

4.—AUSTRALIAN FORMICIDAE.

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The ants dealt with in the present paper are of more than usual interest. The majority of them belong to rare and primitive groups. Undoubtedly the most interesting is the one herein described as *Lithomyrmex glauerti*, gen. et sp. n.). This remarkable ant was found by Mr. L. Glauert amongst the fossil beds at the Irwin River. At first sight this is easily mistaken for a species of *Amblyopone*, but the characters of the head and legs indicate that it is really nearer to the genus *Onychomyrmex*, Emery, and forms a connecting link between them. At present the genus *Onychomyrmex* constitutes a tribe, *Onychomyrmecini*, quite apart from the *Amblyoponini*. A careful comparison of the species of *Amblyopone* and *Onychomyrmex* in my collection with *Lithomyrmex* suggests that the latter be placed near *Onychomyrmex* and that both be placed under the tribe *Amblyoponini*. The fact that the females of *Onychomyrmex* are ergatoid, or worker like, is of little importance in this matter, as species of various genera and tribes contain both winged and ergatoid females (*Myrmecia*, *Rhytidoponera* *Phyracaces*, etc.). They are very primitive ants and through the ages have led a more or less hypogaecic existence. Departures from the normal type of head and legs are to be expected when we consider the various classes of country in which these ants are found. Some live in rough, rocky ground, in which case we find short thick-set legs, and short strong claws; others, living in soft sandy places have normal legs and claws; whilst *Onychomyrmex*, which appear to inhabit mostly the interior of rotten logs, have long legs and very long claws.

The wing venation is remarkable in that it exhibits a vein not known to exist in any ant hitherto described. This vein, corresponding to M2 of Tillyard's notation, is shown on the accompanying plate. On submitting photographs of this wing to Dr. Tillyard, he replied (in litt.):—"The extra stump vein marked by you with a cross is obviously M2; see my figure of *Perga*, for instance, which has this vein in almost exactly the same position. It is most remarkable that any ant should possess this vein, because, of all known Hymenoptera, only the Family *Xyelidae* and the genus *Perga* (stump only) possess it. That is to say, the ants must go right back almost to the very beginning of the order. Another interesting point about your photograph is that the blackish pterostigma is a very primitive form, and is completely surrounded by main veins, as the photographs clearly show. This comes very close to the primitive forms shown in the genus *Syntexis*, which is about half-way between the *Cephiidae* and the *Xiphriidae*. The lower vein, which encircles the stigma posteriorly, is the true radial sector while the upper one, which runs along the costa, to meet it, is the main stem of the radius."

Another feature in connection with the wings is that the veins show indications of having been continued, almost to the apex of the wing, they are represented now by obsolete markings.

The wings of most species of *Amblyopone* clearly show the pterostigma encircled by the veins, particularly so in *Amblyopone aberrans*, Wheeler, from Western Australia. The wings of *A. saundersi*, Forel, of New Zealand, have almost identically the same venation as *A. aberrans*.

Recently, Dr. Wheeler has revised the genus *Amblyopone*; unfortunately, whilst giving a good key to the species, he has omitted to give a generic diagnosis. The species he describes as *A. hackeri* is congeneric with *Stigmatomma saundersi* Forel, which is certainly not a *Stigmatomma*. I recently received a number of specimens of both workers and females from Dr. Tillyard and Mr. E. S. Gourlay, of New Zealand. This group of *Amblyopone* is apparently well represented in Australia, there being several undescribed species in my collection. A few are herein described.

Whilst collecting Lepidoptera recently in Cape York, Mr. W. B. Barnard of Toowoomba, sent me a fine collection of ants from that locality. This contained examples of a very large *Polyrhachis*, herein described as *Polyrhachis barnardi*, n. sp. One specimen was found securely attached to a leaf on a tree, by a peculiar species of fungus, probably *Cordyceps*. This is being investigated by Dr. Ethel McLennan, of the Melbourne University.

Sub-family PONERINAE Lepeletier.

Tribe AMBLYPONINI, Forel.

Genus LITHOMYRMEX Gen. Nov.

Worker.—Monomorphic; mandibles long and narrow, with long, curved, acute tips, their inner borders armed with strong teeth, those at the middle very long and directed backward. Maxillary and labial palpi short, 2-jointed. Clypeus moderately short, strongly rounded, the anterior border with a row of small sharp points, or denticles. Frontal carinae small, closely approximated, dilated in front, separated by a very narrow groove. Eyes small, placed behind the middle of the sides of the head. No ocelli. Antennae 12-jointed; scapes greatly enlarged towards their apex; funiculus gradually thickened towards their apex. Thorax slender; mesonotum narrow, transverse. The sutures of the thorax very distinct. Petiole with a very short peduncle in front, the posterior face articulated on its whole width with the post-petiole the latter broad and convex, separated from the gaster by a strong constriction. Legs long and slender, with one spur on each tibia, those on the middle tibia being slightly smaller than the others. Claws large, curved and simple; pulvilli moderately large.

Female.—Winged. Similar to the worker, but with larger eyes, and three large ocelli. The gaster is much larger. Wings with one closed cubital cell; radial cell closed; vein M2 present.

Male.—Mandibles small and narrow. Frontal carinae short. Antennae long, slender, 13-jointed; scapes slightly longer than the first two joints together. Eyes and ocelli large. Mesonotum with deeply impressed mayrian furrows. Genitalia retracted. Cerci absent. Legs slender with one spur on each tibia. Wings with one cubital cell; radial cell closed. Vein M2 present.

Genotype *Lithomyrmex glauerti*, n. sp.

This genus is half-way between *Amblyopone* and *Onychomyrmex*. In *Amblyopone* the frontal carinae are widely separated, and the legs have one or two spurs on each tibia. In *Onychomyrmex* the frontal carinae are closely approximated, the front and middle tibia have each one spur, and the hind tibia has no spurs.

LITHOMYRMEX GLAUERTI, n. sp.

(Pl. I., figs. 1-11.)

Worker.—Length 5—6mm.

Reddish brown, legs paler, almost testaceous. Hair yellow, short, sub-erect, longer and more abundant on the apical segments of the gaster than elsewhere, short and adpressed on the antennae and legs. Pubescence yellowish confined to the antennae and legs, where it is very fine and close lying.

Shining. Head finely and sparsely punctate; mandibles coarsely punctate, the punctures shallow and somewhat elongated. Thorax with a few scattered, shallow punctures, slightly coarser on the epinotum than on the pronotum. Petiole and gaster with fine, scattered, shallow punctures, and in addition with a close microscopic reticulation.

Head slightly longer than broad, as broad in front as behind, the occipital border and sides convex, the posterior angles strongly rounded. Frontal carinae short, approximated, separated only by a narrow groove, truncate behind. Carinae of the cheeks very short. Clypeus short, broadly rounded in front and above, the anterior border armed with small denticles. Eyes small, placed behind the middle of the sides. Ocelli absent. Mandibles long and narrow, abruptly bent at their base; the external border concave in the middle, the points strongly curved inwards; the inner border convex, armed with seven unequal teeth, excluding the point of the mandible, the two at the middle are longest and strongly hooked backward. Antennae robust, the scapes extend beyond the hind margin of the eyes, constricted in the middle, and much thicker at the apex than at the base; first joint of the funiculus longer than broad, second to tenth as long as broad, the apical joint bluntly pointed and longer than the two preceding joints together. Thorax fully twice as long as broad; pronotum slightly broader than long, strongly convex in front and on the sides; mesonotum small, four times broader than long; epinotum longer than broad, broader behind than in front, without a defined margin between the dorsum and the epinotal declivity, the latter short, and at an obtuse angle; petiole broader than long, strongly convex in front and on the sides, the anterior face almost vertical, the posterior face articulated on its whole width with the postpetiole; in profile it is feebly rounded and convex above, the dorsum merging into the anterior face by a strong curve, the ventral surface with a broad tooth-like projection in front. A deep constriction between the petiole and postpetiole, the latter is almost twice as broad as long, with evenly convex sides. A moderately deep constriction between the postpetiole and gaster. First segment of the gaster broader than long, and slightly broader behind than in front. Legs moderately long and slender, all the tibiae armed with one large pectinate spur; claws long and simple; pulvilli large.

Female. Length 6 mm. (Winged.)

Resembles the worker but is larger and more robust. The head is longer, and much broader behind than in front. The eyes slightly larger, and with three well developed ocelli. Thorax fully twice as long as broad. Wings hyaline, their tips not extending to the apex of the gaster; with one cubital cell. Vein M2 present, as a stump only.

Male. Length 6 mm.

Black. Mandibles, antennae and legs brownish, apical joints of the antennae and tarsi lighter.

Hair yellow, short and moderately abundant on the head and body, longer and more numerous on the apical segments of the gaster. Pubescence greyish, particularly on the gaster, very short and adpressed on the antennae.

Shining. Head with a few large, scattered, shallow punctures in front. Mandibles punctate. Pronotum slightly rugose. Mesonotum smooth, with small scattered punctures in front, and large scattered punctures behind. Scutellum also with scattered shallow punctures. Epinotum irregularly rugose. Petiole densely punctate. Postpetiole and gaster with small scattered punctures.

Head as long as broad, almost circular. Frontal carinae obsolete; there is a faint median impression on the centre of the forehead, extending to the anterior ocellus. Clypeus broadly rounded in front, rounded and convex above. Eyes very large, placed in front of the middle of the sides. Ocelli large. Mandibles small and sharply pointed. Antennae robust, 13-jointed; scapes slightly longer than the first two joints of the funiculus together, enlarged at the apex, their insertions exposed; all the joints of the funiculus longer than broad. Pronotum narrow, convex and rounded in front and on the sides. Mesonotum as long as broad, broader behind than in front, mayrian and parapsidal furrows deeply impressed. Scutellum slightly broader than long, convex and rounded. Epinotum broader than long. Wings hyaline, not extending to the apex of the gaster; with one cubital cell; vein M2 present, as a stump only. Petiole broader than long, the anterior border strongly convex; in profile it is rounded and convex above, the anterior face almost vertical; the ventral surface with a long blunt tooth-like projection in front. Postpetiole and all the segments of the gaster broader than long. Cerci absent. Genitalia retracted. Legs long and slender, all the tibiae have one spur each; claws long and simple.

Hab.:—Western Australia, Irwin River, August 1926 (L. Glauert).

Types in the Western Australian Museum.

Described from four workers, one female and one male. A half grown larva was also found, but not in condition to be described. They were found under a stone, on the fossil beds at the Irwin River, by Mr. L. Glauert, to whom the species has been dedicated.

AMBLYOPONE MICHAELSENI, Forel.

Forel, Fauna Sudwest-Australiens 1, p. 264, 1907, *worker*;

Emery, Gen. Insect. Fasc. 118, p. 26, 1911, *worker*;

Wheeler, Proc. Amer. Acad. of Arts & Sc., vol. 62, 1, p. 18, fig. 4, 1927, *worker*.

Female. Length 11-12.3 mm. (Not previously described.)

The body is slightly darker than that of the worker, almost black. Mandibles, head, to the occipital third, and the antennae castaneous; legs and apical segments of the gaster more yellowish.

The head is longer than broad and scarcely narrowed behind. The occipital border is more concave and the angles more prominent. The eyes and ocelli are large. The thorax is smooth and shining, with a few small shallow punctures. The node is one-fourth broader than long, the base and the sides more densely and coarsely punctate. The postpetiole and gaster densely covered with piligerous punctures. Wings with a slight brownish tinge, veins and stigma brown.

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

Victoria, Glenrowan (in National Museum Collection).

The female in the National Museum differs from the type only in having the wings slightly lighter, more hyaline.

Workers of this species have also been received from the following additional localities:—

Victoria, Buxton (R. Blackwood).

New South Wales, Bogong (in Macleay Museum Collection).

AMBLYOPONE MANDIBULARIS, n. sp.

(Pl. I., figs. 12-15.)

Worker. Length 4.5-5.6 mm.

Castaneous, mandibles slightly darker, teeth black. Antennae and legs reddish yellow.

Hair yellow, short and suberect on the head and thorax, longer and more abundant on the gaster, very short and adpressed on the antennae and legs.

Shining. Dorsal surface of the mandibles longitudinally striate, with a few small punctures between the striae and a row of large punctures at the base of the teeth. On the ventral surface, they are concave and longitudinally striate. Clypeus finely longitudinally striate, the striae ascending into the frontal area. Head, in the middle, longitudinally striate, with a row of punctures between the striae; on the sides, in front of the eyes. It is more rugulose, almost reticulate in the antennal depression. Pronotum longitudinally striate, with a row of punctures between the striae as on the head, the striae arched, following the contour of the sides of the pronotum. Mesonotum and epinotum smooth and shining, with a few scattered shallow punctures. Sides of the thorax very finely and irregularly striate, longitudinally on the pronotum and obliquely on the meso and epinotum. Node, postpetiole and gaster with numerous shallow piligerous punctures.

Head as long as broad, slightly broader in front than behind, the sides almost straight, the posterior border concave and the angles rounded, the anterior corners ending in a sharp tooth-like projection directed forward.

Clypeus broadly rounded in front, and with a row of small sharp denticles. Frontal carinae moderately widely separated. Frontal area large. Frontal groove obsolete, hardly indicated behind the posterior limit of the carinae. Eyes very small, placed at the posterior third of the head. No ocelli. Mandibles much shorter than the head, the external border concave, ending in a long sharp point, inner border strongly convex and armed with eleven teeth, excluding the point of the mandible; the second, third and sixth are long and sharp, the first and fifth being somewhat smaller, the fourth very small but equal in size to the five small teeth near the base; all are directed slightly backward. Antennal scapes not quite extending to the eyes, slightly thicker at the apex than at the base; funicular joints one to seven longer than broad, nine and ten as broad as long, the apical joint longer than the two preceding joints together. Thorax barely twice as long as broad. Pronotum broader than long, strongly convex in front and on the sides, feebly rounded on top. Mesonotus much broader than long. Epinotum as broad as long, broader behind than in front, face of the declivity abrupt, borders of the latter and the dorsum submarginate. Petiole barely twice as broad as long, broader in front than behind, the anterior border almost straight, the sides convex, rounded and convex above, the ventral surface in front with a long translucent projection which is twice as long as it is broad, feebly directed backward. Postpetiole broader than long, and much broader behind than in front, without a protuberance on the ventral surface in front. First segment of the gaster as broad behind as in front. Legs short and stout.

Hab. : Victoria, Altona (F. P. Spry); Belgrave (F. E. Wilson); Eltham (J. E. Dixon); Cheltenham (C. Barrett, L. B. Thorn).

Described from a small colony from Belgrave. This species is close to *A. clarki*, Wheeler from W. Australia. It is readily distinguished by the mandibles which are striate on the underside. The basal teeth on some examples are partly in two rows. The frontal carinae are not so widely separated.

Type in the National Museum.

AMBLYOPONE WILSONI, *n. sp.*

(Pl. I., figs. 16-19.)

Worker. Length 3 mm.

Yellowish red. Mandibles, antennae and legs lighter. Teeth black.

Hair yellow, moderately abundant throughout, short and adpressed on the antennae and legs. Pubescence short and close lying, particularly on the antennae.

Head densely and finely rugose, slightly coarser behind than in front. Mandibles longitudinally and irregularly striate, with a few elongate shallow punctures between the striae. Scapes somewhat coarsely punctate. Pronotum densely covered with large shallow punctures. Mesonotum also densely punctate, but the punctures much coarser than on the pronotum. The punctures on the epinotum large and scattered. Node and postpetiole smooth and shining, with numerous small shallow punctures; all the segments of the gaster much more finely punctate.

Head longer than broad, very slightly broader in front than behind, the occipital border concave, the sides convex, the posterior angles rounded; there is a sharp tooth-like projection in front at the junction of the clypeus. Clypeus short, broadly rounded in front, with eight rather long sharp denticles, the two at the sides and the pair in the middle appear as broad bifid teeth. There is a small single tooth between these large ones. Frontal carinae short, very close together, almost meeting in front, diverging very slightly outward behind; in front, they overhang, but do not hide, the antennal insertions, these are exposed. Eyes and ocelli absent. Mandibles long and narrow, the external border concave in the middle, abruptly bent at their base and at the point which is long and sharp; the inner border convex, armed with seven teeth, the first long and simple, the second to the fifth long, broad and bifid at the apex, directed slightly backward, the sixth and seventh are simple and sharp, also directed backward, the seventh is slightly longer than the sixth. Antennae short and stout; scapes parallel, extending to the posterior third of the head; first joint of the funiculus as long as the three following joints together, the second longer than the third, the others subequal in length, the joints gradually increase in width from the second to the apical which is pointed and as long as the three preceding joints together. Thorax two and a third times longer than broad. Pronotum as long as broad, convex in front and on the sides; in profile, it is feebly rounded and convex above. Mesonotum twice as broad as long. Epinotum as long as broad, broader behind than in front, the epinotal declivity abrupt, the sides of the latter and of the dorsum submarginate. Node as long as broad, the anterior border convex, the sides nearly straight; in profile nearly flat above, the anterior surface vertical; there is a broad translucent tooth on the ventral surface in front, the posterior corner of the tooth is directed backward. Postpetiole broader than long and broader behind than in front, the sides strongly convex. First segment of the gaster broader than long and as broad in front as behind. Legs short and stout.

Hab. : New South Wales, Barrington Tops (F. E. Wilson).

This species is remarkably like *A. saundersi*, Forel. It is, however, abundantly distinct. The formation of the teeth of the mandibles and clypeus, and the shape of the node at once distinguish it from that species. With a magnification of sixty I can find no traces of eyes.

This species is dedicated to Mr. Wilson, who has collected many rare species of ants.

AMBLYPONE EXIGUA, n. sp.

(Pl. I., figs. 20-23.)

Female. Length 3.8 mm. (dealtated).

Head, gaster and legs testaceous, thorax darker.

Hair yellow, long and abundant on the node, postpetiole and gaster, short on the legs and antennae.

Shining. Head very finely reticulate-rugose, with some very fine striae in front. Mandibles coarsely and irregularly striate, the striae having a longitudinal direction, a few elongate shallow punctures between the striae. Scapes coarsely punctate. Pronotum, on the sides, with moderately large shallow punctures, widely scattered on the disc. The anterior third of the mesonotum densely punctate, the punctures finer than those on the pronotum, the posterior two-thirds more coarsely punctate and finely reticulate between the punctures. Scutellum and epinotum finely rugose. Node smooth and shining, with numerous small shallow punctures, particularly on the sides, much finer than on the pronotum. Postpetiole and gaster densely punctate.

Head slightly longer than broad, and broader in front than behind, the sides and occipital border nearly straight, the posterior angles rounded, the anterior corners produced, tooth-like and directed forward. Clypeus broadly rounded in front, with eight rather long sharp denticles. Frontal carinae short, almost meeting in front, but diverging feebly outward behind, the top edges lobe-like and overhanging the antennal insertions. Eyes small, flattened, placed behind the middle of the sides of the head. Ocelli small but distinct, the anterior ocellus in a slight depression. Mandibles about two-thirds of the length of the head, the external border feebly concave in the middle, strongly bent inward and downward at the point which is long and sharp; the inner border convex, armed with seven teeth, the first and second are small, simple, and directed slightly forward, the third, fourth and fifth are large and bifid at the apex, forming double teeth, both points are sharp and directed backward, the sixth is similar but much smaller, the seventh is simple, short and broad, close to the base of the mandible. Antennae somewhat short and stout, the scapes extending to the middle of the eyes, much thicker at the apex than at the base; first joint of the funiculus longer than the second and third together, from the second to the tenth the joints are broader than long and gradually increase in thickness to the apical which is long and pointed, and as long as the five preceding joints together. Thorax fully twice as long as broad through the pronotum, the latter one-third broader than long, strongly convex in front and on the sides, feebly rounded above. Mesonotum as long as the pronotum, much broader in front than behind, strongly rounded laterally above; there is a well defined constriction between the pronotum and mesonotum, but between the latter and the scutellum, the constriction is hardly apparent. Wing stumps are present. Scutellum small, one and three-quarter times broader than long, almost flat above. Epinotum twice as broad as long, broader in front than behind, without a defined margin between the dorsum and declivity, the latter abrupt, with the sides feebly marginate. Petiole broader than long, broader behind than in front; in profile it is almost straight and flat above, the anterior face vertical; there is a broad flat tooth on the ventral surface in front, the bottom edge of which is rounded, ending in a feeble point behind. Postpetiole broader than long, broader behind than in front, the sides convex; there is a strong constriction between the postpetiole and gaster. First segment of the gaster broader than long, as broad in front as behind, with the sides evenly convex. Legs short and stout.

Hab.: Victoria, Belgrave (F. E. Wilson).

AMBLIOPONE SAUNDERSI, Forel.

Mitt. Schweiz. Ent. Ges., Vol. 8, p. 336, 1892. *Female*.

Stigmatomma saundersi, Dalla Torre, Cat. Hym., Vol. 7, p. 15, 1892; Emery, Gen. Insect. 118, p. 25, 1911. *Female*.

(Pl. I., figs. 24-29.)

Worker. Length (Not previously described.)

Reddish yellow, mandibles, antennae and legs testaceous. Hair yellowish, short, sub-erect, moderately abundant everywhere, but much longer and more abundant on the apical segments of the gaster. Pubescence very fine and close lying.

Shining. Head very finely and densely punctate-reticulate. Mandibles longitudinally striate, with scattered shallow punctures between the striae. Antennal scapes somewhat coarsely punctate-reticulate. Pronotum smooth and shining, with a few scattered shallow punctures on the disc. Mesonotum finely rugose. Epinotum smooth and shining, with a few scattered shallow punctures. Node and postpetiole smooth and shining. Gaster finely punctate.

Head very slightly longer than broad, broader in front than behind, the occipital border nearly straight, feebly concave, the sides straight to the occipital third, from there they are strongly rounded to the border; there is a short tooth-like projection in front at the junction of the clypeus. Frontal carinae very short and lobe-like, the top edge overhanging the antennal insertions. They are separated by a narrow groove, almost meeting in front and diverging gradually behind; the carinae scarcely reach to the top of the antennal depression behind. Clypeus short, the anterior border strongly rounded in front, this border has ten small teeth or denticles. Eyes small and flat, placed near the occipital third of the sides. No ocelli. Mandibles long and narrow, but not so long as the head, the external border feebly concave in the middle, from the apical third they are strongly rounded inward and downward, terminating in a long sharp point; the inner border strongly convex, armed with seven teeth, excluding the point of the mandible, the first two are small and sharp, the three following are large and broad, bifid at the apex, suggesting a double tooth (these bifid teeth are more distinct on some specimens than on others), from the third tooth the mandible is strongly reduced to the base, near the base is a very large, sharp simple tooth. Antennae short and stout, sub-clavate, the scapes not extending beyond the eyes, parallel, slightly bent near the apex; first joint of the funiculus as long as the three following joints together, it is also much broader, all the joints from the second to the apex gradually increasing in length and width to the apical, which is sharply pointed, and as long as the three preceding joints together. Thorax two and a quarter times longer than broad. Pronotum slightly broader than long, rounded in front and on the sides; the dorsum is nearly flat, feebly concave. Mesonotum broader than long, the sutures well defined. Epinotum longer than broad and broader behind than in front, the epinotal declivity abrupt, without a defined margin between the latter and the dorsum. Node as broad as long, convex in front and on the sides; in profile it is as high as long, the dorsal surface feebly convex, the anterior face straight, there is a moderately long sharp tooth-like process on the ventral surface in front. Postpetiole broader than long, much broader behind than in front, the sides convex; there is a well defined constriction between the latter and the gaster. First segment of the gaster broader than long and broader behind than in front. Legs rather short and stout, tibiae of the anterior legs with one spur each, each of the middle tibiae with two small bristle-like spurs, and the hind tibiae have each one broad pectinate spur and one long bristle-like spur.

Female. Length 4.1-4.3 mm.

Closely resembles the worker from which it differs in having ocelli, larger eyes and well developed wings. The wings are hyaline; the radial cell closed.

Male unknown.

Hab. : New Zealand, Nelson (R. J. Tillyard, E. S. Gourlay); Governor's Bay (E. S. Gourlay).

Type worker in the Cawthron Institute, Nelson.

DISCOTHYREA BIDENS, n. sp.

(Pl. I., figs. 30-31.)

Worker. Length 2.7 mm.

Head brown, thorax and node black, mandibles, antennae and legs testaceous, gaster brownish yellow.

Hair greyish, short and fine, sub-erect, more abundant on the gaster than elsewhere. Pubescence greyish, very fine and close lying, particularly on the antennae and legs.

Semi-opaque, mandibles shining. Head, thorax and node very finely and densely reticulate-punctate; gaster densely and finely covered with shallow punctures. Antennae and legs finely punctate.

Head one and-quarter times longer than broad, the occipital border and sides strongly convex, the posterior angles rounded. Mandibles short, triangular, edentate, ending in a sharp point. Clypeus produced in front, overhanging the mandibles, the anterior border convex, the sides straight and parallel. Frontal carinae erect, short truncate behind. Eyes large, flat, placed in front of the middle of the sides. Antennae short and thick, the scapes greatly thickened to the apex; first joint of the funiculus almost globular, as long as broad and as long as the second and third together, joints two to seven broader than long, apical joint twice as long as broad, pointed, as long as all the other joints of the funiculus together. Thorax short, one and two-thirds times as long as broad, without traces of sutures; the pronotum convex in front and on the sides. Epinotum much narrower than the pronotum, the posterior border widely emarginate in the middle, forming two broad flat triangular tooth-like projections which are directed upward; epinotal declivity abrupt and straight, feebly margined on the sides. Node almost twice as broad as long, broader behind than in front, the anterior and posterior borders straight, the sides convex; in profile the node is twice as high as long, the anterior face inclined backward, the dorsal face short and strongly rounded into the anterior and posterior faces; there is a short sharp tooth on the middle of the ventral surface below. Postpetiole slightly broader than long, broader behind than in front, the anterior border short and strongly convex; in profile strongly rounded and convex above. A deep constriction between the postpetiole and first segment of the gaster, the latter is broader than long; the apical segments small and placed below. Legs short and stout.

Hab. : Victoria, Warburton (F. E. Wilson).

This species is readily separated from *D. crassicornis*, Clark, by its larger size, very large eyes, and by the posterior angles of the epinotum which are tooth-like and directed upward.

Sub-family DORYLINAЕ, Leach.

Genus AENICTUS Shuckard.

AENICTUS HILLI, n. sp.

(Pl. I., figs. 32-36.)

Male. Length 8 mm.

Yellow, occipital border of the head and the eyes dark brown. Hair yellowish, very fine, long and pointed, abundant on all the body.

Shining. Head, thorax, node and gaster densely covered with fine shallow punctures. The mandibles with somewhat coarser punctures.

Head small, twice as broad as long, occipital border rounded and convex. Mandibles slightly longer than the head, broad, flattened and abruptly bent at their base, tapering to a sharp point in front, the inner border concave, edentate, the outer border convex. Clypeus very short and concave. Eyes very large, convex, occupying all the sides of the head, the facets feebly impressed, the eyes appearing smooth and shining. Ocelli large and globular, the posterior pair placed on the occipital border. Scapes of the antennae very broad and flattened, five times broader than thick, as broad as long; funiculus swollen in the middle, tapering to the base and to the apex; first joint as long as broad, second to tenth broader than long, the two apical joints longer than broad. Thorax fully one and two-thirds longer than broad; in profile it is very high, the pronotum and the epinotum descending almost vertically from the dorsum. Pronotum short, strongly rounded and convex in front and on the sides, scarcely visible from above, the thorax appearing to be composed of the mesonotum and scutellum. Mesonotum longer than broad, strongly convex in front and on the sides, rounded and convex above, parapsidal furrows distinct, mayrian furrows not present. Scutellum broader than long, strongly rounded and convex, almost globular, overhanging the epinotum, the latter forming an abrupt declivity. Wings hyaline, rather long, veins brown; with one discoidal cell and radial cell closed, the veins continued to the apex of the wing. Node broader than long and broader behind than in front, the anterior and posterior borders concave, the sides convex, the dorsum deeply concave in the middle, the concavity descending almost to the short petiole behind; in profile the node is higher than long, the anterior face and border of the dorsum convex; the ventral surface is produced into a long broad tooth, occupying almost the full area, directed backward. Postpetiole much broader than long, convex in front, the sides almost straight. The gaster large, long and cylindrical, the apical segments bent downward. Genitalia retracted. Legs short and slender; femora of all the legs flattened, about four times broader than thick.

Hab.: North Queensland, Malanda (G. F. Hill).

This is the first male of the genus to be described from Australia. Workers of three species have previously been recorded.

Sub-family FORMICINAE, Lapeletier.

POLYRHACHIS (MYRMHOPIA) BARNARDI, n. sp.

(Pl. I., figs. 37-38.)

Worker. Length 12-12.5 mm.

Black. Mandibles, antennae, coxae and femora brown, tibiae and tarsi with a violet sheen.

Hair greyish, erect, moderately long and abundant on the whole body, much shorter on the antennae and legs. Pubescence silvery on all the body except the gaster, there it has a yellowish tinge, abundant and close lying, almost completely hiding the sculpture of the clypeus, parts of the head, the node and gaster.

Mandibles smooth and shining, the rest of the body opaque. Mandibles with scattered shallow piligerous punctures. Clypeus microscopically reticulate. Front of the head longitudinally rugose, the occiput coarsely and irregularly rugose. Pronotum and mesonotum coarsely and irregularly

rugose, similar to the occiput. Dorsal surface of the epinotum microscopically reticulate, the declivity irregularly but finely rugose. Sides of the thorax, also of the node, very coarsely and irregularly rugose. Anterior face of the node rugose, the dorsum and posterior faces densely reticulate-punctate, coarser than on the epinotum. Antennae, legs and gaster microscopically punctate.

Head longer than broad, much broader in front than behind, the sides and occipital border convex, the latter with a well defined margin, seen from above the sides appear to be constricted just in front of the occipital border: strongly convex longitudinally and transversely, the inferior posterior angles produced. Mandibles large, armed with five large sharp teeth. Clypeus large, the anterior border strongly convex, a rather sharp carina in the middle. Frontal area small, triangular and indistinct. Frontal carinae long, extending back almost level with the posterior margin of the eyes. Eyes large and globular, placed near the posterior third of the head. Antennae long and slender: scapes extending beyond the occipital border by almost half their length: first joint of the funiculus one and two-third times longer than the second, the second and third about equal in length, the others sub-equal. Thorax fully twice as long as broad. Pronotum one and one-half times broader than long, the anterior border and sides convex, the dorsum not margined but with a long sharp spine on each shoulder in front, the spines are directed outward and downward with the points curve inwards, they are as long as the interval between them at their base. There is a well defined constriction between the pronotum and mesonotum, the latter is as broad as long. Suture between the mesonotum and epinotum scarcely defined. Epinotum small, the dorsum merges into the declivity face by a long curve; furnished with two long sharp spines, erect, almost perpendicular, with the points bent slightly backward, almost parallel, diverging very slightly, longer and stronger than those on the pronotum. Node much longer than broad, and as broad in front as behind, the sides convex, with two sharp spines above, curved behind and outward, these spines are almost identical with those on the pronotum; in profile the node is as high as long, the dorsum convex, merging into the anterior and posterior faces, the spines sub-erect; on the ventral surface in front there is a small translucent tooth. The abdomen slightly longer than broad. Legs long and slender.

Hab.: North Queensland, Cape York (W. B. Barnard).

The only other species of this sub-genus recorded from Australia is *clotho*, Forel, from Mackay. I have not seen this species, but from the description, it is considerably smaller, the spines and the sculpture quite different. Other species of this group occur in Queensland but are not yet described.

This species has been named in honour of Mr. Barnard, who has collected a large number of ants in the extreme north of Cape York.

POLYRHACHIS (MYRMHOPLA) BICOLOR, Smith.

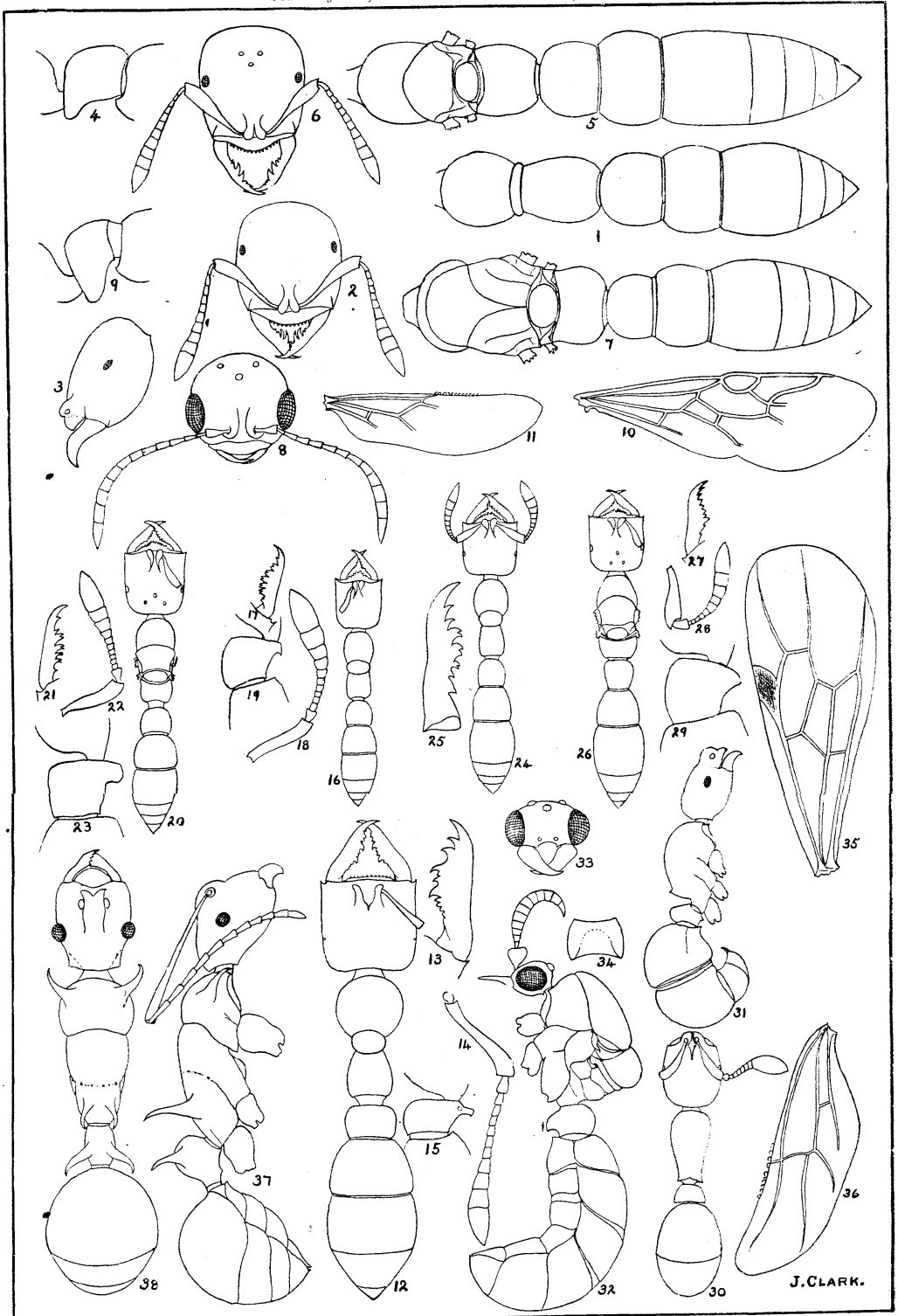
Cat. Hym. Brit. Mus. 6, p. 65, 1858.

Hab.: Darwin, Northern Territory (G. F. Hill).

A colony of this well known Indomalayan species was obtained near Darwin. The colony was found in a small, almost transparent nest amongst the leaves on a tree. It is possible that this species has been introduced.

EXPLANATION OF PLATE I.

1. *Lithomyrmex glauerti*, n. sp., worker, dorsal view.
2. " " " " dorsal view of head.
3. " " " " lateral view of head.
4. " " " " lateral view of node.
5. " " " female, dorsal view.
6. " " " " dorsal view of head.
7. " " " male, dorsal view.
8. " " " " dorsal view of head.
9. " " " " lateral view of node.
10. " " " " fore wing.
11. " " " " hind wing.
12. *Amblyopone mandibularis*, n. sp., worker, dorsal view.
13. " " " " mandible. . .
14. " " " " antenna.
15. " " " " lateral view of node.
16. " *wilsoni*, n. sp., worker, dorsal view.
17. " " " " mandible.
18. " " " " antenna.
19. " " " " lateral view of node.
20. " *exigua*, n. sp., female, dorsal view.
21. " " " " mandible.
22. " " " " antenna.
23. " " " " lateral view of node.
24. " *saundersi*, Forel, worker, dorsal view.
25. " " " " mandible
26. " " " female, dorsal view.
27. " " " " mandible.
28. " " " " antenna.
29. " " " " lateral view of node.
30. *Discothyrea bidens*, n. sp., worker, dorsal view.
31. " " " " lateral view.
32. *Aenictus hilli*, n. sp., male, lateral view.
33. " " " " dorsal view of head.
34. " " " " dorsal view of node.
35. " " " " fore wing.
36. " " " " hind wing.
37. *Polyrhachis (Myrmhopla) barnardi*, n. sp., worker, lateral view.
38. " " " " " dorsal view.



J. CLARK.

Figures 1-38.