

5824

Wing

No. 251.

Donisthorpe, H., 1944~~8~~

From
**THE PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL
SOCIETY OF LONDON**

Series B. TAXONOMY

Vol. 13, Parts 9-10, October 25th, 1944

The Royal Entomological Society of London,
41, Queen's Gate, S.W.7

A NEW SPECIES OF *BOTHRIOMYRMEX* EMERY (HYM. FORMICIDAE),
AND SOME NOTES ON THE GENUS

By HORACE DONISTHORPE, F.Z.S., F.R.E.S.

Bothriomyrmex salsurae sp. n.

♀. Dirty pale yellowish-brown, legs and antennae lighter, tibiae, tarsi, scapes and apex of antennae pale yellow, teeth of mandibles and eyes black, shining, clothed with fine greyish pubescence, a few short outstanding hairs are present on the clypeus, mandibles, and gaster.

Head slightly longer than broad, slightly narrower in front than behind, sides almost straight, posterior angles rounded, posterior border excised; *mandibles* triangular, punctured, masticatory border armed with three sharp teeth at apex, the first and third (counting the apical one as the third) longer than the second, the apical one being the longest, a small tooth or dentule is present just before the first tooth and a few dentules are indicated towards and at base; *clypeus* large, convex, anterior border rounded; *frontal area* not distinctly defined; *eyes* rather small, round, flat, situated at about the centre of the sides of the head, near to but not touching the lateral borders when viewed from above; *antennae* fairly long, *scape* only extending slightly beyond the posterior border of the head, *funiculus* with first and second joints evidently longer than broad, the first being longer than the second, the third to the tenth about as broad as long, last joint about as long as the two preceding taken together. *Thorax*, somewhat thick, broader in front than behind, con-
PROC. R. ENT. SOC. LOND. (B) 13. PTS. 9-10. (OCTOBER 1944.)

tracted behind pronotum; *pronotum* large, transverse, convex, sides and anterior angles rounded; *prosternum* forming a neck anteriorly; *mesonotum* circular, about as long as broad; *epinotum* longer than broad, narrowed behind, sloping to base, without a distinct angle between dorsal surface and declivity. *Scale of petiole* not very high, longer than broad, narrowed to base, apex bluntly pointed and showing a tendency to being slightly excised; *gaster* short oval, broadest at base, rounded anteriorly, narrowed to apex. *Legs* moderately long. *Long.* 2.5–2.7 mm.

♀. Black, shining, legs, antennae, and mandibles brown, apex of antennae and tarsi pale brownish-yellow, clothed rather thickly with yellowish-white pubescence; whiter and thicker on cheeks, and some short yellow outstanding hairs, especially on mandibles and gaster.

Head slightly longer than broad, narrowed anteriorly; sides behind eyes convex and rounded, posterior angles rounded, posterior border distinctly emarginate; *mandibles* massive, triangular, punctured, armed with one rather long curved tooth at apex and a small tooth just before it; the rest of the masticatory border faintly serrate; *clypeus* large, transverse, rather flat, anterior border rounded, *frontal area* not indicated; *eyes* large, round oval, very slightly convex, situated on each side of the head before the centre, touching the lateral borders when seen from above; *ocelli* very small, situated on top of posterior part of head near posterior border; *antennae* long, *scape* extending a little beyond the posterior border of the head, *funiculus* with first two joints distinctly longer than broad, the 1st joint narrower but if anything slightly longer than the second, 3rd joint about as long as broad; 4th–10th slightly longer than broad, last joint very slightly longer than the two preceding taken together. *Thorax* large, massive, somewhat flat above, broadest across anterior angles, narrowed to base; *pronotum*, transverse, narrow, anterior border slightly raised, *prosternum* forming a neck; *mesonotum* large, transverse, flat, rounded anteriorly and posteriorly; *praescutellum* indistinct; *scutellum* large, transverse, flat, narrowed to base; *epinotum* about as long as broad, sides straight, dorsal surface convex, shorter than the declivity, declivity rather abrupt, but angle between it and dorsal surface not marked. *Scale of petiole* hexagonal, not large, anterior border emarginate, sides with shortly pointed angles, space between anterior border and angles excised, sides behind angles straight, narrowed to base. *Gaster* short, round oval, narrowed to apex. *Legs* fairly long. *Wings* iridescent, *pterostigma* and *veins* pale brown, one cubital cell, one discoidal cell, and rather narrow, long, not quite closed radial cell present. *Long.* 3.7–4 mm.

♂. Black, shining, mandibles, legs and antennae pale brown, tarsi and apex of antennae lighter, clothed with fine greyish pubescence and a few short yellow outstanding hairs.

Head transverse, narrowed before eyes, sides behind eyes rounded, posterior border truncate; *mandibles* long, narrow, crossed at apex when closed, armed with a sharp narrow tooth at apex, and the indication of a smaller tooth preceding it; *clypeus* transverse, convex, anterior border round and slightly projecting in centre, slightly sinuate on each side; *vertex* of head slightly concave; *eyes* large, oval, prominent, situated on each side of the head in front, close to posterior border of clypeus, but with an evident space between; *ocelli* fairly large, prominent, larger in proportion than those of the female, situated on top of posterior part of head which is slightly raised; *antennae* moderately long, narrow, *scape* extending as far as the median ocellus, all the joints of the *funiculus* longer than broad, first joint shorter than the rest, last joint not quite as long as the two preceding taken together. *Thorax* longer than broad, convex, narrowed in front and behind, broadest across middle of mesonotum; *pronotum* transverse, narrow anteriorly, sides extending round mesonotum to insertion of fore-wing; *prosternum* forming a neck; *mesonotum* transverse, convex, rounded in front and at sides; *praescutellum* not indicated; *scutellum* convex, narrowed to base, transverse anteriorly; *metanotum* very narrow, transverse, lower than mesonotum and epinotum; *epinotum* about as broad as long, narrowed slightly to base, dorsal surface convex, about as long as declivity, declivity slightly concave, angle

between the two gradual and not marked. *Scale of petiole* small, not high, about as broad as long, rounded above and at sides. *Gaster* long oval, narrowed in front and behind; *cerci* present. *Stipites* thin and curved with a hook inside half-way down; *volsellae* thin, curved, very sharp, the point bending slightly outwards; *sagittae* close together, curved and sharply pointed at apex. *Legs* fairly long. *Wings* as in the ♀ but smaller in proportion. *Long.* 2.5 mm.

Described from 22 workers, 9 winged females and 5 males taken by Mr. W. Pickles at Soud Arras in Algeria. Type, and male and female types, in the British Museum (N.H.). Mr. Pickles writes that the ants were taken on 11 December 1943, in a corner of the practically deserted superstructure of a nest of *Messor aegyptiacus* subsp. *canaliculatus* Donis. A few *Messor* crawled about, when the nest was disturbed, and tapped the smaller ants, but seemed indifferent to their presence.

The genus *Bothriomyrmex* was erected by Emery in 1869 for the reception of a species (♂ and ♀) which he had captured in the neighbourhood of Naples, and named *Bothriomyrmex costae*. Roger, however, in 1863, had described the worker of a species from Montpellier and Andalusia under the name of *Tapinoma meridionalis*, and Mayr in 1870 pointed out that this was the ♀ of Emery's *costae*. Consequently the name of the species is *Bothriomyrmex meridionalis* (Roger). Forel in 1894 described another species *B. atalantis* (♀) from North Africa.

Santschi, in 1911, described a new species, *B. decapitans*, from Kairouan, Tunis, which he had previously recorded in 1906 as *B. atalantis* Forel.

In 1915 Wheeler described a species under the name of *B. dimmocki* from Mt. Tom, near Springfield, Massachusetts, but according to Emery (1925) this is not a *Bothriomyrmex* at all, but a species of *Tapinoma*. He further states that the genus *Bothriomyrmex* is exclusively palaeartic and Indo-Australian.

In 1920 Santschi enumerated 10 species of *Bothriomyrmex*, describing seven new ones, of which he gave figures. As all the European and North African species possess 4-jointed maxillary palpi, whereas those from India and Australia possess only 2-jointed ones, he gave the subgeneric name *Chronoxenus* to the latter; but he failed to cite a type. I propose *Bothriomyrmex myops* Forel, 1895, ♀♀, from Sikkim, as type by present designation.

Emery, in 1925, in a paper on the European and oriental species of the genus *Bothriomyrmex*, when referring to Santschi's 1920 monograph of the genus, suggested that the European species were not known to that authority except from specimens from collections, and often in a bad state, chiefly represented by workers, which are very polymorphic and do not offer such distinctive characters as the females and males. The male genitalia, however, exhibit considerable variation. He then gave a list, with very precise descriptions and figures of all the European and Asiatic species, subspecies, and varieties (with their synonymy), which separate naturally into an occidental group (hispano-provençal) and an oriental group (Crimea, Caucasus?, Syria, Central Asia).

It is usually the case that the genera of parasitic ants are descendants from the genera of their hosts, but Emery considered that *Bothriomyrmex* is descended from *Iridomyrmex* and not from *Tapinoma*. He pointed out that the gizzard and the male genitalia resemble more closely those of the former than the latter. Furthermore, *B. scissor* Crawley, was taken by J. Clark in a nest of *Iridomyrmex innocens* Forel, in Australia. He thought that the first species of *Bothriomyrmex* was parasitic on species of *Iridomyrmex*. At the period when *Iridomyrmex* disappeared from the palaeartic fauna and was replaced by

Tapinoma (the former occur in the Baltic Amber, but the latter do not), *Bothriomyrmex* changed hosts, and became parasites on the *Tapinoma erraticum* group. Forel (1874) was the first to discover a mixed nest of *Bothriomyrmex-Tapinoma*. On 23 June 1871 he found the two species *Bothriomyrmex meridionalis* Forel (1894) nec Roger (1863) = *B. corsicus* Sants. subsp. *gallicus* Emery (1925), and *Tapinoma erraticum* Latr. living together under a stone "au dessus de Stresa (Iles Borromées)". He explained this as having been caused by an alliance of a queen of each species. The temporary social parasitic habits of certain ants had, of course, not been discovered at that date.

Santschi was the first to make known the colony-founding habits of this genus. The method employed by the Dolichoderine parasite *Bothriomyrmex decapitans*, which was first observed by Santschi at Kairouan in Tunis in January and February 1906, is as follows: The young queen after the marriage flight wanders about in search of a nest of *Tapinoma nigerrimum*, where she is seized and dragged into the nest by the workers. She is slightly attacked in the nest, but climbs on to the brood, or on the back of the queen, when she seems to be safe from attack. While on the back of the queen, she kills her by cutting off her head. After the death of the *Tapinoma* queen the intruder is accepted in her place. Eventually the host workers die off, and a pure *Bothriomyrmex* colony remains. The matter is facilitated by the fact that the female *Bothriomyrmex* possesses the shape, colour, and smell of the larger *Tapinoma* workers. This odour is most evident in the young queens, and Santschi has called it olfactory mimicry.

It seems fairly clear that the palaeartic species of *Bothriomyrmex* are temporary social parasites on forms of *Tapinoma erraticum* and *T. nigerrimum*, and those of the Indo-Australian fauna on species of *Iridomyrmex*.

LITERATURE CONSULTED.

- EMERY, C., 1869, *Ann. Mus. zool. Napoli* 5 : 117.
 —, 1912, *Gen. Ins. Fasc.* 137 : 27-9.
 —, 1925, *Bull. Soc. Vaud. Sci. nat.* 56 : 1-22.
 FOREL, A., 1874, *Fourmis de la Suisse* : 61, 336, 371.
 —, 1894, *Bull. Soc. Vaud. Sci. nat.* 30 : 14.
 —, 1895, *J. Bombay nat. Hist. Soc.* 9 : 469, 471.
 MAYR, G., 1870, *Verh. zool.-bot. Ges. Wien* 20 : 959.
 ROGER, J., 1863, *Berlin ent. Zeit.* 7 : 165.
 SANTSCHI, F., 1906, *Ann. Soc. ent. France* 75 : 365.
 —, 1911, *Bull. Soc. Hist. nat. Afric. Nord* 3 : 78.
 —, 1920, *Rev. zool. Afric.* 7 : 201-24.
 WHEELER, W. M., 1915, *Bull. Amer. Mus. nat. Hist.* 34 : 417.