamina silvery in oblique light; erect hairs surrounding sides of pygidial area not particularly dense nor long, brownish; hairs on sternites normal.

Head from above, OOD : POD : OCD=18 : 12.5 : 20, width of ocellus relatively 4. Head in front: Fig. 20, WH : IOD=95 : 58, OAD : WAS : IAD=20 : 7 : 6, OTD : ITD=20 : 25, ACD : AOD=13 : 20, while LC 20, lamina with apical margin emarginate and medianly raised, the form of emargination slightly varied with individual (Fig. 22), each lateral angle always produced into a stout tooth (ditto), seen from beneath (Fig. 23) medial region of the emargination with a pair of slight incrassations lying close together, but not so strong as to be called tubercles, sometimes

the incrassation quite indistinct, apical margin of clypeus proper thickened, quinquedentate, median tooth slightly shorter and outer pair broader and longer (Fig. 23), the median tooth consists of a pair of small tubercles fused together (under strong magnificaiton). Antennal joint 1 comparatively long, approximately as long as joints 3 and 4 combined, joints 3–8 progressively reducing in length, 3 about 1.8 times (narrowest view) or 1.5 times (widest view) as long as wide at apex, joint 8 nearly as long as wide, ultimate joint as long as joint 4 and triangularly attenuate at apex, interantennal carina comparatively high, angularly raised in front, head in profile (Fig. 24) with lamina gently roundly raised, with temple as wide as eye. Pronotum with lateral margins roundly convergent anteriorly, with angles rounded, antero-lateral vertical carinae very weak, though somewhat stronger towards procoxae, on mesopleuron precoxal carina distinct, in dorsal view slightly angularly produced at anterior end, but without the formal mesopleural tooth. Area dorsalis with apical corner slgihtly smaller than 90°, with sides nearly straight and medianly distinctly furrowed. Abdominal segment 1 somewhat wider than long in all the specimens examined (Fig. 21), tergite 2 with sides rounded (ditto), pygidial area: Fig. 25, in lateral view with surface only gently curved; sternites with lateral portions not particularly incrassate, caudal sternite: Fig. 26, legs and wing venation without particular characters.

Vertex and upper frons reticulate with medium-sized punctures, sometimes punctures rugosely arranged and sometimes on upper frons slightly finer, on lower frons punctures somewhat coarse, but more or less sparse, on median lobe of clypeus finer and much sparser; on mesonotum and scutellum punctures somewhat coarser and sparser than those on vertex and longitudinally confluent with interspaces like striae; mesopleuron and propodeum more finely reticulate, area dorsalis at base obliquely striate, on lateral and median furrows crenate, with disc finely punctured with minute wrinkle-points. Abdominal tergites more coarsely punctate-reticulate, on 4 and 5 punctures sometimes slightly sparser, but always larger than intervals; pygidial area basally coarsely wrikled, accompanied with a few punctures, apically more finely closely rugulose; sternites on each lateral portions with coarse punctures.

♂. Length 7.7 mm. Coloration similar to ♀. Differences: Without black stripe along upper lateral lines of median lobe of clypeus, (temple with lower macula lacking), abdominal tergite 2 with yellowish white maculae at base fused in middle into a broad basal macula and the median blackish mark lacking, only slightly brownish in middle of the posterior yellowish red portion, tergite 3 with lateral margins only whitish (in the specimen changed to brownish), tergite 6 and sides of 7 also yellowish white; sternite 2 near base in middle broadly whitish, marginated with reddish yellow, sternites 5 and 6 also narrowly maculated on sides; apical portions of femora broadly (in hind femora narrowly) ambur yellow, all tibiae yellow (in hind legs brownish on apical external area), front and mid tarsi and hind metatarsi yellowish white, rest of hind metatarsi brownish. Wings as in ♀, but generally slightly lighter in colour.

Head from above, OOD : POD : COD=13 : 11 : 16. Head in front: Fig. 27, WH : IOD=75 : 41, inner orbits slightly divergent toward clypeus, OAD : WAS : IAD=12 : 6 : 5, OTD : ITD=13 : 17, ACD : AOD=12 : 15, while LC relatively 25, median lobe of clypeus gently rounded, without median carian or elevation, with the highest point about 2/5 from base, apical margin distinctly tridentate, with lateral teeth more obtuse, lateral lobes with a dense fringe of curved hairs, occupying about 3/5 of the lateral margin. Antennal joint 3 nearly twice as long as broad at apex in narrowest view, 1.5 times so in broadest view, joint 7 slightly longer than wide, 10 about as long as wide, ultimate joint slightly bent and obliquely truncate at apex, but the truncate portion, seen from beneath, bluntly keeled, not with oblique surface (Fig. 28), without tyloidea on any joint. Pronotum as in ♀, on mesopleuron precoxal carina distinct, with upper end slightly

produced into a tooth in dorsal view, but without formal mesopleural tooth. Abdominal tergite 1 very slightly wider than long, 2 with lateral margins gently rounded, nearer to straight on anterior portion, ratio to WH 52 : 74, pygidial area nearly rectangular, with sides gently rounded, about 1.5 times as long as wide, on extreme base suddenly a little narrowed.

Punctuation as in ♀, on median lode of clypeus somewhat sparse, on mesonotum coarse and longitudinally subrugoso-punctate, area dorsalis with lateral and median furrows crenate, on lateral furrows the striae extended somewhat on to disc, on latero-basal angles fairly strongly obliquely striate, remaining area of disc finely sparsely punctured, with surface highly polished; abdominal tergites reticulate-punctate, on 5 and 6 punctures somewhat sparser, pygidial area coarsely, fairly closely punctured. Sternites, besides the ante-apical hair-bearing puncture-line, sparsely punctured with comparatively coarse punctures, the punctures more abundant on lateral areas, without particular character on hairing.

Specimens examined: 1 ♀, Victoria, date unknown, J. E. Dixon leg. (Coll. Cornell Univ., Lot. 757, Sub. 53); 1 ♀, Victoria, J. E. Dixon leg. (Coll. Cornell Univ.); 1 ♀, N. S. Wales (Coll. Amer. Mus. Nat. Hist.); 1 ♀, Victoria, Edwards leg. (Amer. Mus. Nat. Hist.); 1 ♂, N. S. Wales, Edwards leg. (Coll. Amer. Mus. Nat. Hist.).

Remarks. The comparatively sparse punctuation on the 4th and 5th tergites of the abdomen is considered by Turner as one of the important distinctions of this species. Examination of the specimens dealt with here showed that the character seemed to be considerably variable. Of the four females above listed in only one of them the character was distinct, while in others it can hardly be observed. As given in the original description of Smith small maculae sometimes appear on the pronotum and postscutellum. According to the descriptions of the previous authors the maculae on the head are always described as yellow. In the specimens examined here, however, they are always rather white, with faint tint of yellowish. Whether this is a variation or a normal state remains uncertain.

As to the apical margin of the lamina it is given as truncate in the original description, while "late subemarginato" in the Turner's redescription. In the specimens before me it is considerably varied as shown in Fig. 22. Measurements of some characters (♀): Table 2.

Table 2. Measurements on *C. saeba*, ♂♂.

Specimen	OOD : POD		WH : IOD		OAD : WAS : IAD			OTD : ITD		ACD : AOD : LC		
1	18	12.5	95	58	20	7	6	20	25	13	20	20
2	16	11.5	87	52	16	6.5	6	17	23	12	18	19
3	16	11	84	50	16	6	5.5	16	21	11	17	18
4	16	11	78	48	15.5	6	5.5	15	21	11	17	17

The description of *C. goodwini* Cockerell seems to agree well with the characters of the present species except a slight difference in the form of the petiole of the abdomen. Therefore it may be a synonym of *C. saeba* Smith.

4. *Cerceris froggatti* Turner, 1912

Cerceris froggatti Turner, Proc. Linn. Soc. N. S. Wales, 36: 668, 1912 (♀).

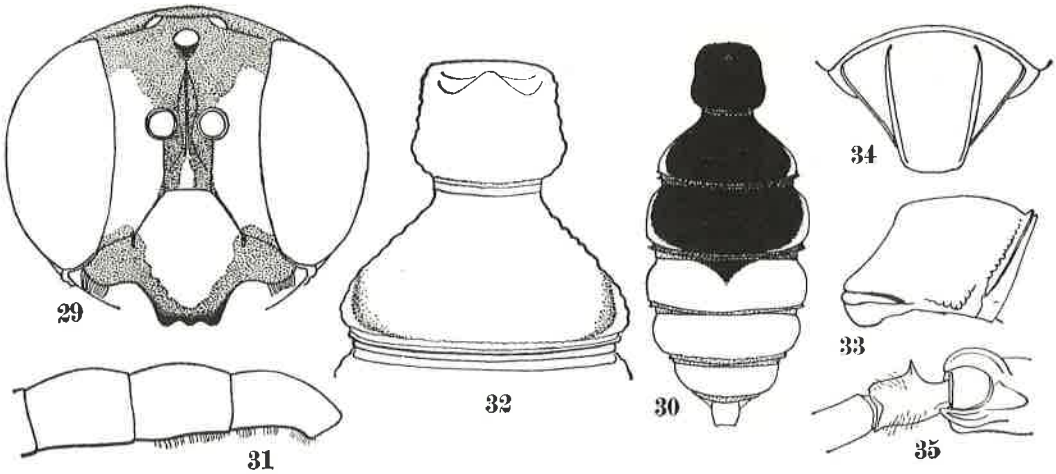
Specimen examined: 1 ♂, N. S. Wales (Coll. Amer. Mus. Nat. Hist., No. 446).

I have not perfect confidence in the combination of the specimen (♂) with the named species (♀ only known), as given in the remarks. The assignment is therefore rather provisional.

♂. Length about 12.5 mm (too small as compared with the recorded ♀ which is 22 mm in length). Black. Orange yellow: Facial and clypeal maculae (Fig. 29), a small spot on each side of pronotum, tegulae anteriorly, front and mid femora beneath apically and all tarsi (but tarsi more or less ferruginous). Abdominal tergites maculated as in Fig. 30 with deep orange,

slightly tinged with red; sternites 2–7 only laterally ferruginous; apical membraneous margin of each segment also semitransparent brownish; tibiae ferruginous except dark brown outer margin of front and mid legs. Antennae dark brown, beneath basally and apically ferruginous. Lateral lobes of clypeus fairly closely covered with appressed silvery hairs, tufts of hairs on anterior margin also silvery and apically silky white, comparatively narrow, less than half as wide as the length of the lateral margin. Abdominal sternites without particular tuft of hairs, only the apical margin of sternite 7 comparatively broadly covered with close long pale yellowish hairs, not conspicuous.

Head seen from above, OOD : POD : OCD=13 : 13 : 20, ocellus relatively 5.5. Head seen in front: Fig. 29, WH : IOD=103 : 43, OAD : WAS : IAD=10 : 8 : 8, OTD : ITD=10 : 32, ACD : AOD=15 : 20, while LC relatively 39; median lobe of clypeus comparatively wider and longer than usual, with the disc gently roundly raised, having its summit at about 2/5 from base. Interantennal carina very long, reaching the small impression in front of anterior ocellus. Antennal joint 3 very slightly longer than 4 (subequal), about 2.2 times as long as broad at apex in narrowest view, in broadest view only 1,5 times so, joint 7 longer than wide in any direction (maxi-



Figs. 29–35. *Cerceris froggatti* Turner, ♂.
29, Head seen in front. 30, Abdomen and its maculation. 31, Apical three joints of antenna. 32, Basal two segments of abdomen. 33, Basal segment of abdomen (seen in profile). 34, Pygidial area. 35, Left hind trochanter showing the tooth.

mum 1.5 times as long as wide), ultimate joint as long as joint 11, slightly longer than penultimate joint, somewhat bent, slightly narrowed apically and obliquely truncate at apex, apical two joints beneath provided with large ovate ferruginous and polished tyloidea and sparse pubescence (Fig. 31). Collar of pronotum with a stout carina on each antero-lateral corner which runs down towards front coxa and appears from above as a stout tooth. On mesopleuron precoxal carina strong, with its anterior end strongly produced into a tooth, but the formal pleural tooth lacking. Area dorsalis nearly right-angled triangular, with the sides gently sinuate and attenuate apically, with median groove fine and weak. Abdomen: Fig. 30, tergites 1 and 2: Fig. 32, segment 1 slightly wider than long, without medio-apical impression, seen in profile: Fig. 33, tergite 2 with lateral margins not markedly rounded (Fig. 32), with relative width to head 84 : 103; pygidial area: Fig. 34, sternite 8 with medio-apical emargination very shallow, with lateral teeth small and short. Hind trochanters beneath provided with a short spine as in ♀ (Fig. 35).

Vertex, temples, thorax-complex and petiole cribrate with medium-sized punctures, inter-

spaces shining; lower frons, clypeus and abdominal tergites 2–5 duplipunctate, the tergites further covered so densely with fine pubescence that the surface appears mat. Area dorsalis smooth and polished; pygidial area strongly and sparsely punctured, with intervals microscopically delicately coriaceous; sternite 2 coarsely punctured, the punctures not well outlined, other sternites with lateral portions coarsely punctured and further with a line of hair-bearing punctures near each apical margin.

Remarks. The specimen is considered closely related to both of the species, *C. froggatti* and *C. perkinsi*, both of which have been known by the female sex only. Except for the clypeal and pygidial characters which are considered secondary sexual characters the specimen differs from the descriptions of both species in the following points:

In *froggatti*: Cheek a little broader than eye (the specimen in the reverse relation); mesopleuron with two small tubercles (a single precoxal tooth); petiole nearly twice as broad as long (subquadrate); abdomen sparsely and finely punctured and smooth on ventral surface; length 22 mm.

In *perkinsi*: OOD>POD (equal); propodeum very sparsely and finely punctured (closely and coarsely so, but medianly somewhat sparser, with more or less intervals which are smooth and polished); petiole about twice as broad as long; difference in maculation somewhat greater; hind trochanters without spine.

Of the differences those of the cheek and petiole may be due either to the sexual or variational distinction. The difference in the punctuation on the abdomen is also sometimes due to sexual characters. Considering as such the differences from *froggatti* are reduced to two points, the pleural tubercles and body size, while those from *perkinsi* still remain in four points, of which the punctuation on the propodeum and the spinosity of the hind trochanters are important.

Such being the case, I combined the specimen with the female of *froggatti*, though with a more or less query.

5. *Cerceris sculleni* sp. nov.

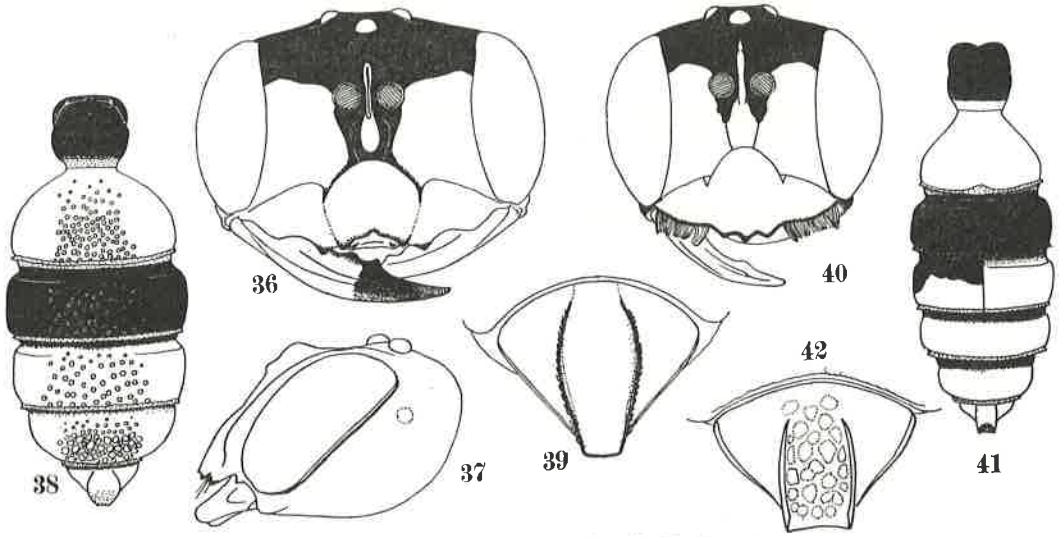
The female of the present species is very closely allied in structure to *C. saeba* Smith, but the pygidial area narrower and much larger, punctures on the abdomen distinctly sparser and the face relatively somewhat wider. In colour it has the thorax completely immaculated and abdominal tergite 2 wholly orange yellow. The male is similar to a certain colour type of *C. venusta*, but the thorax is wholly black and the face is distinctly narrower.

♀. Length about 9.8 mm. Black. Maculae on head in front: Fig. 36, white areas orange yellow, somewhat ferruginous. The same in colour: A spot on upper temple behind eye, probably antennal joint 1, tegulae in part, apex of abdominal tergite 1, tergites 2, 4 and 5 wholly, and segment 6 except apical blackish portion, sternite 1 apically, 2 wholly, 3, 4 and 5 on apical portions and all legs except coxae. Probably hind femora above and beneath more or less blackish and hind tarsi brown. Wings hyaline, distinctly clouded on radial cell and its apical area.

Head from above, occipital margin not strongly emarginate, OOD : POD=18 : 12, postocellus relatively 5; head in front: Fig. 36. WH : IOD=98 : 59; OAD : WAS : IAD=20 : 7 : 6; OTD : ITD=20 : 25; LC (from base to apex in middle of lamina) : ACD : AOD=21 : 8 : 10. Lamina distinctly narrowed apically, with apical margin sinuately incised (Fig. 36), apical margin of clypeus proper quadridentate, the outer pair large and distinct, inner pair small, like tubercles and slightly behind apical margin; mandible with two strong teeth on inner margin. Head in profile: Fig. 37, lamina of clypeus only gently roundly raised, temple as wide as eye. Antennal joints 1 and 3 relatively 21 : 11, joint 3 about 1.8 times as long as wide at apex (narrowest view),

joint 8 slightly longer than wide, penultimate joint as long as wide, ultimate joint suddenly narrowed at apex. Pronotum with sides not incrassate, with antero-lateral corners rounded, with vertical carinae very weak, mesopleuron unarmed, propodeum with area dorsalis similarly outlined and medianly furrowed as in *saeba*. Abdomen: Fig. 38, petiole slightly wider than long, dorsal aspect at base in middle weakly tuberculate, tergite 2 with sides rounded (Fig. 38), ratio of width to head 72 : 98; pygidial area: Fig. 39. Sternite 2 without the formal raised area, but with a short carina on each side of the potential platform, postero-lateral areas of each sternite only feebly incrassate, sternite 6 provided with a tuft of long stiff hairs on each side, reaching far beyond the apical protuberance of the side. In fore wing recurrent vein 1 received by cubital cell 2 in the middle of the cell (in left wing slightly before, in the right slightly beyond the middle).

Punctures on vertex comparatively fine and close, on upper frons longitudinally rugoso-punctate, on lower frons coarse, sparse below, partly confluent upwards, on lamina of clypeus very shallow, indistinctly outlined and sparse, on lateral lobes fine and very sparsely scattered. Mesonotum longitudinally coarsely punctate-rugoso-striate, coarser and stronger than in *saeba*, scutellum sparsely punctured, each puncture indistinctly outlined in front, mesopleuron and propodeum comparatively finely (as on vertex) more or less rugosely reticulate, area dorsalis with basal impressed area and lateral angles obliquely striate, median furrow weakly crenate, disc scattered with few gross but not strong punctures along lateral furrows, remaining area very finely punctuate, and posteriorly transversely closely, but not strongly rugulose. Punctures on tergite 1 cribrate, as on vertex, on tergite 2 apical area sparsely, ante-apical area closely punctured with medium-sized points, on basal portion punctures very sparse, fine and weak, with intervals very much larger than punctures; punctures on tergites 3 and 4 distinct, rounded, but sparse, with averaged intervals as large as width of punctures, but on 4 apparently somewhat sparser, on 5 basally sparse and fine, apically close, rather coarse; but not strong and slightly elongate (Fig. 38); pygidial area rugulose, at base a few deep punctures scattered, with marginal hairs abundant and long. Sternite 2 medianly almost impunctate, other sternites medianly sparsely, laterally closely



Figs. 36–42. *Cerceris sculleni* sp. nov., 36–39, ♀; 40–42, ♂.
36 and 40, Head seen in front. 37, Head seen in profile. 38 and 41, The form and maculation of abdominal segments, 38 showing also punctuation and, 41 with tergite 3 showing variation on both sides. 39 and 42, pygidial area.

punctured.

♂. Length about 8.0–8.5 mm. Head in front: Fig. 40, the white area represents cream yellow, antennal joint 1 of the same colour. Deep orange yellow: A spot on temple above behind eye, tegulae, abdominal tergite 1 at apex, tergites 2 and 4–6 wholly (sometimes 4 on apical half only, Fig. 41, left side) and legs except all coxae and hind tarsal joint 2–5. Antennal flagellum beneath light ferruginous, above and named hind tarsal joints dark brownish. Wings as in ♀, veins dark brown.

Head from above OOD : POD : OCD=14 : 10 : 16. Head in front: Fig. 40, WH : IOD=78 : 42, OAD : WAS : IAD=13 : 6 : 4, OTD : ITD=14 : 18, LC : ACD : AOD=27 : 14 : 16. Antennal joints 1 and 3 relatively 14 : 11, the latter twice (narrowest view) or 1.8 times (widest view) as long as wide at apex, joint 7 slightly longer than wide, ultimate joint as long as joint 5, and apparently obliquely truncate at apex, but the truncation represented by an obtuse ridge, not area. Structure of thorax-complex as in ♀, including the characters of area dorsalis. Abdominal segments: Fig. 41 (tergite 4 showing variation in colour on both sides), pygidial area: Fig. 42. Sternite 2 with two small tubercles instead of short carinae in ♀. Recurrent vein in fore wing in one specimen quite as in ♀, in two others received by cubital cell 2 slightly before middle (the character is generally unstable in many species).

Punctures on lower frons and median lobe of clypeus somewhat coarser and closer than in ♀, but on median lobe with a more or less interspaces, on pronotum much coarser, on mesonotum less rugose, only longitudinally elongate and so arranged, but punctures strong and coarse. Abdominal tergites more strongly, coarsely and closely punctured than in ♀, on three basal tergites reticulate, on tergites 4 and 5 slightly sparse on posterior half, pygidial area strongly coarsely punctured (Fig. 42); sternite 2 with broad medial area longitudinally, weakly, somewhat rugosely striate, the striae composed of intervals of very lengthened weak impressions; punctuation on other portions of sternites similar in pattern to ♀, but punctures much coarser, less in number and very strong.

Holotype: ♀, N. S. Wales (Coll. Amer. Mus. Nat. Hist.)

Paratypes: 3 ♂♂, the same as above (ditto).

Remarks. The single female specimen above described is so heavily suffered the after change in colour that I felt some hesitation to designate it as the type. But as the structural characters are very distinct and the original colour could, to a certain extent, be presumed from the specimens that were considered the males of the same species it was decided to describe the species on this occasion.

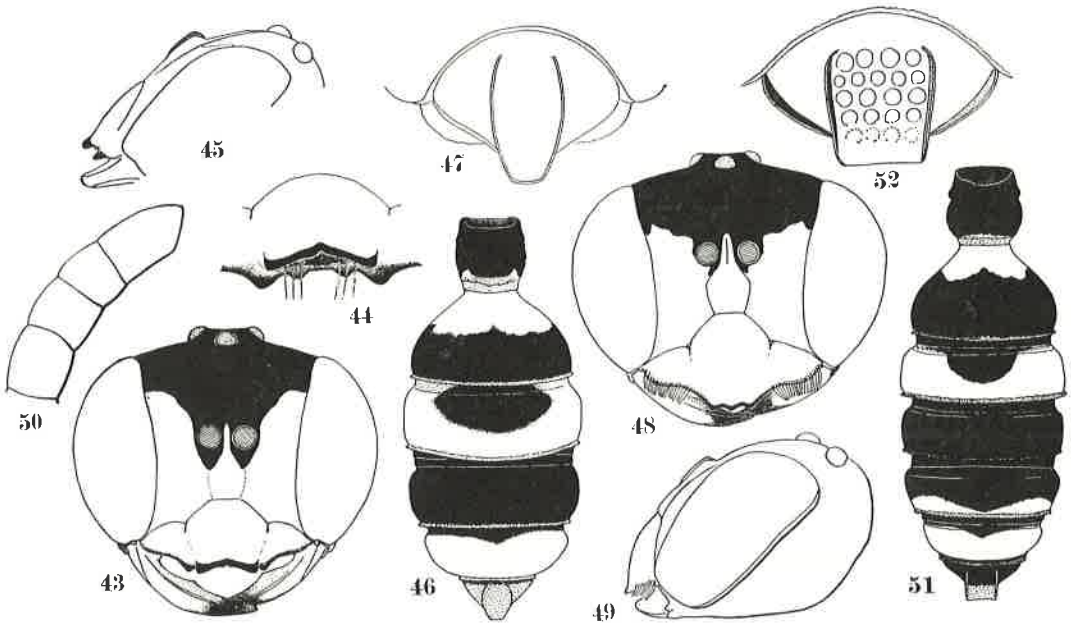
6. *Cerceris koala* sp. nov.

The female of this species seems most close to *C. praedura* Turner, 1908, except the doubtful character of the clypeus, sculpture on the area dorsalis and the form of the petiole. Especially the maculation seems almost completely similar. The differences relating to the area dorsalis and the petiole are, however, not important, since they are usually considerably variable. On the other hand, judging from the original description *C. praedura* seems to be a species having the clypeus without the lamina. If this presumation is correct it differs undoubtedly from the present species. Further, even if, on the contrary, *C. praedura* has the clypeus provided with the lamina, that is to say, the central lobe in the original description represents the clypeal lamina, it distinctly differs from the present species in that the central lobe is too broad and too short.

C. koala is characterized by the combination of characters of the clypeus, area dorsalis and the abdominal maculation in the female. The shorter interantennal carina and the very broad

posterior vein of the wing stigma are also characteristic.

♀. Length 7.2 mm. Black, yellow maculated. Cream yellow on head in front: Fig. 43, without outer-orbital or post-ocellar maculae, on abdomen: Fig. 46 (dotted area ferruginous); yellow on other portions: Antennal joint 1 except apical light brown, two large maculae on pronotum, tegulae largely, two oblique maculae on scutellum, postscutellum wholly, sternite 1 at apex, 2 medianly broadly and 3 wholly, front legs except coxae, mid legs except coxae above, trochanters and base of femora, and greater part of tibiae of hind legs. Ferruginous: Antennal joints from 2 apibally beneath, apical two joints wholly, apical lamellate fringe of each abdominal tergite, apical portion of sternites 1–3 and caudal segment wholly, apical half of hind femora and apical fleck of hind tibiae. Antnnal flagella above and hind tarsi slightly darker brown. Wings hyaline and as in most of the Australian species with radial cell and its external portion markedly darkened.



Figs. 43–52. *Cerceris koala* sp. nov., 43–47, ♀; 48–52, ♂.
43 and 48, Head seen in front. 44, Apical margin of clypeus and lamina seen obliquely from beneath. 45 and 49, Head seen in profile. 46 and 51, Abdomen, showing the form and maculation. 47 and 52, pygidial area. 50, Apical four joints of antenna.

On vertex OOD : POD=11 : 9, head seen in front: Fig. 43, WH : IOD=64 : 32, OAD : WAS : IAD=9 : 5 : 5, OTD : ITD=8 : 19, LC : ACD : AOD=15 : 10 : 17, lamina with width at apex relatively 12, completely covering the apical margin of clypeus proper, seen obliquely from beneath (Fig. 44) two pairs of blunt teeth observable on the margin, the inner smaller (the outer observable in the normal position outside the apical corners of the lamina), lamina seen in profile not raised (Fig. 45). Interantennal carina with highly elevated portion very short and suddenly lowered at upper end, thence continued as a low carina till near the anterior ocellus (Fig. 45). Antennal joint 1 greater in length than OAD (13 : 9), joint 3 in narrowest view about 1.8 times as long as broad at apex, joint 7 nearly as long as broad, penultimate joint distinctly wider than long, ultimate joint normally suddenly narrowed at apex. Pronotum with sides rounded, not strongly incrassate, with antero-lateral vertical carinae distinct, mesopleuron without spine

or tubercle, areas above and below the scrobal furrow similarly roundly swollen. Area dorsalis on propodeum equilateral triangular, apparently longer than wide at base, base transversely impressed and obliquely coarsely striate, lateral and median furrows comparatively deep, coarsely foveolate, the foveae extended on to the disc, leaving very narrow interpunctural space there where in some place further coarsely, in other place very minutely punctate. The form of abdominal tergites: Fig. 46, pygidial area: Fig. 47, in lateral view its surface very gently curved, with lateral fringe of hairs weak, the hairs not bristle-like, comparatively short and not dense; sternite 2 at base indistinctly somewhat raised, with a weak tubercle on each side of the potential platform, rest of sternites normal. Tarsal joint 2 of fore legs as long in middle as wide at apex, the same in mid legs longer than wide. In fore wing recurrent vein 1 received by cubital cell 2 before middle, posterior vein of stigma markedly broad.

Body closely punctate-reticulate with moderate-sized punctures, punctures in front of anterior ocellus somewhat smaller and longitudinally subrugose, on lamina of clypeus slightly sparse, on mesonotum slightly coarse and in part longitudinally arranged, with intervals rugoso-striate, on scutellum coarse and somewhat sparse, on propodeum cribrate, with a more or less interval between, on dorsal portion and on posterior aspect obliquely rugoso-punctate; abdominal tergites punctured-reticulate; pygidial area irregularly rugose and on basal portion sparsely punctured, the surface very minutely coriaceous, not glossy, sternites with incrassate areas sparsely punctured, on lateral portions closely so. Clypeus sparsely covered with short silvery hairs.

♂. Length 6.5–6.8 mm (abdomen not fully extended). In colour very similar to ♀; facial maculation: Fig. 48, abdominal maculation: Fig. 51, caudal segment black, instead of ferruginous, only narrow apical portion brownish. Sternite 2 black except narrow median macula which is broadened laterally on both ends, sternites 1 and 3 as in ♀. Maculae on thorax as in ♀.

OOD : POD : OCD=12 : 9 : 11, width of postocellus relatively 4.3, head seen in front: Fig. 48, WH : IOD=66 : 33, OAD : WAS : IAD÷9 : 5 : 5.5, OTD : ITD=8 : 17, LC : ACD : AOD =21 : 10 : 16, inner orbits markedly divergent upwards, with lower portion subparallel. Head in profile: Fig. 49, clypeus gently roundly raised. Antennal structure similar to ♀, ultimate joint suddenly narrowed at apex (Fig. 50). Area dorsalis slightly wider than long, with sculpture similar to ♀, in one specimen with a more or less glossy area on disc where minutely punctured; Abdomen: Fig. 51, tergite 1 with width to length relatively 24 : 25, tergite 2 with relative width to head 51 : 66; pygidial area: Fig. 52, interveals of punctures smooth and polished. Recurrent vein 1 of fore wing received by cubital cell 2 close to the base in both specimens. In other respect including the characters of interantennal carina and veins of stigma as in ♀.

Holotype: ♀, Prince of Wales Is., 14. II. 1939, R. G. & Clo Wind leg. (Coll. Scullen).

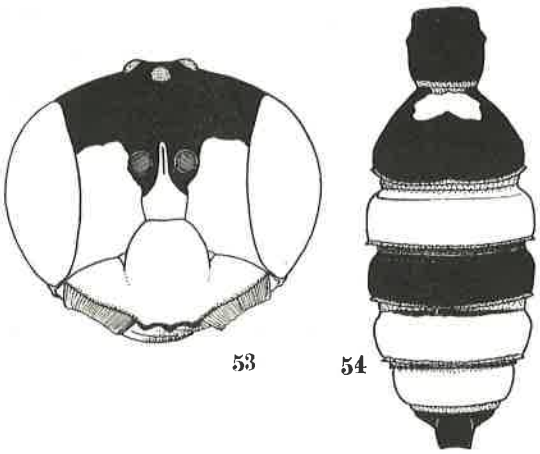
Paratypes: 2 ♂♂, the same as above.

7. *Cerceris latiberbis* sp. nov.

This species (♂) very closely resembles the male of the *Cerceris koala*, but the frons somewhat wider, median lobe of clypeus much longer and abdominal maculation also slightly different. The broad apical hair fringe of the lateral lobe of clypeus is characteristic of the species.

♂. Length slightly larger than *koala*, measuring 8.3 mm (WH similar).

Yellow on face: Fig. 53. A small yellow spot present on temple above behind eye. Maculae on thorax as in *koala*. Maculae on abdomen: Fig. 54, medio-basal yellow maculae on tergite 2 somewhat smaller, tergite 3 wholly yellow, tergites 5 and 6 nearly wholly yellow, while caudal segment wholly black; sternite 2 medianly broadly reddish ferruginous, sternite 3 except apical ferruginous membraneous area wholly yellow, sternites 5 and 6 with a small yellow spot on each



Figs. 53 and 54. *Cerceis latiberbis* sp. nov., ♂. 53, Head seen in front. 54, Abdomen.

side. Legs maculated as in *koala*, but upper side of trochanters and of femora of front and mid legs bearing brownish marking, hind femora except both ends dark brown, and hind tarsi basally yellowish and apically pale brownish. Wings slightly yellowish, costa and stigma largely yellow, other veins brown, clouding on radial cell and on its external area as in *koala*.

On vertex OOD : POD : OCD=13 : 9 : 12. Head in front: Fig. 53, WH : IOD=66 : 35, OAD : WAS : IAD=11 : 5.5 : 4.5, OTD : ITD=10 : 18, LC : ACD : AOD=25 : 10 : 15. Frons apparently relatively somewhat wider and the eye slightly narrower accordingly, in the specimens having the relative head width 66, in *koala* ratio of IOD (minimum) to length of frons (distance between base of clypeus and anterior margin of front ocellus) 33 : 32, while in the present species 35 : 30, also OTD greater, inner orbits slightly more strongly divergent below, in *koala* subparallel on lower portion, width of total clypeus at base of its lateral lobes in *koala* relatively 34, in this species 39, while the upward divergency is weaker in this species than in *koala*. Also median lobe of clypeus much longer, with relative length to width in this species 25 : 18, while in *koala* 21 : 17, lateral lobes nearly equilateral triangular, with the apical fringe of hairs very dense, plate-like and extraordinarily broad, occupying almost whole the span of the margin (Fig. 53); short interantennal carina and the structure of antennae as in *koala*; abdomen: Fig. 54, petiole as long as wide (measurement relatively 23 : 23), tergite 2 with relative width to head 47 : 66; pygidial area relatively slightly longer, though general form similar; mediobasal raised area on sternite 2 similar in degree of elevation and in part distinctly outlined (but probably variable in this respect). Posterior vein of stigma in fore wing not particularly broad, recurrent vein 1 received by cubital cell 2 slightly before middle, not close to the base as in *koala* (this respect seems also variable).

In punctuation generally similar to *koala*, but punctures on pronotum coarser, area dorsalis with median furrow shallower and together with lateral furrows more finely and weakly crenulate, not so much disturbed by coarse punctures (this point, however, probably variable, in the specimen only a single coarse puncture present on one of the furrows), disc broadly shining, though scattered with middle-sized as well as very minute points. Pygidial area more sparsely punctured than in *koala*, with interspaces minutely coriaceous, not polished.

♀. Unknown.

Holotype: ♂, Prince of Wales Island, 14. II. 1939, R. G. & Clo Wind leg. (Coll. Scullen).

Remarks. The main differences of this species from the same sex of *koala* lie in the face more widely divergent below, apical fringe of hairs of clypeus very much wider, and median lobe of clypeus comparatively norrower and longer.

8. *Cerceris windorum* sp. nov.

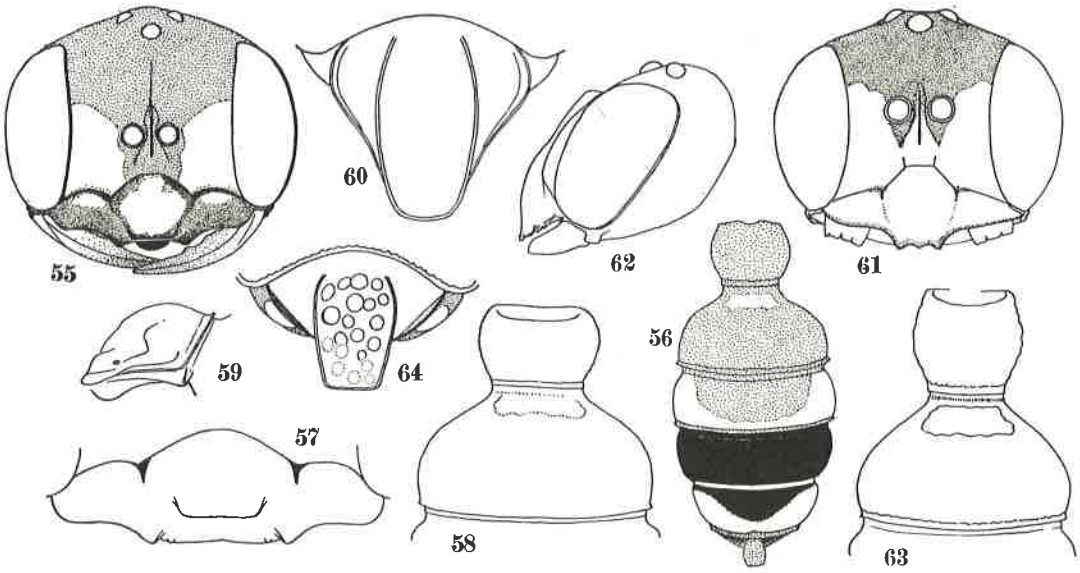
The female of this species, in the key of Turner (1912) runs to *C. gilesi* Turner, but is different from this species in many characters, while among the species later described none can agree in characters with the present species.

♀. Length 6.8 mm. Black. Pale yellowish white: A large macula on lamina of clypeus, a spot on lateral lobes above, sides of lower frons (Fig. 55), basal joint of antennae externally, postscutellum, a medio-basal transverse macula on sbdominal tergite 2, laterally broadened apical band on tergites 3 and 5 (Fig. 56), front and mid femora except base and above, and all tibiae except inside. Two large transverse maculae on pronotum orange yellow. Mandibles pale yellow, semitransparent, with apex brownish black; antennal joint 1 above, remaining joints beneath, tegulae (semitransparent) and front and mid tarsi (basally paler) ferruginous; antennae above, pygidial area, apex of coxae, all trochanters and hind tarsi dark brown. Abdominal tergite 1 wholly, 2 except basal yellow macula, 3 on remaining medio-basal area, 6 wholly (Fig. 56 ... dotted areas), sternite 1 except medio-basal area, 2 on median longitudinal area and at apex, and 3 at apex brownish red. Wings hyaline, radial cell and its outer region darkened, stigma and veins dark brown.

Head from above more than twice as broad as long, with sides behind eyes nearly straightly convergent posteriorly, OOD : POD=11 : 8, with ocelli relatively 3.5; head seen in front: Fig. 55 (dotted areas black), WH : IOD=60 : 34, OAD : WAS : IAD=10 : 5 : 4, OTD : ITD≒9 : 19, LC : ACD : AOD=13 : 7 : 18 (LC measured till apex of lamina), showing that antennal insertion located comparatively close to the clypeus; lamina free at apical portion alone, convergent towards apex, apex truncate, anterior margin of median lobe proper well observed only from beneath (Fig. 57), it is medianly truncate, with a broad tooth on each side and provided with a small tubercle just inside each tooth; head seen in profile with eye somewhat wider than temple. Antennal joint 3 about 1.7 times as long as wide at apex in narrowest view, 1.5 times so in broadest view, joint 4 about 4/5 the length of 3, joint 7 about as long as wide, thence apically each joint gradually slightly shorter and slightly wider than long till penultimate joint, ultimate joint longer than wide at base, suddenly narrowed apically as in *koala*. Pronotum with sides roundly incrassate, mesopleuron without tubercle or spine, with scrobal furrow comparatively shallow; propodeum with area dorsalis in a comparatively high triangle, approximating to equilateral one, its sides in straight furrows and medianly weakly grooved. Abdomen: Fig. 56, segment 1 much wider than long (Fig. 58), its lateral view: Fig. 59, segment 2 with sides strongly rounded (ditto), with relative width to head 44 : 60; pygidial area: Fig. 60; sternite 2 with medio-basal area slightly raised, but not well outlined, latero-apical areas of the succeeding segments not toothed nor particularly swollen, sternite 5 not impressed along median line. Legs normal, mid legs with tarsal joint 2 longer than wide at apex. Wings with recurrent vein 1 received by cubital cell 2 before middle, but not close to base.

Vertex punctate-reticulate, upper frons slightly finely rugoso-punctate, lamina duplipunctate, with larger punctures sparse, mesonotum longitudinally rugoso-punctate, punctures very coarse and rather sparse medio-posteriorly, scutellum coarsely punctured, postscutellum impunctate, mesopleuron and propodeum strongly reticulate, metapleuron longitudinally coarsely striate, area dorsalis on antero-lateral angles obliquely coarsely striate, from central region to apical angular area transversely coarsely striate, remaining medio-anterior portion comparatively grossly punctured, the striae and punctures very coarse in comparison with the small area dorsalis. Abdominal tergites all cribrately punctured, pygidial area irregularly rugose and basally coarsely punctured in addition, the surface not glossy, sternite 2 on lateral portion broadly, coarsely, but not strongly and rather sparsely punctured, the punctures not distinctly outlined, on posterior portion finely sparsely punctured, remaining tergites laterally coarsely, medianly finely, both sparsely punctured.

♂. Length 5.5–6.5 mm. Similar in general to ♀, except sexual characters and abdominal



Figs. 55–64. *Cerceris windorum* sp. nov. 55–60, ♀; 61–64, ♂.
55 and 61, Head seen in front. 56, Abdomen, dotted areas showing ferruginous red, white areas yellowish white. 57, Apical margin of clypeus and lamina, seen obliquely from beneath and in front. 58 and 63, First two segments of abdomen. 59, Basal segment (petiole) of abdomen in the lateral view. 60 and 64, Pygidial area.

coloration. Black. Head in front from middle below pale yellowish white except areas of antennal base and apical margin of clypeus (Fig. 61, dotted area black), the same colour (sometimes pure yellow): Two lateral maculae on pronotum, tegulae largely, postscutellum, medio-basal transverse maculae on tergite 2, laterally broadened (to full length) apical band on tergites 3 and 5, tergite 6 wholly except medio-basal narrow black, a band on sternite 3 (sometimes broken into two lateral maculae), a spot on each side of sternites 5 and 6 (the latter sometimes fused into a band), apex of coxae, trochanters of all legs (in fore legs beneath only), front and mid femora except basal portion above, apex of hind femora, front and mid tibiae wholly, hind tibiae except inner apical half, front tarsi wholly and mid and hind metatarsi. On tergite 2 medio-basal area surrounding the yellow mark is in 3 specimens black, while in 6 others brownish red, in the former medio-basal lunate area on tergite 3 is also black, in the latter wholly reddish brown; intersegmental areas on the basal four segments always brownish red and apical lamellate fringe of these segments ferruginous; segment 1 always black. Mandibles coloured as in ♀, antennae above pale brown, beneath broadly ferruginous; rest of mid tarsi light brown, hind tarsi dark brownish. Wings hyaline, anteriorly clouded as in ♀. Apical fringe of dense pubescence of lateral lobes of clypeus ranges almost whole the span of the lobe (about 3/5 of the total lateral margin), plate-like, with apex reflected, silky pale yellow, in some light golden, sparse pubescence on the disc of lateral lobes silvery, gradually closer apically, but not long, covering the base of apical tuft of hairs.

Head from above with sides behind eyes roundly convergent posteriorly, OOD : POD : OCD =11 : 8.5 : 12, relative width of ocellus 4. Head in front: Fig. 61, WH : IOD=60 : 30, OAD : WAS : IAD=8 : 5 : 4, OTD : ITD=8 : 16, LC relatively 20, ACD : AOD=8 : 15, clypeus with median lobe distinctly tridentate at apex, gently roundly raised seen in profile (Fig. 62), eye much wider than temple (ditto); antennal joint 3 about 1.3 times as long as wide at apex (narrowest view), joint 7 slightly wider than long. abdominal segment 1 subquadrate (width to length re-

latively 23 : 22), tergite 2 with sides not so rounded as in ♀ (Fig. 63, cf. 58), with relative width to head 43 : 60; pygidial area: Fig. 64, coarsely punctured. Medio-basal area of sternite 2 as in ♀, sternites 6 and 7 without particular fringe of tufts of hairs. Other structures and punctuation as in ♀, but the striation and punctuation of area dorsalis considerably varied in extention and strength, and punctuation on abdomen somewhat coarser.

Holotype: ♀, Prince of Wales Island, Old Australia, 14. II. 1939, R. C. & Clo Wind leg. (Coll. Scullen).

Paratypes: 9 ♂♂, Prince of Wales Island, 14. II. 1939, R. C. & Clo Wind leg. (Coll. Scullen).

9. *Cerceris australis* Saussure, 1854

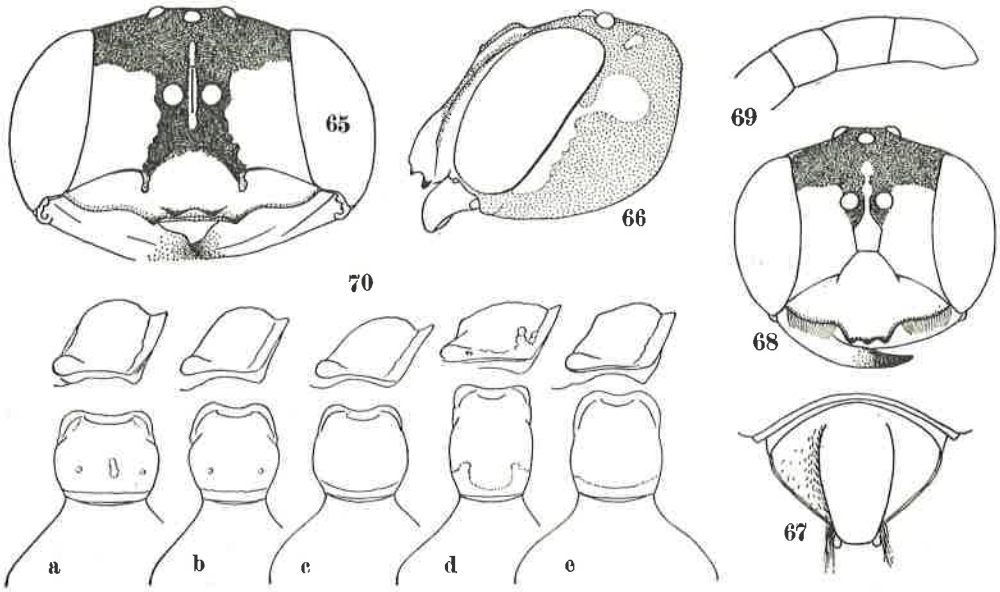
Cerceris australis Saussure, Mél. Hymen., I, (6), 2 (♀♂), 1854.
Cerceris australis: Saussure, Mém. Phys. Genève, 14: 6, 1855 (after Turner).
Cerceris nigrocincta Smith, Cat. Hym. Ins. Brit. Mus., 4: 450 (♀), 1856.
Cerceris australis: Saussure, Reis. Novara, II, 93, 1867 (♀♂).
Cerceris australis: Schletterer, Zool. Jahrb., Abt. Syst., 2: 486, 1887 (listed).
Cerceris australis: Turner, Proc. Zool. Soc. Lond., 30: 473, 1908 (distribution).
Cerceris australis: Turner, Trans. Ent. Soc. Lond., 1910, 4: 422, 1910 (keyed).
Cerceris australis: Turner, Proc. Linn. Soc. N. S. Wales, 36: 673, 1912 (♀♂).

The female of this species is characterized by its very sparse punctuation and glossy surface of the abdomen and can easily be separated from other known species of Australia. But as to its structural characters no detailed description with figures has been given. In the following explanation and figures will be given on some of the characters.

♀. Length 14 mm. Black, maculated with orange yellow. Maculae on head: Fig. 65 and 66 (dotted areas black), maculae on thorax-complex: Two large lateral maculae on pronotum, tegulae, two oblique spots on scutellum, postscutellum wholly, 4 small spots (probably two maculae usually). Abdomen orange yellow, with following portions black: segment 1 except apex, tergite 3 wholly, base of 4 narrowly, sternites 3 and 4 wholly, 5 on latero-apical areas and 6 on medial region.

On vertex OOD : POD : OCD=23 : 15 : 27, postocellus with relative width 6.5. Head seen in frout: Fig. 65, WH : IOD=126 : 76, OAD : WAS : IAD=25 : 9 : 9, OTD : ITD : 32 : 27, ACD : AOD=15 : 23, length of lamina relatively 23. As to clypeus Saussure gives no explanation except colour. According to Turner "clypeo apice subporrecto, margine apicali truncato, in medio dentibus binis minutis armato". We can not presume the true feature of the clypeus. In the specimen it is as given in Fig. 65, in profile as in Fig. 66, temple distinctly wider than eye. Antennal joint 3 slightly longer than 4, about 2.4 times as long as wide at apex in dorsal view, in lateral view only twice so, joint 7 longer than wide, even joint 10 slightly longer than wide even in lateral view (in dorsal view distinctly so), ultimate joint apparently obliquely truncate at apex, but without oblique area, only with oblique ridge. Pronotum with antero-lateral angles rounded, area dorsalis with a fine glittering median groove, disc obliquely very finely and closely striate, not shining, the striae strong and coarse on latero-basal angles, along lateral furrows a few coarse punctures scattered (the sculpture seems variable (Saussure gives: Metanoto summi trigono laevi, punctato, sulco diviso, while Turner (1912): Delicatissime punctato, in angulis striata). Abdominal segment 1 slightly wider than long, with sides nearly parallel and apically constricted, tergite 2 with relative width to head 90 : 126, with sides rounded, but on anterior portion curvature less strong. pygidial area: Fig. 67. Sternite 6 with a pair of posterior process accompanied on the sides with a dense tuft of long hairs.

♂. As to the male very inadequate descriptions only have been published. Saussure: Ubique crasse cribrato-punctatus; abdomine crassius punctato quam thorace, tertio abd. segmento basi nigro; capite facie flava. Turner (1912): Feminae similis; clypeo latitudine longiore; petiole latitudine sesqui longiore, 9 mm, with the addition that abdomen as strongly and closely punctured as the head and thorax. A series of specimens before me possess characters considerably well agreeing with such a category. Yet I can distinguish among them at least several species including *sculleni*, *venusta* (?), and probable *australis*, and other spp. *C. sculleni* can roughly be separated from other closely similar species by the immaculated thorax-complex. Thus the urgent problem is confined to the separation between the males of *australis* and *venusta*. According to Turner (1908) *venusta* ♂ is characterized in that the posterior ocelli are very close together, about twice as far from the eyes as from each other. If this is true it becomes that there is no male specimen of *venusta* among those before me. However, judging from the occurrence of several species that are closely similar in ♂ it seems doubtful whether the males



Figs. 65–70. *Cerceris australis* Saussure, 65–67, ♀; 68–70, ♂.
65 and 68, Head seen in front. 66, Head seen in profile. 67, pygidial area. 69, Apical three joints of antenna. 70, Variation in the form of petiole of abdomen; upper, lateral view, lower dorsal view.

designated by Turner as *australis* or *venusta* really consist of a single species respectively, or a mixture of several closely resembling species. Therefore, it seems safe to study the specimens independently of his simple description.

It is quite a venturous attempt to combine the male of one of several closely similar species with *australis* ♀, without the field knowledge and with a restricted number of specimens. Therefore, the conclusion may be an error. The specimens dealt with by me as *Cerceris* sp. No. 1, or No. 2, may be the true male of *C. australis*, or in all the specimens before me not a single male of *australis* may be included. Final determination will be made by some native entomologist. My duty is to separate them clearly.

The specimens that I consider to be the males of *australis* consist of five individuals in one of which the head and the pronotum are lacking. These probable male *australis* well agree in characters with each other (Table 2), except the form of the abdominal petiole (Fig. 70). The

petiole considerably varies in form and there remains some doubt about their identity. But here, I will dealt with them as variation. The characters of these specimens will be described in the following:

Macualtion: In four of the five specimens yellow on anterior aspect of head similar (Fig. 68), all bear two postocular spots, more or less varied in form and size, and two of them further carry two spots on vertex. Pronotum always adorned with two large lateral maculae, tegulae always wholly orange yellow; scutellum in two specimens with two spots as in ♀, in two immaculated and in one completely broken by the pin; postscutellum always orange or cream yellow; propodeum always with two orange maculae, in two large and distinct, in two very small, vestigial and in one medium-sized. Abdominal tergtie 1 in two immaculated except apical margin, in three more or less maculated as in Fig. 70; tergite 2 always orange yellow and tergite 3 always black except dark brown apical margin; tergite 4 in four specimens broadly orange except at base, in one broadly black except apical band; tergites 5, 6 and 7 all wholly orange except intersegmental areas; sternite 2 and 7 always orange, sometimes two lateral spots or a band on 5 and 6 also orange. Legs orange yellow except the basal 4/5 of coxae. Wings as in ♀.

Table 3. Mesurements of relative length or width of the selected portions in *C. australis*, ♂.

Ex.No.	OOD	POD	OCD	WH	IOD	OAD	WAS	IAD	OTD	ITD	LC	ACD	AOD	Ws1*	Ws2*	WH:Ws2
1	16	11	17	86	49	14	6	5	16	20	28	14	18	29	65	75.6
2	–	–	–	–	–	–	–	–	–	–	–	–	–	(25)	(57)	–
3	15	10	15	80	44	13	6	6	14	18	26	13	17	28	55	68.8
4	15	11	17	85	46	14	6	5	15	19	27	14	17	30	61	71.8
5	16	12	16	79	46	15	6	5	15	19	27	13	16	30	58	73.4
Average	15.5	11.0	16.3	82.5	46.3	14.0	6.0	5.3	15.0	19.0	27.0	13.5	17.0	29.3	59.8	72.5

* Ws 1 ... Width of abdominal segment 1. Ws 2 ... Width of abdominal segment 2.

On vertex OOD : POD : OCD=15.5 : 11 : 16.3 (average of 4 specimens, see Table 3). Head in front: Fig. 68; WH : IOD=82.5 : 46.3 (% of the latter 56.2), OAD : WAS : IAD=14 : 6 : 5.3, OTD : ITO=15 : 19, LC : ACD : AOD=27 : 13.5 : 17 (average of 4 specimens, see Table 3). Head seen in profile with temple approximately as wide as eye in all the specimens. Antennal joint 3 twice (dorsal view) or 1.5 times (lateral view) as long as wide at apex, joint 7 slightly longer than wide, joint 10 nearly as long as wide, ultimate joint slightly longer than penultimate joint, ending as in Fig. 69. Pronotum with antero-lateral angles rounded but somewhat incrassate laterally, with lateral vertical carinae originating from fairly inside of the antero-lateral corners, at first weak, on the middle way stronger and seen from above appear like a tooth on each side. Area dorsalis with median furrow always distinct, though varied in strength and in crenation, basio-lateral angles always obliquely striate, lateral furrows always irregularly impressed by a few or few comparatively coarse or medium-sized punctures, remaining portion of the disc finely, distinctly, but not very closely punctured, with intervals shining. Abdominal segment 1: The character of this segment is the main source of my doubt about the identity of the specimens. As given in Fig. 70 a–e, the form is quite variable, but any of them does not coincide with the character given by Turner, only d is somewhat close to his remarks. While, in one similarly maculated specimen which I placed under *Cerceris* sp. No. 1 the petiole is amply 1.5 times as long as wide and in this respect well agrees with the explanation of Turner. But the specimen is also markedly narrower in the rest of the abdominal segments and has the area dorsalis very different in sculpture, and I can not combine it with *australis*, ♀. Judging from the well agreement of many other characters and the similar instances in the species in other regions the difference in the form of this segment seems to me due to a simple variation. Pygidial area rectangular, 1.3–

1.5 times as long as wide, with sides very gently rounded out, with apical margin always truncate and the surface coarsely punctured. General punctuation close and cribrate even on abdomen. Length 8–9 mm.

Specimens examined: 1 ♀, 1 ♂, H. M. C. (?), 21. I. 1931, R. R. F. leg. (Coll. Scullen); 3 ♂♂, N. S. Wales, no date (Coll. Amer. Mus. Nat. Hist., No. 411); 1 ♂, Lake Hattah, Victoria, no date, J. E. Dixon leg. (Coll. Cornell Univ., Lot. 757, Sub. 55).

Remarks. In dermining the males, Turner's description that the petiole 1.5 times as long as wide was not taken into consideration.

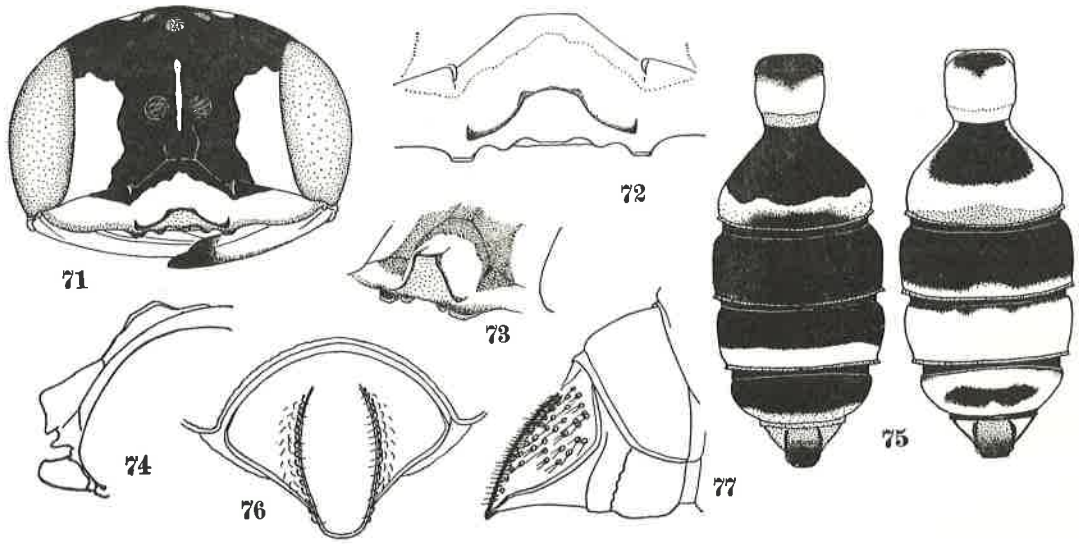
10. *Cerceris venusta* Smith, 1873

Cerceris venusta Smith, Ann. Mag. Nat. Hist., (4), 12: 413, 1873 (♀, Queensland).
Cerceris venusta: Turner, Proc. Zool. Soc. London, 30: 473, 1908 (♀♂).
Cerceris venusta: Turner, Proc. Linn. Soc. N. S. Wales, 36: 674, 1912 (♀♂).

Specimens examined: 1 ♀, N. S. Wales (Coll. Amer. Mus. Nat. Hist., No. 409); 1 ♀, Queensland, X. 1904 (Coll. California Academy of Science).

In the original description the colour pattern alone was described. In his revisional study of the Australian *Cerceris* Turner gave a more or less description on the morphological characters. His description, however, is too simple to give us a conviction of our identification. The specimens above listed, therefore, may be erroneously identified, though I believe them to be *venusta*. In the following some explanation with figures will be given:

♀. Length about 11 mm. Black, yellow maculated. Maculae on face: Fig. 71, temple with spots; maculae on thorax-complex: The same as Fig. 81; maculae on abdomen fairly varied between the specimens (Fig. 75); all legs till near apex of femora brown to dark brown, in front and mid legs beneath ferruginous, thence apically orange yellow. Wings, as usual in the Australian species, darkened on radial cell and its external area. In such maculation the two specimens differ from the descriptions of the two previous authors in that (1) clypeus and frons not wholly yellow



Figs. 71–77. *Cerceris venusta* Smith, ♀.
71, Head seen in front. 72, Apical margin of clypeus and lamina, seen obliquely from beneath and in front. 73, Ditto seen obliquely from side and beneath. 74, Head seen in profile. 75, Variation in abdominal maculation. 76, pygidial area. 77, Ditto in the lateral view.

(Fig. 71), and (2) pronotum not yellow banded, but with two large lateral maculae. But these differences may be due to variation.

Head above OOD : POD : OCD=21 : 10.5 : 24. Head seen in front: Fig. 71, WH : IOD= 103 : 62, OAD : WAS : IAD=21 : 7 : 6, OTD : ITD=20 : 28, ACD : AOD=13 : 21, relative length of clypeal lamina 15 (all vertical measurement). Anterior margin of clypeus proper 5-dentate, medial protuberance broad and weak, all blunt at apex. Clypeus seen from beneath: Fig. 72, seen obliquely from lateral and above: Fig. 73, seen in profile: Fig. 74. Mesopleuron with episternal area below the scrobal furrow more strongly roundly convex than the epimeral area above the furrow. Area dorsalis obliquely striate, the striae strong and coarse on the latero-basal angles and fine, close, delicate and not always distinct on the disc, and along the lateral furrows a few gross punctures scattered; in one specimen the posterior angle transversely finely closely striate. The form of abdominal segments: Fig. 75, pygidial area: Fig. 76, seen in profile the surface gently roundly curved (Fig. 77).

Body comparatively finely closely punctate-reticulate, punctures on mesonotum longitudinally rugosely confluent.

Remarks. The following species may be the male of *C. venusta*, but it differs from the description of *venusta* ♂ at least in the relatrve disposition of the ocelli and to avoid confusion it will be described as a separate species.

11. *Cerceris insulicola* sp. nov.

? *Cerceris venusta* Smith, ♂.

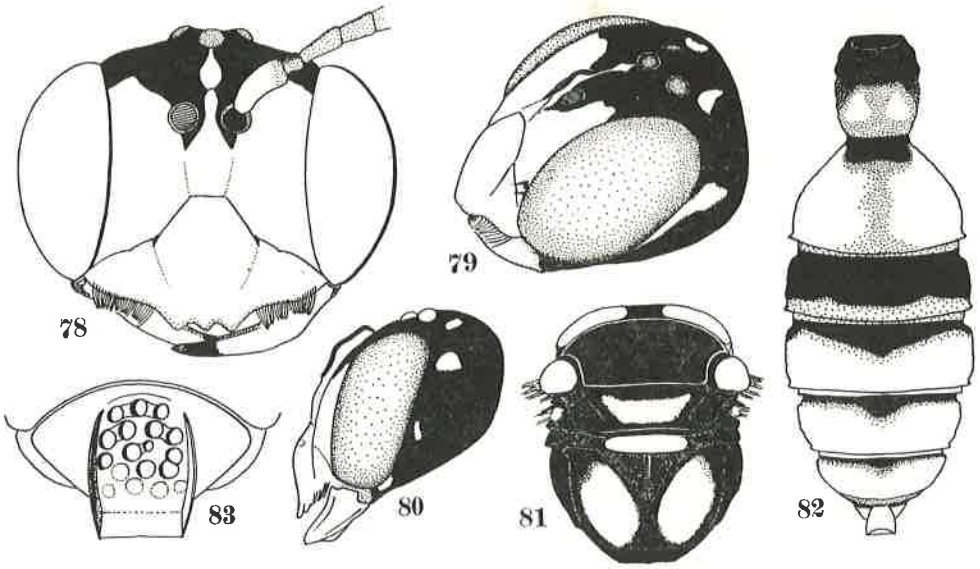
As given in the remarks of the preceding species, the examples dealt with here may represent the males of *C. venusta* Smith. But the difference in the ocellar disposition from the explanation of Turner (which well agrees in ♀ described in the foregoing pages), lack of ♀ from the same locality and wide separation of the locality from the previously known made me hesitate to combine the specimens with *venusta* ♀.

♂. Length 8.3–9.5 mm. Black, variegated with ochrous yellow and pale ferruginous red. Maculae on head: Figs. 78, 79 and 80, on thorax: Fig. 81 (seen obliquely from behind), on abdomen: Fig. 82 (white area yellow, dotted area ferruginous to ferruginous red, except eyes and ocelli), very pale brown of the anterior margin of clypeus quite characteristic. Postocular macula sometimes splits into two spots or reduced into a single small spot and always accompanied with a further spot near base of mandible (Fig. 80). Macula on scutellum sometimes divided into two maculae and sometimes they turn into ferruginous. Mesopleuron, rather exceptionally, always adorned with a distinct, comparatively large, yellow macula on subalar epimeral area. Abdominal sternites ferruginous yellow except basal half of sternite 1; apical smooth area of each sternite dark brown to black. Antennal joint 1 yellow except apex, remaining joints dark

Table 4. Measurements of relative length or width of the selected portions in *C. insulicola*, ♂.

Ex. No.	OOD : POD : COD			WH : IOD		OTD : ITD		Ws 1	Ls 1*	Ws 2	WH : Ws 2
1	12	9	15	71	38	12	18	24	27	49	55.1
2	12	8	13	67	35	11	17	22	25	45	55.6
3	13	9	14	72	39	12	18	23	26	47	55.3
4	13	9	15	74	39	12	18	24	26	49	53.1
5	14	9	16	71	38	12	18	23	26	48	54.2
6	14	9	16	81	44	14	20	26	30	54	55.6
7	15	10	16	81	44	13	20	27	29	56	51.8
Average	13.7	9.0	15.0	75.7	39.6	12.3	18.5	24.1	27.0	49.7	54.1

* Ls 1 ... Length of abdominal segment 1. Ws 1 ... Width of abdominal segment 1.
Ws 2 ... Width of abdominal segment 2.



Figs. 78–83. *Cerceris insulicola* sp. nov. (? = *venusta*, ♂), ♂.
78, Head seen in front. 79, Ditto seen obliquely from side. 80, Ditto seen in profile. 81, Thorax-complex seen obliquely from above and backwards. 82, Abdomen, dotted areas showing ferruginous red. 83, Pygidial area.

brown above and ferruginous beneath. Yellow on legs: All coxae beneath and at apex, front and mid legs except brownsih upper side of femora, hind trochanters beneath, hind tibiae except brownish outer apical half and succeeding metatarsi beneath. Hind femora wholly and hind tarsi above glossy brown, with a tint of reddish. Wings hyaline, radial cell and its external area darkened, costa, stigma and veins of basal portion light ferruginous, veins on remaining portions dark brown.

On vertex, OOD : POD : OCD=13 : 9 : 15. Head seen in front: Fig. 78, WH : IOD=71 : 38, OAD : WAS : IAD=12 : 6 : 5, OTD : ITD=12 : 18, LC : ACD : AOD=25 : 12 : 15. Anterior margin of clypeus distinctly tridentate, seen in profile median lobe somewhat strongly roundly raised (Fig. 80), temple nearly as wide as eye. Head seen obliquely from side: Fig. 79. Antennal joint 1 as long as OAD, longer than joint 3 (Fig. 78) which is twice (marrowest view) or 1.7 times (widest view) as long as wide at apex, joint 7 slightly longer than wide, ultimate joint suddenly narrowed at apex as usual. Pronotum with sides incrassate, but with antero-lateral angles rounded; mesopleuron without tooth, precoxal carina distinct, with anterior end angulated, but not pointed. Area dorsalis distinctly marked off by fine carina, always accompanied with a shallow groove, at base transversely impressed and medianly weakly furrowed. Abdomen: Fig. 82; pygidial area: Fig. 83; sternite 2 medianly at base slightly raised, but not distinctly outlined; sides of each sternite more or less swollen, but not toothed; sternite 7 without any tuft of hairs, with apical emargination moderately deep, with sinus rounded. In fore wing recurrent vein 1 received by cubital cell 2 always somewhat before middle.

Head, thorax and dorsal aspect of abdomen closely, cribrately punctured, punctures in front of anterior ocellus slightly smaller and more or less rugose, on clypeus both median and lateral lobes slightly more sparsely punctured; punctures on mesonotum posteriorly and on scutellum slightly coarser. Sculpture on area dorsalis more or less varied. As a rule (Fig. 81), (1) basal impressed area longitudinally, somewhat oblipuely striate, striae sometimes extend posteriorly on to the disc and on lateral portions completely cross the angles; (2) a few coarse punctures scattered

along lateral margin, varying in number and extent, sometimes disturbing the lateral furrows and striae; (3) remaining area finely punctulate or rugulose, sometimes leaving a more or less smooth patch posteriorly; (4) in most specimens median furrow crenate and rarely posterior half transversely rugoso-striate. Abdomen closely coarsely reticulate. Pypidial area covered with coarse but not strong punctures (Fig. 83). Sternite 2 longitudinally coarsely but weakly and irregularly punctate-striate, with latero-apical small areas very closely punctured; punctures on incrassate areas of other sternites normal, laterally closely and medianly sparsely punctured.

Holotype: ♂, Prince of Wales Island, 14. II. 1939, R. G. & Clo Wind leg. (Coll. Scullen).

Paratypes: 6 ♂♂, the same place and date, R. G. & Clo Wind leg. (Coll. Scullen).

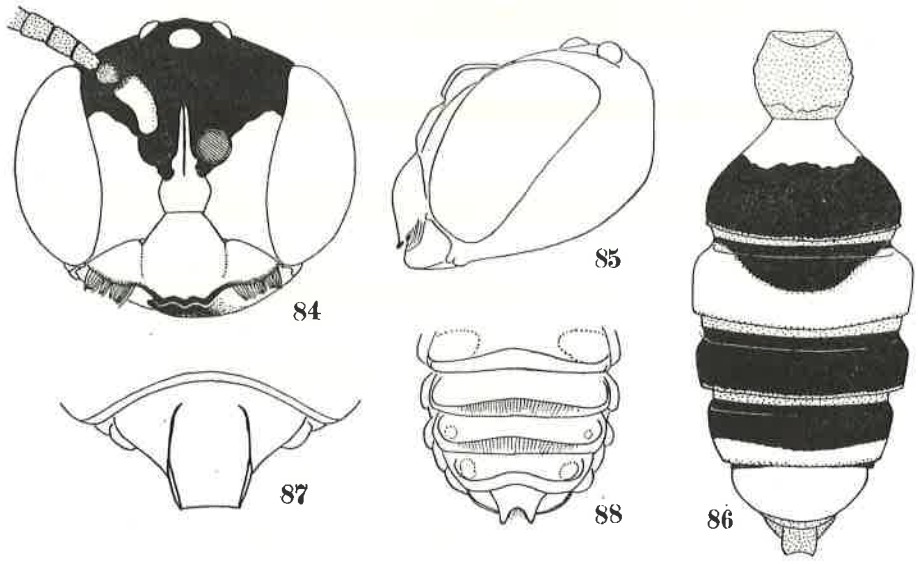
Remarks. Though not coincide with the remarks of Turner in the disposition of the ocelli this species may be the male of *C. venusta*, apart from the subspecific relationships.

12. *Cerceris minuscula* Turner, 1910

Cerceris minuscula Turner Proc. Zool. Soc. London, 1910, 347.
Cerceris minuscula: Turner, Proc. Linn. Soc. N. S. Wales, 36: 677, 1912.

♂. Beautiful small species measuring about 6.0 mm, and is characteristic in having abdominal sternites 4 and 5 adorned with a dense fringe of hairs on the apical margin and cubital cell 2 of fore wing with the petiole very short.

Black with the following portions ivory white with a faint yellowish tint: Head in front: Fig. 84, scape of antennae in front, two spots on pronotum, postscutellum, abdominal maculae as given in Fig. 86, two lateral spots on sternites 3 and 6, tibiae and tarsi of front legs, tibiae and metatarsi of mid legs, hind trochanters, and hind tibiae at base and beneath. Ferruginous are: Antennae beneath, tegulae, abdominal segment 1 and anal segment wholly. Mandibles except apex and a spot on tegulae pale yellow. Antennae above, basal portion of front and mid femora, hind femora except apex, remaining portions of hind tibiae and hind tarsi dark brown. Apical portion of front and mid femora ambur yellow. Wings hyaline, radial cell and its outer area darkened, stigma yellowish, veins dark brown, posterior vein of stigma markedly broad.



Figs. 84–88. *Cerceis minuscula* Turner, ♂.
84, Head seen is front. 85, Ditto seen in profile. 86, Abdomen. 87, Pygidial area 88, Ventral segments of abdomen.

Head in front: Fig. 84, with inner orbits more strongly divergent upwards than downwards, clypeus with median lobe markedly roundly raised (Fig. 85). Measurements of relative width as follows:

WH : IOD=48 : 25, (% of IOD 52.1), OAD : WAS : IAD=7 : 3.5 : 4.5, OTD : ITD=6.5 : 12, LC : ACD : AOD=15 : 7 : 12, OOD : POD : OCD=9 : 8 : 7 (width of ocellus 3.3). Length to width of abdominal tergite 1, 16 : 18, width of tergite 2 relatively 38 (% to WH 75.0).

Antennal joints 1 and 3 relatively 9 : 5, joint 3 1.5 times as long as wide at apex, joint 6 about as long as wide, ultimate joint longer than 3. Head seen in profile (Fig. 85) temple slightly less than as wide as eye, rather strongly narrowed towards mandible. Pronotum with antero-lateral angles rounded, but with antero-lateral vertical carinae strong and highly raised, seen from above producing like a spine on each side. Mesopleuron without spine or tubercle. Abdomen: Fig. 86, sternite 2 with a small tubercle on each side of the potential platform, representing probably the lateral outline of the area, sternites 4 and 5 provided with a dense fringe of hairs on each apical margin, (Fig. 88), very characteristic and exceptional among species of *Cerceris* (but not so dense as in *C. bougainvillensis*, ♂), swelling on the lateral portions of sternites not strong. Pygidial area: Fig. 87. In fore wing petiole of cubital cell 2 very short and completely disappeared by the usual intermission of the vein, recurrent vein 1 received by this cell close to its base; tarsal joints 2 and 3 of mid legs longer than wide at apex.

Punctuation very close, reticulate, punctures comparatively large and somewhat sparse on scutellum as usual, on abdominal tergites 4 and 5 with a more or less interspace where microscoplcally minutely, but rather sparsely punctulate. Area dorsalis medianly with a fine crenate furrow, not deep, lateral furrows coarsely foveolate, antero-lateral areas comparatively broadly, obliquely coarsely striate, posterior angle irregularly punctured, remaining portions of disc narrow and finely, not regularly punctulate. Punctures on sternite 2 large, elongate and very indistinct on outline, apparently the surface coarsely very feebly rugose; each of other sternites laterally with a few distinct punctures, and medianly broadly almost impunctate, but the surface not even.

Specimen examined: 1 ♂, Buthura (?), 29. I. 1931, E. G. Hall leg. (Coll. Scullen).

Remarks. The specimen examined differs from the descriptions of Turner on *Cerceris minuscula*, ♀, only in that the ferruginous area at the base of abdominal tergite 3 black, except for the sexual difference.

Cerceris sp. No. 1

? *Cerceris venusta* Smith, 1873, ♂.

According to the description of *C. venusta* by Turner (1912) the example is considered very similar in coloration, but it disagrees with the description of *C. venusta*, ♂, by the same author (1908) in the disposition of the ocelli. The example also differs from *C. insulicola* which may be the male of *venusta* in the relative width of the median lobe of the clypeus. Nevertheless, I would remain some possibility for the identity of this example with *venusta*.

Apparently the specimen is very similar in many characters to the probable male of *C. australis* described in the foregoing pages. Comparison will be made, therefore, with the male of this species:

Maculation: Head similar, with a single postocular marking on upper temple, no marking on vertex. Thorax-complex similar, but scutellum without maculae, postscutellum with two somewhat obscure maculae, propodeum immaculated, (mesopleuron without macula). Abdomen similar, but tergite 2 at base narrowly black, tergite 4 with basal 3rd black which is medianly triangularly extended posteriorly. All trochanters largely dark brown to black, all femora on basal

portion above darkened, in hind femora fuscous area more broadly extended apically, and on basal half beneath also darkened.

Structure: Generally very similar. Measurements of relative value of the selected parts are given in Table 4. Relative length to width of petiole 26 : 19, nearly 1.4 times as long as wide in middle, area dorsalis nearly equilateral triangle, sternite 2 with basal elevation indistinct, pygidial area similar.

Sculpture: Generally the punctuation similar, but punctures on clypeus sparser and more distinctly outlined, and on abdomen closer and stronger, on tergites 4–6 deeply coarsely reticulate, with intervalic carinae very narrow (in *australis*, ♂, punctures also close and deep, but with intervalic carinae not so acute, and the punctures with the outline more indistinct). Area dorsalis with at base a low-triangularly impressed area the apex of which extended posteriorly into crenulated median furrow; disc wholly striate, the striae on anterior portion oblique, strong, close and distinct, from middle posteriorly turning to transverse and somewhat indistinct, in part intermittent, mixing a few fine punctures towards median furrow. Sternite 2 medianly broadly polished, with very shallow indistinct small impressions, observable in oblique light only, with coarse and close punctures on lateral margins.

Table 5. Measurements of relative length or width of the selected portions in ♂♂ of five species of *Cerceris*.

Species	OOD	POD	OCD	WH	IOD	%IOD	OAD	WAS	IAD	OTD	ITD	LC	ACD	AOD	Ws1*	Ws2*	WH:Ws2
insulicola	12	9	12	67	35	52.2	10.5	5	4.5	11	17	23	11	14	21	45	67.2
sp. No. 1	12	9	13	66	36	54.5	11	5	4.5	12	15	23	11	15	19	43	65.1
sculleni	15	9	12	75	42	56.0	14	6	4	14	16	27	13	17	24	51	68.0
australis	15	10	17	80	44	55.0	13	6	5	14	18	26	13	17	28	55	68.8
sp. No. 2	13	9	14	70	40	57.1	13	5	5	13	17	24	11	14	24	49	70.0

* Ws 1 ... Width of abdominal segment 1. Ws 2 ... Width of abdominal segment 2.

Specimen examined: 1 ♂. N. CeeH (?), 14. XII. 1930. (Coll. Scullen).

Remarks. The specimen is different from the probable male of *australis* in the colour of legs (which seems decisive), in the narrower abdomen, in the sculpture of the area dorsalis, in the punctuation on the clypeus and abdomen and in the form of the abdominal petiole, and must belongs to another species. On the other hand, it differs from the male of *insulicola* in the relatively distinctly narrower median lobe of the clypeus (Table 4), in the sculpture of the area dorsalis and somewhat in maculation. It seems to me, therefore, that the example may be in a subspecific relationship with *insulicola*. The similar coloration of the legs, the black at the base of tergite 2, as well as the very similar relative values given in Table 4 seems to support the opinion.

Cerceris sp. No. 2

The specimen differs from the males of *insulicola* and sp. No. 1, in the colour of the legs, while in this respect similar to the males of *sculleni* and *australis*, but in the sculpture of the area cordata and the ocellar disposition it is rather close to the first group.

♂. Length about 7.5 mm. Similar in general coloration to sp. No. 1. Maculae orange yellow: Head in front similar to this species; a spot on upper temple and a fleck close to eye on lower temple, none on vertex, two large lateral maculae on pronotum, postscutellum, apical margin of tergite 1, tergite 2 wholly, narrow apical band on 4, whole of tergites 5, 6 and 7 except intersegmental areas, sternites 1 and 2 nearly wholly, sides of sternites 5 and 6, and 7 wholly; legs except basal 4/5 of all coxae wholly, orange yellow. Antennae beneath ferruginous, above and ante-apical margins of sternites 3 and 4 lightly darkened brown. Wings hyaline, pale yellowish,

stigma and veins ferruginous, radial cell and its apical area somewhat fuscous, but much lighter than in other species.

Measurements of the selected portions as given in Table 4, median lobe of clypeus gently roundly elevated, with apex tridentate as usual, the elevation apparently slightly higher than in No. 1, and punctures, as well as on lower frons, much sparser than in this. Posterior aspect of propodeum more deeply excavated in middle and area dorsalis anteriorly obliquely and posteriorly transversely rugoso-striate (similar to No. 1). Punctures on mesonotum longitudinally more lengthened than in No. 1, and on tergites 3, 4 and 5 sparser than in this, with more or less intervals (or interpunctual carinae slightly broader). Sternite 2 with medio-basal area slightly raised, but not well outlined, not provided with a carina or tubercle on each side, the surface of the rest of the sternite laterally coarsely but sparsely punctured and medianly longitudinally weakly striate, the striae divergent towards apex on posteriorly area. In fore wing cubital cell 2 with petiole very short, recurrent vein 1 received by this cell at about 1/4 from base, veins of stigma broad.

Specimen examined: 1 ♂, Mosman (?), 30. II. 1931, C. Dun leg. (Coll. Scullen).

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