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AUSTRALIAN FORMICIDAE.

By JOHN CLARK, F.L.S.

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With the Author's Compliments.

Australian Formicidae by John Clark, F.L.S.

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The individuality of the Ant Fauna of South West Australia is pronounced, as previously noted by Prof. A. Forel. * Most of the species known at that time had been described by him, from material collected by visiting naturalists.

Until recent years little collecting had been done by local naturalists, but the collections so made tend to show that we have representatives of various groups which exhibit a rather interesting distribution.

In the following pages three new species, and the female of a recently described species, are recorded from South West Australia, and one new species from New South Wales.

The most important of these is a species of *Discothyrea*, a genus not previously found in Australia. This genus has a wide distribution, members of it are found in Africa, America, New Zealand, New Guinea and Java. The occurrence of this species in South West Australia is of particular interest.

The genus *Acanthoponera* is at present represented in Australia by one species and one variety; these have been recorded from Queensland and South Australia. I have now to record a new species from the South West of this State. This genus was originally described from South America, but has also been found in New Zealand.

The genus *Pseudopodomyrma* was recently described by Crawley. He noted the general resemblance of the workers to those of the genus *Podomyrma*. While the workers are similar in general appearance the females are very different, as will be seen from the following description and figures.

The remaining species belong to genera which have already been dealt with by me in the Journal of this Society.

The types of the new species are at present in the author's collection.

* Die Fauna Suedwest Australiens, Band 1, Lieferung 7, 1907.

Sub-family: CERAPACHYINAE.

Eusphinctus (Nothosphinctus) nigricans n.sp. (Pl. VI, 1.)

Worker: Length 5—5.3mm.

Black; antennae and legs brownish. Hairs yellowish, long, sub-erect, longer and more numerous on the gaster than elsewhere, short and adpressed on the antennae and legs. Pubescence yellowish, sparse throughout except on the antennae and legs, and more abundant on the head than on the gaster.

Shining. Head finely and densely punctate, mandibles coarsely punctate and feebly striate. Pronotum and mesonotum coarsely and sparsely punctate; epinotum more densely and finely punctate. Petiole and anterior half of the postpetiole coarsely and sparsely punctate; anterior half of the abdominal segments finely and sparsely punctate.

Head longer than broad, as broad in front as behind, widely concave on the occipital border, the angles sharp, sides nearly straight. Frontal carinae short, erect, truncate and confluent behind, extending back to the top of the antennal depression. Carinae of the cheeks short, prominent. Clypeus very short and broadly rounded. Eyes and ocelli absent. Mandibles abruptly bent at their base, indistinctly dentate. Antennae robust, scapes extending back beyond the middle of the head; first joint of the funiculus as long as broad, second to ninth broader than long, tenth longer than broad, the apical joint as long as the three preceding joints together. Thorax one and three-quarters times longer than broad, slightly broader through the pronotum than through the epinotum, slightly constricted in the mesonotal region; mesonotal sutures feebly indicated; pronotum rounded in front and on the sides, the anterior angles bluntly pointed; epinotal declivity abrupt, concave, marginate on the top, submarginate on the sides. Node of the petiole fully one and one-quarter times broader than long, broader behind than in front, the anterior border nearly straight, the sides feebly convex, the posterior border widely, but not deeply, concave; in profile slightly higher than long, the anterior face vertical, the dorsum is strongly rounded and convex above; the ventral surface in front with a long broad, blunt, tooth-like projection directed slightly backward; there is also a small sharp tooth at the posterior end of the ventral surface. Postpetiole one and one-quarter times broader than long, broader behind than in front, all four borders feebly convex; the ventral surface in front feebly produced and with a short blunt tooth-like projection. All the segments of the abdomen separated by wide, deep constrictions; the first segment is twice as broad as long.

Pygidium truncate, submarginate, minutely spinulose on the sides and tip. Legs moderately long and stout.

Hab.: New South Wales, Lismore (C. F. Deuquet).

Described from two specimens collected by my friend Mr. Deuquet in the scrub near Lismore. This species is apparently near *E. N. Froggatti* Forel, which I have not seen, but from the description of the latter it is very distinct. The colour distinguishes it from all the other Australian species.

***Phyracaces reticulatus* n.sp. (Pl. VI, 2).**

Worker: Length 3.5—4mm.

Red; antennae and tarsi testaceous. Hairs yellowish, short, erect, moderately abundant. A thin grayish pubescence on the antennae and legs.

Shining. Head, thorax and petiole densely and finely reticulate, the postpetiole and abdomen more coarsely reticulate-punctate.

Head as long as broad, much broader behind than in front, the occipital border straight, the angles rounded. Frontal carinae erect, short, truncate behind. Carinae of the cheeks forming a blunt angle in front, and extending back to the middle of the eyes. Clypeus short, broadly rounded, with a long tooth-like projection in the middle in front. Eyes large, moderately convex, placed slightly in front of the middle of the sides. No traces of ocelli. Mandibles large, strongly bent at their base, the external border convex, the terminal border strongly dentate: they are coarsely punctate-striate. Antennae robust, scapes extending to the posterior margin of the eyes, gradually thickened to the apex; first joint of the funiculus as long as broad, the second to ninth broader than long, the tenth longer than broad, the apical joint pointed, as long as the four preceding joints together. Thorax barely one and one-half times longer than broad, as broad in front as behind, mesonotal sutures not indicated; anterior border of the pronotum convex, the angles rounded, posterior border of the epinotum nearly straight, with a slight indentation in the middle; in profile strongly rounded and convex above, the epinotal declivity sloping at a slight angle; all four sides of the dorsum and sides of the declivity strongly marginate. Node of the petiole twice as broad as long, as broad as the thorax, concave in front, the angles sharp, the sides and posterior border convex, the posterior angles produced as long sharp spines, directed inward and slightly upward, the anterior and lateral borders strongly marginate; in profile feebly rounded and convex above, the anterior face vertical; the ventral surface with a short blunt tooth in front.

Postpetiole one and one-half times broader than long, as broad as the thorax, the anterior border concave, the angles sharp, the sides convex; the anterior and lateral borders strongly marginate, the lateral margins ending abruptly just in front of the posterior border. A strong constriction between the postpetiole and the first segment of the gaster; this latter is much broader than long, and broader behind than in front, it is broader than the thorax. Pygidium truncate, minutely spinulose on the sides and tip. Legs short and stout.

Hab.: Western Australia, National Park (J. Clark).

This species is not near any other known to me. The peculiar tooth-like projection on the clypeus will readily distinguish it from all the described forms. The whole insect has a heavy thick-set appearance, and looks shorter than it really is.

Sub-family PONERINAE.

Discothyrea crassicornis n.sp. (Pl. VI, 4 and 4a.)

Worker: Length 1.8mm.

Rufo-testaceous; mandibles, apical joints of the antennae and legs yellow. Hairs whitish, short and sparse on the whole body. Pubescence whitish, short, very fine and abundant everywhere, longest on the gaster.

Opaque. Densely and finely punctate-reticulate on the head, more coarsely so on the thorax and abdomen, node coarsely punctate above.

Head longer than broad, broader behind than in front, the occipital border and sides convex, the posterior angles rounded. Frontal carinae short and erect, dilated behind, truncate behind the dilation and confluent to the middle of the head. Clypeus produced, widely convex in front, feebly but distinctly crenulate. Mandibles moderately long, subtriangular, the terminal border with a sharp cutting edge which shows no traces of teeth, ending in a somewhat long sharp point. Eyes small, flattened, placed slightly in front of the middle of the sides. No traces of ocelli. Antennae 9-jointed, short and very thick; scapes short, extending to about the occipital third of the head, club-shaped, fully three times thicker at the apex than at the base; first joint of the funiculus as broad as long, cylindrical, five times longer than the second, the second to seventh much broader than long, subequal, the seventh fully three times broader than the second, the apical joint very large, about two and one half times longer than broad, and much

longer than the remainder of the funiculus. Thorax fully twice as long as broad at the pronotum; one and one half times broader through the pronotum than through the epinotum; pronotum convex in front and on the sides, feebly concave in the mesonotal region; there are no traces of mesonotal sutures; the posterior margin of the epinotum slightly concave and marginate, the angles bluntly produced; in profile rounded and convex above, the epinotal declivity abrupt, almost at a right angle with the dorsum, the sides marginate. Node, from above, two and one half times broader than long, all four sides of the dorsum convex; in profile it is twice as high as long, rounded above, the anterior face almost straight, the ventral surface in front with a short blunt tooth-like projection, to the front edge of which is attached a keel-like, translucent lamella. Postpetiole slightly broader than long, much broader behind than in front, the anterior border and sides rounded; in profile it is convex and rounded above, the ventral surface with a transverse, tooth-like process in front. A strong constriction between the two segments of the gaster. The second segment is one fourth broader than long, broader in front than behind, strongly rounded and convex, narrowing rapidly to the small apical segments which are placed below. Legs short and stout.

Hab.: Western Australia, Manjimup (J. Clark).

Two examples under a rotten log.

The occurrence of this insect in South West Australia is of great interest, as it shows the wide distribution of this ancient genus. This species appears to be intermediate between *D. clavicornis*. Emery, from New Guinea, and *D. antarctica*. Emery, from New Zealand.

***Acanthoponera occidentalis* n.sp. (Pl. VI. 3).**

Worker: Length 3.5—4mm.

Head, thorax and node castaneous, abdomen with a yellow tinge; mandibles, antennae and legs testaceous. Hairs yellow, long, slender and erect, abundant on the apical segments of the gaster, longer and more bristle-like on the clypeus. Pubescence yellow, long and adpressed on the gaster, shorter and more abundant on the antennae and legs.

Head and thorax opaque, gaster shining. Head finely and longitudinally rugose on the middle, finer and more punctate on the frontal areas and on the sides. Mandibles shining, with large, scattered, piligerous punctures. Thorax densely and coarsely punctate, becoming almost rugose on the epinotum. Node coarsely punctate. Gaster densely covered with wide, shallow punctures.

Head longer than broad, as broad in front as behind, the occipital border concave, the angles rounded sides feebly convex. frontal carinae rather flat, overhanging the antennal insertions in front, extending back to the eyes, and continued further as feeble carinae; there is a faint carinae in the middle, between the frontal carinae, extending from the front edge of the clypeus to the occipital border; in some examples the carinae is scarcely to be distinguished from the rugae of the head. Clypeus broadly rounded in front, convex above. Eyes small, flattened, placed behind the middle of the sides. No traces of ocelli. Mandibles triangular, the external border convex, the terminal border armed with five long sharp teeth. Antennae short and robust, the scapes extending back slightly beyond the posterior margin of the eyes, they are gradually thickened to the apex; first joint of the funiculus about twice as long as broad, the second a little longer than the third, but broader than long, third to tenth broader than long, the apical joint about twice as long as broad, and as long as the four preceding joints together. Thorax fully one and one half times as long as broad, broadest through the pronotum, which is almost twice as broad as the epinotum at the top of the declivity; pro-mesonotal suture sharply impressed; the suture between the mesonotum and the epinotum feebly indicated. The anterior and lateral borders of the pronotum convex, the anterior angles sharp, the posterior border of the epinotum concave, the angles produced as tooth-like projections; in profile the thorax is rounded and convex above, the epinotal declivity abrupt, feebly margined above and on the sides. Node twice as broad as long, broadest just behind the middle, almost oval, but the posterior border not so strongly convex as the anterior; in profile it is more than twice as high as long, the anterior face sloping at a slight angle, the top edge rounded, the posterior face straight, the ventral surface with a moderately long sharp tooth-like projection almost directly under the anterior face; this tooth has a broad translucent lamella attached to its anterior edge, the lamella is as long as it is broad. First segment of the gaster broader than long, broader behind than in front, the anterior border straight, the angles rounded, the sides convex; in profile it is bluntly produced in front below. A slight constriction between the first and second segment. The second segment is as long as the first, it is broader in front than behind. The apical segments short, hidden by the second. Sting long and stout. Legs short and stout.

Hab.: Western Australia, National Park (J. Clark).

Described from a small colony found under a stone.

This ant feigns death on being disturbed, or when the stone is removed from above the nest. This is the first example of the genus to be found in Western Australia. The other Australian

species, *A. imbellis*. Forel, was described from Queensland, but also occurs in South Australia. I have lately received examples which were collected at Ferntree Gully, Victoria. The variety *hilaris*. Forel, was described also from Queensland.

Sub-family MYRMICINAE.

Pseudopodomyrma clarki Crawley. (Pl. VI, 5, 5a).

Ent. Record, vol. XXXVII, No. 3, p. 40-41, 1925 *Worker*.

Female: Length 5mm. (Ergatoid). (Not previously described).

Dark reddish brown; mandibles, clypeus, scapes, terminal joints of the antennae and legs testaceous. Hairs yellowish, confined to the head and apical segments of the gaster, particularly below, where they are longer and more erect. Pubescence very fine and sparse.

Head and thorax shining, petiole and abdomen opaque. Mandibles striate and with scattered punctures. Clypeus smooth and shining in the middle, finely and densely reticulate-punctate at the sides. Head densely covered with large, deep punctures, a faint longitudinal striation between the frontal carinae. Pronotum with larger and coarser punctures, more scattered. Scutellum with large shallow punctures, more numerous on the sides than on the middle. Mesonotum with a few small punctures. Punctures on the epinotum similar to those on the scutellum. First node densely and more closely punctured than the rest of the body; the post-petiole not quite so densely covered and the punctures more shallow. Abdomen smooth, but with a microscopical reticulation.

Head as long as broad, broader behind than in front, the occipital border straight, the sides convex, the occipital angles broadly rounded. Frontal carinae short, extending back about level with the anterior margin of the eyes, wide apart, separated by fully their length behind; a moderately deep median impression between them extending to the occipital border. Clypeus produced, bilobed in the middle. Mandibles triangular, with moderately large teeth on the terminal border, apical point long and sharp. Eyes small, flattened, placed behind the middle of the sides. No traces of ocelli. Antennae short, scapes extending only to the occipital third of the head, curved, and gradually thickened to the apex; first joint of the funiculus broader than long, second and third as broad as long, fourth to ninth broader than long, tenth as broad as long, rounded at the apex. Thorax one and three-quarters times longer than broad, much broader through the pronotum than through the epinotum. Pronotum twice as broad as

long, convex in front and on the sides, the anterior angles sharp, but not produced as teeth, the posterior angles feebly projecting at the scutellum. Scutellum large, slightly broader than long, broader behind than in front. There are no traces of wing pads. Mesonotum small and transverse. Epinotum broader than long, the dorsum and declivity united in one curve; near the bottom of the declivity, on each side, is a flange-like projection. Node broader than long, somewhat cone-shaped, bluntly rounded on the dorsum, which is small, the anterior border below slightly concave, the angles produced outward and forward as broad, blunt, tooth-like projections; in profile it is as high as long, highest in the middle, the anterior face sloping at an angle of forty-five degrees, the posterior face sloping at a more obtuse angle, slightly convex, the posterior being much shorter than the anterior face. Postpetiole fully twice as broad as long, convex in front and on the sides; in profile it is twice as high as long. Abdomen one and one-third times longer than broad. First segment broader than long, much broader behind than in front. Legs short and stout, all the femora greatly incrassated in the middle; the anterior tibia very massive.

Hab.: Western Australia, Claremont (J. Clark).

This female is from the same colony from which the worker was described by Crawley. It is very much like the worker in general appearance, and was only noticed when some examples were being carded. The head is much smaller than in the worker, and the scapes much shorter. The nodes of the pedicle are very dissimilar, and the gaster considerably larger. The colour is lighter, more reddish, with the clypeus, antennae and legs testaceous; they are dark castaneous in the worker. The pilosity and pubescence are similar, even to the two stout hairs on the base of the postpetiole above.

Although its general facies are extremely like the genus *Podomyrma*, the habits are quite different. All the species of *Podomyrma* are arboreal, living in the branches and trunks of trees. The present species lives underground, in the roots of a small shrub (*Leptospermum*), growing on the coastal sandhills. It appears to utilise the burrows of wood-boring insects for its nest. I have not seen this ant outside of the nest during the day, but specimens have been found late in the evening, just before dark. The nest generally contains a large amount of insect remains.

Explanation of Plate VI.

1. *Eusphinctus* (*Nothosphinctus*) *nigricans* n.sp., dorsal view of worker.
2. *Phyracaces* *reticulatus* n.sp., dorsal view of worker.
3. *Acanthoponera* *occidentalis* n.sp., dorsal view of worker.
4. *Discothyrea* *crassicornis* n.sp., dorsal view of worker.
- 4a. *Discothyrea* *crassicornis* n.sp., lateral view of worker.
5. *Pseudopodomyrma* *clarki* Crawley. Dorsal view of female.
- 5a. *Pseudopodomyrma* *clarki* Crawley. Antenna of female.