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**NEW SPECIES OF CERAMIUS LATREILLE (HYMENOPTERA, VESPOIDEA) ALLIED TO CERAMIUS LUSITANICUS KLUG**

by

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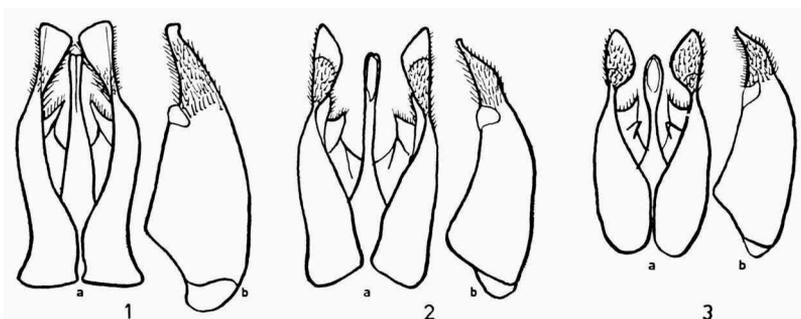
When I had dealt with *Ceramius lusitanicus* and its allies in my book (Richards, 1962, pp. 112-115) I was still not altogether satisfied, particularly as the late Dr. H. Bischoff had recognised at least one more species amongst his Spanish material. Recently, Dr. J. van der Vecht sent me a long series of Spanish specimens which he had separated into three species. I agree with him that what I called *C. lusitanicus* consists of three closely allied species, fairly easily separable by the male genitalia (best examined dry) but less easily in the females. I suspect that with still longer series from more localities the females might be even more difficult to distinguish. The three species may all occur together, as at Las Correderas, prov. Jaén. Dr. van der Vecht has also provided the first flower-records for European *Ceramius*.

***Ceramius vechti* sp. n.**

♂. Sculpture of gaster visible on tergite 1 and even on tergite 2 visible as minute excessively close punctures. Gastral sternite 8 with end straight truncate, disk not much longitudinally depressed. Apex of paramere (fig. 1) somewhat obliquely truncate, passing smoothly into the lamina, in side view quite thick, finger-shaped. Volsella with an outer membranous portion attached to the paramere and an inner stout portion of which the inner side is darkened. Aedeagus with no dorsal depression before apex. Length 14.0-18.0, mean 15.7 mm, length fore wing 10.0-11.0, mean 10.7 mm, hamuli 24-29, mean 25.9.

Pale markings of head white. Antennae more orange, segment 4 beneath

and apical third of 3 beneath, orange. Fore coxa with a large white or yellow spot (9 specimens) or dot (1 specimen) or black (1 specimen). Hind trochanter with an anteroventral yellow spot. Hind femur with a yellow spot at base and apex. Spots of first gastral tergite more or less triangular, usually separated by two and a half times their apical width (by six times this width in one specimen). Tergite 7 with a large posterior spot, produced anterolaterally in 6 specimens. Bands of gastral sternites 2-6 relatively narrower (wider in 2 specimens), sternite 7 with yellow spots on each side of the emargination (except in 3 specimens).



Figs. 1-3. Male genitalia. a, dorsal view; b, from the right. 1, *Ceramius vechti* sp. n.; 2, *C. bischoffi* sp. n.; 3, *C. lusitanicus* Klug.  $\times 8$ .

♀. Mesoscutum and scutellum very closely punctured, punctures tending to form lines, interstices almost linear and not or rarely with fine punctures. Gaster very finely sculptured but punctures visible on tergite 1 and just visible on tergite 2. Length 14.5-16.0, mean 15.5 mm, length fore wing 10.5-11.5, mean 11.0 mm, hamuli 21-30, mean 26.1.

Proximal third of mandibles yellow. Clypeus with a very large pentagonal yellow mark bearing a curved black line below (6 specimens), or whole clypeus yellow (1 specimen), or pale mark abbreviated below (1 specimen). The whole (5 specimens) or most (1 specimen) of lower orbit pale, black in 2 specimens. Frons with two small squarish yellow spots except in 1 specimen. Mesoscutum with two short posterior discal stripes (7 specimens) or none (1 specimen). Inner margin of tegula yellow. Mesopleuron with a large yellow area, produced downwards as a long narrow projection (7 specimens) or not produced downwards (1 specimen). Metapleuron with yellow dorsal and ventral spots or ventral spot only (1 specimen). Propodeum yellow with three posterior black marks or (2 specimens) with central third black. Mid coxa with a yellow spot. Mid trochanter with a yellow spot or dot. Mid femur yellow, proximal ventral third and proximal posterior three-quarters black. Hind coxa with a dorsal yellow dot or (2 specimens)

black. Hind femur usually like the mid femur but sometimes partly orange. Spots of gastral tergite 1 joined by a subapical band, interrupted in 2 specimens. Spain: Tornavacas, prov. Cáceres, 1200 m, 22 June 1961, 8 ♂ 3 ♀, include holotype ♂ and allotype ♀, J. van der Vecht, C. van Heijningen, P. Pronk, J. Wiebes; the same, 21 June 1961, 1 ♀, P. Pronk; Jerte, prov. Cáceres, 900 m, 22 June 1961, 1 ♀, P. Pronk; Zapardiel de la Ribera, prov. Avila, 900 m, 23 June 1961, 2 ♂, P. Pronk, J. van der Vecht; La Aliseda, prov. Avila, 900 m, 23 June 1961, on *Thymus mastighina* L., 1 ♂, C. van Heijningen; Las Correderas, prov. Jaén, 1000 m, 17 June 1961, 1 ♀, J. van der Vecht; Bejar, prov. Salamanca, 1 ♀, G. C. Champion (B.M.) and 1 ♀, T. A. Chapman (Oxford). Apart from the specimens in the British Museum, London, marked B.M., and that at Oxford, the material including the types is in the Leiden Museum except 1 ♂ and 1 ♀ in my own collection.

This is the member of the *lusitanicus*-complex which most closely resembles, *C. tuberculifer* de Saussure but it appears to be quite distinct especially in the male. Some notes on that species are given below.

#### ***Ceramius tuberculifer* de Saussure**

♂. Sculpture stronger on the gaster than in any of the other species, punctures more distinct, surface more shining. Apex of paramere more transversely truncate, in side view considerably thicker. Aedeagus with no dorsal depression before apex.

Pale markings of head white. Antennae with segment 4 and distal part of 3 orange beneath. Fore coxa black. Hind trochanter often with a yellow spot or streak. Hind femur with proximal and distal yellow areas and often an orange suffusion in between. Spots of gastral tergite 1 more or less triangular and produced inwards but not connected. Bands on gastral sternites 2-5 relatively wide but often interrupted on some of the posterior segments, sternite 7 black in more than half the specimens.

♀. Sculpture very like that of *C. vechti* n. sp. but more distinct on the gaster. Mandibles usually black, sometimes with a small proximal yellow spot, rarely a large one. Clypeus usually with a small transverse dorsal yellow spot, only one specimen with the dorsal half yellow. Frons black. Disk of mesoscutum black. Tegula without yellow marks. Mesopleuron with a yellow triangle which is not produced downwards. Metapleuron black. Propodeum black with a large yellow spot on each side. Mid coxa and trochanter black. Mid femur mainly black ventrally with the more dorsal part yellow and orange. Hind femur generally similar but sometimes with more black. Spots of first gastral tergite produced inwards but not connected.

Mainly recorded from the south of France but also from Spain at least to Madrid. The distribution, however, now needs further study.

**Ceramius bischoffi** sp. n.

♂. Sculpture of the gaster finer, punctures somewhat less distinct. Mesopleuron rather more closely punctured. Gastral sternite 8 more rounded truncate at end, disk markedly longitudinally depressed. Apex of paramere (fig. 2) more obliquely truncate, clearly bluntly pointed, joined to the lamina by a narrower neck, distal part three times as long as broad, first convex then sharply depressed, in side view often almost linear. Volsella with the inner projection more prominent but less blackened. Aedeagus with a well-defined pyriform depression, two and a half times as long as broad, just before the apex dorsally. Length 14.0-16.5, mean 15.1 mm, length fore wing 10.0-10.5, mean 10.2 mm, hamuli 21-25, mean 23.1.

Pale markings of head white. Antennae blacker than in *C. vechti* sp. n., segment 3 black beneath, segment 4 usually black beneath, sometimes partly or in one specimen entirely orange beneath. Fore coxa black. Hind trochanter black. Hind femur with no spot at base in 4 specimens, with one in 3, usually no yellow spot at apex but spot present in 1 specimen. Spots of first gastral tergite squarish, separated by  $2\frac{1}{2}$  to 4 times their posterior width. Tergite 7 with a large posterior spot and smaller anterolateral spots, sometimes connected. Bands of gastral sternites 2-6 wider than *C. vechti* sp. n., sternite 7 with yellow spots (4 specimens) or black (3 specimens).

♀. Mesoscutum and scutellum rather less closely punctured than in *C. vechti* n. sp., more of the interstices bearing minute punctures. Gaster similar. Length 14.5-17.0 mm, mean 15.9 mm, length fore wing 10.5-11.5, mean 10.9 mm, hamuli 21-33, mean 25.8.

Mandibles black (2 specimens) or with a proximal yellow dot (3 specimens). Clypeus black (2 specimens) or with a small pale spot (less than one-third its length) at dorsal margin (3 specimens). Lower orbit with a pale dot in 1 specimen only. Frons black (2 specimens) or with two dots (1 specimen) or two yellow spots (2 specimens). Mesoscutum with no discal spots. Tegula testaceous with an anterior inner yellow dot in 1 specimen. Mesopleuron with a dorsal yellow triangle and (in 2 specimens) with additional small marks below. Metapleuron black or (2 specimens) with a yellow dot below. Propodeum yellow with the central third and a stripe below the spiracles black, in one specimen black with a small round yellow spot on angles. Mid coxa and trochanter with yellow spots (4 specimens) or black (1 specimen). Mid femur mostly black with two long anterior spots and a

distal spot yellow; 1 specimen with only the distal spot. Hind coxa black or (1 specimen) with a small spot. Hind femur black except at the extreme apex (3 specimens) or with a large orange and yellow central region (2 specimens). Spots of gastral tergite 1 not connected (3 specimens) or joined by a complete band (2 specimens).

Spain: Tornavacas, prov. Cáceres, 1200 m, 22 June 1961, 3 ♂ including the holotype, C. van Heijningen, J. van der Vecht, 1 ♀ allotype on *Lotus religiosus* Aschk., 1 ♀ on *Oenanthe lachenalii* C. C. Gmel., 1 ♀ nest in ground with chimney, all C. van Heijningen; Jerte, prov. Cáceres, 900 m, 22 June 1961, 1 ♀, P. Pronk; Las Correderas, prov. Jaén, 700 m, 15 May 1958, 2 ♂; south of Monesterio, prov. Badajoz, 700 m, 7-8 May 1960, 1 ♂; Oropesa, prov. Toledo, 21 May 1959, 1 ♂, E. van der Vecht; Madrid, 1 ♀, Mercet (B.M.).

Apart from the specimen from the British Museum (Nat. Hist.), London, marked B.M., the material including the types is in the Leiden Museum, except 1 ♂ and 1 ♀ in my own collection.

#### *Ceramius lusitanicus* Klug

♂. Sculpture of gaster a little less distinct, of mesopleuron a little closer than in the other species. Parameres (fig. 3) generally rather like *C. bischoffi* sp. n., but distal part not much more than twice as long as broad. Inner projection of volsella more angularly projecting. Dorsal depression before the apex of aedeagus rather shorter and wider. Gastral sternite 8 more or less similar to that of *C. bischoffi* sp. n. but disk less depressed. Length 13.0-16.0, mean 14.2 mm, length of fore wing 9.5-10.0, mean 9.8 mm, hamuli 20-27, mean 23.3.

Pale markings of head pale yellow, not white. Antennae with segment 3 black beneath (except 2 specimens in which it is orange beneath distal quarter), segment 4 orange beneath. Fore coxa black (4 specimens) or with small yellow spots (2 specimens). Hind trochanter with a yellow streak or spot. Hind femur with yellow spots at base and apex, sometimes connected by an orange suffusion or (1 specimen) by yellow. Spots of first gastral tergite squarish, separated by 2 to 4 times their posterior width. Tergite 7 with a large posterior spot. Bands of gastral sternites 2-6 rather narrow, sternite 7 with yellow spots on each side of emargination.

♀. Mesoscutum and scutellum punctured as in *C. vechti* sp. n. Fore femur less angled beneath than in the other species. Gaster with punctures scarcely discernible on tergite 1 and not at all on 2-4. Length 10.0-14.0, mean 13.3 mm, length fore wing 9.5-11.0, mean 10.2 mm, hamuli 20-27, mean 23.8.

Mandibles with proximal third yellow or (1 specimen) with a small yellow spot. Clypeus nearly all yellow (3 specimens) or with a large pentagonal yellow area (8 specimens) or with dorsal half and a dot below (1 specimen) or with a small irregular dorsal spot and a dot below (1 specimen). Lower orbits with a white dot (3 specimens) or entirely white (4 specimens) or yellow (6 specimens). Frons black (7 specimens) or with small roundish spots (2 specimens) or with larger squarer spots (4 specimens). Mesoscutum with no discal spots or (2 specimens) with narrow stripes. Tegula testaceous (2 specimens) or with a small anterior yellow spot (6 specimens) or with inner margin yellow (5 specimens). Mesopleuron with large dorsal yellow triangle and small adjacent spot below (6 specimens). Metapleuron black. Propodeum black with wide yellow bands on the angles (7 specimens) or large squarish yellow spots (5 specimens) or small spots (1 specimen). Mid coxa and trochanter black (10 specimens) or with a yellow spot and dot, respectively (2 specimens) or dot on trochanter only (1 specimen). Mid femur black with a yellow anteroventral spot at apex (4 specimens), or yellow spot at base and large one at apex (3 specimens), or most of anterior surface yellow (6 specimens). Hind coxa black. Hind femur black except at the extreme apex (10 specimens) or with most of the anterodorsal surface orange (3 specimens). Spots of gastral tergite 1 joined by a subapical band (5 specimens) or not joined (8 specimens).

Spain: prov. Barcelona: Tarrasa, 22 June 1902, 1 ♀; La Garriga, May 1903, 2 ♀; Barcelona, 1 ♀, Morice coll. (Oxford). Calafell, prov. Tarragona, 28-30 April 1959, 5 ♂, two on *Anthyllis cytisoides* L., one on *Bonjeania hirsuta* L., J. van der Vecht; La Aliseda, prov. Avila, 900 m, 23 April 1961, 1 ♀, J. Wiebes; Las Correderas, prov. Jaén, 700 m, 25 May 1958, 1 ♀; 10 km north of Albacete, 800 m, 24 May 1960, 1 ♀; south of Monesterio, prov. Badajoz, 700 m, 7-8 May 1960, 1 ♀; La Heradura, prov. Granada, 14 April 1955, 1 ♀, I. H. H. Yarrow (B.M.); "Valdeon", August 1936, 1 ♂ (coll. O. W. Richards); Gibraltar, 1 ♀, J. J. Walker (B.M.). Portugal: Lisbon, 28 April 1877, 1 ♀ (B.M.), Lisbon, 1 ♀ (W. W. Saunders coll., Oxford); no precise locality, 19 May 1880, 1 ♀ (E. Saunders coll., B.M.).

The species was described from Portugal by Klug. *C. lusitanicus* var. ♂ *luteo-clypeata* Dusmet is probably the true male of this species. It was recorded by Dusmet (1909, p. 180) from Madrid: Montarco; later (Dusmet, 1951, p. 168) he added Alicante: Orihuela. Dusmet's (1917, p. 383) record from Mogador probably refers to *C. maroccanus* (G. Soika). The late Dr. H. Bischoff sent me a sketch of the male genitalia of this species and information about Klug's type which is at Berlin.

## KEYS TO THE SPECIES

## Males

1. Apex of paramere not very obliquely truncate, anteriorly passing smoothly into the lamina, end part about three times as long as broad, in side view quite thick apically. Aedeagus with no dorsal impression at apex above. Gastral sternite 8 straight truncate at end. Pale markings on head white. Antenna less black, segment 4 and apical third of segment 3 orange beneath. Gastral tergite 1 with spots more triangular. Hind femur with a basal and distal yellow spot and sometimes a ferruginous suffusion . . . . . 2
  - Apex of paramere very obliquely truncate, joined to lamina by a narrow neck, distal part inside view thin, linear. Aedeagus with a pyriform impression above before apex. Gastral sternite 8 more rounded truncate at end, disk longitudinally depressed. Antennal segment 3 usually black beneath. Fore coxae nearly always black. Gastral tergite 1 with spots more or less square . . . . . 3
2. Gastral tergites more distinctly punctured and shining, especially on tergite 2. Distal part of paramere very thick in side view, almost straight truncate. Gastral sternite 8 with a subcircular depression. Fore coxae black. Hind trochanter with a yellow spot in about half the specimens. Bands of sternites 2-6 moderately wide, more posterior ones interrupted in a few specimens, sternite 7 black or with a considerable orange suffusion . . . . . *C. tuberculifer* de Saussure
  - Gastral tergites, especially 2, more closely and finely punctured, duller. Distal part of parameres thinner in side view, more obliquely truncate. Gastral sternite 8 not depressed. Fore coxae usually with a large pale spot. Hind trochanter with a yellow spot. Bands of sternite 3-6 narrow, of 2 wider, sternite 7 usually with yellow spots on each side . . . . . *C. vechti* sp. n.
3. Distal part of paramere three times as long as broad. Dorsal depression on aedeagus two and a half times as long as broad just before apex. Abdominal sculpture finer, punctures hardly visible on tergite 2. Mesopleuron usually more closely punctured. Pale markings of head white. Antennal segment 3 and nearly always most of 4 black beneath. Hind trochanter black. Scutellum nearly always with a yellow spot . . . . . *C. bischoffi* sp. n.
  - Distal part of paramere about twice as long as broad. Dorsal depression on aedeagus shorter and wider. Mesopleuron less closely punctured, gaster more distinctly punctured. Antennal segment 4 orange beneath, 3 usually black. Hind trochanter with a yellow mark. Scutellum usually black . . . . . *C. lusitanicus* Klug

## Females

1. Gaster not punctured, even on tergite 1 punctures are hardly discernible. Fore femur less angled beneath. Mandibles usually with proximal third yellow. Clypeus usually largely yellow. Frons usually black. Mesopleuron with a large dorsal yellow triangle and sometimes a smaller spot below. Metapleuron black. Tegula usually with a small anterior yellow spot . . .  
 . . . . . *C. lusitanicus* Klug
- Gaster perceptibly punctured even on tergite 2 and even more so on tergite 1 . . . . . 2
2. Gaster more distinctly punctured more shining. Mesoscutum closely but not confluent punctured, punctures not forming lines to a marked extent. Mandibles usually black or nearly so. Clypeus with at most dorsal half yellow, usually only a transverse dorsal spot. Frons with no yellow spots. Mesopleuron with a triangular dorsal spot. Metapleuron black. Spots of first gastral tergite somewhat produced inwards but not connected . . . . . *C. tuberculifer* de Saussure
- Gaster less distinctly punctured, duller. Spots on gastral tergite 1 usually joined by a narrow apical band . . . . . 3
3. Mesoscutum and scutellum closely punctured, the punctures tending to form lines, interstices almost linear and not or rarely with fine punctures. Mandibles with proximal third yellow. Clypeus with at least a large pentagonal yellow mark bearing a curved black line, sometimes more yellow. Frons nearly always with two squarish yellow spots. Mesopleuron with a large yellow spot nearly always considerably produced downwards. Metapleuron nearly always with two yellow spots. Inner margin of tegula yellow . . . . . *C. vechti* sp. n.
- Mesoscutum and scutellum slightly less closely punctured with more fine punctures on the interstices. Mandibles black or with a proximal yellow dot. Clypeus with a small pale spot at dorsal margin or black. Frons often with no spots or with minute ones. Mesopleuron with a dorsal triangular yellow mark which is not produced downwards though sometimes there is a small spot below it. Metapleuron black or with one yellow dot. Tegula usually testaceous, rarely with a small yellow spot . . .  
 . . . . . *C. bischoffi* sp. n.

## REFERENCE

- RICHARDS, O. W., 1962. A revisional study of the Masarid wasps (Hymenoptera, Vespoidea), pp. 1-294, figs. 1-241 (British Museum, Natural History, London). (Other references may be found here).