With the compliments of the Author.

Hymenoptera.

By WILLIAM MORTON WHEELER.

[*Contribution from Harvard University.*]

[*From "Transactions of the Royal Society of South Australia," vol. xxxix., 1915.*]

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PLATES LXIV. TO LXVI.

Family FORMICIDAE.

Subfamily PONERIDES.

1. MYRMECIA VINDEX, F. Smith, var. DESERTORUM, n. var.

Worker.—Length, 15-17 mm.

Resembling the var. *nigriceps*, Mayr., in colouration, but with the red of the thorax and pedicel a shade more yellowish, and more like the typical *vindex* in size and pilosity, the latter being conspicuously more abundant than in *nigriceps*, especially on the thoracic dorsum. The sculpture of the thorax is also distinctly feebler and the surface more opaque than in this variety and the typical form.

Four workers from Todmorden.

2. RHYTIDOPONERA CORNUTA, Emery, subsp. TAURUS, Forel.

A single worker from Moorilyanna, agreeing very closely with a co-type in my collection.

3. RHYTIDOPONERA (CHALCOPONERA) METALLICA, F. Smith, var. PURPURASCENS, n. var.

Worker.—Length, 7 mm.

Differing from the typical *metallica* from Eastern Australia in colour, the head, thorax, petiole, and gaster being deep metallic-violet, with the legs, mandibles, and a large spot on the vertex purplish-brown, and the antennae black. The sculpture is very much like that of the typical form, except that the rugosity on the pronotum is somewhat more irregular and the fine rugae are more nearly of the same character on the first and second gastric segments.

A single worker from Moorilyanna.

4. BOTHROPONERA PILIVENTRIS, F. Smith.

A single worker, taken between the Musgrave Ranges and Moorilyanna.

5. LEPTOGENYS (LOBOPELTA) CONIGERA, Mayr., var. CENTRALIS, n. var.

Worker.—Length, 6·5-7 mm.

Differing from the typical form and the var. *adlerzi*, Forel, of Queensland in the following characters:—The head

is somewhat broader in the region of the eyes, and these are decidedly more convex; the epinotum is much less angular, more rounded, and sloping; the petiole in profile lower in front and with a more evenly-rounded slope rising to the highest point at the posterior end of the segment; the petiole, the penultimate antennal joints, and the hairs on the body are decidedly longer than in *adlerzi*.

♂.—Length, 6·5 mm.

Head, including the eyes, broader than long; eyes very large; cheeks extremely short. Mandibles very small, far from meeting, with rounded, edentate tips. Clypeus very convex, but not carinate, with broadly-rounded anterior border. Antennal scape as long as the second funicular joint; first funicular joint longer than broad. Thorax through the wing insertions about as broad as the head through the eyes; mesonotum without Mayrian furrows, convex, broadly elliptical, a little longer than broad, not concealing the pronotum when seen from above. Epinotum rather long, in profile sloping, the base about twice as long as the declivity. Petiole similar to that of the worker, but proportionately shorter. Gaster and legs slender. Head and thorax subopaque, punctate-rugulose; gaster more shining, distinctly shagreened. Hairs and pubescence grayish, more abundant and the hairs shorter than in the worker. Head, thorax, petiole, and gaster black; antennae dark brown; genitalia and legs brownish-yellow. Wings grayish-hyaline, with brown veins and apterostigma.

Described from a single male and eleven workers taken at Moorilyanna.

6. ODONTOMACHUS HAEMATODA, L., subsp. CORIARIUS, Mayr.

A single large worker, measuring 11·5 mm., from Moorilyanna.

Subfamily MYRMICIDES.

7. PODOMYRMA BIMACULATA, Forel.

Two workers from Flat Rock Hole in the Musgrave Ranges, agreeing very closely with Forel's description of the typical form from Kalgoorlie, Western Australia.

8. MONOMORIUM RÖTHSTEINI, Forel, var. TOSTUM, n. var.

Worker.—Length, less than 2 mm.

Differing from the typical form and the vars. *humilior*, Forel, and *leda*, Forel, in colour; the head, petiole, and postpetiole being dark castaneous-brown; the thorax, antennae, and legs reddish-brown; the gaster black. The nodes of the petiole and postpetiole are lower than in the type and more

as in the var. *humilior*. The posterior margin of the head is distinctly excavated, the node of the petiole is more pointed than in the type, the epinotum proportionately smaller and more rounded and somewhat smoother and more shining above.

Two workers from the Everard Range.

9. MONOMORIUM (HOLCOMYRMEX) WHITEI, n. sp.

Pls. lxiv., fig. 2, and lxvi., fig. 1.

Worker major.—Length, 4-4·5 mm.

Head very large (1·3 mm. broad), subrectangular, as broad as long, nearly as broad behind as in front, with much-rounded posterior corners, straight, subparallel sides, and the posterior margin distinctly and acutely excised in the middle. Mandibles large and very convex, with four large, subequal teeth. Clypeus broad, its anterior border deeply excised in the middle, with two sharp carinae, each prolonged into a strong, acute tooth, which is flanked by a somewhat shorter and blunter lateral tooth. Frontal carina short and prominent; frontal area large, impressed, with a short median carinula behind; frontal groove distinct nearly as far as the middle of the head. Eyes very large, flat, nearly as long as the cheeks, in front of the median transverse diameter of the head. Antennae slender, 12-jointed; scapes curved at the base, slightly thickened at their tips, which extend a little beyond the posterior orbits; funiculi without a clava, all the joints longer than broad; joints 7-10 subequal, terminal shorter than the two penultimate joints taken together. Thorax broadest through the pronotum, where it is scarcely more than half as broad as the head. Pronotum very convex, almost conical in profile; mesonotum straight in profile, sloping backward to the mesoëpinotal suture, which is distinctly impressed. Promesonotal suture obsolete. Epinotum about two-thirds as broad as the pronotum, longer than broad, with subparallel sides; in profile with feebly and evenly convex base one and a half times as long as the slightly concave declivity, the two surfaces separated on each side by a distinct but blunt tubercle continued backward as a slight ridge. Petiole pedunculate, from above twice as long as broad through the node, which is rather high and conical, with very similar anterior and posterior surfaces, the former rising rather abruptly from the peduncle. Postpetiole from above somewhat broader than the petiole, about one and a half times as long as broad, in profile convex and rounded, but much lower than the petiolar node. Gaster large, broadly and regularly elliptical, somewhat flattened dorsoventrally. Legs rather long.

Surface of body, especially of the gaster, shining. Mandibles coarsely and rather obliquely rugose, and coarsely punctate along their borders. Head very finely and densely longitudinally striate and sparsely punctate, posterior corners a little smoother and more shining. Thorax, petiole, and postpetiole very finely and densely punctate and feebly rugulose on the epinotum; pronotum somewhat smoother and more shining on the middle above. Gaster and legs glabrous, shining, with fine, scattered, piligerous punctures. Hairs yellowish, coarse, bristly, rather long, erect, and moderately abundant on the body; shorter, oblique, and more numerous on the legs. Gula without a psammophore. Ferruginous-red; clypeus, frontal area, extreme anterior corners of the head, and the mandibular teeth black; gaster and legs paler than the remainder of the body, yellowish-red.

Described from four specimens taken at Flat Rock Hole in the Musgrave Ranges.

This species is very peculiar in having large eyes and two pairs of powerful teeth on the clypeus. The subgenus *Holcomyrmex* was supposed to be confined to North Africa, Asia Minor, and the Indian Region till Viehmeyer recently described from a worker minor a species *(H. foreli)* from Killalpaninna, South Australia. Although I have seen only major workers of *H. whitei*, I do not believe that they can be co-specific with *foreli*, for this form has no teeth on the clypeus, the gula bears a psammophore, the head is not sculptured above and behind, and the colour is very different, being described as chestnut-brown, with the head and gaster darker, the segments of the latter bordered with yellow, etc. *H. whitei* is undoubtedly a harvesting ant, like its North African and Indian congeners. The nests, of which Captain White secured an interesting photograph, are craters of a very peculiar, chimney-like form.

10. Crematogaster whitei, n. sp.

Worker.—Length, 2 mm.

Head slightly broader than long, convex above, subrectangular, as broad in front as behind, with rather convex sides, rounded posterior corners, and feebly excised posterior border. Mandibles narrow, apparently 4-toothed. Clypeus very convex, with nearly straight anterior margin. Frontal area and groove absent; frontal carinae very short. Eyes moderately convex, their anterior orbits at the middle of the sides of the head. Antennae 11-jointed; scapes reaching a little beyond the posterior orbits; funicular joints 2-7 small, as broad as long; club 2-jointed, its basal about half as long

as its terminal joint. Thorax very short and robust, nowhere marginate; pronotum and mesonotum together as broad as long, not separated by a suture and without a median carina, trapezoidal, rapidly tapering behind, with rounded humeri; in profile about as long as high, somewhat flattened dorsally; mesoëpinotal constriction narrow and pronounced. Epinotum short, broader than long, with the base flat and shorter than the declivity, the spines as long as the base, slender, parallel, acute, directed backward, and very slightly upward. Petiole a little longer than broad, a little broader in front than behind, with broadly-rounded anterior corners and straight sides. Postpetiole transverse, convex, without any trace of a median furrow, but distinctly emarginate behind. Gaster large, with straight anterior border. Legs rather slender.

Head, thorax, and pedicel opaque; mandibles very finely and densely longitudinally striated; head, thorax, and pedicel very finely, densely, and uniformly punctate; clypeus, front, and cheeks also finely longitudinally rugulose. Gaster shining, very finely and superficially reticulate. Hairs white, long, and erect on the clypeus and venter, short and almost absent on the upper-surface of the body, very minute, scattered and appressed on the scapes and legs. Pubescence very sparse and rather long, most distinct on the gaster. Dark-brown; gaster black; mandibles, antennae, and legs brownish-yellow, middle portions of femora and tibiae brown.

Described from a single worker taken in the Everard Range.

This species is easily distinguished from any of the other known Australian species of the genus by its peculiar sculpture. It seems to resemble *C. mjöbergi*, Forel, from Kimberley, North-western Australia, judging from the description; but this species has a three-jointed antennal club, the head is smooth and shining, and the mesonotum has a median longitudinal impression.

11. Crematogaster longiceps, Forel, var. curticeps, n. var.

Worker.—Differing from the typical *longiceps* in the shape of the head and in its much darker colour. The head is only as long as broad and very nearly rectangular, with straight, parallel sides and very feebly concave posterior border. Above it is very shining, but covered with minute, scattered punctures. The body is reddish-brown throughout, except the gaster, which is black. The absence of pilosity is as conspicuous as in the type. There are, however, several long, slender hairs on the gula and clypeus, and the pubescence on the head and gaster is rather long, but very dilute.

Sixteen workers from Ellery Creek in the MacDonnell Ranges. The typical *longiceps* is also taken in Central Australia (Tennant Creek).

12. Crematogaster xerophila, n. sp.

Worker.—Length, 2·5-2·8 mm.

Head subrectangular, very little broader than long, with straight, parallel sides and posterior border. Eyes rather convex, behind the median transverse diameter of the head. Mandibles narrow, apparently 4-toothed. Clypeus very convex, with straight, entire anterior margin. Frontal carinae extremely small; frontal area distinct, triangular; frontal groove short and rather indistinct. Antennae 11-jointed; scapes reaching a little beyond the posterior border of the head; funiculus with a 2-jointed club; joints 3-8 as broad as long. Thorax rather small and narrow; promesonotal suture indistinct or obsolete; pronotum and mesonotum bluntly margined on the sides, together as broad as long, with broadly-rounded humeri, rapidly narrowing behind to the mesoëpinotal constriction, which is pronounced. In profile the dorsal surface is flattened and the mesonotum without a carina, falling rather abruptly behind to the mesoëpinotal suture. Epinotum with a very short base and a large, concave declivity between the spines, which are broad at the base, rapidly tapering and acute, as long as the base of the epinotum, laterally compressed and directed outward, upward, and backward. Petiole distinctly longer than broad, as broad behind as in front, with straight parallel sides, much rounded anterior and slightly rounded posterior corners. In profile it is wedge-shaped, narrow in front, with straight ventral and dorsal surfaces. Postpetiole globose, as broad as the petiole, without a trace of a longitudinal furrow or posterior emargination. Gaster acutely pointed, with straight anterior border.

Shining; mandibles and clypeus longitudinally rugulose; cheeks and sides of front finely striated, remainder of head glabrous, with fine, scattered, piligerous punctures. Thorax more opaque, its sides finely and densely punctate-rugulose, upper-surface of pronotum and mesonotum very coarsely and reticulately rugose. Concavity of epinotum shining, superficially and finely punctate. Petiole, postpetiole, and gaster smooth and shining. Hairs yellowish, sparse, slender, and tapering, erect on the body, short and appressed on the appendages. Anterior surfaces of the antennal scapes with a few erect hairs. Pubescence absent on the body. Chestnut-brown; head and gaster blackish; femora and tibiae darker than the thorax. In one specimen the thorax is as dark as the head. Described from five workers taken at Moorilyanna.

This species is quite distinct from any of the described Australian Crematogasters in the shape of the petiole and the very pronounced sculpture of the thorax.

13. CREMATOGASTER XEROPHILA, var. EXIGUA, n. var.

Worker.—Length, 1·5-1·7 mm.

Differing from the typical form in its smaller size, in the shorter antennal scapes, which scarcely reach beyond the posterior border of the head, and the differently shaped petiole and postpetiole. The petiole is scarcely longer than broad and a little broader behind than in front; the postpetiole has a distinct trace of a longitudinal furrow. The median funicular joints are a little more transverse. The head, scapes, and gaster are black, the thorax, petiole, and legs brown, the funiculi yellowish-brown.

Two workers from Moorilyanna.

Subfamily DOLICHODERIDES.

14. IRIDOMYRMEX DETECTUS, F. Smith, var. VIRIDIAENEUS, Viehmeyer.

This very handsome variety of one of the commonest Australian ants was recently described from Killalpaninna, South Australia. The body of the worker is deep metallic-green, sometimes with aeneous or violet reflections on the gaster. The mandibles, anterior border of head, antennae, and tarsi are ferruginous, the legs purplish-red. Among the material collected by Captain White are three workers from the Everard Range, one from Flat Rock Hole in the Musgrave Ranges, and a deälated female from Todmorden. The female is poorly preserved and very greasy, but seems to agree very closely in size, structure, and colouration with the female of the typical *detectus*. According to a note accompanying the specimens the nest of the var. *viridiaeneus* has a slit-shaped orifice.

15. IRIDOMYRMEX DISCORS, Forel, var. AENEOGASTER, n. var.

Worker.—Differing from the typical *discors* in colour and pubescence.

The head and thorax are deep-red, the antennae and legs dark-brown, the gaster with bronzy- instead of metallic-green reflections. The pubescence covering the body and appendages is decidedly more abundant, so that the whole surface seems to be more opaque. The head is shaped much as in the type, and is, if anything, a little larger and broader behind, approaching the condition in the subspecies *occipitalis*, Forel,

but this and its var. *exilior*, Forel, are even paler in colour than the typical *discors*. The new variety is very close to var. *obscurior*, Forel, from Victoria, in pubescence, but this form is brownish-yellow, with the head and gaster brown, the latter with feeble metallic-green reflections.

A single worker from Flat Rock Hole in the Musgrave Ranges.

16. IRIDOMYRMEX CYANEUS, n. sp.

Worker.—Length, 1·5-1·7 mm.

Head a little longer than broad, as broad behind as in front, broadest in the middle through the convex sides. Posterior border nearly straight. Eyes rather large, feebly convex, in the median transverse diameter of the head. Mandibles small, retracted under the clypeus, which is very convex, with feebly and sinuately excised anterior border. Frontal area distinct, triangular; frontal carinae short; frontal groove absent. Antennal scapes extending to the posterior border of the head, funicular joints 2-10 slightly broader than long, first joint three times as long as broad. Thorax much narrower than the head, rather short; pronotum convex, evenly rounded, as broad as long; mesonotum a little broader than long, sloping, straight in profile; mesoëpinotal constriction short and deep; epinotum with a very convex, almost conical base, rising rather abruptly from the mesoëpinotal suture and falling behind into the rather steep and straight declivity. Petiole inclined forward, elliptical from behind, with rounded, entire apical border, narrower than the epinotum and about half as high. Gaster of the usual shape. Legs rather slender.

Surface of body shining, very finely but distinctly shagreened. Hairs whitish, absent except on the clypeus; pubescence extremely fine and appressed, visible only on the appendages. Body deep metallic-blue, antennae and legs piceous-black.

Two workers, one from Black Rock Hole in the Musgrave Ranges and one from Moorilyanna.

This species resembles *I. innocens*, Forel, in the shape of the thorax and petiole, but the head is of a very different shape, the antennal scapes and mesonotum are much shorter and the body is pilose and metallic.

17. IRIDOMYRMEX RUFONIGER, Lowne, var.

A single worker from Moorilyanna is very close to the var. *domesticus*, Forel, but is smaller (2·5 mm.). It may represent a distinct variety, but the material is insufficient to justify the introduction of a new name.

18. IRIDOMYRMEX GRACILIS, Lowne, supsp. SPURCUS, n. subsp.

Worker.—Length, 2·4-2·6 mm.

Differing from the typical *gracilis* in its much smaller size, in lacking all metallic reflections, and in having the petiole much more compressed anteroposteriorly, and therefore more acute at the apex. The pilosity and pubescence are somewhat less abundant, and the surface of the body is therefore more shining.

Three specimens, taken at Moorilyanna. These are not well preserved. More satisfactory material may show that this form is really a distinct species.

Subfamily CAMPONOTIDES.

19. MELOPHORUS LATICEPS, n. sp.

Pl. lxvi., fig. 2.

♀. Length, 8 mm.

Head, excluding the mandibles, nearly twice as broad as long, subrectangular, with rounded posterior corners and nearly straight posterior border. Eyes small, convex, just behind the median transverse diameter of the head. Ocelli very small and close together. Mandibles large, with oblique, coarsely 4-toothed blades, which are curiously prismatic, with two flattened planes on their upper-surfaces, meeting at an angle formed by a coarse ridge from the base to the third tooth from the apex. Clypeus very short and broad, feebly convex, with straight, entire anterior and curved posterior border. Frontal carinae very small; frontal area large but indistinct; frontal groove distinct, especially just in front of the ocelli. Antennae slender, scapes not reaching to the posterior border of the head; first funicular joint as long as the three succeeding joints together; joints 2-5 nearly twice as long as broad, remaining joints shorter, except the last, which is twice as long as the penultimate. Thorax very short and thickset, less than one and a half times as long as broad, and but little longer than high. Mesonotum evenly convex, nearly one and two-third times as broad as long. Epinotum very short, steep in profile, without distinct base and declivity, rounded and slightly convex above, more flattened below. Petiole small, thickened below, rapidly attenuated and narrowed above where the compressed border terminates in two flat teeth. Gaster large, broadly elliptical, somewhat flattened above. Wings as long as the body (8 mm.).

Very smooth and shining; mandibles coarsely and regularly longitudinally rugose; gaster finely shagreened. Gula and clypeus with very long, curved, yellow hairs, forming a distinct psammophore. Hairs shorter and very sparse on the

remainder of the body; legs with abundant, short appressed hairs; those on the scapes similar, but even shorter. Mandibles deep-red; head, thorax, and petiole bright yellowish-red; gaster black; anus, transverse bands on the venter, the legs, and antennae yellow. Wings distinctly yellowish, with pale-brown veins and apterostigma.

A single specimen, taken between Todmorden and Wantapella. This may be the hitherto unknown female of *M. wheeleri*, Forel, originally described from Tennant Creek, Central Australia.

20. Camponotus (Myrmoturba) maculatus, Fabr., subsp. novae-hollandiae, Mayr.

Numerous workers from Flat Rock Hole in the Musgrave Ranges. These are a little more hairy and somewhat larger than specimens from New South Wales, but hardly represent a distinct variety.

21. Camponotus (Myrmoturba) maculatus, Fabr., subsp. discors, Forel.

One major and three minor workers from Flat Rock Hole in the Musgrave Ranges agree very closely with Forel's description of specimens from Pera Bore, New South Wales. The thorax of the major is much like that of the var. *laetus*, Forel, from Tennant Creek, Central Australia, but the colour is that of the typical form of the species.

22. Camponotus (Myrmoturba) latrunculus, n. sp.

Pl. lxvi., figs. 3 and 4.

Worker major.—Length, about 9 mm.

Head large, not longer than broad, broader behind than in front, very convex above, with the posterior border nearly straight and the sides convex. Eyes rather large and convex. Mandibles convex, 6-toothed. Clypeus feebly, but distinctly, carinate, its anterior border projecting as a short, rather narrow lobe, with straight median border and the sides rather broadly emarginate. Frontal area distinct, transverse, diamond-shaped; frontal groove distinct, frontal carinae moderately far apart, curved and diverging behind. Antennae rather slender, scapes extending about one-fifth their length beyond the posterior border of the head. Thorax robust, with distinct promesonotal and mesoëpinotal sutures, pronotum as broad as long, convex, rounded above; mesonotum also convex, continuing the curve of the pronotum. There is a distinct but slight constriction of the thorax at the mesoëpinotal suture, behind which the rather narrowed and only

slightly compressed epinotum descends with a rounded slope, lacking a distinct base and declivity. Petiole small and narrow, in profile cuneate, with convex ventral and anterior and flat posterior surface; apical border rather sharp, bluntly pointed when seen from behind. Gaster broadly elliptical. Legs rather slender, hind tibiae cylindrical.

Smooth and shining; mandibles sparsely and not very coarsely punctate; remainder of body finely shagreened; cheeks and gaster sparsely punctate. Hairs yellow, erect, sparse on the body and along the flexor surfaces of the femora and at their tips. Hind tibiae with several rows of bristles on their flexor surfaces. Pubscence very fine and dense, visible only on the sides of the thorax and on the appendages. Chestnut-red; antennal scapes blackish; gaster black, with yellowish margins to the segments. Legs yellowish-brown.

A single specimen from Todmorden.

I am unable to refer this ant to any of the Australian species described by previous writers. The thorax feebly approaches that of *C. (Myrmosphincta) intrepidus*, Kirby, in shape, but the form of the head and clypeus show that it belongs more properly in the subgenus *Myrmoturba*.

23. Camponotus (Myrmogonia) eremicus, n. sp.

Pl. lxvi., figs. 5 and 6.

Worker major.—Length, 7 mm.

Head trapezoidal, longer than broad, broader behind than in front, with straight, transverse posterior border and feebly convex cheeks. Eyes large, convex, their anterior orbits at the middle of the sides of the head. Mandibles 6-toothed, their outer margins straight at the base, strongly convex at the tips. Clypeus strongly carinate, its anterior border not produced or lobed, feebly and sinuately excised in the middle. Frontal area small, triangular, indistinct; frontal groove distinct; frontal carinae closely approximated anteriorly, curved, and more diverging behind. Antennae slender, scapes reaching about two-fifths of their length beyond the posterior corners of the head. Pronotum as broad as long, flattened above, with a sharp semicircular ridge around its anterior surface, and extending back to the middle of its sides. Promesonotal suture pronounced; mesoëpinotal suture absent, the mesonotum and epinotum together twice as long as broad, so compressed laterally as to be reduced dorsally to a rather sharp, blade-like edge. In profile the mesoëpinotum is as high as long, the dorsal edge feebly and evenly convex and as long as the declivity, which is abrupt and feebly concave. Petiole rather narrow, cuneate in profile, thick below, with a distinct ventral protuberance, feebly convex anterior

and straight posterior surface, and sharp apical border, which seen from behind is rounded and entire. Gaster of the usual shape. Legs rather slender; tibiae cylindrical.

Shining; thorax slightly more opaque. Mandibles rather coarsely punctate; head and thorax densely punctate-reticulate, gaster very finely, transversely rugulose. Hairs erect, short, very sparse, present only on the mandibles, clypeus, front, and venter. Femora with a few bristles at their tips; tibiae with a sparse row of bristles along their flexor surfaces. Pubescence absent on the body, very short, sparse, and appressed on the tibiae and scapes. Black; mandibles, clypeus, cheeks, and front deep-red; antennae and tarsi reddish-brown; coxae, femora, and tibiae yellow; knees infuscated.

Worker minor.—Length, 5·5-6 mm.

Body slender; head subrectangular, about as broad behind as in front, nearly one and a half times as long as broad, with straight posterior and lateral borders. Eyes large and prominent, situated at a distance less than their length from the posterior corners of the head. Clypeus carinate, its anterior border entire, subangularly produced in the middle. Antennae very slender, reaching nearly half their length beyond the posterior corners of the head. Thorax very long, narrow, and low, less compressed behind than in the major worker, in profile evenly rounded, highest in the middle, pronotum not marginate in front and on the sides, epinotum without distinct base and declivity, but merely continuing the gentle curve of the mesonotum. Petiole with its anterior surface more convex and its upper-border more transverse than in the major worker. Gaster small and narrow.

Sculpture much as in the major worker, but thorax more shining and cheeks sparsely and feebly foveolate. Pilosity much more abundant than in the large worker. There are very sparse, erect hairs on the whole upper-surface, including the petiole, and also on the gula. The head is covered with sparse and rather long yellowish pubescence. Head and thorax brown, petiole and gaster black; scapes and legs, except the tarsi, yellow, the latter and the anterior half of the head pale-brown.

Described from a single major and three minor workers from the Everard Range. As all of these specimens were glued on the same card it would seem that they must have been taken from the same nest. The major and minor workers, however, differ in so many important particulars as to suggest some doubt as to their being co-specific.

This species is very closely related to *C. (Myrmogonia) michaelseni*, Forel, from South-western Australia, judging

from Forel's description, but differs in so many details of structure, sculpture, and colour that I have felt constrained to describe it as new. It is more easily distinguished from the other Australian species of the subgenus *Myrmogonia: evae*, Forel; *oetkeri*, Forel; *adami*, Forel; *lownei*, Forel; *gibbinotus*, Forel; and *rubiginosus*, Mayr.

24. Camponotus (Dinomyrmex) subnitidus, Mayr.

To this species I refer a single minor worker taken between Todmorden and Wantapella. It is, however, even less pilose than the typical *subnitidus*, and probably represents a distinct variety, which cannot be satisfactorily described till the worker major is brought to light.

Myrmotrema inflatus Lub.

25. Camponotus (~~Myrmamblys) auropasciatus, n. sp.~~

Pl. lxvi., fig. 7.

Worker (medio [?]).—Length, 5-5·5 mm.

Head strongly trapezoidal, very slightly longer than broad, broader behind than in front, with straight posterior border and sides and rather sharp posterior corners, convex in the middle above, feebly depressed behind. Eyes moderately large, convex, nearly circular, well behind the median transverse diameter of the head. Mandibles with rather straight external borders, 6-toothed. Clypeus distinctly but bluntly carinate, with feebly rounded, entire anterior border. Frontal area obsolete, frontal groove distinct, frontal carinae approximated anteriorly, curved and diverging behind. Antennae long, scapes extending nearly half their length beyond the posterior border of the head. Thorax through the pronotum nearly as broad as the head, rapidly narrowed and laterally compressed behind, so that the mesonotum and epinotum are reduced above to a rounded ridge. Pronotum broader than long, flat above, anteriorly and laterally distinctly submarginate. In profile the thorax is highest in the mesonotal region and the dorsal outline is an even curve continued over the epinotal base, which is fully three times as long as the declivity. The angle separating the base from the declivity is rounded and obtuse. Promesonotal suture distinct, that between the mesonotum and epinotum obsolete. Petiole thick and rather narrow, very convex in front, flat behind, with blunt, evenly-rounded, and entire apical border. Gaster broadly elliptical, rather flattened. Hind tibiae slightly compressed.

Opaque and very densely and finely punctate; mandibles slightly shining, with numerous large, elongate punctures. Clypeus and cheeks with a few sparse, shallow foveolae. The

dense punctuation of the gaster is distinctly finer than that of other portions of the body. Hairs golden-yellow, erect, moderately long, not abundant, rather obtuse, most conspicuous on the upper-surface of the head, epinotum, and gaster. Pubescence yellow, very sparse, and rather long, distinct on the head, especially on the clypeus, gaster, and appendages. Tips and flexor surfaces of femora with a few long, erect hairs. Black; apical portions of mandibles deep-red; each gastric segment with a conspicuous dull-golden band on its posterior border.

Described from six workers, five from the Musgrave Ranges and one from Moorilyanna. This beautiful species is readily distinguished by its peculiar head, very opaque surface, and the unusual banding of the gaster.

26. Camponotus (Myrmosphincta [?]) whitei, n. sp.

Pl. lxvi., fig. 8.

Worker (minor [?]).—Length, 4·5-5 mm.

Head trapezoidal, deepest in the frontal region, a little longer than broad, slightly broader behind than in front, with straight sides and feebly concave posterior border. Eyes moderately large, very convex, nearly circular, distinctly behind the median transverse diameter of the head. Mandibles with slightly convex external borders and oblique, 6-toothed apices. Clypeus strongly carinate, rather convex, with entire anterior border, subangularly produced in the middle. Frontal area rather large, triangular; frontal groove lacking; frontal carinae approximated in front, curved outward in the middle, and again approximated behind. Antennae rather long and stout; scapes surpassing the posterior border of the head by fully two-fifths their length. Thorax rather long, nearly as broad as the head through the pronotum, which is flattened above, bluntly marginate anteriorly, and seen from above a little broader than long. Promesonotal suture pronounced. There is a deep, saddle-like impression in the region of the mesonotal suture, which is obsolete, and the thorax is also laterally compressed in this region. The epinotum is very convex and rounded, and resembles somewhat that of a *Dolichoderus*, but in profile the base passes without an angle into the vertical, slightly concave declivity of about the same length. Petiole nodiform, seen from above regularly, transversely elliptical, and about twice as broad as long, in profile less than twice as high as long, the node with three surfaces, a short vertical anterior, a horizontal rounded dorsal, and a vertical posterior surface. Gaster rather small, broadly elliptical. Tibiae cylindrical.

Mandibles shining, very coarsely punctate. Remainder of body, including the appendages, opaque; head, thorax, and petiole densely and beautifully coarsely punctate, the punctures being somewhat smaller on the upper-surface of the head and somewhat larger on the mesopleurae. Gaster and legs very minutely and densely punctate. Hairs whitish, erect, blunt, but not very stiff, rather long but not abundant, most conspicuous on the front, epinotum, and first gastric segment. Legs and scapes with more numerous, more pointed, shorter, and suberect hairs. Deep castaneous-red, mandibles and legs paler, upper-surface of head and thorax somewhat darker, gaster black, with narrow, sordid, yellowish margins to the segments.

This beautiful species, described from two specimens, was taken at Flat Rock Hole in the Musgrave Ranges. I have placed it in the subgenus *Myrmosphincta* with many misgivings. It would seem to belong more properly in *Orthonotomyrmex*, near *mayri*, Forel, on account of the peculiar structure of the thorax and petiole, but this subgenus, though confined to the Old World, is not known to be represented in Papua or Australia.

27. Camponotus (Myrmosphincta [?]) leae, n. sp.

Pl. lxvi., fig. 9.

Worker minor.—Length, 4·5 mm.

Head, including the mandibles, subelliptical, longer than broad, with straight, subparallel sides, slightly broader behind through the eyes than at the mandibular insertions. Behind the eyes, which are very convex and hemispherical, the head narrows rapidly to a short occipital border, so that it has no posterior corners. Mandibles with straight external and oblique apical borders, the latter armed with at least five coarse teeth. Clypeus convex, strongly carinate, its anterior border slightly impressed in the middle. Frontal area triangular, distinct, impressed; frontal groove replaced by a rather strong raised line or ridge; frontal carinae not widely diverging behind. Antennae long, scapes extending nearly half their length beyond the posterior border of the head; all the funicular joints decidedly longer than broad. Thorax long and slender; seen from above the pronotum is as broad as long, a little narrower than the head, with rounded, sloping humeri; the mesonotum and epinotum narrower, with subparallel sides, the mesonotum as long as the epinotum, but the suture obsolete between them; promesonotal suture well developed. In profile the upper-surface of the mesonotum is straight and slopes gradually to the base of the epinotum, where the thorax is feebly but distinctly constricted. In profile the base of the

epinotum is horizontal and only slightly convex, more than twice as long as the sloping declivity into which it passes through a very obtuse angle. Petiole of extraordinary shape, longer than high, anteriorly and posteriorly cylindrical, but surmounted in the middle by a thick node which, viewed from above, is nearly circular, but is diamond-shaped in profile, its anterior surface being straight and inclined obliquely upward and forward, the dorsal surface horizontal and very feebly convex, and the posterior surface straight and inclined obliquely backward and downward and parallel with the anterior surface. The ventral surface is almost straight. Gaster broadly pyriform, narrowed, and rather pointed in front. Legs slender; tibiae cylindrical.

Opaque, except the gaster, which is distinctly shining. Mandibles very finely shagreened and coarsely punctate. Head, thorax, and petiole uniformly and densely punctate, legs and gaster coarsely, transversely shagreened. Hairs white, long, slender, pointed, and erect, most abundant on the upper-surface of the head, epinotum, petiole, and gaster, somewhat shorter on the scapes and legs. Deep-red; mandibles and femora more yellowish-red; mandibular teeth, anterior corners of head, front, and vertex between the carinae and eyes and back as far as the occipital border, articulations of antennal funiculi, the whole gaster, basal portions of petiole, coxae, and apical third of femora, black; tibiae and tarsi reddish-brown, the tips and bases of the tibiae darker.

Described from two specimens taken at Flat Rock Hole in the Musgrave Ranges.

This remarkable species, easily distinguished by its singular thorax and even more singular petiole and striking colouration, is quite as difficult as the preceding species to assign to any of Forel's subgenera of *Camponotus*. I have placed it in *Myrmosphincta* with a query because the thorax is distinctly constricted, and because there seems to be no place for it in any of the other subgenera. Whether or not it should constitute the type of a new subgenus can be determined only after the discovery of the major worker.

28. CALOMYRMEX SPLENDIDUS, Mayr., subsp. PURPUREUS, Mayr., var. SMARAGDINUS, Emery.

A single worker from Flat Rock Hole in the Musgrave Ranges.

29. CALOMYRMEX SPLENDIDUS, Mayr., subsp. PURPUREUS, Mayr., var. EREMOPHILUS, n. var.

Worker.—Differing from the preceding variety in the colouration of the legs and the antennae, which are black

instead of red, without metallic reflections. The head and thorax are beautiful metallic green, the gaster black, the mesopleurae and fore coxae metallic-purple as in the var. *smaragdinus*.

Seven workers, four from the Everard Range and three from Flat Rock Hole in the Musgrave Ranges.

30. Polyrhachis (Campomyrma) ~~longipes~~, n. sp. *macrofund*

Pls. lxv., figs. 1 and 2, and lxvi., fig. 10.

Worker.—Length, 9-10 mm.

Head subrectangular, excluding the mandibles, a little broader behind than in front, with straight sides and rather sharp, distinctly marginate posterior corners, the occipital region convex in the middle, the frontal region convex, and the vertex rather flat. Eyes large and convex, situated a distance about equal to their longest diameter from the posterior corners of the head. Mandibles with moderately convex external and 5-toothed apical borders. Clypeus distinctly carinate, produced in the middle as a rounded lobe, bearing at its edge a row of regular, fine, acute teeth, its sides broadly excised. Frontal area small, triangular, impressed; frontal groove distinct; frontal carinae closely approximated in front, gradually diverging behind, nearly straight. Antennae very long and slender, scapes reaching fully half their length beyond the posterior border of the head; first funicular joint more than five times as long as broad, remaining joints growing successively shorter. Thorax long, its dorsal surface flattened and but slightly convex in profile, very sharply marginate on the sides, so that the pleurae are slightly concave, the margin rather deeply incised at the pronounced promesonotal and only feebly indented at the distinct mesoëpinotal suture. Pronotum as long as broad, a little narrower behind than in front, its anterior corners in the form of small acute teeth, which are as long as broad at their bases. Mesonotum a little longer than broad, narrower behind than in front, with evenly rounded anterior and lateral borders; base of epinotum longer than broad, rather narrow, especially behind, where it is produced into two parallel, flat, blunt teeth, which are longer than broad at their bases, as long as their distance apart, and directed backward and upward. The small notch-like space between the teeth is not marginate. Declivity of epinotum shorter than the base, sloping, feebly convex. Petiole thick at the base, when seen from above as long as broad, with convex anterior and posterior surfaces, the apical border compressed and bearing four long, slender, acute spines, directed upward and backward, the inner pair approximated and shorter, so that an imaginary line joining the tips

of all four spines would be straight. Ventral surface of petiole distinctly concave. Gaster broadly elliptical, convex above and below, first segment occupying nearly half of its surface. Legs very long and slender; tibiae cylindrical.

Mandibles lustrous, very finely and densely striated; remainder of body subopaque; head, thorax, and petiole very finely punctate-rugulose, the rugules distinctly longitudinal and regular on the posterior portion of the head and on the thoracic dorsum. Gaster and legs very densely shagreened, and covered with small, sparse, piligerous punctures. Hairs yellowish, erect, short, and sparse, almost absent on the upper-surface, except on the clypeus, mandibles, and gaster; very distinct, more abundant, shorter, and bristly on the scapes and legs; pubescence absent except on the venter, where it is yellowish, long, sparse, and appressed. Black; mandibles and apical halves of the funiculi brownish-red; legs, including the coxae, brownish-yellow, with the tarsi and basal half of the tibiae black.

Described from twenty-four workers taken in the Everard Range.

This species, though apparently related to *P. (C.) froggatti*, Forel, and *pyrrhus*, Forel, is readily distinguishable from these and all other known Australian members of the subgenus, by its regularly dentate (not crenate) clypeus, very long appendages, and the shape of the petiolar and epinotal spines. It appears also to be very distinct in its habits. Like the other species of *Campomyrma*, it lives in the ground, but Captain White's photographs show that instead of nesting under stones, like *P. femorata*, F. Smith, *micans*, Mayr., and *sydneyensis*, Mayr., of Eastern Australia, it builds a beautifully regular crater, the rounded, exposed surfaces of which it thatches with a layer of mulga leaves.

31. Polyrhachis (Campomyrma), sp.

A single deälated female specimen, measuring about 6·5 mm., from the MacDonnell Ranges, evidently belongs to a species allied to *leae*, Forel, or *micans*, Mayr., but as the females of the great majority of Australian Campomyrmas are quite unknown I refrain from describing it at the present time.

DESCRIPTION OF PLATES.

[*Plates lxv. and lxvi. are from photographs taken by S. A. White.*]

Plate LXIV.

Fig. 2.—Several ants' nests, constructed of clay, belonging to a new species, *Monomorium (Holcomyrmex) whitei*, Wheeler.

Plate LXV.

Fig. 1.—An ants' nest, covered with mulga leaves, belonging to a new species, *Polyrhachis (Campomyrma) longipes*, Wheeler.

Fig. 2.—The same at nearer view.

Plate LXVI.

Fig. 1. *Monomorium (Holcomyrmex) whitei*, Wheeler.
,, 2. *Melophorus laticeps*, Wheeler, head.
,, 3. *Camponotus (Myrmoturba) latrunculus*, Wheeler, head.
,, 4. ,, ,, ,, Wheeler, side view of thorax.
,, 5. ,, *(Myrmogonia) eremicus*, Wheeler, head.
,, 6. ,, ,, ,, Wheeler, side view of thorax.
,, 7. ,, *(Myrmamblys) aurofasciatus*, Wheeler.
,, 8. ,, *(Myrmosphincta [?]) whitei*, Wheeler.
,, 9. ,, ,, *leae*, Wheeler.
,, 10. *Polyrhachis (Campomyrma) ~~longipes~~ macropus*, Wheeler.

[Note.—*The ants described in the above paper were collected by Capt. S. A. White on a Scientific Expedition to the Everard and Musgrave Ranges, Central Australia, during 1914.*—Ed.]

Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2.

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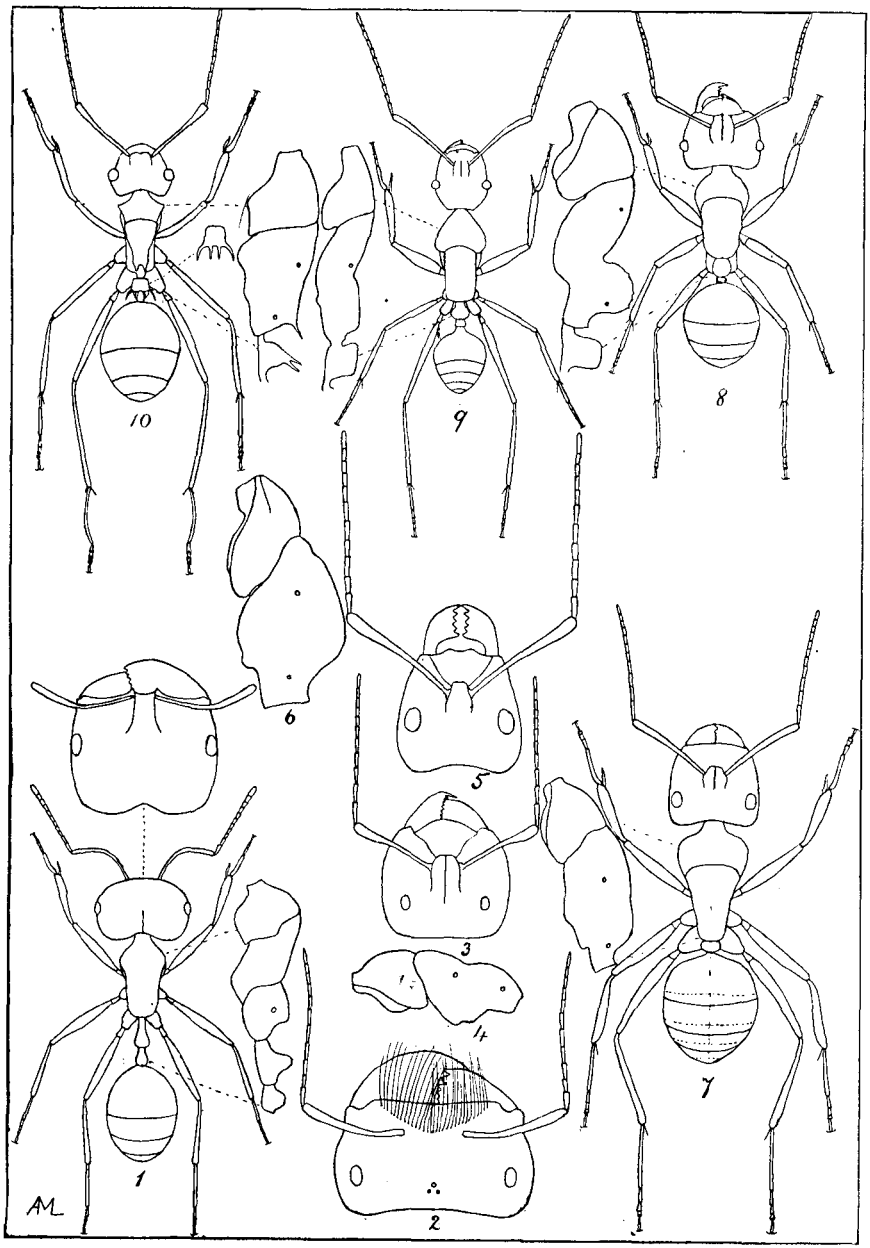

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