

## A REVISION OF THE GENUS *PROMYRMECIA* EMERY (FORMICIDAE).

By John Clark,  
Entomologist, National Museum.

Plates XII-XVII.

Following a study of the large Australian genus *Myrmecia* it has been considered necessary to divide the species still further. At present two subgenera are recognized; they are *Myrmecia* s. str. and *Promyrmecia* Emery. In the following pages it is proposed to raise *Promyrmecia* to full generic rank as their stature and jumping habits render them quite distinct from the large non-jumpers of the genus *Myrmecia*. The status and species of the genus *Myrmecia* will be dealt with in a subsequent paper.

In the genus *Promyrmecia* 55 forms are recorded herein; of these 24 are described as new. Most of the species are very local and rare, few being at all common. Only one species, *P. pilosula* Smith, the "black jumper," is found in all the States. With our present knowledge little can be said on the distribution of the genus. The species appear to be found mainly in Southern Australia, ranging round the coastal area from Geraldton, Western Australia, to Cairns, North Queensland. Few are known from more than one hundred miles inland and none from North-Western Australia and Northern Territory.

Many of the species construct a mound over the nest and a few make their nest under large stones or logs. The majority nest deep in the ground, generally the nest is about 18 inches deep without traces of a mound; such nests are difficult to find unless the ants are seen to enter or leave. These nests have several small entrances scattered over about two square feet. When disturbed the ants swarm out from all entrances and advance in a series of jumps, the jump averaging one and one-half inches along the ground and about half that in height. The longest jump so far measured is three and one-fourth inches. Most of the species are very savage, while a few are quite timid, but all sting severely.

The males and females fly during the summer months, mostly during January and February.

Unless otherwise stated the Types are in the National Museum, Melbourne.

Family **FORMICIDAE** Latreille, 1810Subfamily **Ponerinae** Lepeletier, 1836Genus **PROMYRMECIA** Emery

*Myrmecia* Fabricius Subgenus *Promyrmecia* Emery. Genera Insectorum, fasc., 118, pp. 18-19, 1911.

*Myrmecia* Fabr. Subgenus *Pristomyrmecia* Emery. Genera Insectorum, fasc., 118, pp. 18, 21, 1911.

*Myrmecia* Fabr. Subgenus *Halmamyrmecia* Wheeler. Biol. Bull., xlii, 4, p. 194, 1922.

*Myrmecia* Fabr. Subgenus *Pristomyrmecia* Viehmeyer. Ent. Mitteil. Berl., xxiii, pp. 220-21, 1924.

*Myrmecia* Fabr. Subgenus *Promyrmecia* Clark. Vict. Naturalist, xlii, pp. 139-40, 1925; Wheeler, Colony-founding among Ants, pp. 54-55, 1933; Clark, Mem. Nat. Mus. Vict., viii, p. 9, 1934.

*Worker*. Moderately large ants (4-16 mm.) with well-developed hind legs enabling them to make leaps of from one to four inches along the ground. Mandibles linear, calliper-like, usually shorter than head, furnished with both large and small teeth of various forms. Antennae slender, twelve segments, scapes short, rarely extending beyond occipital border; second segment of funiculus longer than first. Eyes large and globular, occupying the anterior fourth of the sides of head; ocelli large and prominent. Thorax usually twice as long as broad, mesonotum separated from the epinotum by a deep and wide suture. Node large, usually as long as broad, stalk in front very short; ventral surface with a more or less developed spine in front. Postpetiole bell-shaped, strongly constricted behind, much narrower than the abdomen. Legs robust, femur of the posterior pair more or less incrassated toward the base. Claws large, bifurcated near middle.

*Female*. Similar to the worker but larger, more robust and winged. In general the head broader; mandibles shorter, broader and with stronger teeth; node and postpetiole broader. Wings with two discoidal cells.

Ergatoid females are common in the nests of most species. The development of the mesonotum and scutellum varies considerably in these females.

*Male*. Smaller than the female, colour and sculpture similar. Head small, convex; mandibles short, triangular, with few, if any, teeth. Clypeus large and convex. Antennae with thirteen segments; scapes short, rarely more than twice as long as first segment of funiculus, second segment longest. Eyes large, occupying fully half the sides of head. Ocelli large. Mesonotum with distinct mayrian and parapsidal furrows. Nodes similar but smaller and more slender. Legs long and slender, claws bifurcate. Anterior wings with two discoidal cells. Cerci long. Genital armature; stipes arched, volsella and lacinia laminate.

Genotype *Promyrmecia aberrans* Forel

The genus is divided into seven groups based on the size and shape of the mandibles and scapes of the workers. In many species the head of the female differs greatly from that of the worker. Text fig. 1 illustrates the differences in the chief species of each group.

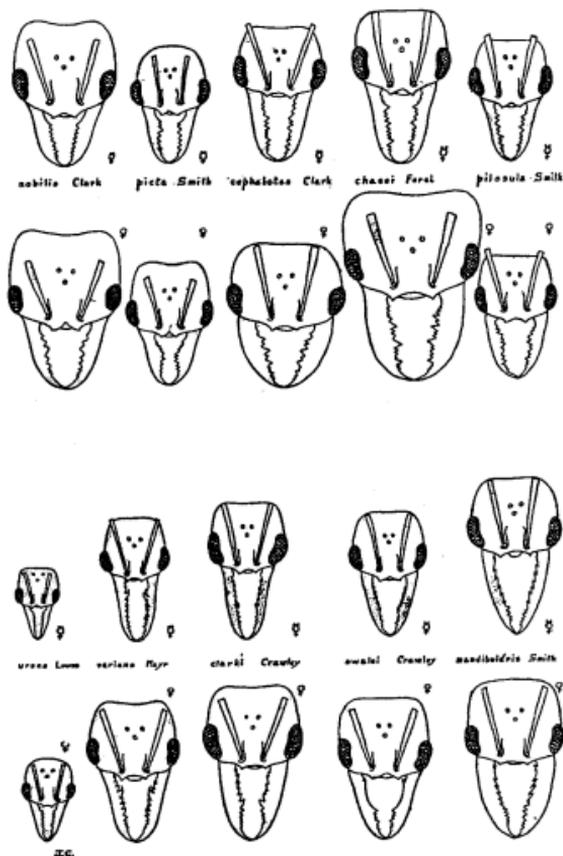


FIG. 1.

KEY TO GROUPS

- |   |                |
|---|----------------|
| 1. External borders of mandibles concave . . . . .  | 37             |
| 2. Head and thorax with large more or less obsolete striae . . . . .  | 12             |
| 1. Mandibles broad, one-fourth shorter than head, furnished with short, broad teeth. Scapes extend to posterior sixth of head, as long as mandibles . . . . .               | aberrans Forel |
| 13. Head and thorax striate-rugose . . . . .  | 21             |
| 2. Mandibles one-sixth shorter than head, broadest at basal third, teeth longer and sharper. Scapes extend to posterior sixth of head, one-fifth shorter than mandibles . . | picta Smith    |

22. Head and thorax finely striate . . . . . 37  
 3. Mandibles linear, almost as long as head, as long as scapes, furnished with four large teeth interspersed with smaller teeth. Scapes extend to, or very slightly pass, occipital border . . . . . pilosula Smith  
 38. External borders of mandibles convex . . . . . 42  
 39. Head and thorax striate . . . . . 41  
 4. Mandibles slightly longer than head, teeth as in pilosula group. Scapes extend slightly beyond occipital border . . . . . cephalotes Clark  
 43. External borders of mandibles concave. Head and thorax finely striate-rugose . . . . . 48  
 5. Mandibles slender, slightly longer than head, teeth small, hook-shaped and directed backwards. Scapes extend to occipital border . . . . . varians Mayr  
 49. Head and thorax finely striate . . . . . 55  
 6. Mandibles slender, straight or very feebly concave, as long as, or slightly longer than head, five apical teeth erect, behind these the teeth, shorter, broader and directed backward, sawtooth-shaped. Scapes extend to occipital border . . . . . tepperi Emery  
 56. External borders of mandibles straight or feebly convex. Head and thorax strongly striate . . . . . 66  
 7. Mandibles slightly longer than head, slender, almost parallel, five apical teeth large and erect, behind these the teeth obsolete, very short, directed backward, sawtooth-shaped. Scapes extend to occipital border . . . . . mandibularis Smith

KEY TO SPECIES.

1. External borders of mandibles concave . . . . . 37  
 2. Head and thorax with large more or less obsolete striae . . . . . 12  
 3. Black; dorsum of pronotum and epinotum and whole of node bright red; mandibles, clypeus and antennae reddish-yellow. Mesonotum smooth in middle, with some large shallow punctures, a few obsolete striae at sides. Node irregularly rugose. Length 12 mm. . . . . aberrans Forel  
 \*4. Head, thorax and petiole blood red, mandibles and antennae reddish-yellow. Posterior corners of head very smooth and shining. Mesonotum longitudinally or obliquely rugose. 10-13 mm. . . . . formosa Wheeler  
 \*5. Black; a large spot behind each eye, one on disc of pronotum and upper surface of node blood-red. Mandibles and antennae reddish. Mesonotum with feeble and oblique rugose. Node smooth. 10-13 mm. . . . . haematosticta Wheeler

\*From description only.

- \*6. Colour as in *froggatti*; body more opaque, rugae on mesonotum arcuate and transverse, epinotum and node reticulate. 15 mm. . . . . *taylori* Wheeler
- \*7. Colour as in *taylori*. Mesonotum coarsely punctate, with indistinct traces of transverse rugules, anterior of epinotum indistinctly rugose, node more coarsely and distinctly rugose. 14 mm. . . . . *sericata* Wheeler
- 8. Posterior half of head, all the thorax and node blood-red, front of head and the legs brownish-black; mandibles, antennae and tarsi yellow. Mesonotum striate transversely. Node coarsely reticulate. 11-12 mm. *froggatti* Forel
- 9. Black; mandibles, antennae and tarsi reddish-yellow, teeth of mandibles blackish-brown. Mesonotum striate longitudinally. Node irregularly punctate-rugose. 11-13 mm. . . . . *maura* Wheeler
- 10. Black; dorsum of pronotum, mesonotum, epinotum and node bright red; mandibles yellowish-red, antennae and tarsi brownish. Mesonotum smooth and shining with a few scattered shallow punctures. Node circularly striate. 10-14 mm. . . . . *nobilis* sp. nov.
- 11. Head yellowish-red with a broad brown line across forehead, pronotum and node bright red, mesonotum and epinotum reddish-brown, tarsi reddish. Mesonotum striate-rugose longitudinally. Node coarsely and irregularly rugose. 14.5 mm. . . . . *eupoecila* sp. nov.
- 12. Head, thorax and node red, mandibles and antennae testaceous, legs brown. Mesonotum coarsely and irregularly punctate-rugose. Node irregularly rugose, with a central longitudinal carina. 15.5 mm. . . . . *greavesi* sp. nov.
- 13. Head and thorax striate-rugose . . . . . 21
- 14. Black; mandibles, clypeus, front of face to about the posterior margin of eyes yellow; antennae and anterior legs reddish-yellow, intermediate and posterior legs brownish. Mesonotum finely and transversely rugose. Node irregularly rugose. 9-12 mm. . . . . *picta* Smith
- 15. Red; posterior half of head and two apical segments of gaster black. Mesonotum finely and transversely striate. Node coarsely and irregularly rugose. 10-11.5 mm. . . . . *fucosa* Clark
- 16. Black; basal half of mandibles and the labrum yellow, apical half of mandibles, anterior tibiae and apical half of femora and all tarsi reddish-yellow; dorsum of pronotum, epinotum and node red. Mesonotum

\*From description only.

- with faint traces of rugae. Node irregularly rugose. 6-8 mm. . . . . *urens* Lowne
17. Black; mandibles yellow; clypeus, antennae and legs reddish-yellow; epinotum and node red. Mesonotum coarsely reticulate. Node irregularly rugose. 6-8 mm. . . . . *infima* Forel
18. Black; apical half of mandibles brown, basal half reddish-yellow; antennae and legs brown; apical half of funiculus and the tarsi reddish; pronotum, epinotum and node more or less marked with red. Mesonotum finely and longitudinally striate-rugose. Node irregularly rugose. 7-9.5 mm. . . . . *nigra* Forel
19. Black; mandibles and labrum yellow; funiculus, epinotum, node, postpetiole and all legs reddish, scapes brown. Mesonotum and node densely reticulate. 5.5-6.5 mm. . . . . *rubicunda* sp. nov.
20. Blackish-brown, mandibles yellow; antennae, pronotum, mesonotum and legs brown or reddish-brown, epinotum and node red. Mesonotum with obsolete coarse rugae. Node reticulate-rugose. 4-4.5 mm. . . . . *exigua* sp. nov.
21. Black; dorsum of node and a large spot on epinotum red; apex of mandibles, labrum and funiculus reddish-yellow, scapes brown. Mesonotum longitudinally striate-rugose. Node coarsely and irregularly rugose. 7-9 mm. . . . . *dichospila* Clark
22. Head and thorax finely striate . . . . . 37
23. Black; mandibles, antennae, tibiae and tarsi yellow. Mesonotum longitudinally striate. Node circularly rugose. 12-14 mm. . . . . *pilosula* Smith
24. Black; mandibles, antennae and legs brown, tarsi reddish, dorsum of gaster covered with golden-red pubescence. Mesonotum finely striate longitudinally. Node irregularly rugose. 10-12 mm. . . . . *michaelseni* Forel
25. Colour as in *michaelseni* but pubescence on gaster more yellowish. Sculpture coarser. 11-13 mm. . . . . *queenslandica* Forel
26. Black; mandibles, antennae and legs reddish-brown. Pubescence on gaster yellow, very fine, hiding sculpture on first segment. Mesonotum finely striate longitudinally. Node and postpetiole striate-rugose longitudinally. 12-14 mm. . . . . *ruginodis* sp. nov.
27. Black; mandibles and anterior coxae brown; legs, including middle and posterior coxae yellow. Gaster densely covered with golden yellow pubescence. Mesonotum and node longitudinally striate. 9 mm. . . . . *chrysogaster* sp. nov.

28. Black; mandibles yellow, darker at apex, antennae and legs brown, tarsi reddish-brown. Pubescence on postpetiole and gaster forming a dense yellow covering. Mesonotum striate-rugose longitudinally. Node coarsely and irregularly punctate-rugose. 9-12 mm. . . . . *cydista* sp. nov.
29. Head, postpetiole and gaster black, thorax and node bright red; mandibles, apical segments of funiculus and tarsi yellow, antennae and legs brown. Pubescence on gaster yellowish, long and abundant but not hiding the sculpture. Mesonotum striate longitudinally. Node striate circularly. 12-15.5 mm. . . . . *chasei* Forel
30. Similar to *chasei* but the anterior portion of pronotum, disc of mesonotum, lower half of mesosternum and metasternum black. 12-15 mm. . . . . *ludlowi* Crawley
31. Head and gaster black; thorax, node and centre of postpetiole yellowish-red; mandibles yellow, antennae and tarsi reddish-yellow; legs, coxae and base of metasternum brown. Mesonotum and node feebly and irregularly rugose. Postpetiole longitudinally striate-rugose. 10.5 mm. . . . . *harderi* Forel
32. Black; top half of pronotum, whole of epinotum and node red; basal half of mandibles yellow, apical half darker, antennae and tibiae brown, tarsi reddish. Mesonotum longitudinally striate-rugose. Node coarsely and irregularly rugose. Postpetiole finely rugose, the rugae more or less obsolete and longitudinal. 11-11.5 mm. . . . . *scabra* sp. nov.
33. Head, pronotum, mesonotum and gaster black, epinotum, node and postpetiole light red, mandibles yellow; antennae and legs reddish yellow. Mesonotum longitudinally striate-rugose. Node irregularly rugose. 11-12 mm. . . . . *occidentalis* sp. nov.
34. Black; mandibles yellow, antennae and legs brown, tarsi reddish-brown. Mesonotum longitudinally striate-rugose. Node coarsely rugose. 10-11 mm. . . . . *celaena* sp. nov.
35. Black; dorsum and sides of pronotum, epinotum and node red; mandibles yellow, funiculus and tibiae brown, tarsi lighter. Mesonotum longitudinally striate-rugose. Node coarsely punctate. Postpetiole superficially punctate-rugose, the punctures large and shallow. 10-11 mm. . . . . *maloni* sp. nov.

36. Head, postpetiole and gaster black, a large reddish patch at each side of postpetiole, thorax and node bright red, mandibles and antennae yellow, legs reddish-yellow. Mesonotum longitudinally striate. Node circularly rugose. 13-14.5 mm. . . . . *elegans* sp. nov.
37. Black; dorsum of epinotum, node and in parts the postpetiole blood-red; mandibles yellow; antennae and legs reddish-brown. Mesonotum longitudinally striate-rugose. 11-11.5 mm. . . . . *opaca* sp. nov.
38. External borders of mandibles convex . . . . . 42
39. Head and thorax striate . . . . . 41
40. Head and gaster black; antennae, thorax, node, postpetiole, a small patch on each side of first segment of gaster and all the legs yellowish-red, mandibles yellow. Mesonotum finely striate longitudinally, diverging outward in front. Node striate-rugose circularly. 13-14.5 mm. . . . . *cephalotes* sp. nov.
41. Reddish-yellow, head and last two segments of gaster black. Mesonotum finely striate longitudinally, striae obsolete behind. Node circularly striate. 14.5 mm. . . . . *hilli* sp. nov.
42. Head black; antennae, thorax, nodes and gaster yellowish-red; mandibles and legs yellow; base of scapes, anterior edge of pronotum and a spot on each side of mesonotum brown. Mesonotum very finely and densely punctate-reticulate. Node circularly striate-rugose. 12.5-14 mm. . . . . *callima* sp. nov.
43. External borders of mandibles concave, teeth hook-shaped . . . . . 48
44. Head and thorax finely striate rugose.
45. Black; node and postpetiole red, mandibles and basal half of scapes yellowish-brown, apical half of scapes, funiculus and legs yellowish-red. Mesonotum finely striate-rugose longitudinally. Node irregularly rugose. 11-12.5 mm. . . . . *varians* Mayr
46. Yellowish-red, head and gaster black; mandibles, labrum and apex of clypeus yellow. Mesonotum finely striate-rugose longitudinally. Node irregularly rugose. 12.5-14 mm. *wilsoni* sp. nov.
47. Head and gaster blackish-brown; thorax, node, postpetiole and all legs reddish-yellow; mandibles, anterior edge of clypeus, labrum and antennae yellow. Mesonotum longitudinally striate. Node circularly rugose. 10-11 mm. . . . . *shepherdi* sp. nov.

48. Black; node red, epinotum reddish on some examples; mandibles, antennae and legs brown; tarsi reddish. Mesonotum finely striate-rugose longitudinally. Node irregularly rugose. 10.5-14 mm. . . . . *goudiei* sp. nov.  
55
49. Teeth sawtooth-shaped . . . . . 55
50. Blackish-brown; mandibles, antennae and legs brown. Three apical segments of gaster with long and abundant golden yellow pubescence. Mesonotum finely and closely striate longitudinally. Node irregularly, almost circularly rugose. 10.5-12 mm. . . . . *tepperi* Emery
51. Black, mandibles yellow, funiculi and legs blackish-brown, tarsi lighter. Mesonotum strongly striate longitudinally. Node striate-rugose. 11-13 mm. . . . . *clarki* Crawley
52. Head, postpetiole and gaster black; thorax and node bright red, basal half of mandibles yellow, apical half reddish-yellow, antennae and legs brown, scapes darker. Mesonotum irregularly rugose, somewhat longitudinally. Node circularly rugose. 11-12.5 mm. . . . . *swalei* Crawley
53. Head and gaster black; thorax and node reddish-yellow; postpetiole generally with a large reddish spot on each side in front; mandibles, antennae and legs yellow, apex of mandibles and base of scapes brown. Mesonotum longitudinally striate. Node coarsely punctate-rugose. 10-11 mm. . . . . *testaceipes* sp. nov.
54. Head and gaster black; mandibles yellow; antennae, thorax, nodes and legs brownish-red, base of scapes darker. Mesonotum longitudinally striate-rugose. Node coarsely punctate-rugose. 9.5-10.5 mm. . . . . *dixoni* sp. nov.
55. Black; mandibles, antennae and legs brown, tarsi lighter. Mesonotum longitudinally striate-rugose. Node irregularly and coarsely punctate-rugose. 9.5-15 mm. . . . . *gilberti* Forel
56. External border of mandibles straight or feebly convex, teeth on basal half obsolete and sawtooth-shaped . . . . . 66
57. Black; mandibles, antennae and legs brown, tarsi reddish; on some examples the mandibles and legs quite reddish. Pubescence on gaster bright golden-red, long and abundant. Mesonotum and node longitudinally striate-rugose. Postpetiole finely striate-rugose in front, punctate-rugose behind, appearing as elongate punctures. 12-15 mm. . . . . *mandibularis* Smith
58. Black; mandibles, antennae and legs reddish-brown. Mesonotum coarsely striate longitudinally. Node coarsely and irregularly rugose. Postpetiole and gaster microscopi-

- cally punctate. Pubescence reddish in middle, golden on sides of first segment. 11-14 mm.
59. Black, mandibles, antennae and legs dark brown, tarsi reddish. Mesonotum and node longitudinally striate-rugose. Pubescence on postpetiole and gaster brass yellow. 10-15.5 mm. . . . .
60. Black; mandibles, antennae, tibiae and tarsi reddish-brown; coxae and femora yellowish-red. Mesonotum longitudinally and coarsely striate. Node coarsely and irregularly rugose. Pubescence on postpetiole and gaster brass yellow. 12-16 mm. . . . .
61. Head, thorax and node brownish-black, postpetiole and gaster brown; mandibles, antennae and legs reddish-brown. Mesonotum coarsely striate longitudinally. Node coarsely and irregularly rugose. Pubescence on postpetiole and gaster golden, dense, hiding the sculpture. 9.5 mm. . . . .
62. Black; mandibles and antennae brown, coxae and legs reddish-yellow, tarsi slightly darker. Mesonotum and node coarsely striate-rugose, more or less longitudinal. Pubescence on posterior third of postpetiole greyish-yellow, long and abundant, pubescence on gaster brass yellow, forming a dense covering. 10-12 mm. . . . .
- \*63. Black; mandibles and antennae red, legs reddish-yellow. Mesonotum and node rugose. Pubescence on postpetiole and gaster dense, greenish-golden. 12-14.5 mm. . . . .
- \*64. Head, thorax and petiole blackish-red; mandibles, antennae, legs and gaster red. Mesonotum and node coarsely rugose. Postpetiole sharply rugose longitudinally. Pubescence on gaster coarse and long, bright golden. 13 mm. . . . .
65. Black; mandibles yellow, antennae and legs brown, tarsi reddish. Mesonotum coarsely striate-rugose. Node irregularly punctate-rugose. Pubescence on gaster yellow, forming a dense covering. 12 mm. . . . .
66. Head, thorax and node black; mandibles and antennae reddish-brown, postpetiole and anterior two-thirds of first segment of gaster brown, apical third of first segment and whole of following segments, legs and coxae reddish-yellow. Mesonotum coarsely rugose longitudinally. Node irregularly rugose. 13-14.5 mm. . . . .
- laevinodis sp. nov.
- piliventris Smith
- femorata Santschi
- rectidens Forel
- fulvipes Roger
- barbata Wheeler
- coelatinoda Wheeler
- luteiforceps Forel
- fulviculis Forel

\*From description only.

*Promyrmecia aberrans* Forel

## Plate XII, fig. 1

*Myrmecia aberrans* Forel, Ann. Soc. Ent. Belg., xlv, p. 54, 1900, ♀. Rev. Suisse Zool., xviii, p. 9, 1910, ♀.

*Myrmecia (Promyrmecia) aberrans* Emery, Genera Insectorum, fasc. 118, p. 19, pl. 1, fig. 10, 1911, ♀.

*Worker.* Length 12 mm.

Mandibles, clypeus and antennae reddish-yellow; head, mesonotum, sides of thorax, postpetiole and gaster black, dorsum of pronotum and epinotum and whole of node bright red; legs, including coxae brown, tarsi reddish-brown.

Shining. Mandibles coarsely and obliquely striate. Head longitudinally striate in front, the striae diverging outward behind and almost contouring the eyes, more punctate-rugose behind at occipital border, clypeus longitudinally rugose. Pronotum with some obsolete longitudinal striae in middle, transverse in front, almost smooth at sides, numerous large shallow punctures. Mesonotum smooth in middle, some obsolete longitudinal striae at sides, punctate as on pronotum. Epinotum coarsely striate-rugose transversely. Node irregularly rugose, the rugae obsolete in middle. Postpetiole, gaster and all the body densely and very finely punctate.

Hair yellow, short, erect, abundant throughout, shorter and suberect on antennae and legs. Pubescence white, very fine, and adpressed, forming a distinct covering on postpetiole and gaster but not hiding the sculpture.

Head as long as broad, sides straight, occipital border concave at middle, angles broadly rounded. Mandibles about one-third shorter than head, apical two-thirds convex; inner border almost straight to basal fourth, then abruptly reduced to base, furnished with nine short, broad teeth, the ninth forming the basal angle. Scapes as long as mandibles, not reaching the occipital border by twice their width at apex; second segment of funiculus one-twelfth longer than first, third equal to first. Thorax twice as broad as long; pronotum twice as broad as long, sides and front strongly convex, dorsum flat or feebly convex; mesonotum as long as pronotum, one-sixth broader than long, convex in all directions, excision deep and narrow; epinotum one-fifth longer than broad, feebly convex transversely; in profile mesonotum higher than pronotum and epinotum, epinotal excision deep and narrow; pronotum evenly convex from apex to base, mesonotum convex, highest in front of middle, dropping behind; dorsum of epinotum feebly convex broadly rounded into declivity. Node one-sixth broader than long, slightly broader behind than in front, convex in all directions; in profile higher than long, anterior and posterior faces straight and vertical, dorsum feebly convex, borders rounded; ventral spine translucent, broader than long, bluntly pointed. Postpetiole twice as broad as long, almost hemispherical, constriction wide. First segment of gaster broader than long, broader behind than in front. Legs robust.

Male and female unknown.

*Habitat.*—*South Australia*: Gawlertown (type locality); Wilpena Pound (H. M. Hale).

Distinguished by the black mesonotum on the bright red thorax.

Wheeler has described several subspecies of *aberrans*. It is, however, evident that the species he regarded as *aberrans* is the Victorian species which I had confused with that species previously. As the various forms are not represented in our collections the descriptions of these are given entirely from his work.

The subspecies *maura* Wheeler is regarded as a valid species. Workers and females are not uncommon.

The following forms described by Wheeler are not represented in our collections, but for the sake of completeness his descriptions are included.

*Promyrmecia aberrans* Forel s.sp. *formosa* Wheeler.

*Myrmecia (Promyrmecia) aberrans* Forel s.sp. *formosa* Wheeler, Colony-founding among Ants, 1933, p. 52, fig. 19.

Length 10-13 mm.

Head, thorax and petiole blood-red, with the following black markings: a large chevron, extending across the front between the inner orbits, with its point extending backward and covering the ocellar triangle, but leaving the clypeus and the space between the frontal carinae red, posterior portion of gula, neck, pleurae, posterior borders of pronotum and epinotum, peduncle of petiole and in some specimens a median spot on the mesonotum. Mandibles and antennae reddish-yellow; gaster and legs black, sting and four apical joints of tarsi reddish-brown. Posterior corners and sides of head very smooth and shining, sparsely and coarsely punctate. Mesonotum coarsely punctate, longitudinally or obliquely, in some specimens more feebly or more concentrically, rugose. Epinotum and petiole sculptured as in the typical *aberrans*. Postpetiole and gaster very smooth and shining, with fine greyish pubescence only on the sides and posterior borders of the segments. Legs less shining and very finely pubescent.

Described from thirteen specimens taken at Uralla, New South Wales (Wheeler).

*Promyrmecia aberrans* Forel s.sp. *haematosticta* Wheeler.

*Myrmecia (Promyrmecia) aberrans* Forel s.sp. *haematosticta* Wheeler, Colony-founding among Ants, 1933, p. 51.

Length 10-13 mm.

Coloured like *maura*, but with a large spot behind each eye, one on the disk of the pronotum and the upper surface of the petiolar node, except for a median longitudinal black streak, blood-red. Femora black; mandibles and antennae distinctly darker than in *maura* and more reddish. Mesonotal rugae less pronounced and in two specimens oblique, or asymmetrical. Petiole smoother, varying from coarsely punctate, without distinct rugae, to loosely rugose-punctate. Postpetiole fully one and two-thirds times as broad as long.

Described from three specimens taken at Uralla, New South Wales (Wheeler).

*Promyrmecia aberrans* Forel s.sp. *sericata* Wheeler.

*Myrmecia (Promyrmecia) aberrans* Forel s.sp. *sericata* Wheeler, Colony-founding among Ants, 1933, p. 53.

Length 14 mm.

Like *taylori* in coloration. Sculpture less pronounced, the rugae on the head and pronotum coarse but rounded and interspersed with large, elongate punctures. Mesonotum coarsely punctate, with only indistinct traces of fine transverse rugules. Epinotum anteriorly indistinctly rugose, petiole more coarsely and distinctly, the node of the latter broader than long, the postpetiole nearly as broad as in *taylori*, and the pilosity, which is whitish, as long and abundant. Appressed pubescence on the gaster and postpetiole golden yellow, decidedly longer and converging from each side to the middle line at the posterior border of each segment.

Described from a single specimen taken by W. W. Froggatt at Wagga, New South Wales. Another specimen, perhaps to be regarded as representing a distinct variety of *sericata*, from Meningie, South Australia (L. H. Minchin), measures only 12 mm. and has the mesonotum coarsely, transversely and arcuately rugose with large interspersed punctures and the petiolar node longer and more coarsely rugose.

*Promyrmecia aberrans* Forel s.sp. *taylori* Wheeler.

*Myrmecia* (*Promyrmecia*) *aberrans* Forel s.sp. *taylori* Wheeler, Colony-founding among Ants, 1933, p. 53.

Length 15 mm.

Larger than *froggatti* but similarly coloured; body somewhat more opaque; the rugae strong on the head and thorax but less sharp than in the preceding forms, arcuate and transverse on the mesonotum, reticulate on the epinotum and petiole. Node of the latter more sharply cuboidal than in *froggatti*, postpetiole nearly twice as broad as long, like the gaster subopaque and finely punctate, with longer and denser, yellowish pubescence. Pilosity on the body longer and more abundant than in the preceding forms.

Described from a single specimen taken by Frank H. Taylor in the Roma District, Queensland.

*Promyrmecia maura* Wheeler.

Plate XII, figs. 6-7.

*Myrmecia* (*Promyrmecia*) *aberrans* Forel s.sp. *maura* Wheeler, Colony-founding among Ants, p. 51, 1933, ♀.

*Worker.* Length 11-13 mm.

Black; mandibles, antennae and tarsi reddish-yellow, teeth of mandibles blackish-brown, articulations of legs reddish-brown.

Shining. Mandibles obliquely and coarsely striate. Head finely striate longitudinally. Pronotum and mesonotum longitudinally striate, coarser than on head. Epinotum more coarsely striate-rugose transversely, interstices densely reticulate. Node irregularly punctate-rugose, almost circularly rugose. Postpetiole and gaster densely and microscopically punctate.

Hair yellowish, sparse, short and erect, longer on clypeus and apex of gaster. Pubescence greyish, sparse throughout.

Head very slightly broader than long, as broad in front as behind, sides fully convex, occipital border deeply concave at middle, angles broadly rounded. Mandibles fully their width shorter than head; external border straight or feebly concave at middle, inner border straight to basal fourth then abruptly reduced to base, furnished with nine large broad teeth, first two smallest, ninth forms an angle between the two apparent borders. Scapes not extending to occipital border by fully twice their thickness; second segment of funiculus as long as first; third slightly shorter. Thorax twice as long as broad; pronotum twice as broad as long, sides and front convex, dorsum flattened; mesonotum as long as pronotum, almost one-third broader than long, convex in all directions; excision deep and narrow; epinotum one-third longer than broad, convex transversely; in profile evenly convex from apex of pronotum to base of mesonotum, a very slight depression at pro-mesonotal suture, meso-epinotal excision deep and narrow; epinotum convex from base to foot of declivity. Node one-fifth broader than long, sides strongly convex, anterior and posterior borders feebly convex; in profile one-fifth higher than long, anterior and posterior faces straight, vertical, both bluntly rounded into the slightly convex dorsum, ventral spine broad, triangular, bluntly pointed. Post-

petiole barely one and one-half times broader than long, hemispherical in front; constriction wide but not deep. First segment of gaster one-fifth broader than long. Legs short and robust.

*Female.* Length 14-16 mm.

Larger and more robust than the worker, colour identical, sculpture similar but coarser; pilosity longer and more abundant. Scutellum small, feebly impressed, about one-fifth of the length of mesonotum.

*Habitat.*—*New South Wales*: Tarcutta; Gundagai (J. Clark); Canberra (G. F. Hill, T. Greaves); Red Hill (T. Greaves); Monaro (N. R. Flynn).

### *Promyrmecia froggatti* Forel

Plate XII, fig. 5

*Myrmecia froggatti* Forel, Rev. Suisse Zool., xviii, p. 9, 1910, ♂.

*Myrmecia (Promyrmecia) froggatti* Emery, Genera Insect., fasc. 118, p. 19, 1911, ♀.

*Myrmecia (Promyrmecia) aberrans* Forel s.sp. *froggatti* Forel, Wheeler, Colony-founding among Ants, p. 52, 1933, ♀.

*Worker.* Length 11-12 mm.

Dark red; postpetiole and gaster black; front of face and the legs brownish-black; mandibles, antennae and tarsi yellow.

Shining. Head longitudinally striate-reticulate, the striae straight on middle of head, slightly diverging outward at sides, and continued into the antennal depressions. Some large punctures on occipital border. Mandibles strongly and obliquely striate. Pronotum longitudinally and strongly striate. Mesonotum and epinotum transversely striate, continued obliquely on the sides. Node coarsely reticulate. Postpetiole and gaster very finely punctate.

Hair yellowish, erect, rather sparse throughout. Pubescence greyish, very fine and adpressed, most abundant on postpetiole and gaster.

Head broader than long, as broad in front as behind, occipital border concave, posterior angles rounded. Mandibles short and broad, external border concave at middle; inner border nearly straight to basal third, furnished with eleven teeth, the first two small, the third, fifth, ninth and tenth large and blunt; the ninth forms the angle between the two apparent borders. Frontal carinae erect, nearly straight, extending to posterior margin of eyes. Scapes not extending to occipital border by one-fifth of their length; first segment of funiculus as long as second. Thorax fully twice as long as broad; pronotum twice as broad as long, broader in front than behind, dorsum flattened in middle. Mesonotum slightly broader than long, convex and rounded above. Epinotum one and three-fourths times longer than broad, strongly arched from basal to inferior posterior edge; the declivity not defined. Node as broad as long, broader behind than in front, in profile higher than long, rounded above, the stalk in front extremely short. Postpetiole one and one-third times broader than long. First segment of gaster slightly broader than long, almost as broad behind as in front, sides convex. Legs moderately long and stout.

Male and female unknown.

*Habitat.*—*New South Wales*: Manilla (W. W. Froggatt); Quirindi (Col. C. V. Morisset).

Re-described from a co-type received from the late Mr. W. W. Froggatt.

This is close to *P. aberrans*, as noted by Forel, but is distinct.

The sculpture is larger and coarser, the head and node differently shaped, the pubescence much more abundant. In both the postpetiole and gaster have fine microscopic punctures often obscured by pubescence, both segments are more shining in *froggatti* than in *aberrans*. The clypeus is much more excised and the clypeal projections more outwardly directed in *froggatti*, and the labrum shorter and narrower, nearly square, not rounded as in *aberrans*.

*Promyrmecia nobilis* sp. nov

Plate XII, figs. 2-4

*Myrmecia* (*Promyrmecia*) *aberrans* Forel, Clark, Victorian Naturalist, xlii (6), p. 136, 140, 1925, ♀. Wheeler, Colony-founding among Ants, p. 50, 1933, ♀. Clark, Mem. Nat. Mus. Vict., viii, p. 9, pl. 1, figs. 1, 2, 1934, ♀ ♂ ♂.

*Worker*. Length 10-14 mm.

Black; top of pronotum, mesonotum, epinotum and node, red; mandibles and labrum yellowish-red, points of teeth black; antennae and tarsi brownish. Some examples have a reddish tinge on lateral borders of the head behind.

Shining. Head longitudinally striate in middle, the striae between frontal carinae continued from front of clypeus to occipital border; sides of clypeus and antennal depressions not striate, but finely and densely punctate, these fine punctures continued between the striae on head; some large scattered punctures on occipital border. Pronotum longitudinally striate in middle, longitudinally arched at sides above: mesonotum smooth and shining, with some scattered shallow punctures; there are faint traces of fine longitudinal striae on some examples. Epinotum coarsely striate transversely, descending obliquely on the sides; node circularly striate, with a central longitudinal carina; postpetiole, gaster, scapes and legs very finely and densely punctate.

Hair yellowish, sparse on head and body, more abundant on the apical segments of gaster, but short and erect; shorter and adpressed on the tibia and tarsi, tibia also furnished with some long bristle-like hairs on the underside. Pubescence greyish, very fine and adpressed on clypeus and funiculus; more abundant on postpetiole and gaster, shorter and finer on sides of thorax.

Head very slightly broader than long, broader behind than in front, occipital border concave, angles broadly rounded. Mandibles short and broad, not as long as head, external border feebly concave at middle; inner border nearly straight to basal third, thence strongly reduced to base; furnished with twelve teeth, first two small, third, fifth, seventh, eighth, tenth and eleventh strong and obtuse; the tenth forms the angle between the two apparent borders. Frontal carinae short, extending to about the posterior third of eyes. Clypeus strongly excised at middle in front, the excision obtuse, sides straight, forming a sharp tooth-like projection on each side. Labrum sharply rounded, projecting outward almost to the points of clypeus. Scapes not extending to occipital border by one-fifth their length; first and second segments of funiculus equal, third somewhat shorter, apical as long as the two preceding combined. Thorax twice as long as broad. Pronotum one and one-half times broader than long, broader in front than behind, slightly depressed above. Mesonotum almost circular, very slightly broader than long, convex and rounded above. Epinotum one and one-fifth times longer than broad; in profile the dorsum and declivity appear as an even arch. Node circular, as broad as long and as broad in front as behind; the stalk in front very short, barely

one-third of the length of node; in profile a little higher than long, rounded above, anterior and posterior faces vertical. Postpetiole one and one-half times broader than long, broadest at middle. First segment of gaster broader than long, and broader behind than in front. Legs moderately long.

*Female.* Length 16-18 mm.

Colour identical with worker. Sculpture slightly coarser. Pilosity similar.

Apart from the great size and bulk it closely resembles the worker. The scutellum is very small and inconspicuous. The metanotum is indicated by a sharp ridge. There are no traces of wings, but the anterior wing sclerites are indicated.

*Male.* Length 13-14 mm.

Black. Antennal scapes and first segment of funiculus, femora of all legs, and anterior tibiae and apical segments of tarsi, red; middle and posterior tibiae brownish.

Mandibles shining, finely punctate. Head finely reticulate, coarser behind, with some large shallow punctures. Pronotum similar. Mesonotum similar in front. Epinotum with coarse reticulations forming faint transverse rugae. Node irregularly rugulose, with a strong longitudinal central carina. Postpetiole and gaster finely and densely punctate.

Hair yellow, erect, long and abundant except on antennae and legs. Pubescence white, very fine, short and adpressed, particularly abundant on gaster.

Head broader than long, broader in front than behind, sides strongly convex, occipital border short and straight. Mandibles short, not raised. Scapes fully twice as long as first segment of funiculus; second segment four times as long as first. Pronotum short, strongly convex. Mesonotum convex in front, flattened behind, mayrian furrows distinct but not strongly impressed; parapsidal furrows sharply defined. Scutellum strongly convex above, twice as broad as long. Epinotum twice as broad as long, strongly convex. Node slightly broader than long, sides strongly convex. First segment of gaster much broader behind than in front. Legs slender. Genitalia retracted.

*Habitat.*—*Victoria*: Altona (J. E. Dixon, ♂; T. Greaves, ♂ ♀ ♂; J. Clark, ♂ ♀ ♂); Bacchus Marsh and Coburg (C. Oke, ♂ ♀); Broadmeadows (F. P. Spry, ♀); Geelong (A. D. Butcher, ♀); Patho (H. Potter).

Winged females have not been seen in any of the nests examined. All the females found are similar to the worker and apart from their greater size are easily overlooked. Ergatoid females occur with several species of the genus, but winged forms also are known with the majority.

This species has been confounded with *aberrans* Forel, from which it differs in the formation of the head and nodes. The colour and sculpture also are different.

The various subspecies erected by Wheeler are based on this species, not on *aberrans*, which apparently he did not know.

*PromyrmeCIA eupocila* sp. nov.

Plate XII, fig. 8.

*Female.* Length 14.5 mm.

Mandibles and antennae yellow, head yellowish-red with a broad brown band across the forehead, extending from eye to eye and including the ocelli; pronotum

and node bright red, mesonotum and epinotum reddish-brown, postpetiole and gaster black, legs brown, tarsi reddish.

Mandibles coarsely striate obliquely, the striae very large. Head longitudinally striate, some large shallow punctures between the striae. Pronotum and mesonotum longitudinally striate-rugose, coarser than on head. Epinotum and node coarsely and irregularly rugose, transverse on declivity. Postpetiole, gaster and all the body densely and very finely reticulate-punctate.

Hair yellow, long, erect and abundant throughout, short and suberect on antennae and legs. Pubescence yellow, very fine and adpressed, forming a distinct covering on postpetiole and gaster but not hiding the sculpture.

Head a fraction broader than long, sides convex, angles very broadly rounded, occipital border deeply indented at middle. Mandibles one-fourth shorter than head, as long as scapes, apical half of external border convex, inner border straight, furnished with eight large, broad, blunt teeth, the eighth forms the basal angle. Scapes not reaching the occipital border by fully twice their width at apex; first and second segments of funiculus equal length, third one-fourth shorter. Thorax fully twice as long as broad. Pronotum three times broader than long, sides strongly convex, dorsum feebly convex. Mesonotum twice as long as pronotum, one-seventh broader than long, strongly convex in all directions. Scutellum very small, twice as broad as long, appearing as if embedded in mesonotum, excision deep and wide; metanotum small but prominent; epinotum longer than broad, feebly convex transversely; in profile centre of mesonotum slightly higher than pronotum and epinotum, excision deep. Pronotum high, strongly convex. Mesonotum convex, highest at middle, dropping behind; scutellum small, just apparent in epinotal excision; epinotum raised in front, convex from base to bottom of declivity. Node one-seventh broader than long, broadest at middle, broader behind than in front; in profile higher than long, anterior face high, slightly convex, posterior face straight, both faces rounded into the feebly convex dorsum, ventral spine short, broad and sharp-pointed. Postpetiole fully one and one-half times broader than long, broadest just behind middle, strongly convex in all directions, constriction deep and narrow. First segment of gaster broader than long, broader behind than in front, sides strongly convex. Leg robust.

Male and worker unknown.

*Habitat*.—*South Australia*: Adelaide (R. Blackwood, 25.8.27).

The structure of the thorax and nodes as well as the variegated colour render this species very distinct.

*Promyrmecia greavesi* sp. nov.

Plate XII, fig. 9.

*Female*. Length 15.5 mm.

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

Mandibles strongly and coarsely striate diagonally and a long straight striae at base of teeth, base punctate only. Head finely striate-rugose longitudinally, very finely and densely punctate between the rugae. Pronotum striate-rugose similar to head. Mesonotum coarsely and irregularly punctate-rugose. Metanotum shining. Epinotum very coarsely rugose, somewhat transverse on the declivity. Node irregularly rugose with a central longitudinal carina. Postpetiole and gaster microscopically punctate.

Hair yellow, short and erect on head, antennae, thorax, nodes and legs, long and fine on gaster, longer and coarser on mandibles and clypeus.

Head as broad as long, sides strongly rounded into occipital border; occipital border deeply indented, concave at middle. Mandibles one-third shorter than head, external border straight, inner border furnished with eight large sharp teeth, the eighth forming the basal angle, there is one strong tooth on basal border. Clypeus projecting strongly in front, angles sharp, deeply excised in middle, sides straight. Frontal carinae as long as broad behind. Scapes extend to posterior fourth of head; first segment of funiculus one-fifth longer than second, remainder decreasing in length to apical which is barely as long as the two preceding combined. Thorax twice as long as broad. Pronotum fully twice as broad as long, strongly convex in front and on sides, flattened above. Mesonotum circular, very slightly broader than long. Scutellum small and narrow, no traces of wing stumps. Metanotum small and erect. Epinotum as long as broad, convex laterally. In profile the pronotum evenly arched from base to apex, mesonotum raised, highest in front, convex, scutellum and metanotum small, epinotum strongly convex from base to apex. Node as long as broad, circular, flattened on top, a weak longitudinal carina in the centre. In profile as high as long, anterior and posterior faces straight, vertical, both rounded into the feebly convex dorsum; the ventral spine broad, short and sharp-pointed. Postpetiole barely twice as broad as long, strongly convex in all directions. First segment of gaster broader than long, broadest behind, sides strongly convex. Legs long and robust.

Worker and male unknown.

*Habitat*.—North Queensland: Mareeba (T. Greaves).

The peculiar colour and sculpture render this species distinct from all the other known species.

### *Promyrmecia picta* Smith

Plate XII, figs. 10-13

*Myrmecia picta* Smith, Cat. Hym. Brit. Mus., vi, p. 146, 1858, ♀. Lowne, The Entomologist, Long., ii, p. 336, 1865, ♀.

*Myrmecia (Myrmecia) picta* Smith, Emery, Genera Insect., fasc. 118, p. 21, 1911.

*Myrmecia (Promyrmecia) picta* Smith; Clark, Victorian Naturalist, xlvii (2), p. 39, 1927, ♀ ♀ ♂; Mem. Nat. Mus. Vict., viii, p. 11, pl. 1, figs. 3, 4, 1934, ♀ ♀ ♂.

*Worker*. Length 9-12 mm.

Black. Mandibles, clypeus, front of face, to about the posterior margin of eyes, yellow; antennae and anterior legs reddish-yellow; intermediate and posterior legs brownish; tarsi lighter. The colour of the thorax and nodes is most variable, ranging from all black on some specimens, to all red on others. The most numerous individuals have the head, behind the eyes, pronotum and a spot on mesonotum, black; edges of mesonotum, all the epinotum, node and a greater portion of postpetiole red, or reddish-yellow. The gaster always black.

Head longitudinally striate, finely and densely reticulate between the striae. Mandibles shining, with scattered elongate punctures. Pronotum transversely arched striate-rugose, in some specimens almost longitudinally arched. Mesonotum finely rugose transversely, on a few examples almost smooth. Epinotum transversely, often irregularly, rugose, definitely striate on declivity. Node irregularly rugose. Postpetiole and gaster very finely and densely punctate.

Hair yellowish, erect, rather long and abundant throughout, none on scapes, longer and more abundant on apical segments of gaster than elsewhere. Pubescence

greyish, very fine and abundant, particularly on postpetiole and gaster, frequently appearing as a greyish covering.

Head as long as broad, broader in front than behind, occipital border nearly straight, angles rounded. Mandibles not as long as head, external border concave at middle, inner border nearly straight to basal fifth, thence sharply reduced to base, furnished with nine teeth, first two small, third, fifth, seventh and ninth twice as large, the ninth forms the angle between the two apparent borders. In some examples there is indication of a tooth on basal border but this is usually edentate. Frontal carinae short, almost parallel. Clypeus strongly excised in front, inner edges straight. Labrum projecting almost to points of clypeus, anterior border feebly rounded. Scapes not extending to occipital border; second segment of funiculus one-third longer than first and third, fourth to eighth equal, ninth and tenth shorter, apical as long as the two preceding combined. Thorax fully two and one-half times as long as broad. Pronotum almost twice as broad as long, dorsal surface slightly rounded. Mesonotum circular, rounded above. Epinotum longer than broad, without a boundary between dorsum and declivity, the latter short. Node broader than long, slightly broader behind than in front; in profile much higher than long, rounded above, the stalk in front short, not half the length of node, anterior face nearly vertical, posterior face sloping behind. Postpetiole one and three-fourths times broader than long, much broader behind than in front, convex on sides and above. First segment of gaster broader than long. Legs long and moderately slender.

*Female.* Length 13.5-14.5 mm.

Differs from the worker only by larger size and in possessing wings. The colour appears to be more constant. In all the examples examined the occiput, pronotum, margins of the other segments and gaster are blackish; the mesonotum, scutellum, epinotum, node and postpetiole red. All the legs are uniformly castaneous, except the apical half of posterior femora, these are brown. Front of face bright yellow. Four corners of node more clearly defined, but not sharp. Wings hyaline. Ergatoid females also are present.

*Male.* Length 10-11 mm.

Black; mandibles, five basal segments of antennae, front of face and all the legs, yellow; eight apical segments of antennae brown.

Head finely striate-rugose on middle, becoming coarser at lateral and occipital borders. Mandibles shining, coarsely and sparsely punctate. Pronotum, scutellum, mesonotum and epinotum coarsely reticulate-punctate. Node coarsely and irregularly rugose. Postpetiole and gaster very finely and densely punctate.

Hair greyish, long and suberect, longer and more abundant on head and thorax than on gaster, short and adpressed on legs, none on antennae. Pubescence greyish, short, most abundant on gaster.

Head broader than long, broader in front than behind; occipital border convex. Mandibles short, triangular, external border convex; diverging behind. Clypeus long, convex and rounded above, concave at middle in front. Antennae long and slender; scapes short, first segment of funiculus half as long as scapes, second three and one-half times as long as scapes, third slightly shorter than second, the others about equal. Thorax barely twice as long as broad. Pronotum strongly rounded in front and above. Mesonotum large, convex and rounded above, mayrian furrows distinct; a deep longitudinal suture extends from anterior border to near base; parapsidal furrows faintly defined. Scutellum broad, strongly convex. Epinotum strongly convex and rounded above, without a boundary between the dorsum and declivity. Node slightly broader than long, almost circular, strongly convex above. Postpetiole broader than long, broadest just behind the middle,

strongly convex above and on sides. First segment of gaster broader than long. Legs long and robust.

*Habitat*.—*Western Australia*: Merriden (L. J. Newman); National Park and Mundaring (J. Clark); Yellowdine (W. Joyce).

*South Australia*: Adelaide; Mt. Lofty (A. H. Elston); Port Lincoln (F. E. Wilson).

*Victoria*: Maldon (J. C. Goudie); Mallee (J. E. Dixon); Wyperfield (J. Clark).

*New South Wales*: Broken Hill (F. W. Shepherd); Narrabri (W. W. Froggatt).

The colour varies considerably in the individuals of a single colony. Many specimens are entirely black, with the exception of mandibles, front of face, antennae and anterior legs. Others have thorax, petiole and anterior half of postpetiole entirely red or variously marked with red. The extent of yellow area on front of face also varies slightly, on some examples this does not pass anterior margin of eyes, whilst on others it extends well beyond posterior margin. Although the colour varies considerably, the sculpture, pilosity and pubescence are constant. The same colour varieties occur in all colonies obtained from each State.

### *Promyrmecia fucosa* Clark.

Plate XII, figs. 14-16.

*Myrmecia (Promyrmecia) fucosa* Clark, Mem. Nat. Mus. Vict., viii, p. 15, pl. 1, figs. 5, 6, 1934, ♂ ♀.

*Worker*. Length 10-11.5 mm.

Red. Posterior half of head and two apical segments of gaster black. Mandibles and front of face to about the middle of eyes yellow; antennae and anterior legs testaceous; middle and posterior legs brownish.

Head longitudinally and irregularly rugose, densely and finely reticulate between the rugae. Mandibles smooth and shining, with some scattered shallow punctures. Pronotum transversely arched-rugose. Mesonotum finely striate transversely. Epinotum transversely striate-rugose, coarser than on mesonotum but not as coarse as on pronotum. Node strongly and irregularly rugose. Postpetiole and gaster very finely and densely punctate.

Hair greyish, long and erect, abundant on whole body, except the scapes, shorter and suberect on funiculus and legs. Pubescence greyish, long and abundant on postpetiole and gaster, forming a distinct covering, sometimes hiding the sculpture; sparse elsewhere.

Head slightly longer than broad, broadest in front, occipital border feebly concave, angles rounded. Mandibles not as long as head; external border almost straight to apical third; inner border nearly straight to basal third, then greatly reduced to base; furnished with nine teeth, the third, fifth, seventh, eighth and ninth twice as large as the first two; the eighth forms the angle between the two apparent borders, the ninth placed just in front of middle of basal border. Frontal carinae extending to the posterior margin of eyes. Clypeus obtusely excised at middle in front; anterior corners produced as blunt tooth-like angles. Labrum broadly rounded, extending outward to apex of clypeus. Scape not extending to the occipital border; first segment of funiculus slightly shorter than second, but longer than tenth. Thorax two and one-half times as long as broad. Pronotum broader than long. Epinotum about one and one-half times as long as broad. Boundary

between the dorsum and declivity feebly indicated. Node as long as broad, slightly broader behind than in front; in profile slightly longer than high, nearly flat above, anterior face vertical, posterior face descending in a gradual slope; the stalk in front not quite half the length of node; postpetiole very slightly broader than long, much broader behind than in front. First segment of gaster as broad as long, slightly broader behind than in front. Legs moderately long and slender.

*Female.* Length 11-13 mm.

Resembles the worker, but much larger and winged. The sculpture slightly coarser on head, thorax and node. The colour similar, except that on two females examined the scutellum and sides of the mesonotum are brown or blackish.

*Male.* Length 9 mm.

Head and thorax yellowish-red; mandibles, antennae, nodes, gaster and legs testaceous.

Head finely rugose, the rugae longitudinal, diverging outward behind. Mandibles smooth and shining. Pronotum, epinotum transversely rugose. Scutellum and mesonotum irregularly rugose; node circularly rugose. Postpetiole and gaster very finely and densely punctate, with a few large shallow punctures.

Hair yellow, short and erect on head, thorax and nodes, longer and more abundant on gaster. Pubescence very abundant on gaster, whitish, short and adpressed.

Head broader than long, strongly convex behind the eyes. Mandibles short, sharply pointed, furnished with one large sharp tooth midway between the point and inner angle, clypeus broadly rounded in front. Frontal carinae as long as broad behind, with a feeble median groove between them. Scape of antenna fully as broad as long, twice as long as first segment of funiculus, second segment three times as long as first. Thorax almost twice as long as broad. Pronotum short, sides and front strongly convex. Mesonotum as broad as long, mayrian and parapsidal furrows strongly impressed. Scutellum one-fourth broader than long. Epinotum twice as broad as long; in profile pronotum convex, raised abruptly, mesonotum raised and strongly convex, mayrian furrow deeply impressed. Scutellum dome-shaped; epinotum convex to bottom of declivity. Node one-fifth broader than long, convex in all directions; in profile one-fourth longer than high, anterior face straight and vertical, dorsum feebly convex, rounded into posterior face, the ventral spine long and thorn-like. Postpetiole one and three-quarter times broader than long, sides convex. First segment of gaster much broader than long, broadest behind, sides strongly convex. Legs long and slender.

*Habitat.*—*Victoria*: Lake Hattah, Ouyen (J. E. Dixon); Mildura (Mrs. M. J. Zimmer); Sea Lake (J. C. Goudie); Wyperfield (J. Clark).

*South Australia*: Murray Bridge (A. M. Lea).

This species resembles *P. picta* Smith in size and colour. It is readily distinguished, however, by the form of the mandibles, antennae and nodes.

### *Promyrmecia urens* Lowne

Plate XV, figs. 56-58

*Myrmecia urens* Lowne, The Entomologist, Lond., ii, p. 336, 1865, ♂.

*Myrmecia pumilio* Mayr, Verh. Zool. Bot. Ges. Wien, xvi, p. 896, 1866, ♀.

*Myrmecia picta* Smith, Mayr, Jour. Mus. Godeffroy, xii, p. 94, 1876, ♀;

Forel, Ann. Soc. Ent. Belg., xlv, p. 54, 1900, ♀.

*Myrmecia* (*Myrmecia*) *picata* Emery, Genera Insect., fasc. 118, p. 20, 1911; Viehmeier, Ent. Mitteil., Berlin, xxiii, p. 222, 1924, ♀.

*Myrmecia* (*Promyrmecia*) *urens* Clark, Vict. Nat., xlv, p. 39, 1927; Wheeler, Colony-founding among Ants, p. 62, 1933; Clark, Mem. Nat. Mus. Vict., viii, pp. 13-14, 1934.

*Worker.* Length 6-8 mm.

Black, basal half of mandibles and labrum yellow, apical half reddish-yellow; antennae, anterior tibiae and apical half of femora and all tarsi reddish or reddish-yellow, other tibiae and femora brown. The colour of the thorax and node varies considerably amongst the individuals in every nest. Large numbers have the dorsum of pronotum, epinotum and node red; head, postpetiole and gaster always black.

Apical half of mandibles obliquely striate, basal half finely reticulate and with numerous large, shallow punctures. Head finely and longitudinally striate, striae widely spaced, interstices densely reticulate. Pronotum irregularly rugose, mesonotum with faint traces of obsolete rugae, epinotum irregularly rugose, with a more or less transverse direction, node irregularly rugose, all the thorax and node very densely reticulate. Postpetiole and gaster microscopically punctate.

Hair yellow, long, erect and abundant, shorter and suberect on legs. Pubescence white, very fine and adpressed, longer and more abundant on postpetiole and gaster but not hiding the sculpture.

Head as long as broad, broadest in front, sides and occipital border feebly convex, angles rounded. Mandibles fully their width at base shorter than head, external border concave, inner border convex, furnished with four large, sharp, erect teeth, each preceded by two smaller teeth, the fourth forms a slight angle, behind which are two small denticles. Scapes fully their width at apex shorter than head; first and second segments of funiculus equal length, third one-fifth shorter. Thorax two and one-half times longer than broad; pronotum one-third broader than long, dorsum feebly convex transversely, mesonotum as long as pronotum, circular, as long as broad, excision deep but not wide, epinotum one-third longer than broad, convex transversely; in profile pronotum evenly convex from apex to base, mesonotum strongly convex, much higher than pronotum and epinotum, highest at middle dropping behind, excision deep; epinotum convex from base to bottom of declivity. Node as long as broad, broadest behind the middle, convex in all directions; in profile slightly higher than long, anterior face straight, sloping backward, sharply rounded into dorsum, posterior face short, convex and continuous with dorsum, ventral spine slender and sharp. Postpetiole one-fourth broader than long, constriction deep. First segment of gaster broader than long, much broader behind than in front. Legs long and slender.

*Female.* Length 8-9 mm.

Colour, sculpture and pilosity as on the worker. Occipital angles more broadly rounded. Mandibles shorter, broader and the teeth stronger. Scapes slightly shorter. Node one-fourth broader than long. Postpetiole one-third broader than long. Wings hyaline. Ergatoid females are found commonly in nests.

*Habitat.*—*New South Wales*: Sydney (type locality); Como; Manilla; Pilliga Scrub; Lismore.

*Queensland*: Fletcher; Milmerran; Peak Downs.

*Victoria*: Cann River; Bendigo; Lake Hattah; Portland.

*South Australia*: Mt. Lofty; Port Lincoln.

*Tasmania*: Launceston.

*Promyrmecia infima* Forel

## Plate XV, figs. 59-61

*Myrmecia picta* Smith var. *infima* Forel, Ann. Soc. Ent. Belg., xlv, p. 54, 1900, ♂; Fauna Sudwest Austral., i, p. 267, 1907.

*Myrmecia (Myrmecia) picta* Smith var. *infima* Emery, Genera Insect., fasc. 118, p. 20, 1911.

*Myrmecia (Promyrmecia) infima* Wheeler, Colony-founding among Ants, p. 62, 1933; Clark, Mem. Nat. Mus. Vict., viii, p. 14, 1934.

*Worker.* Length 6-8 mm.

Head, pronotum, mesonotum, postpetiole and gaster black. Mandibles yellow, apical third darker, clypeus, antennae and legs reddish-yellow, base of scapes darker, epinotum and node red.

Mandibles striate, obliquely at apex, five large, shallow punctures on inner edge of apical half. Head very finely and longitudinally striate-rugose, densely reticulate between rugae. Pronotum circularly rugose. Mesonotum rather coarsely reticulate, without striae or rugae. Epinotum and declivity transversely striate-rugose. Node irregularly rugose. Postpetiole and gaster microscopically reticulate.

Hair yellow, long and erect, abundant throughout, short and suberect on legs. Pubescence greyish, very fine and adpressed, forming a slight covering on postpetiole and gaster but not hiding the sculpture.

Head as long as broad, sides and occipital border feebly convex, angles broadly rounded. Mandibles shorter than head by fully their width at base, external border feebly concave, inner border convex, furnished with five large, sharp, erect teeth each preceded by a smaller tooth. Scapes barely as long as mandibles, not reaching the occipital border by fully their thickness; first and second segments of scapes equal in length, longer than third. Thorax two and one-half times longer than broad, pronotum one-fourth longer than broad, convex in all directions; mesonotum circular, as long as broad, meso-epinotal excision deep and wide; epinotum one-fifth longer than broad, dorsum feebly convex transversely; in profile pronotum evenly convex from apex to base, mesonotum slightly higher than pronotum, highest at middle, convex, excision deep and wide, concave at bottom; dorsum of epinotum straight, declivity slightly convex rounded into dorsum. Node one-eighth broader than long, almost circular; in profile higher than long, almost dome-shaped above, ventral spine triangular, short, broader than long, sharp-pointed. Postpetiole twice as broad as long, hemispherical, constriction deep and wide. First segment of gaster one-eighth broader than long. Legs long and slender.

*Female.* Length 8 mm.

Differs from the worker only in being larger, more robust and winged. The sculpture slightly coarser, the scapes and femora slightly darker.

*Male.* Length 7-8 mm.

Colour, sculpture and pilosity as on the worker. Head as broad as long, almost circular. Mandibles furnished with three large, sharp teeth behind apex. Second segment of funiculus three times longer than scapes and five times longer than first segment. Thorax twice as long as broad. Pronotum three times as broad as long, strongly convex in all directions; mesonotum one-sixth broader than long, mayrian and parapsidal furrows sharply impressed. Scutellum almost as long as broad, strongly convex, epinotum broader than long, convex transversely. Node very slightly broader than long, broadest behind middle, convex in all directions; in profile slightly higher than long, dome-shaped, ventral spine very short and sharp. Postpetiole one-fifth broader than long, broadest at posterior fourth,

greatly reduced in front; constriction deep. First segment of gaster one-seventh broader than long, broader behind than in front. Legs long and slender.

*Habitat.*—*Western Australia*: Perth (type locality, Chase); Fremantle; Rott-nest Island (L. Glauert); Albany; Denmark (J. Clark).

*Promyrmecia nigra* Forel

Plate XV, figs. 62-63

*Myrmecia picta* Smith var. *nigra* Forel, Fauna Sudwest Austral., i, p. 267, 1907, ♀.

*Myrmecia (Myrmecia) picta* Smith var. *nigra* Emery, Genera Insect., fasc. 118, p. 21, 1911.

*Myrmecia (Promyrmecia) infima* Forel var. *nigra* Wheeler, Colony-founding among Ants, p. 63, 1933, ♀.

*Worker.* Length 7.9-5 mm.

Black, apical half of mandibles brown, basal half reddish-yellow; antennae and legs brown, apical half of funiculus and the tarsi reddish. The colour of the thorax and node varies considerably amongst the individuals of each nest. The majority of specimens have the pronotum, epinotum and node more or less marked with red, whilst on many examples these segments are entirely red; the postpetiole and gaster always black.

Apical half of mandibles with five large, deep punctures, basal half finely punctate. Head finely striate-rugose longitudinally, interstices densely reticulate. Pronotum more coarsely striate-rugose, transversely arched; mesonotum finely striate-rugose longitudinally and very densely reticulate; epinotum more coarsely rugose transversely; node irregularly rugose; postpetiole and gaster microscopically punctate.

Hair yellow, long, slender and erect, abundant throughout, shorter and suberect on legs. Pubescence white, very fine and adpressed, abundant throughout, longer on postpetiole and gaster but not hiding sculpture.

Head as long as broad, sides and occipital border feebly convex, angles broadly rounded. Mandibles shorter than head by fully their width at base; external border feebly concave, inner border convex, furnished with ten large, sharp, erect teeth, the second, fourth and ninth smallest. Scapes not extending to occipital border by fully their thickness; second segment of funiculus one-eighth longer than first. Thorax two and one-half times longer than broad; pronotum one-fourth broader than long, mesonotum as long as broad, circular, strongly convex above, mesoepinotal constriction deep and narrow; epinotum one-fifth longer than broad; in profile mesonotum higher than pronotum and epinotum, highest at middle, excision deep; dorsum of epinotum convex, almost twice as long as declivity into which it is broadly rounded. Node one-sixth broader than long, broadest behind, feebly convex in all directions; in profile higher than long, anterior face high, sloping backward and rounded into dorsum, posterior face short, convex continuous with dorsum, ventral spine long, slender and sharp, as long as broad at base. Postpetiole almost one and three-quarter times broader than long, hemispherical in front; constriction deep and wide. First segment of gaster broader than long, broadest behind. Legs long and slender.

*Female.* Length 9.5-11 mm.

Colour as on the worker. Sculpture coarser. Pilosity and pubescence longer and more abundant. Differs from the worker in being larger and more robust and possessing wing.

*Male.* Unknown.

*Habitat.*—*Western Australia*: Perth (type locality); widely distributed and abundant from Albany to Geraldton.

The colour of the thorax and node varies from all black on some individuals to almost all red on others. The same series of colour variations occur in all nests.

*Promyrmecia rubicunda* sp. nov.

Plate XV, fig. 65

*Worker.* Length 5.5-6.5 mm.

Head, pronotum, mesonotum and gaster black, mandibles and labrum yellow, funiculus, epinotum, node, postpetiole and all legs reddish-yellow, scapes brown.

Mandibles smooth and shining, with six large, shallow punctures on apical half at base of teeth. Head very delicately striate longitudinally, densely reticulate between the striae. Thorax and node densely reticulate, pronotum and epinotum with traces of transverse rugae; postpetiole and gaster microscopically punctate.

Hair yellow, erect, rather sparse except on apex of gaster, short and suberect on legs. Pubescence white, very fine and adpressed, forming a thin silky covering on postpetiole and gaster, not hiding the sculpture.

Head as long as broad, occipital border short and straight, sides convex, angles broadly rounded. Mandibles as long as head, external border straight or very feebly concave, inner border convex, furnished with four large, sharp, erect teeth each preceded by two small denticles. Scapes not reaching the occipital border by fully their thickness; first and third segments of funiculus equal length, second one-fifth longer. Thorax two and one-third times longer than broad. Pronotum one and three-quarter times broader than long, convex in all directions; mesonotum as long as pronotum, circular, as long as broad, excision deep and wide; epinotum one-fourth longer than broad, convex transversely; in profile evenly convex from apex of pronotum to base of mesonotum with a very faint depression at promesonotal suture, mesonotum highest at middle; excision deep and wide; dorsum of epinotum feebly convex, twice as long as declivity into which it is rounded. Node very slightly longer than broad, slightly broader behind than in front, sides feebly convex, anterior border strongly convex, posterior border almost straight; in profile longer than high, anterior face short and vertical, rounded into the rather flattened dorsum, posterior face convex, very short, ventral spine short and broad, bluntly pointed. Postpetiole twice as broad as long, almost hemispherical; constriction deep and wide. First segment of gaster broader than long. Legs slender.

Male and female unknown.

*Habitat.*—*South Australia*: Ooldea (J. A. Kershaw).

*Promyrmecia exigua* sp. nov.

Plate XV, fig. 64

*Worker.* Length 4.4-5 mm.

Head and gaster blackish-brown, mandibles yellow; antennae, pronotum, mesonotum and legs brown or reddish-brown, tarsi of front and middle legs reddish-yellow; epinotum and node red.

Mandibles smooth and shining. Head finely and irregularly reticulate rugose, with some faint traces of longitudinal striae on the middle. Thorax and node more coarsely reticulate-rugose, rugae almost obsolete on mesonotum, somewhat arched on pronotum. Postpetiole and gaster microscopically reticulate.

Hair whitish-yellow, erect, long and abundant on body, shorter and suberect on legs. Pubescence grey, very fine and close lying, long and more abundant on postpetiole and gaster but not hiding sculpture.

Head as long as broad, sides and occipital border convex, angles very broadly rounded. Mandibles fully as long as head, external border concave at middle, inner border convex, furnished with six large, sharp, erect teeth, the first three large teeth each preceded by two small denticles. Scapes not extending to occipital border by fully their thickness, first and second segments of funiculus equal length, third one-seventh shorter. Thorax two and one-half times longer than broad; pronotum one-third broader than long, strongly convex in all directions, mesonotum circular, as long as broad, meso-epinotal excision deep, epinotum one-fourth longer than broad, feebly convex transversely; in profile pronotum weakly convex from apex to base; mesonotum higher than pronotum, highest at middle, strongly convex; excision deep; epinotum high and convex, highest behind, broadly rounded into declivity. Node as long as broad, pear-shaped, broadest behind; in profile as high as long, anterior and posterior faces short and vertical, both rounded into the convex dorsum, ventral spine short and sharp. Postpetiole as long as node, one and three-quarter times broader than long, sides and front strongly convex, constriction sharp and deep. First segment of gaster one-fourth broader than long, broader behind than in front. Legs long and slender.

Male and female unknown.

*Habitat*.—*Victoria*: Lake Hattah (J. E. Dixon).

The smallest species in the genus. In colour and sculpture this somewhat resembles *urens* Lowne, but the structure is quite different.

### *Promyrmecia dichospila* Clark

Plate XV, figs. 53-55

*Myrmecia* (*Promyrmecia*) *dichospila* Clark, Proc. Roy. Soc. Vict., 50 (2), p. 359, fig. 2, 1938, ♀ ♀ ♂.

*Worker*. Length 7-9 mm.

Black, dorsum of node and a large spot on epinotum red. Mandibles yellow at base, reddish-yellow towards apex, teeth brown. Labrum reddish-yellow. Scapes brown, funiculi reddish-yellow. Tarsi and apex of tibiae brownish-yellow.

Mandibles finely striate-reticulate with a row of large deep punctures along the inner borders. Head finely striate-rugose longitudinally, densely and finely reticulate, not striate. Pronotum striate-rugose, transversely arched. Mesonotum striate-rugose longitudinally. Epinotum and node coarsely and irregularly rugose. Postpetiole and gaster very finely reticulate.

Hair yellowish, long and erect, particularly on clypeus and last three segments of gaster. None on antennae, very short and sparse on legs. Pubescence greyish, very fine and adpressed, long and abundant on gaster.

Head as long as broad, sides and occipital border straight, angles broadly rounded. Mandibles one-fifth shorter than head, external border concave, inner border strongly dentate, the third, fifth, seventh and ninth teeth twice as large as the others, the ninth forming a slight angle. Scapes not extending to occipital border by twice their thickness; first and second segments of funiculus equal in length, third one-fourth shorter. Thorax two and one-half times longer than broad. Pronotum one-third broader than long, strongly convex in all directions. Mesonotum circular, as long as broad. Epinotum slightly longer than broad, strongly convex transversely; in profile pronotum strongly convex from apex to

base. Mesonotum higher than pronotum, dropping behind, strongly convex. Epinotum feebly convex on dorsum, strongly rounded into declivity. Node slightly broader than long, fully twice as long as the stalk in front, convex in all directions; in profile slightly higher than long, apical third straight and vertical, sloping gradually to apex of stalk in front, dorsum convex, rounded into posterior face, ventral spine long and broad, sharp-pointed, directed forward. Postpetiole almost one-third broader than long, broadest at middle, strongly convex in all directions; constriction deep and wide. Gaster one and two-thirds times longer than broad. First segment of gaster one-fifth broader than long, much broader behind than in front, sides convex. Legs long and slender.

*Female.* Length 24·5-26 mm.

Colour, sculpture and pilosity similar to worker. Mandibles broader and straighter, teeth larger. Pronotum twice as broad as long, convex in all directions. Mesonotum short, one-fourth broader than long, sides and front semi-circular, convex both ways on top, parapsidal furrows distinct. Wing stumps present. Scutellum circular, as long as broad, dome-shaped above. Epinotum feebly convex transversely. Node one-fifth broader than long. Postpetiole almost twice as broad as long. Legs slender.

*Male.* Length 9·5 mm.

Head and gaster black. Thorax, node, postpetiole and legs brownish-yellow, mandibles and scapes brown, funiculi yellowish-red.

Head finely punctate-reticulate, more coarsely punctate behind. Thorax and node finely and densely reticulate, with numerous large shallow punctures scattered throughout, coarser and more abundant on epinotum. Postpetiole and gaster finely and densely reticulate. Pilosity as in worker but the erect hairs longer.

Head almost one-third broader than long, strongly convex behind. Mandibles short, furnished with four strong sharp teeth. Clypeus broad, convex above, concave in middle in front. Frontal area large, triangular. Frontal carinae one-third longer than broad in front. Scapes two and one-half times longer than first segment of funiculus, second segment six times longer than first, remainder subequal to apical. Eyes large, occupying almost all the sides. Ocelli large. Thorax two and one-half times longer than broad. Pronotum short, strongly convex. Mesonotum one-fifth broader than long, convex in front, mayrian and parapsidal furrows and frontal groove in centre deeply impressed. Scutellum one-third broader than long, anterior edge feebly convex, sides and posterior edge strongly convex. Epinotum strongly convex transversely. Node circular, as long as broad, fully four times as long as the stalk in front, in profile like node of worker but ventral spine straight. Postpetiole as long as broad, almost three and one-half times broader behind than in front, sides straight to basal third then strongly convex. Gaster fully twice as long as broad. First segment almost one-third broader than long, much broader behind than in front. Genitalia retracted. Legs long and slender. Wings hyaline.

*Habitat.*—*South Australia*: Reevesby Island.

### *Promyrmecia pilosula* Smith

Plate XIV, figs. 37-39

*Myrmecia pilosula* Smith, Cat. Hymen. Brit. Mus., vi, p. 146, 1858, ♂ ♀ ♂ ;  
Roger, Berl. Ent. Zeitschr., v, p. 35, 1861; Mayr, Verh. Zool. Bot. Ges.  
Wien, xii, p. 726, 1862.

*Formica forficata* Latreille, Fourmis, p. 216, pl. 8, fig. 50, 1802, ♂  
*Myrmecia (Myrmecia) pilosula* Emery, Genera Insect., fasc. 118, p. 21, 1911.

*Myrmecia* (*Halmamyrmecia*) *pilosula* Wheeler, Biol. Bull., xlii, p. 195, 1922, ♀.

*Myrmecia* (*Promyrmecia*) *pilosula* Clark, Vict. Naturalist, xlii, p. 140, 1925; Wheeler, Colony-founding among Ants, p. 56, 1933, ♀.

*Worker.* Length 12-14 mm.

Black; mandibles, antennae, tibiae and tarsi yellow.

Apical half of mandibles with a large longitudinal groove and some coarse oblique striae. Head longitudinally striate, the striae very fine and widely spaced, densely and finely punctate between the striae. Pronotum longitudinally striate in the middle, circular at the sides, the striae larger and closer than on head. Mesonotum longitudinally striate, sometimes more striate-rugose, anterior fourth of epinotum longitudinally rugose, remainder, including declivity, transversely rugose. Node circularly rugose with a longitudinal central carinae. All interstices very finely and densely punctate-reticulate. Postpetiole and gaster microscopically punctate-reticulate.

Hair greyish, short, erect, moderately abundant throughout, longer and more abundant on gaster, very long and inclined on top and underside of mandibles, none on antennae, very short and suberect on legs. Pubescence white, very fine and short, adpressed, abundant throughout, longer and more abundant on postpetiole and gaster, forming a distinct covering but not hiding the sculpture.

Head one-sixth broader than long, feebly concave behind, sides convex, angles rounded. Mandibles not quite as long as head, external borders straight or feebly concave, inner border furnished with four large, sharp, erect teeth, the fourth forms a slight angle near base, from there the mandible is slightly reduced, between the large teeth is a smaller but sharp tooth. Scapes extend beyond occipital border by their thickness; first and third segments of funiculus equal in length, one-tenth shorter than second, apical almost twice as long as the preceding. Thorax barely twice as long as broad. Pronotum twice as broad as long, sides and front convex, dorsum flattened or feebly concave. Mesonotum one-sixth broader than long, strongly convex in all directions. Epinotum one-eighth longer than broad; dorsum flattened; in profile pronotum convex from apex to base. Mesonotum higher than pronotum and epinotum, highest in front, flatly convex, dropping behind; mesoepinotal suture deep and narrow. Epinotum strongly convex from base to foot of declivity. Node one-fifth broader than long, convex in all directions; in profile one-fifth higher than long, almost dome-shaped above, all faces convex, ventral spine long and stout, bluntly pointed. Postpetiole barely twice as broad as long, strongly convex in all directions; constriction wide and deep. First segment of gaster one-sixth broader than long. Legs long and slender.

*Female.* Length 14-16 mm.

Colour and pilosity as on the worker. Sculpture coarser, more irregular. Node one and three-fourth times broader than long, sides convex, anterior and posterior faces straight or feebly convex.

*Male.* 11-12 mm.

Colour as on the worker.

Mandibles shining, superficially punctate. Head behind the eyes coarsely punctate, the punctures large and shallow, front of head and bottoms of punctures very finely and densely punctate. Thorax and node irregularly punctate, the punctures large and shallow, obsolete in places, the whole, including postpetiole and gaster, very finely and densely punctate.

Hair grey, very long and abundant throughout, shorter on legs. Pubescence white, slightly yellowish on gaster, very fine and abundant.

Head one-fifth broader than long, greatly reduced behind. Mandibles triangular,

with one large tooth at centre between apex and base of inner border. Scapes twice as long as first segment of funiculus, second segment of funiculus five times as long as first, third segment four and one-half times longer than first. Thorax twice as long as broad. Pronotum four times broader than long. Mesonotum with sharply defined mayrian and parapsidal furrows. Scutellum as long as broad, broadest in front. Node slightly broader than long, convex in all directions; in profile higher than long, dome-shaped, higher in front, stalk half as long as node, ventral spine long, slender and sharp. Postpetiole one-third broader than long, broadest at posterior third, constriction deep and wide; first segment of gaster one-eighth broader than long. Legs long and slender. Wings hyaline.

*Habitat*.—*Tasmania*: Hobart (type locality).

*New South Wales*: Whole State.

*Western Australia*: Albany; Mundaring (J. Clark).

*South Australia*: Mt. Lofty (A. H. Elston); Kangaroo Island (D. J. Mahony); Normanville (H. Womersley).

*Queensland*: Fletcher and Stanthorpe (E. E. Sutton).

Very abundant in all the eastern States. Commonly known as the "black jumper," this is the most common and widely distributed species in the genus. In Western Australia it is quite common in Albany and surrounding district, but is rare farther north. In Queensland it ranges north to Rockhampton.

### *Promyrmecia michaelsoni* Forel

Plate XIII, figs. 17-18

*Myrmecia michaelsoni* Forel, Fauna Sudwest. Austrl., i, p. 267, 1907, ♂.

*Myrmecia (Myrmecia) michaelsoni* Emery, Gen. Insect., fasc. 118, p. 21, 1911, ♂.

*Myrmecia michaelsoni* var. *perthensis* Crawley, Ann. Mag. Nat. Hist. (9), ix, p. 431, 1922, ♂.

*Myrmecia (Promyrmecia) michaelsoni* Wheeler, Colony-founding among Ants, p. 59, 1933.

*Worker*. Length 10-12 mm.

Black; mandibles, antennae and legs brown, tarsi reddish.

Mandibles smooth, some obsolete striae near tips. Head finely striate longitudinally, very finely and densely punctate between the striae. Pronotum and mesonotum finely striate longitudinally. Epinotum more coarsely striate, longitudinal in front, irregular behind and transverse on the declivity. Node irregularly rugose with a longitudinal direction. Postpetiole and gaster densely and microscopically punctate.

Hair whitish or yellow, moderately long, abundant and erect throughout, much longer on clypeus and apical segments of gaster, hardly apparent on antennae except at apex of scapes. Pubescence white, very fine and adpressed on head, thorax, antennae and legs, longer and more abundant on postpetiole and sides of gaster, top of gaster covered with long golden-red pubescence which hides the sculpture.

Head slightly broader than long, occipital border straight or feebly concave, angles rounded. Mandibles very slightly longer than head. Frontal carinae swerving behind, as long as broad. Scapes just reach to the posterior border of head; first segment of funiculus as long as second, remainder subequal to apical, this is as long as the first but shorter than the two preceding combined. Thorax twice as

long as broad. Pronotum twice as broad as long, sides and front strongly convex, depressed above. Mesonotum one-third broader than long, sides and front strongly convex, weakly convex behind. Meso-epinotal depression deep. Epinotum one-third longer than broad, convex in all directions; in profile pronotum and mesonotum united in a long convexity, slightly flattened at pro-mesonotal suture. Meso-epinotal suture deep and wide, epinotum strongly arched into declivity. Node as broad as long, much broader behind than in front, sides and posterior border convex, anterior border short and straight; in profile as high as long, anterior and posterior faces straight, vertical, dorsum concave, angles bluntly pointed, ventral spine long, broad and sharp. Postpetiole one-third broader than long, strongly convex in front. First segment of gaster one-sixth broader than long, strongly convex. Legs slender.

*Female.* Length 13.5-15 mm.

Colour, sculpture and pilosity as in the worker. Larger and more robust. Mandibles similar but larger and broader. Node one-fourth broader than long. Postpetiole one-third broader than long. Wings with a slight brownish tinge.

*Male.* Unknown.

*Habitat.*—*Western Australia:* Albany; Denmark; Nornalup; Bridgetown; Armadale; Perth; Mundaring.

The worker is described from a co-type received from the late Dr. Michaelsen. The female from a nest found at Albany. This species is abundant in the Albany district and is found sparingly from Albany to Perth. The measurements given by Forel for the nodes of this species do not apply to the co-types received nor to the majority of large numbers of nests found in various districts. The variety described by Crawley from Perth is the typical form.

*Promyrmecia michaelsoni* Forel s.sp. *queenslandica* Forel

Plate XIII, fig. 19

*Myrmecia michaelsoni* Forel r. *queenslandica* Forel, Arkiv. f. Zool., 9, 16, p. 4, 1915, ♂.

*Myrmecia michaelsoni* s.sp. *overbecki* Viehmeyer, Ent. Mitteil., xiii, p. 222, 1924, ♂ ♀.

*Worker.* Length 11-13 mm.

Colour as in *P. michaelsoni* Forel. Sculpture coarser, more rugose. Hair longer and more abundant. Pubescence on gaster not so bright red, more yellowish-red.

Mandibles as long as head. Scapes not extending to the occipital border by fully their thickness; segments of funiculus thicker. In general more robust than *michaelsoni*.

*Female.* Length 15.5 mm. (after Viehmeyer).

Mandibles somewhat shorter, not longer than the head, but broader, the fine ridge at base of teeth much more distinct than in the worker. Petiole distinctly broader than long, its posterior face in profile concave. Wings missing.

*Male.* Unknown.

*Habitat.*—*Queensland:* Lamington Plateau (type locality, E. Mjöberg); Fletcher; Stanthorpe (E. Sutton).

*New South Wales:* Lismore (C. F. Deuquet); Grafton (J. Clark); Trial Bay (H. Overbeck).

*Promyrmecia ruginodis* n.sp.

Plate XIII, figs. 20-22

*Worker.* Length 12-14 mm.

Black; mandibles, antennae and legs reddish-brown.

Mandibles finely punctate-reticulate, three or four fine striae near apex and a row of large deep punctures along the inner edge at base of teeth. Head finely and longitudinally striate-rugose, large shallow punctures between the rugae, the whole surface very finely and densely punctate. Pronotum and mesonotum finely striate longitudinally, shining between the striae. Epinotum longitudinally striate in front, transversely striate behind. Top of node longitudinally striate-rugose. Postpetiole striate longitudinally, densely punctate between the striae. Gaster very finely and densely punctate.

Hair yellow, long and erect, rather sparse on head and thorax, longer and abundant on nodes and gaster. Short and suberect on legs. None on antennae except a few at apex of scapes. Pubescence yellow, very fine and adpressed, longer and abundant on postpetiole and gaster, particularly on middle of first segment, where it hides the sculpture.

Head one-eighth broader than long, sides and occipital border feebly convex, angles broadly rounded. Mandibles as long as head, external border feebly concave, inner border furnished with six large sharp teeth and a smaller tooth between each. Frontal carinae as long as broad behind. Scapes extend to posterior border; first segment of funiculus slightly shorter than second, apical as long as second, remainder sub-equal. Thorax barely twice as long as broad. Pronotum twice as broad as long, convex in all directions. Mesonotum one-third broader than long, oval. Epinotum twice as long as broad; in profile pronotum and mesonotum combined evenly convex from base to apex; constriction between mesonotum and epinotum deep. Epinotum evenly convex from base to foot of declivity. Node one-third broader than long, broadest behind, convex in all directions; in profile anterior face straight above, sloping forward from the middle below, posterior face feebly concave, or straight, dorsum convex, angles rounded, the ventral spine short and sharp. Postpetiole one-third broader than long, sides strongly convex. First segment of gaster one-eighth broader than long. Legs robust.

*Female.* Length 15 mm.

Colour and pilosity as in the worker, sculpture coarser particularly on the mandibles, head and node.

Mandibles broader, external border straight, teeth longer. Head square behind. Node one-fourth broader than long, oval. Postpetiole almost twice as broad as long. In all other respects similar to the worker.

*Male.* Length 11.5 mm.

Black; mandibles, antennae and legs brown, tarsi lighter. Wings hyaline, nervures yellow.

Mandibles finely striate on outer border, smooth and shining in middle and inner border. Head finely rugose, very finely and densely punctate between the rugae. Pronotum, scutellum, mesonotum and node irregularly punctate-rugose, very densely punctate between rugae. Epinotum transversely rugose. Postpetiole finely but sharply rugose, very finely and densely punctate, the gaster similarly finely punctate.

Hair whitish, abundant, long and erect throughout, short and suberect on legs, none on antennae. Pubescence white, very fine and adpressed, most abundant on postpetiole and gaster, yellowish and longer on middle of gaster but not hiding the sculpture.

Head one-sixth broader than long, strongly convex behind eyes. Mandibles

short and triangular, furnished with three strong sharp teeth. Frontal carinae short and depressed. Insertions of antennal scapes exposed. Scapes one-fourth longer than broad, almost twice as long as first segment of funiculus, second segment five times longer than first. Thorax barely twice as long as broad. Pronotum five times broader than long, strongly convex. Mesonotum one-fourth broader than long, mayrian furrows sharply but not deeply impressed, parapsidal furrows sharply impressed. Scutellum one-third broader than long; in profile pronotum erect, convex. Mesonotum raised, convex, mayrian furrow deeply impressed. Scutellum dome-shaped, longer than high. Epinotum convex from base to foot of declivity. Node one-sixth broader than long, almost circular; in profile the anterior face sloping gradually backward, posterior face short and straight, dorsum convex, both edges rounded; the ventral spine short and sharp. Pronotum almost twice as broad as long, sides strongly convex. First segment of gaster one-fifth broader than long. Legs long and slender.

*Habitat.*—*Western Australia*: Perth; Armadale; Ludlow (J. Clark).

In size and colour this species resembles *P. michaelsoni* Forel. The sculpture is quite different.

*Promyrmecia chrysogaster* n.sp.

Plate XIII, fig. 23

*Worker.* Length 9 mm.

Black; mandibles, antennae and anterior coxae brown; legs, including middle and hind coxae, yellow.

Mandibles with coarse obsolete striae in the middle of dorsum, finely reticulate on basal third. Head finely striate longitudinally. Thorax and node longitudinally striate, more coarsely than on head, epinotal declivity transversely striate. Postpetiole and gaster microscopically punctate.

Hair yellow, fine, long, erect and abundant throughout, shorter on legs, none on antennae except at apex of scapes. Pubescence white, very fine and adpressed throughout, long and very abundant on postpetiole, yellow on gaster, long and adpressed, forming a golden covering hiding the sculpture.

Head as long as broad, sides and occipital border straight, angles broadly rounded. Mandibles as long as head, external border strongly concave in middle, inner edge furnished with six large, sharp, erect teeth with a small tooth between each. Frontal carinae as long as broad behind. Scapes not extending to occipital border by fully their thickness. Second segment of funiculus one-fifth longer than first. Thorax twice as long as broad. Pronotum twice as broad as long, sides and front convex. Mesonotum one-third broader than long, oval. Epinotum one-fifth longer than broad; in profile convex in front, dorsum of pronotum, mesonotum and epinotum straight with a deep and wide incision at meso-epinotal suture, declivity of epinotum shorter than dorsum into which it is rounded. Node as long as broad, convex in all directions; in profile slightly higher than long, anterior face sloping backward, convex, rounded into the convex dorsum, posterior face slightly concave, the top edge rounded, the ventral spine short and blunt. Postpetiole one-third broader than long, sides and front strongly convex. First segment of gaster broader than long, sides convex. Legs slender.

Male and female unknown.

*Habitat.*—*Queensland*: Brisbane (C. Barrett).

The general colour gives this species the appearance of *P. fulvipes* Roger; it is, however, more closely related to *P. michaelsoni* Forel.

*Promyrmecia cydista* sp. nov.

Plate XIII, fig. 24

*Worker.* Length 9-12 mm.

Black; basal half of mandibles yellow, apical half yellowish-brown, antennae and legs brown, tarsi reddish-brown.

Basal half of mandible smooth, microscopically reticulate, apical half with four or five large, shallow, elongate punctures. Head very finely striate longitudinally, interstices wide, densely and finely reticulate and with scattered shallow punctures. Pronotum and mesonotum longitudinally striate-rugose, coarser than on head; epinotum and node coarsely and irregularly punctate-rugose, all interstices finely and densely reticulate. Postpetiole and gaster microscopically reticulate.

Hair yellow, short and erect, abundant throughout, longer on apical segments of gaster; sparse, short and suberect on legs, a few at apex of scapes. Pubescence whitish, very fine and adpressed throughout; yellow, longer and more abundant on postpetiole but not hiding sculpture, long and forming a dense covering on gaster.

Head very slightly broader than long, sides feebly convex, occipital border feebly concave, angles broadly rounded. Mandibles shorter than head, external border feebly concave, inner border furnished with five large, sharp, erect teeth, with two smaller teeth preceding each large tooth. Scapes not extending to occipital border by their thickness; first and third segments of funiculus equal in length, second very slightly longer. Thorax twice as long as broad; pronotum almost twice as broad as long, sides and front strongly convex, dorsum flattened; mesonotum one-fifth longer than pronotum and one-sixth broader than long; constriction deep and wide; epinotum as long as broad, feebly convex transversely; in profile pronotum evenly convex from apex to base; mesonotum much higher than pronotum and epinotum, highest in front, meso-epinotal excision deep, epinotum evenly convex from base to foot of declivity. Node one-fourth broader than long, broadest behind, anterior and posterior borders straight or feebly convex, sides strongly convex; in profile dome-shaped, higher than long, ventral spine thorn-like, sharp. Postpetiole one-third broader than long, broadest behind middle; constriction deep and wide. First segment of gaster one-fifth broader than long. Legs slender.

Male and female unknown.

*Habitat.*—*New South Wales:* Lismore (C. F. Denquet); Dorrigo (W. Heron); Sydney (W. W. Froggatt); Wahroonga (H. J. Carter).

Resembles *P. michaelsoni* in colour but is much smaller, more slender and differently sculptured. The yellow mandibles, shape of thorax and nodes distinguish them.

*Promyrmecia chasei* Forel

Plate XIII, figs. 25-27

*Myrmecia chasei* Forel, Ann. Soc. Ent. Belg., xxxviii, p. 235, 1894, ♀.

*Myrmecia (Myrmecia) chasei* Emery, Genera Insect., fasc. 118, p. 21, 1911, ♀.

*Myrmecia pilosula* Smith s.sp. *mediorubra* Forel, Rev. Suisse Zool., xviii, p. 7, 1910, ♀.

*Myrmecia (Myrmecia) pilosula* Smith s.sp. *mediorubra* Emery, Genera Insect., fasc. 118, p. 21, 1911, ♀.

*Myrmecia* (*Myrmecia*) *chasei* Crawley, Ann. Mag. Nat. Hist. (9), ix, p. 431, 1922, ♀.

*Myrmecia* (*Promyrmecia*) *mediorubra* Wheeler, Colony-founding among Ants, p. 58, 1933, ♀.

*Worker.* Length 12-15.5 mm.

Head, postpetiole and gaster black, antennae and legs brown, mandibles, apical segments of funiculus and tarsi yellow, thorax and node light red.

Front half of mandibles striate, base smooth, finely punctate. Head finely striate longitudinally, the striae widely spaced; very finely and densely punctate between the striae. Pronotum, mesonotum and front of epinotum sculptured as on the head but the striae large, epinotal declivity transversely striate, node circularly striate with a strong central longitudinal carina. Postpetiole and gaster densely and microscopically punctate.

Hair whitish, short and erect, abundant throughout. Pubescence white, very fine and adpressed on head and thorax, long and more abundant on postpetiole and gaster, on the middle of first segment it is yellowish and dense, almost hiding the sculpture.

Head very slightly broader than long, straight or feebly concave behind, the angles broadly rounded into sides. Mandibles a fraction longer than head, external border straight, inner border furnished with five large erect teeth, with a smaller tooth between each. Frontal carinae erect, longer than broad behind. Scapes extend to occipital border; second segment of funiculus one-third longer than first. Thorax twice as long as broad. Pronotum fully twice as broad as long, strongly convex all ways. Mesonotum almost one-fourth broader than long. Epinotum one and one-half times longer than broad; in profile pronotum convex from base to apex. Mesonotum convex, raised above level of pronotum and epinotum, mesoepinotal suture narrow and deep, epinotum convex from base to foot of declivity. Node one and one-half times broader than long, oval; in profile higher than long, anterior face short and vertical, posterior edge sharply rounded. Ventral spine short and sharp. Postpetiole twice as broad as long, sides and front strongly convex. First segment of gaster one-sixth broader than long. Legs short and stout.

*Female.* Length 22-24 mm.

Colour as in the worker, but there is a brown spot on each side of the dorsum of scutellum and one on each side of dorsum of node. Wings hyaline. Sculpture and pilosity similar, but the pubescence darker and more abundant on gaster.

Head one-fifth broader than long, occipital border straight or feebly concave, sides feebly convex, angles broadly rounded. Mandibles as long as head, external border convex, inner border convex, furnished with five large, sharp, erect teeth with a smaller tooth between each. Scapes not extending to occipital border by fully twice their thickness; second segment of funiculus very slightly longer than first. Mayrian furrows indicated but not impressed. Node twice as broad as long, broader behind than in front, sides strongly convex, posterior border feebly convex, anterior border concave in middle. Postpetiole twice as broad as long, almost oval. First segment of gaster broader than long. Legs short and robust.

*Male.* Length 14.5 mm.

Black; a large spot on each side of pronotum, the whole of the mesonotum, epinotum and node yellowish-red, mandibles and legs blackish-brown, antennae and tarsi reddish-brown.

Head, thorax and node coarsely punctate-reticulate, postpetiole and gaster very densely and finely punctate.

Hair yellowish-white, erect, long and abundant throughout, pubescence white,

very fine and adpressed, very abundant on postpetiole and gaster but not hiding the sculpture, darker on middle of first segment.

Head very slightly broader than long, strongly convex behind the eyes. Mandibles furnished with three strong sharp teeth. Frontal carinae as long as broad behind. Scapes one-third longer than broad, and twice as long as first segment of funiculus, second segment of funiculus six times longer than first. Thorax twice as long as broad. Pronotum five times broader than long, sides and front convex. Mesonotum slightly broader than long, convex in all directions, mayrian and parapsidal furrows deeply impressed. Scutellum one-third broader than long, broadest in front. Epinotum almost twice as broad as long, convex laterally; in profile pronotum erect, convex. Mesonotum high and convex mayrian furrows deeply impressed. Scutellum dome-shaped, longer than high. Epinotum short, strongly convex from base to foot of declivity. Node one-third broader than long, oval; in profile longer than high, anterior face straight, sloping gradually backward, posterior face short, convex, rounded into convex dorsum, anterior edge bluntly rounded. Postpetiole barely twice as broad as long, sides strongly convex. First segment almost one-fourth broader than long. Legs slender.

*Habitat.*—*Western Australia*: Perth; Mundaring; Armadale; Bridgetown; Albany; Denmark (J. Clark).

The workers vary greatly in size in some nests. The queen is huge in bulk in comparison with even the largest workers. As a rule in most of the known species there is very little difference in the size of the workers and queens. A female from Garden Island has the head brown, straighter behind and the whole sculpture coarser.

### *Promyrmecia chasei* Forel var. *ludlowi* Crawley

*Myrmecia chasei* Forel, var. *ludlowi* Crawley, Ann. Mag. Nat. Hist. (9), ix, p. 431, 1922, ♀; Crawley, l.c., xvi, p. 578, 1925, ♂.

*Worker.* Length 12-15 mm.

Agrees with *P. chasei* Forel in all details except colour. The mandibles, antennae and legs brown, tarsi reddish. Head, postpetiole and gaster black, the thorax, instead of being entirely red, is black on the neck of the pronotum, a large spot on centre of mesonotum, lower half of the mesosternum and metasternum.

*Female.* Length 22 mm.

Colour darker than *P. chasei*, otherwise similar. One fully-developed female form Ludlow has no traces of wings.

*Male.* Length 14 mm.

Similar to the male of *P. chasei* Forel.

*Habitat.*—*Western Australia*: Ludlow; Armadale (J. Clark).

This colour variation is constant; no graduation between the two forms has been found.

The male described from Albany by Crawley is the male of *chasei*, which is common there; the var. *ludlowi* is not found in that locality.

*Promyrmecia harderi* Forel

Plate XIII, figs. 28, 29

*Myrmecia harderi* Forel, Rev. Suisse Zool., xviii, p. 8, 1910, ♀.  
*Myrmecia (Myrmecia) harderi* Emery, Gen. Insect., fasc. 118, p. 21,  
1911, ♀.

*Worker.* Length 10.5 mm.

Head and gaster black, mandibles yellow, antennae and tarsi reddish-yellow. Legs, coxae and base of mesosternum brown, thorax, node and centre of postpetiole yellowish-red.

Mandibles smooth and shining on basal half, coarsely striate on apical half. Head very finely striate longitudinally, finely reticulate between the striae. Mesonotum feebly and irregularly rugose, the rugae almost longitudinal, densely reticulate. Epinotum and node much more coarsely and irregularly rugose. Postpetiole longitudinally striate-rugose. Gaster microscopically punctate.

Hair yellow, short and erect on head, thorax and legs, longer and more abundant on node, postpetiole and gaster. Pubescence white, very fine and adpressed, much longer and more abundant on gaster but not hiding the sculpture.

Head very slightly broader than long, occipital border feebly concave, sides convex. Mandibles as long as head, slender, parallel, erect teeth, with a smaller tooth between each. Scapes just reach the occipital border; second segment of funiculus barely one-fourth longer than first. Thorax fully twice as long as broad. Pronotum twice as broad as long, sides and front strongly convex, dorsum flattened. Mesonotum very slightly broader than long, almost circular. Epinotum one-third longer than broad; in profile pronotum and mesonotum united in an even convexity with a feeble impression at suture, meso-epinotal suture deep but not wide. Epinotum convex from base to foot of declivity. Node as long as broad, circular, convex on top; in profile longer than high, anterior face short, rounded into dorsum, posterior face and dorsum united convex, ventral spine very short, sharp. Postpetiole one-fourth broader than long, convex from base to apex. First segment of gaster very slightly broader than long. Legs stout.

*Female.* Length 14.5 mm.

Differs from the worker in being larger, more robust and winged. Mayrian furrows feebly impressed on mesonotum. The mandibles slightly shorter and broader, the scapes do not reach the occipital border.

*Habitat.*—*New South Wales*: Gunnedah; Narrabri; Dubbo (W. W. Froggatt).

The worker is re-described from a co-type received many years ago from the late W. W. Froggatt.

*Promyrmecia scabra* sp. nov.

Plate XIV, figs. 40-41

*Worker.* Length 11-11.5 mm.

Black; half of pronotum, whole of epinotum and node red. Mandibles yellow on basal half, apical half darker, antennae and tibiae brown, tarsi more reddish.

Basal half of mandibles very finely and densely reticulate, with some large shallow punctures, apical half longitudinally striate. Head finely striate longitudinally, the striae widely separated, interstices densely reticulate. Pronotum a mesonotum longitudinally striate-rugose. Epinotum and node more coarsely and irregularly rugose, all interstices densely reticulate. Postpetiole more finely rug-

the rugae with a longitudinal direction and more or less obsolete, some obsolete punctures showing, the interstices densely and finely punctate, gaster very finely and densely reticulate.

Hair yellowish, erect, short on head and thorax, longer on nodes and gaster, very short and suberect on legs, none on antennae. Pubescence yellowish, very fine and adpressed, forming a distinct covering on gaster but not hiding sculpture.

Head very slightly broader than long, sides convex, occipital feebly concave in middle, angles rounded. Mandibles as long as head, external border feebly concave, inner border convex, furnished with four large, sharp, erect teeth, each preceded by two small teeth. Scapes just reach occipital border, first and third segments of funiculus equal length, one-fifth shorter than second. Thorax twice as long as broad. Pronotum twice as broad as long. Mesonotum slightly broader than long, almost circular, excision deep and wide. Epinotum one-fifth longer than broad, convex transversely; in profile pronotum evenly convex from apex to base; mesonotum higher than pronotum and epinotum, highest in front of middle, dropping behind; epinotum convex from base to bottom of declivity. Node slightly broader than long, broadest behind middle, convex in all directions; in profile slightly higher than long, anterior face high, basal half straight, upper half convex, posterior face short, convex, continuous with dorsum into anterior face; ventral spine short and sharp. Postpetiole three-fifths broader than long, sides and front strongly convex, broadest behind middle. First segment of gaster one-sixth broader than long, broadest at middle. Legs long and robust.

*Female.* Length 15.5 mm.

Colour, sculpture and pilosity as on the worker. Larger and more robust. Head one-eighth broader than long, mandibles not reaching occipital border by fully their width at base. Scapes not reaching occipital border by fully their width at apex. Node one-fourth broader than long, oval. Postpetiole five-eighths broader than long. Legs robust. Wings hyaline.

*Male.* Unknown.

*Habitat.*—*South Australia:* Leigh's Creek.

In general appearance similar to *P. harderi* Forel, but distinguished by the form of the mandibles, thorax and nodes.

*Promyrmecia occidentalis* sp. nov.

Plate XIII, figs. 30, 31

*Worker.* Length 11-12 mm.

Head, pronotum, mesonotum and gaster black; mandibles yellow, antennae and legs reddish-yellow; epinotum, node and postpetiole light red.

Head finely striate-rugose, interstices densely reticulate. Pronotum more coarsely striate-rugose, longitudinally arched. Mesonotum and epinotum longitudinally striate-rugose, declivity of epinotum transversely striate. Node irregularly rugose. Postpetiole and gaster microscopically reticulate.

Hair yellow, short and erect, sparse throughout, but more abundant and longer on gaster. Pubescence white, apparent on postpetiole and gaster, very fine and adpressed.

Head very slightly broader than long, occipital border straight or feebly concave, sides convex, angles rounded. Mandibles as long as head, external border concave, inner border convex, furnished with five large, sharp, erect teeth, with two small teeth between each. Scapes extend beyond occipital border by their thickness; second segment of funiculus one-fourth longer than first. Thorax two and one-

third times longer than broad. Pronotum twice as broad as long, strongly convex on front and sides. Mesonotum slightly broader than long, convex in all directions. Epinotum one-third longer than broad, flattened laterally; in profile evenly convex to base, suture sharply impressed. Mesonotum convex, highest at middle, suture deep and wide. Epinotum evenly convex from base to apex. Node circular, as long as broad; in profile as high as long, anterior and posterior faces vertical, straight, dorsum convex, edges rounded. Ventral spine short and sharp. Postpetiole one-third broader than long, sides convex. First segment of gaster one-seventh broader than long, sides evenly convex. Legs long and slender.

*Female.* Length 13 mm.

Head, pronotum, scutellum, mesonotum and gaster black, mandibles and labrum yellow, basal half of scapes brown, apical half and all the funiculus and legs reddish-yellow, epinotum, node and postpetiole red.

Sculpture similar to that of worker but coarser, the dorsum of epinotum irregularly, not longitudinally, rugose.

Pilosity similar but longer and more abundant.

Head one-tenth broader than long, sides feebly convex, occipital border concave, angles rounded. Mandibles barely as long as head, straighter and more strongly toothed than in worker. Scapes barely reach occipital border. Node one-fourth broader than long.

*Male.* Unknown.

*Habitat.*—*Western Australia:* Tammin; Eradu (J. Clark); Merridin (L. J. Newman); Beverley (E. du Boulay).

Resembles *P. chasei*, but distinguished by the more slender and smaller size, as well as the yellow antennae and legs.

### *Promyrmecia celaena* sp. nov

Plate XIV, fig. 42

*Worker.* Length 10-11 mm.

Black; mandibles yellow, antennae and legs brown, tarsi reddish-brown.

Mandibles coarsely striate-rugose on apical two-thirds, very finely striate on basal third. Head finely striate longitudinally, interstices wide and densely punctate-reticulate. Pronotum and mesonotum longitudinally striate-rugose, transversely arched on front of pronotum, epinotum irregularly punctate-rugose, the punctures large and shallow, node more coarsely rugose; postpetiole irregularly striate-rugose, the rugae with a more or less longitudinal direction, interstices densely reticulate, gaster microscopically punctate-reticulate.

Hair yellow, fine, short and erect on head and thorax, longer on node and gaster, short and sub-erect on legs. Pubescence white, very fine and adpressed, abundant throughout, long and more dense on postpetiole, longer and coarser on gaster, forming a faint yellowish covering but not hiding sculpture.

Head slightly broader than long, sides convex, occipital border concave, angles broadly rounded. Mandibles not as long as head, fully their width at base shorter, external border concave, inner border convex, furnished with four large, sharp, erect teeth, each preceded by two smaller teeth. Scapes not extending to occipital border by fully their thickness; first and second segments of funiculus equal in length, third very slightly shorter. Thorax twice as long as broad. Pronotum twice as broad as long, convex in all directions. Mesonotum one-sixth broader than long, one-fifth longer than pronotum, excision deep and wide; epinotum as long as broad, convex laterally; in profile pronotum convex from apex to base,

mesonotum higher than pronotum, highest at middle, evenly convex, dropping behind; excision deep and wide; epinotum evenly convex from base to foot of clivity. Node barely one-fifth broader than long, broadest at middle, convex in all directions; in profile higher than long, dome-shaped, anterior and posterior faces vertical and short, rounded into convex dorsum, ventral spine long, slender and sharp. Postpetiole one-third broader than long, broadest at basal fourth, constricted deep and wide. First segment of gaster one-tenth broader than long, broadest at middle, sides evenly convex. Legs long and robust.

Male and female unknown.

*Habitat*.—*New South Wales*: Pilliga (W. W. Froggatt); Narrabri (W. W. Froggatt).

*Queensland*: Millmerran (J. Macqueen).

In size and colour this species is similar to *P. clarki* from Western Australia. The formation of the mandibles and nodes readily separates them.

*Promyrmecia maloni* sp. nov

Plate XIV, fig. 43

*Worker*. Length 10-11 mm.

Black; dorsum and sides of pronotum, epinotum and node red, edged with black below. Mandibles yellow, funiculus and tibiae brown, tarsi yellowish-brown.

Basal half of mandibles smooth, apical half coarsely striate-rugose. Head with face longitudinal, widely spaced striae, clypeus and spaces between the striae finely and densely punctate-reticulate. Pronotum and mesonotum longitudinally striate-rugose, coarser and more widely spaced than on head. Epinotum and node coarsely and shallowly punctate-rugose, the declivity of epinotum transversely rugose, densely and finely reticulate-punctate between the rugae. Postpetiole superficially punctate-rugose, the punctures large and very shallow, finely and very densely punctate-punctate throughout. Gaster and legs microscopically reticulate.

Hair yellow, short and erect, abundant on head, thorax and legs, none on antennae, long and more abundant on gaster. Pubescence white, very fine and adpressed, most abundant on gaster and legs, on most examples the pubescence on dorsum of gaster is longer and yellowish, forming a slight covering but not hiding the sculpture.

Head one-seventh broader than long, sides convex, occipital border concave, angles rounded. Mandibles not as long as head, external border feebly convex, inner border furnished with four large teeth and small teeth between the larger. Frontal carinae almost one-fourth longer than broad. Scapes just reach occipital border; first and third segments of funiculus equal in length, one-tenth shorter than second, apical one-third longer than preceding. Thorax two and one-sixth longer than broad. Pronotum twice as broad as long, convex in all directions. Mesonotum as long as broad, circular. Epinotum one-fourth longer than broad, broadly rounded in front; in profile pronotum raised, evenly convex. Mesonotum highest in front, slightly higher than pronotum, convex and dropping behind, constriction between mesonotum and epinotum deep. Dorsum and declivity of pronotum united in a broad arch. Node slightly broader than long, almost circular; in profile slightly higher than long, anterior face straight and vertical, dorsum and anterior face convex, ventral spine short, broad and sharp. Postpetiole barely twice as broad as long, strongly convex in all directions, constriction sharply impressed, narrow. First segment of gaster broader than long, broadest behind, strongly convex. Legs long and robust.

Female and male unknown.

*Habitat*.—*Victoria*: Inglewood (Sep., 1939).

In general appearance like *P. occidentalis*, but much more slender. The colour varies slightly; one example has only the dorsum of the epinotum and the node red.

This species is dedicated to Mr. M. J. C. Malone, of the Museum staff, in recognition of his assistance in typing the work.

*Promyrmecia elegans* sp. nov.

Plate XIV, figs. 44-45

*Worker*. Length 13-14.5 mm.

Head, postpetiole, gaster and all coxae black, postpetiole with a large reddish patch at each side, mandibles and antennae yellow, legs reddish-yellow. Thorax and node bright red.

Basal half of mandibles densely punctate, apical half coarsely and obliquely striate. Head, pronotum and mesonotum longitudinally striate, very finely and densely reticulate between the striae. Basal third of epinotum coarsely and irregularly rugose, transversely rugose behind. Node circularly rugose. Postpetiole and gaster finely and densely reticulate. Scapes and legs finely and densely reticulate.

Hair yellow, short and erect, sparse on head and thorax, more abundant on postpetiole and gaster, very long on node and apex of gaster, short and suberect on legs, none on antennae. Pubescence whitish, very fine and adpressed, apparent only on postpetiole and gaster.

Head as broad as long, occipital border straight or very feebly concave, sides feebly convex, posterior angles broadly rounded. Mandibles slightly longer than head, external border concave in middle, inner border furnished with ten sharp teeth, the first two very small. Frontal carinae as long as broad at middle. Scapes extend beyond the occipital border by about half their thickness. Second segment of funiculus twice as long as first, remainder subequal, apical-pointed, one-third longer than the preceding. Thorax two and one-fourth times longer than broad. Pronotum almost twice as broad as long, strongly convex in all directions. Pro-mesonotal suture sharply impressed. Mesonotum one-sixth broader than long, convex in all directions, meso-epinotal suture deep and wide. Epinotum one-third longer than broad, convex laterally; in profile pronotum raised and strongly convex in front, flatly convex behind. Mesonotum rather flatly convex. Epinotum strongly and evenly convex from base to foot of declivity. Meso-epinotal suture deep and wide. Node one-fifth broader than long, all faces convex; in profile higher than long, top half of anterior face short and vertical, bottom half sloping forward and downward at an acute angle, posterior face short and vertical, rounded into the dorsum, anterior edge of dorsum bluntly rounded. Ventral spine very short and sharp. Postpetiole barely twice as broad as long, broadest and strongly convex at basal third, constriction deep and narrow. First segment of gaster broader than long, strongly convex. Legs long and slender.

*Female*. Length 16 mm. (deälated).

Colour, sculpture and pilosity as in the worker.

Larger and more robust. Head very slightly broader than long. Mandibles stronger, not as long as head. Scapes not extending to occipital border by fully their thickness. Thorax robust; parapsidal furrows sharply impressed, mayrian

irrows feebly indicated. Node fully one-third broader than long, anterior edge feebly concave in middle. Postpetiole almost twice as broad as long. Legs stout.

*Habitat.*—*Western Australia*: Hovea; Mt. Dale; Mundaring (J. Clark).

*Promyrmecia opaca* sp. nov.

Plate XIV, figs. 46-47

*Worker.* Length 11-11.5 mm.

Head, thorax and gaster black; dorsum of epinotum, node and in parts the postpetiole blood-red; mandibles yellow, antennae and legs reddish-brown.

Mandibles coarsely punctate-rugose in front, finely reticulate on basal half. Head finely and densely striate-rugose longitudinally, very finely and densely reticulate between striate. Pronotum, mesonotum and anterior fourth of epinotum longitudinally striate-rugose, coarser than on head, epinotum transversely rugose. Node irregularly, almost circularly rugose. Postpetiole and gaster very finely and densely reticulate.

Hair yellow, short and erect throughout, longer and more abundant on apical segment of gaster, very short and suberect on antennae and legs. Pubescence white, very fine and adpressed, abundant on postpetiole and gaster, but not hiding the sculpture.

Head slightly broader than long, occipital border straight, sides feebly convex, angles rounded. Mandibles barely as long as head, external border feebly concave in middle, inner border convex, furnished with five large sharp teeth with a small tooth between each of the larger, first two teeth small. Scapes extend beyond occipital border by barely their thickness; first and second segment of funiculus equal in length, remainder subequal. Thorax almost two and one-fourth times longer than broad. Pronotum almost twice as broad as long, strongly convex in front and on sides, flatly convex above. Mesonotum one-sixth broader than long, convex in all directions, meso-epinotal suture deep. Epinotum longer than broad, flattened transversely; in profile pronotum raised and sloping backward, straight, rounded into the rather flattened dorsum. Mesonotum convex, higher than pronotum, meso-epinotal suture deep. Epinotum convex from base to foot of declivity. Node as long as broad, slightly broader behind than in front, all faces convex; in profile top half of anterior face vertical, bottom half sloping downward and forward at an acute angle, dorsum flattened, posterior face convex and rounded into dorsum, ventral spine short and sharp. Postpetiole one-third broader than long, sides strongly convex, constriction deep and wide. First segment of gaster broader than long, much broader behind than in front, sides strongly convex. Legs robust.

*Female.* Length 14-15 mm. (dealted).

Colour, as in the worker.

Sculpture slightly coarser, more strongly rugose. Hair longer and more abundant. Pubescence darker, more yellowish, and more abundant on gaster. Apart from larger size and in being winged, very similar to the worker.

*Habitat.*—*Western Australia*: Tammin; Eradu (J. Clark); Dowerin (L. J. Newman).

*Promyrmecia cephalotes* sp. nov

Plate XIV, figs. 32-34

*Worker.* Length 13-14.5 mm.

Mandibles yellow, head and gaster black, antennae, thorax, node, postpetiole, a small patch on each side of first segment of gaster and all the legs yellowish-red.

Mandibles striate-punctate on apical half and a row of shallow piligerous punctures along the centre from base to apex. Head very finely striate longitudinally, very finely and densely reticulate between the striae. Pronotum finely striate and reticulate as on head but striae more spaced, longitudinal in the middle, arched on the sides. Mesonotum much more finely striate, the striae longitudinal but diverging outward in front. Epinotum rather coarsely striate transversely. Node circularly striate-rugose. Postpetiole and gaster very finely and densely punctate.

Hair yellow, short and erect on head, thorax and node, longer and more abundant on postpetiole and gaster, very short and sparse on antennae, longer and suberect on legs. Pubescence white, very fine and adpressed, longer and more abundant on gaster, where it forms a thin covering.

Head one-fifth broader than long, sides convex, occipital border straight or feebly concave. Mandibles as long as head, external border feebly convex, inner border feebly convex, furnished with five large, sharp, erect teeth. Frontal carinae as long as broad behind. Scapes extend beyond occipital border by fully their thickness; second segment of funiculus one-fourth longer than first. Thorax twice as long as broad. Pronotum twice as broad as long, strongly convex in all directions. Mesonotum one-eighth broader than long, circular, convex above. Epinotum fully one-fourth longer than broad, convex laterally; in profile pronotum and mesonotum united in an even curve with a feeble indentation at the suture, top of mesonotum scarcely higher than top of pronotum and epinotum. Meso-epinotal suture deep and wide. Epinotum straight in front, broadly rounded into the declivity. Node one-fourth broader than long, convex in all directions: in profile slightly longer than high, anterior and posterior faces erect, short, broadly rounded into dorsum, ventral spine short and sharp. Postpetiole twice as broad as long, sides strongly convex. First segment of gaster one-eighth broader than long. Legs slender.

*Female.* Length 18.5-19 mm.

Colour as in the worker except that the first segment of gaster is entirely red at base, shading to brown at apex of segment. Wings hyaline with a yellowish tinge.

Sculpture similar but coarser.

Hair longer and more abundant.

Head one-fourth broader than long, mandibles as long as head, broader and more convex than in worker. Scapes just reach the posterior border. Node barely twice as broad as long, posterior and anterior faces straight, sides convex. Postpetiole twice as broad as long, strongly convex on front and sides. First segment of gaster one-fourth broader than long. Legs robust.

*Male.* Length 14 mm.

Head, pronotum, mesonotum and three last segments of gaster black. Mandibles brownish-red, antennae, legs, sides, mesonotum, epinotum, both nodes and first segment of gaster yellowish-red.

Hair white, erect, long and abundant throughout. Pubescence white, very fine and adpressed, longer and more abundant on gaster.

Head very slightly broader than long, convex behind eyes. Mandibles short and broad, furnished with three teeth. Scapes twice as long as broad and twice as long as first segment of funiculus, second segment three times longer than first. Thorax twice as long as broad. Pronotum four times broader than long, strongly convex. Mesonotum as long as broad, parapsidal furrows weakly impressed. Scutellum one-fourth broader than long, broadest in front. Epinotum twice as broad as long, convex laterally; in profile pronotum erect, strongly convex in front. Mesonotum high and convex, highest in middle. Scutellum dome-shaped. Epinotum straight on top, as long as declivity into which it is rounded. Node

one-third broader than long, convex in all directions; in profile dome-shaped, the ventral spine sharp, very short. Postpetiole one-third broader than long, sides strongly convex. First segment of gaster one-fourth broader than long. Legs long and slender.

*Habitat*.—*South Australia*: Cooper's Creek (J. G. Reuther); Killalpaninna (H. J. Hillier).

*Promyrmecia hilli* sp. nov

Plate XIV, fig. 35

*Worker*. Length 14.5 mm.

Head and last two segments of gaster black. Mandibles yellow, antennae, thorax, node, postpetiole, first two segments of gaster and the legs reddish-yellow.

Mandibles finely striate, a row of large piligerous punctures along their centre. Head finely striate longitudinally, striae spaced and densely reticulate between them. Pronotum longitudinally striate, the striae larger and more widely spaced. Mesonotum finely striate longitudinally, the striae obsolete, particularly behind. Epinotum coarsely striate transversely. Node circularly striate. Postpetiole and gaster microscopically reticulate.

Hair yellow, erect, short and sparse throughout; there are six very long hairs on dorsum of pronotum. Pubescence white, very fine and adpressed, very sparse, noticeable only on gaster.

Head very slightly broader than long, occipital border and sides feebly convex, angles broadly rounded. Mandibles as long as head, external border straight or feebly convex, inner border furnished with four large, sharp, erect teeth, with a small tooth between each, the fourth is at the basal fourth, no teeth between it and the base. Frontal carinae longer than broad. Scapes extend beyond occipital border by barely twice their thickness. Second segment of funiculus one-sixth longer than first. Thorax two and one-fourth times longer than broad. Pronotum one-third broader than long, sides strongly convex, dorsum flattened in middle. Mesonotum circular, as long as broad. Epinotum one-third longer than broad; in profile pronotum and mesonotum combined evenly convex, pro-mesonotal suture feebly indicated, meso-epinotal suture deep and wide. Epinotum weakly convex above, broadly rounded into declivity. Node as long as broad, almost circular, but slightly broader behind than in front, convex in all directions; in profile longer than high, anterior face vertical, straight, posterior face short, rounded into dorsum, anterior edge blunt, the ventral spine short and sharp. Postpetiole one-third broader than long, sides strongly convex. First segment of gaster one-fifth broader than long. Legs long and slender.

Male and female unknown.

*Habitat*.—*Central Australia*: Finke River (G. F. Hill).

*Promyrmecia callima* sp. nov

Plate XIV, fig. 36

*Worker*. Length 12.5-14 mm.

Head black, mandibles yellow, base of scapes and anterior edge of pronotum and a spot on each side of mesonotum brown, apical half of scapes, funiculus, thorax, nodes and gaster yellowish-red, legs lighter, more yellowish.

Mandibles with a row of large piligerous punctures along the centre with a slight ridge at each side forming a shallow groove. Clypeus very finely and densely punctate, with indications of very faint longitudinal striae at the sides. Head with very fine longitudinal striae widely spaced, the spaces very finely and densely

reticulate-punctate. Thorax more shining than head. Pronotum longitudinally arched striate, the striae very widely, but irregularly, spaced. Mesonotum very densely and finely reticulate-punctate, with some obsolete longitudinal striae, more clearly defined at the sides. Dorsum and declivity of epinotum transversely striate, the striae very widely spaced. Node circularly striate-rugose, in the centre the striae obsolete and almost longitudinal. Postpetiole and gaster microscopically reticulate.

Hair yellow, very long and inclined inwards on the top and underside of the mandibles, rather short and sparse on the head and thorax, with a few long fine and erect hairs sparsely scattered on thorax, more abundant on legs, longer and more abundant on apical segments of gaster, none on antennae, except a few very short at apex of scapes. Pubescence white, very short and adpressed, longer and more abundant on gaster, forming a feeble covering.

Head one-fourth broader than long, sides and occipital border convex. Mandibles slightly longer than head, external border feebly convex, inner border furnished with numerous large, sharp, erect teeth on the apical three-fourths, on the basal fourth the teeth are small, almost obsolete. Frontal carinae as long as broad in front. Scapes extend beyond occipital border by almost one-sixth of their length; second segment of funiculus one-fourth longer than first, third very slightly shorter than first, apical one-fourth longer than preceding. Thorax slightly more than twice as long as broad. Pronotum twice as broad as long, strongly convex in all directions. Mesonotum very slightly broader than long, strongly convex, the sides margined, meso-epinotal constriction deep and wide. Epinotum about one-fourth longer than broad, bluntly rounded in front, dorsum flattened. In profile pronotum convex, raised abruptly, pronotum and mesonotum combined in an even curve, mesonotum dropping behind, meso-epinotal suture deep and wide, epinotum strongly and evenly convex from base to foot of declivity. Node as long as broad, posterior border and sides strongly convex, anterior border weakly convex; in profile as long as high, anterior and posterior faces vertical, parallel, rounded into the convex dorsum, ventral spine slender and sharp. Postpetiole one-fourth broader than long, sides strongly convex, reduced in front, very narrow, constriction between postpetiole and gaster sharply impressed. First segment of gaster broader than long, strongly convex. Legs long and robust.

Female and male unknown.

*Habitat*.—*Victoria*: Kiata (Nov., 1940; I. H. Cole, J. Clark).

Resembles *P. cephalotes* Clark in the shape of the head.

Abundant on the desert country, it is known locally as the red bull-ant. The nest is inconspicuous and indicated only by a few very small holes scattered around the roots of small bushes; generally there is no mound.

### *Promyrmechia varians* Mayr

Plate XV, figs. 67-68

*Myrmecia varians* Mayr, Jour. Mus. Godeff., xii, p. 94, 1876, ♀.

*Myrmecia (Myrmecia) varians* Emery, Gen. Insect., fasc. 118, p. 21, 1911, ♀.

*Myrmecia rufonigra* Crawley, Ann. Mag. Nat. Hist. (9), vii, p. 87, 1921, ♀.

*Worker*. Length 11-12.5 mm.

Head, thorax and gaster black, mandibles and basal half of scapes yellowish-

brown, apex and teeth more reddish, apical half of scapes, funiculus and legs yellowish-red. Node and postpetiole red.

Head finely striate longitudinally in front, more striate-rugose behind, very finely and densely punctate between the striae. Pronotum and mesonotum finely striate-rugose longitudinally. Epinotum transversely rugose. Node irregularly rugose; the spaces between the rugae on thorax and node finely and densely punctate. Postpetiole and gaster very finely and densely punctate.

Hair yellow, long and erect, abundant on mandibles, clypeus, thorax, nodes and gaster, sparse on head, none on antennae. Very short and suberect on legs. Pubescence very fine and adpressed, white, abundant throughout, forming a distinct covering on gaster but not hiding the sculpture.

Head as long as broad, sides feebly convex, occipital border straight or feebly concave, angles rounded. Mandibles one-eleventh longer than head, convex on basal third, straight on central third and from there to apex strongly convex, inner border furnished with fourteen teeth, the third, sixth, ninth, tenth, eleventh and twelfth long, sharp and curved backward, the others smaller and straight, the twelfth forms a distinct angle. Frontal carinae one-fourth longer than broad behind. Scapes extend beyond occipital border by their thickness; second segment of funiculus one-sixth longer than first, remainder subequal. Thorax fully twice as long as broad. Pronotum one-third broader than long, convex in all directions. Mesonotum one-fourth broader than long, convex. Epinotum about one-fifth longer than broad; in profile pronotum strongly convex, rising abruptly. Mesonotum convex, higher than pronotum, constriction between mesonotum and epinotum deep and wide. Epinotum convex from base to foot of declivity. Node as long as broad, very slightly broader behind than in front; in profile as high as long, anterior face short and vertical, rounded into dorsum, posterior face and dorsum united in a convexity. Ventral spine short and sharp. Postpetiole one-third broader than long, sides strongly convex, the constriction deep and wide. First segment of gaster broader than long, broader behind than in front, sides strongly convex. Legs long and slender.

*Female.* Length 15-16 mm.

Larger and more robust than the worker. Colour similar, sculpture coarser, pilosity longer and more abundant. Mandibles shorter and broader, teeth erect on apical half, inclined backwards on basal half. Scapes not extending to occipital border by almost their thickness. Node larger. Postpetiole hemispherical, one-third broader than long. Legs robust.

*Male* unknown.

*Habitat.*—*Queensland:* Peak Downs (type locality); Rockhampton; Bowen (Dr. J. Mackay); Townsville (J. P. Dodd); Gayndah (F. A. Cudmore).

The colour of this species varies considerably. On some examples the whole thorax is black, whilst on others it is red; most examples have the thorax more or less marked with red.

Re-described from a series of three specimens in National Museum collection. They were received from the Museum Godefroy in 1888.

*Promyrmecia wilsoni* sp. nov.

Plate XV, fig. 66

*Worker.* Length 12.5-14 mm.

Head and gaster black. Mandibles, labrum and apex of clypeus yellow. Antennae, thorax, nodes and legs yellowish-red.

Head, pronotum and mesonotum and the anterior third of epinotum finely striate-rugose longitudinally, declivity of epinotum transversely rugose, node irregularly rugose. Apical half of mandibles strongly striate longitudinally, finely punctate near base. Postpetiole and gaster finely and densely punctate.

Hair yellow, fine and erect, long and abundant throughout, short and suberect on legs, none on antennae. Pubescence white, very fine and adpressed, most abundant on postpetiole and gaster, but not hiding the sculpture.

Head slightly broader than long, sides and occipital border feebly convex, angles rounded. Mandibles a fraction longer than head, external border concave in middle, inner border furnished with fifteen teeth, the third, fifth, sixth, eighth, ninth, eleventh, twelfth and fifteenth large, sharp and directed backwards. Frontal carinae longer than broad behind. Scapes extend beyond the occipital border by fully their thickness; second segment of funiculus barely one-sixth longer than first, remainder subequal. Thorax twice as long as broad. Pronotum twice as broad as long, convex in all directions. Mesonotum about one-sixth broader than long, convex; constriction between mesonotum and epinotum deep and wide. Epinotum almost as long as broad, not defined behind; in profile the pronotum and mesonotum united and evenly arched, the constriction feebly impressed. Mesoepinotal constriction deep and wide. Epinotum as high as mesonotum, evenly convex from base to foot of declivity. Node one-fifth broader than long, almost circular; in profile as high as long, anterior face short and vertical, dorsum convex, rounded into posterior face. Postpetiole almost one-fourth broader than long, sides strongly convex; constriction wide and shallow. First segment of gaster one-fourth broader than long. Legs slender.

Female and male unknown.

*Habitat*.—North Queensland: Mutchilba (A. D. Selby).

Four examples received from F. E. Wilson. This species resembles *P. varians* Mayr; the shape of the thorax and nodes distinguish them.

*Promyrmecia shepherdii* sp. nov

Plate XV, fig. 50-52

*Worker*. Length 10-11 mm.

Head and gaster blackish-brown, apex of pronotum and anterior coxae brown. Mandibles, anterior edge of clypeus, labrum and antennae yellow, apical segment brown; thorax, node, postpetiole and all legs reddish-yellow.

Apical half of mandibles striate, basal half reticulate-punctate. Head finely striate-rugose, densely reticulate between striae. Pronotum, mesonotum and anterior half of epinotum longitudinally striate, posterior half of epinotum and the declivity transversely striate. Node circularly rugose with a strong central longitudinal striae. Postpetiole and gaster densely and very finely punctate-reticulate.

Hair yellow, short and erect, abundant throughout, shorter and suberect on legs, none on antennae. Pubescence white, very fine and adpressed, forming a fine covering on postpetiole and gaster but not hiding the sculpture.

Head as long as broad behind eyes, occipital border straight or feebly convex, sides convex, posterior angles rounded. Mandibles as long as head, external border feebly concave, inner border straight, furnished with five large sharp teeth and two small teeth between the larger teeth. Frontal carinae as long as broad. Scapes just reach the occipital border; first and second segments of funiculus equal in length. Thorax two and one-fifth times longer than broad, pro-mesonotal suture sharply impressed, meso-epinotal suture deep and wide. Pronotum one and three-

quarter times broader than long, sides and front strongly convex, dorsum flatly convex. Mesonotum barely one-fourth broader than long, sides and front convex, posterior edge concave in middle. Epinotum strongly convex in front, almost flat laterally; in profile pronotum evenly convex from apex to base. Mesonotum evenly convex, highest in front, meso-epinotal suture deep and wide. Epinotum evenly arched from base to foot of declivity. Node very slightly broader than long, circular; in profile as high as long, anterior and posterior faces short, rounded into the convex dorsum, ventral spine short, broad and sharp. Postpetiole one-third broader than long, sides strongly convex, constriction deep and wide. First segment of gaster much broader than long, broadest behind, sides strongly convex. Legs slender.

*Female.* Length 14.5-15 mm.

Colour, sculpture and pilosity similar to that of the worker. Wings hyaline with a yellowish tinge, veins brown.

Head slightly broader than long, sides feebly convex behind, occipital border feebly concave, angles broadly rounded. Mandibles shorter than head, external border straight, inner border convex, teeth large. Scapes not reaching the occipital border by more than their thickness, second segment of funiculus very slightly longer than first. Mesonotum with mayrian furrows faintly indicated, parapsidal furrows sharply impressed. Node oval, fully one and one-half times broader than long. Legs robust.

*Male.* Length 12 mm.

Head, pronotum, mesonotum, scutellum, postpetiole and gaster brownish-black. Mandibles, antennae and legs reddish-yellow; sides, epinotum and node yellowish-red. Wings hyaline with yellowish tinge.

Sculpture as in the worker but slightly finer.

Pilosity similar but longer and slightly more abundant. Head, across the eyes, almost one-fifth broader than long, broadly convex behind. Mandibles small, narrow and sharp pointed, furnished with three small teeth. Clypeus convex above and in front. Frontal carinae as long as broad. Antennae slender. First segment of funiculus two and one-half times longer than scape, remaining segments subequal. Thorax barely twice as long as broad. Pronotum short, fully four times broader than long, strongly convex in all directions. Mesonotum one and one-half times broader than long, mayrian and parapsidal furrows strongly impressed. Scutellum almost one-third broader than long, convex in all directions. Epinotum convex transversely; in profile pronotum convex, high and vertical. Mesonotum high, evenly convex from apex to base. Scutellum hemispherical, almost four times longer than high. Epinotum evenly convex from base to foot of declivity. Node one-sixth broader than long, broadest behind, all faces convex; in profile as high as long, anterior face vertical, slightly convex, rounded into dorsum, posterior face very short rounded into dorsum; ventral spine short and sharp. Postpetiole broader than long, broadest and strongly convex at basal third; constriction broad and shallow. Gaster slender. Legs long and slender.

*Habitat.*—*New South Wales:* Broken Hill (F. W. Shepherd); Dubbo (W. W. Froggatt).

*South Australia:* Finke River (G. F. Hill); Murray Bridge (A. H. Elston).

*Victoria:* Nhill (J. Clark).

*Promyrmecia goudiei* sp. nov

Plate XV, figs. 48, 49

*Worker.* Length 12.5-14 mm.

Black, node red, in some examples the epinotum slightly reddish, mandibles, antennae and legs brown, tarsi reddish.

Head, pronotum, mesonotum and anterior fourth of epinotum finely striate-rugose longitudinally, rest of epinotum transversely rugose. Node irregularly rugose. Postpetiole and gaster and all spaces between the rugae on head and thorax very finely and densely reticulate.

Hair yellowish, long, erect and abundant throughout, shorter on legs, a few short bristle-like hairs at apex of scapes. Pubescence white, very fine and adpressed, longer and more abundant on postpetiole and gaster, forming a distinct covering but not hiding the sculpture, on the centre of gaster the pubescence is yellow.

Head as long as broad, sides feebly convex, occipital border concave in middle, angles broadly rounded. Mandibles as long as head, external border concave, inner border furnished with twelve teeth, the third, fifth, eighth, tenth and eleventh large, sharp and directed very slightly backward. Frontal carinae one-fourth longer than broad in front. Scapes just reach occipital border; first and third segments of funiculus equal in length, the second almost one-third longer, apical not as long as the two preceding combined. Thorax twice as long as broad. Pronotum twice as broad as long, strongly convex in all directions. Mesonotum one-fourth broader than long. Epinotum broadly convex in front, flatly convex laterally; in profile pronotum strongly and evenly convex from apex to base. Mesonotum higher than pronotum, abruptly convex in front and behind, flat in the middle, meso-epinotal suture deep and wide. Epinotum strongly convex from base to foot of declivity. Node slightly broader than long, convex in all directions; in profile as high as long, anterior face short and vertical, posterior face short and convex, continuous with dorsum, ventral spine short and sharp. Postpetiole one-third broader than long, sides strongly convex, constriction deep and wide. First segment of gaster one-fifth broader than long, strongly convex. Legs long and slender.

*Female.* Length 14 mm.

Colour, sculpture and pilosity as in the worker. Wings hyaline, nervures brown. Head slightly broader than long. Mandibles broader and the outer border straight; the teeth larger and broader. Scapes not reaching the occipital border by fully their thickness. Thorax barely twice as long as broad. Pronotum three times broader than long, convex in all directions. Mesonotum almost one-third broader than long, broadly convex in front and above, parapsidal furrows sharply impressed, mayrian furrow feebly indicated. Scutellum one-third broader than long, with a transverse impression in the middle. Epinotum almost twice as broad as long. Node about one-fourth broader than long, strongly convex in all directions. Postpetiole twice as broad as long, strongly convex in front, constrictor deep and wide. First segment of gaster fully one-fourth broader than long. Legs long and robust.

*Male.* Unknown.

*Habitat.*—*Victoria*: Sea Lake (J. C. Goudie); Redcliffs (W. S. Creek; J. Clark Sept., 1939); Hattah (J. Clark); Lake Hattah (J. E. Dixon).

### *Promyrmecia tepperi* Emery

Plate XVI, fig. 70-71

*Myrmecia tepperi* Emery, Rend. Accad. Sc. Bologna, p. 231, fig. 1, 1898

♀ ♂.

*Myrmecia (Myrmecia) tepperi* Emery, Gen. Insect., fasc. 118, p. 20, 1911

♀ ♂.

*Worker.* Length 10.5-12 mm.

Blackish-brown, gaster black. Mandibles, antennae and legs brown.

Apical half of mandibles coarsely striate, basal half finely reticulate. Head longitudinally striate, very finely and densely reticulate between the striae. Pronotum longitudinally arched striate-rugose, the striae widely separated, the spaces densely reticulate. Mesonotum more finely and closely striate longitudinally, reticulate between the striae. Epinotum coarsely striate-rugose and reticulate longitudinally on top; declivity transversely rugose. Node irregularly, almost circularly rugose. Postpetiole and gaster very finely and densely reticulate.

Hair yellow, short and erect, long and more abundant on mandibles and apical segments of gaster, short and suberect on legs. None on antennae. Pubescence yellowish, very fine and adpressed, abundant throughout; on dorsum of first segment of gaster it is more abundant but not hiding the sculpture, golden yellow on the three apical segments, long and abundant, hiding the sculpture.

Head very slightly broader than long, occipital border feebly concave, angles broadly rounded. Mandibles as long as head, external border feebly concave; apical half of inner border furnished with three large, sharp, erect teeth and five smaller; teeth on basal half short, broad and directed backward. Clypeus deeply excised in front. Scapes extend beyond occipital border by barely their thickness; second segment of funiculus one-sixth longer than first, third equal to first, remainder subequal. Thorax twice as long as broad, pronotum twice as broad as long, strongly convex in all directions. Mesonotum one-fourth broader than long, sides strongly convex, feebly convex in front and behind. Epinotum one-fifth longer than broad, flattened laterally above, sides and front feebly convex; in profile strongly convex from apex of pronotum to apex of epinotal declivity, sutures sharply impressed, mesonotum higher than pronotum and epinotum. Node one-fifth broader than long, convex in all directions; in profile anterior and posterior faces straight, vertical, dorsum feebly convex, borders rounded. Ventral spine erect, short and sharp. Postpetiole fully one-third broader than long, strongly convex in all directions, constriction wide but shallow. First segment of gaster slightly broader than long, broadest behind, sides strongly convex. Legs robust.

*Female.* Length 14-15 mm.

Colour, sculpture and pilosity similar to that of the worker. Larger and more robust. Wings hyaline with a yellow tinge.

*Male.* Length 12.5 mm. (according to Emery).

I have not seen the male, but for the sake of completeness give a translation of Emery's description as follows:

"The male differs similarly from that of *M. pilosula* by the broader petiole and by the colour of the mandibles, antennae and legs. Length 12½ mm."

*Habitat.*—*South Australia*: Tepper (? type locality); Wilpena Pound (H. Hale); Port Lincoln (J. Clark).

*Western Australia*: Mundaring (J. Clark); Emu Rock (H. Reynolds).

*Victoria*: Lake Hattah (J. E. Dixon).

*Federal Capital Territory*: Canberra (G. F. Hill).

The male and female were described from an unknown locality in South Australia. The worker, therefore, has been described from examples collected at Port Lincoln. In his descriptions of the male and female Emery compared them with *M. pilosula*, but they have no connection with that species; beyond size and colour there is little resemblance. This species is widely distributed in the warm mallee districts and it is surprising to find it at Canberra.

*Promyrmecia clarki* Crawley

Plate XVI, figs. 74-76

*Myrmecia clarki* Crawley, Ann. Mag. Nat. Hist., 9, ix, p. 432, 1922, ♀.*Myrmecia (Promyrmecia) clarki* Wheeler, Colony-founding among Ants, p. 61, fig. 23, 1933, ♀♀.*Worker.* Length 11-13 mm.

Black; funiculi and legs blackish-brown, tarsi lighter, mandibles yellow.

Apical half of mandibles coarsely striate, basal half finely punctate-reticulate. Head finely striate-rugose longitudinally, very finely and densely reticulate between the striae. Pronotum, mesonotum and epinotum strongly striate longitudinally, declivity transversely striate. Node longitudinally striate-rugose. Postpetiole and gaster microscopically reticulate.

Hair yellow, sparse, very short and erect, finer and suberect on legs. Very long and abundant at apex of gaster. Pubescence yellow, very fine and short, forming a distinct covering on postpetiole and gaster but not hiding the sculpture.

Head very slightly broader than long, occipital border feebly concave, sides convex, angles rounded. Mandibles slender, longer than head by their width at base, external borders concave in middle, apical half of inner border furnished with large, sharp, erect teeth, basal half with short broad teeth directed backward. Scapes extend about half their thickness beyond occipital border; second segment of funiculus one-sixth longer than first, third as long as first, remainder subequal. Thorax fully twice as long as broad. Pronotum twice as broad as long, sides and front strongly convex, dorsum flat laterally. Mesonotum one-fourth broader than long, oval, convex in all directions. Epinotum flat laterally; in profile pronotum strongly convex from apex to base, pro-mesonotal suture weakly impressed. Mesonotum flatly convex, highest behind; meso-epinotal suture deep and wide. Epinotum evenly convex from base to bottom of declivity. Node very slightly broader than long, strongly convex in all directions; in profile higher than long, stalk sloping down at an acute angle in front, anterior and posterior faces straight, vertical, dorsum feebly convex, angles rounded; ventral spine very short, erect and sharp. Postpetiole almost twice as broad as long, sides and front strongly convex; construction deep and narrow. First segment of gaster one-seventh broader than long, sides strongly convex. Legs slender.

*Female.* Length 16-16.5 mm.

Colour, sculpture and pilosity as in the worker. Wings hyaline, nervures brown.

Head somewhat similar but broader behind. Mandibles shorter and broader, shorter than head, external borders straight, inner border furnished with similar but larger and stronger teeth. Scapes not extending to occipital border by fully their thickness, second segment of funiculus one-fourth longer than first. Eyes not occupying half the sides, their posterior margin at middle of sides. Ocelli small but prominent. Mesonotum with well-defined mayrian furrows. Node almost one and one-half times broader than long, anterior and posterior faces short and straight, sides strongly convex. Postpetiole twice as broad as long.

*Male.* Length 11-12 mm.

Black. Mandibles yellow, antennae and anterior legs reddish-yellow, middle and posterior legs brown. Wings hyaline.

Head, thorax and node punctate-rugose, epinotal declivity transversely finely striate-rugose. Very finely and densely reticulate between the punctures. Postpetiole and gaster microscopically reticulate.

Hair as in the worker but not so abundant.

Head as long as broad, occipital border straight, sides convex, angles broadly

rounded. Mandibles short, almost triangular, inner border furnished with two large sharp teeth behind apex, the second forms a sharp angle to basal border. Clypeus rounded in front. Scapes short, first segment of funiculus twice as long as scapes, second segment one-fifth shorter than first, remainder subequal. Eyes large, occupying more than half the sides. Ocelli large and prominent. Thorax twice as long as broad. Pronotum five times as broad as long, strongly convex in front. Mesonotum almost cone-shaped, one-fifth broader than long, mayrian and parapsidal furrows sharply impressed. Scutellum almost as long as broad, broadest in front, strongly convex in all directions. Epinotum one-fourth broader than long, flat laterally; in profile strongly arched longitudinally. Pronotum erect, convex, mesonotum erect in front, convex from apex to base. Scutellum as high as long, dome-shaped. Epinotum convex from base to bottom of declivity. Node one-third broader than long, convex in all directions; in profile high and dome-shaped, all faces convex, ventral spine very short and sharp. Postpetiole one-third broader than long, strongly convex behind, constriction deep. First segment of gaster one-fourth broader than long. Legs slender.

*Habitat.*—*Western Australia*: Mundaring Weir (type locality); Margaret River; Albany; Denmark; Armadale; Perth (J. Clark).

In size and colour this species is similar to *P. pilosula*. The formation of the mandibles separates them.

### *Promyrmecia swalei* Crawley

Plate XVI, figs. 72-73

*Myrmecia harderi* Forel, race *swalei* Crawley, Ann. Mag. Nat. Hist., 9, ix, p. 429, 1922, ♀.

*Worker.* Length 11-12.5 mm.

Head, postpetiole and gaster black, thorax and node bright red, mandibles yellow on basal half, reddish-yellow on apical half, antennae and legs brown, scapes darker.

Head longitudinally striate-rugose in front, punctate-rugose behind. Pronotum coarsely striate-rugose longitudinally. Mesonotum more irregularly rugose longitudinally. Epinotum irregularly rugose, transversely rugose on declivity. Node circularly rugose. Postpetiole and gaster microscopically reticulate.

Hair yellow, short and erect, longest on gaster, short and suberect on legs. Pubescence yellowish, very fine and adpressed, forming a thin covering on postpetiole and gaster but not hiding the sculpture.

Head very slightly broader than long, sides strongly convex behind, occipital border concave, angles rounded. Mandibles as long as head, external border straight or very feebly convex, inner border furnished on the apical half with two large, sharp, erect teeth and four very small sharp teeth, on the basal half the teeth are short and irregular more or less directed backward. Scapes not extending to occipital border by fully their thickness; first and second segments of funiculus equal in length, one-fifth longer than third, remainder subequal. Thorax fully twice as long as broad. Pronotum twice as broad as long, convex in all directions. Mesonotum one-fourth broader than long, oval. Epinotum short, subbordered in front, flattened laterally; in profile evenly convex from apex of pronotum to bottom of epinotal declivity, sutures sharp but not deep. Node very slightly broader than long, all faces convex; in profile almost square, anterior face vertical, straight, twice as high as posterior face, dorsum feebly convex, angles rounded, ventral spine short, thin and sharp. Postpetiole two-fifths broader than long, strongly convex almost hemispherical in front; constriction deep and narrow. First segment of gaster one-seventh broader than long. Legs rather slender.

*Female.* Length 15-16.5 mm.

Similar to the worker but larger and more robust.

Head more square behind, sides not so convex, occipital border more narrow concave. Mandibles stronger, external border convex, teeth on apical half inner border larger, obsolete on basal border except one large tooth near b with a small one behind it. Node oval, two-fifths broader than long, sides dorsum convex, anterior and posterior faces straight. Postpetiole one and two thirds times broader than long, almost oval, broadest at middle. First segment gaster one-fifth broader than long. Legs long and stout.

*Male.* Unknown.

*Habitat.*—*Western Australia:* Albany (type locality, Dr. H. Swale; J. Clark; Perth; Mundaring; Ludlow; Serpentine River (J. Clark).

Described from examples collected at Albany. Crawley describes this as a race of *harderi* Forel. It is not related to that species.

### *Promyrmecia testaceipes* sp. nov.

Plate XV, fig. 69

*Worker.* Length 10-11 mm.

Head and gaster black, thorax and node reddish-yellow, postpetiole more or less reddish-yellow, generally with a large reddish spot on each side in front; mandibles antennae and legs yellow, apex of mandibles and base of scapes brown.

Basal half of mandibles smooth and shining, apical half with coarse oblique striae. Head longitudinally striate, finely and densely reticulate-punctate between striae. Clypeus almost smooth, some obsolete rugae at base. Pronotum and mesonotum longitudinally striate, epinotum and node coarsely punctate-rugose, epinotum declivity transversely rugose; the whole thorax and node finely punctate between the striae and at bottom of punctures, postpetiole and gaster microscopically punctate.

Hair yellow, short and erect, abundant throughout, long and stout on the underside of mandibles, long and fine on clypeus and apical segments of gaster, short and adpressed on antennae and legs. Pubescence whitish, very fine and close lying most abundant on postpetiole and gaster forming a distinct covering but not hiding the sculpture.

Head one-sixth broader than long, broadest in front, sides straight or very feebly convex, occipital border concave, angles strongly rounded. Mandibles slender, as long as head, external border concave at middle, inner border furnished with three large teeth on the apical half, two smaller teeth between the larger teeth, all slightly hook-shaped, directed backwards, basal half with only faint traces of teeth except at base, where there are two large blunt teeth directed backwards. Frontal carinae longer than broad, slightly wider behind than in front, widest at middle. Scapes not reaching the occipital border by almost their thickness; first and third segments of funiculus equal in length, shorter than second, apical point twice as long as second. Thorax twice as long as broad. Pronotum twice as broad as long, sides and front strongly convex, dorsum flatly convex. Mesonotum one-sixth broader than long, convex in all directions. Epinotum one-fourth longer than broad, broadly rounded in front: in profile pronotum evenly convex. Mesonotum higher than pronotum and epinotum, evenly convex, constriction between mesonotum and epinotum deep and wide. Epinotum evenly convex from base to foot of declivity. Node one-fifth broader than long, convex in all directions; in profile higher than long, top half of the anterior face and the posterior face straight.

vertical and parallel, basal half of anterior face sloping forward at an acute angle, dorsum feebly convex, ventral spine very short and slender. Postpetiole almost one-third broader than long, strongly convex in all directions; constriction between postpetiole and first segment of gaster deep and wide. First segment of gaster slightly broader than long, strongly convex. Legs robust.

Female and male unknown.

*Habitat*.—*Western Australia*: Albany (J. Clark).

Resembles *P. swalei* Crawley, but more slender; the colour of the legs and antennae are very different.

*Promyrmecia dixonii* sp. nov

Plate XVI, figs. 77, 78

*Worker*. Length 9.5-10.5 mm.

Head and gaster black, mandibles yellow, antennae, thorax, nodes and legs brownish-red, base of scapes darker.

Basal half of mandibles finely punctate, apical half obliquely striate. Head longitudinally striate in front, longitudinally striate-rugose behind, interstices very finely and densely punctate. Pronotum longitudinally striate, mesonotum longitudinally striate-rugose. Epinotum and node coarsely punctate-rugose, declivity coarsely striate transversely. Postpetiole and gaster microscopically reticulate.

Hair yellow, erect, short and sparse throughout, longer and more abundant on apical segments of gaster, a few much longer and stouter on mandibles, fine, short and suberect on scapes and legs. Pubescence white, sparse except on postpetiole, gaster and legs.

Head one-sixth broader than long, sides feebly convex, occipital border feebly concave, angles rounded. Mandibles slightly longer than head, external border concave, inner border furnished with three large sharp teeth, feebly curved backward, in front and between each of these are two much smaller, behind the third large tooth the teeth are obsolete and directed backwards, the two at extreme base slightly larger. Frontal carinae as long as broad in front. Scapes not reaching the occipital border by fully their thickness, first and third segments of funiculus equal in length, very slightly shorter than second, apical almost twice as long as the preceding. Thorax twice as long as broad. Pronotum twice as broad as long, strongly convex in all directions. Mesonotum almost one-third broader than long, strongly convex, meso-epinotal constriction deep and wide. Epinotum slightly longer than broad, almost straight in front; in profile anterior face of pronotum erect, straight or feebly convex, at an acute angle, strongly rounded into the rather flat dorsum. Mesonotum higher than pronotum and epinotum, strongly convex, meso-epinotal suture sharply, but not deeply, impressed. Epinotum convex from base to foot of declivity. Node one-fifth broader than long, strongly convex in all directions; in profile one-fifth higher than long, anterior face high, straight and vertical, posterior face short and vertical, dorsum convex, dropping behind and rounded into posterior face; ventral spine short and sharp. Postpetiole almost twice as broad as long, sides, front and dorsum strongly convex, constriction narrow and deep. First segment of gaster broader than long, sides and dorsum strongly convex. Legs slender.

*Female*. Length 12 mm. (deãlated).

Colour and pilosity as in the worker, sculpture coarser. Mandibles and scapes shorter, node and postpetiole much broader.

*Male*. Unknown.

*Habitat*.—*Victoria*: Eltham (J. E. Dixon, F. E. Wilson).

*New South Wales*: Albury (F. E. Wilson).

*Federal Capital Territory*: Canberra (T. Greaves).

*Promyrmecia gilberti* Forel

Plate XVI, figs. 79, 80

*Myrmecia fulvipes* Roger var. *gilberti* Forel, Rev. Suisse Zool., x, p. 6, 1910, ♀.

*Myrmecia (Pristomyrmecia) fulvipes* Roger var. *gilberti* Emery, Genera Insect., fasc. 118, p. 21, 1911.

*Myrmecia (pristomyrmecia) fulvipes* Roger race *gilberti* Forel, Bull. Soc. Vaudoise des Sc. Nat., xlix, p. 173, 1913, ♀.

*Myrmecia (Pristomyrmecia) regina* Santschi, Bull. Soc. Vaud. Sc. Nat., lvi, p. 465, 1928, ♀.

*Myrmecia (Promyrmecia) gilberti* Wheeler, Colony-founding among Ants, p. 72, 1933, ♀ ♀.

*Worker*. Length 9.5-15 mm.

Black, mandibles, antennae and legs brown, tarsi lighter.

Apical half of mandibles coarsely striate-rugose, basal half more finely striate-rugose, punctate between the rugae. Head finely striate-rugose, longitudinally in front, more irregularly behind, the rugae widely spaced, the interstices very finely and densely reticulate-punctate. Pronotum irregularly and coarsely striate-rugose, almost transversely. Mesonotum longitudinally striate-rugose. Epinotum punctate-rugose on top, the punctures very large and shallow, more striate-rugose transversely on declivity. Node irregularly and coarsely punctate-rugose, the punctures large. Postpetiole and gaster densely and microscopically punctate, with scattered shallow, almost obsolete, punctures, more numerous on postpetiole.

Hair grey, long and erect, abundant throughout, but longer and more numerous on mandibles and apical segments of gaster, short and suberect on legs, sparse on antennae; pubescence grey, very fine and abundant, longer and more abundant on postpetiole, yellow, and hiding the sculpture on gaster.

Head as long as broad, sides and occipital border feebly convex, angles rounded. Mandibles not as long as head, about one-ninth shorter, outer border straight or feebly concave at middle; inner border straight, furnished with twelve erect sharp teeth, long and broad on apical half, shorter and inclined backwards on basal half. Scapes not extending to occipital border by fully their thickness, second segment of funiculus very slightly longer than first, the remainder shorter, subequal to apical, which is as long as first. Thorax fully twice as long as broad. Pronotum twice as broad as long, sides and front strongly convex, dorsum feebly convex. Mesonotum one-fourth broader than long, convex in all directions, constriction between mesonotum and epinotum deep and wide. Epinotum one-sixth longer than broad, convex in all directions; in profile pronotum raised strongly and evenly convex from apex to base, mesonotum higher than pronotum and epinotum, highest in front, evenly convex, meso-epinotal constriction deep and wide, epinotum strongly and evenly convex from base to bottom of declivity, highest at anterior fourth. Node as long as broad, broadest at middle, almost twice as broad there as in front, convex in all directions; in profile as high as long, anterior face straight, vertical, rounded into dorsum, posterior face short and vertical, dorsum feebly convex, ventral spine long and sharp, broad at base. Postpetiole one-third broader than long, broadest just behind middle, strongly convex. First segment of gaster one-sixth broader than long, broader behind than in front, sides strongly convex. Legs robust.

*Female.* Length 16.5 mm.

Colour as on worker. Sculpture coarser, more rugose and the ground reticulation more conspicuous. Hair longer and more abundant. Pubescence brass yellow, abundant, very dense on gaster, finer and greyish-yellow on posterior half of postpetiole.

Head slightly broader than long. External border of mandible concave, inner border convex, furnished with twelve sharp erect teeth, the second, fourth, sixth, eighth and tenth much longer and broader than the others. Scapes not extending to occipital border by fully their thickness. Parapsidal and mayrian furrows feebly indicated. Node one-fifth broader than long, very slightly broader behind than in front, broader than long, broadest at middle. Postpetiole one-fourth broader than long. First segment of gaster one-eighth broader than long.

I have not seen the male but the following description by the late Dr. W. M. Wheeler is quoted for the sake of completeness:

"The male (undescribed) measures about 11.5 mm. and is more opaque than the male of *piliventris*, with much more finely rugose head, thorax and petiole. The head is proportionally smaller than in *piliventris* or *fulviculis*, the thorax, petiole and postpetiole distinctly narrower and less robust, the postpetiole as long as broad and gradually narrowed anteriorly. The pubescence on the gaster is like that of the worker; the wings are slightly smoky as in the males of *piliventris* and *fulviculis*, with yellowish-brown veins and darker brown pterostigma."

*Habitat.*—*Queensland*: Mackay (type locality, G. Turner); Townsville (F. P. Dodd, G. F. Hill); Koah (W. M. Wheeler); Nanango (F. A. Cudmore); Burleigh Heads (Dr. C. P. Ledward); Brisbane (H. Hacker); Bribie Island (H. Hacker); Rockhampton (Godeffroy Museum).

This species is variable in the formation of the teeth on the mandibles. At first sight it appears to belong to the *mandibularis* group; actually, however, it belongs to the *tepperi* group and almost forms a connection between *michaelseni* and *clarki*.

### *Promyrmecia mandibularis* Smith

Plate XVII, figs. 91-93

*Myrmecia mandibularis* Smith, Cat. Hymn. Brit. Mus., vi, p. 145, 1852, ♀; Mayr, Verh. Zool. Bot. Ges. Wein, xii, pp. 726-27, 1862, ♀.

*Myrmecia mandibularis* Smith s.sp. *aureorufa* Forel, Rev. Suisse Zool., xviii, p. 6, 1910, ♀.

*Myrmecia (Pristomyrmecia) mandibularis* Emery, Genera Insect., fasc. 118, pl. 1, fig. 11, 1911, ♀.

*Myrmecia (Promyrmecia) mandibularis* Wheeler, Colony-founding among Ants, p. 64, 1933.

*Myrmecia (Promyrmecia) mandibularis* Smith s.sp. *postpetiolaris* Wheeler, Colony-founding among Ants, p. 65, 1933, ♀ ♀.

*Worker.* Length 12-15 mm.

Black; mandibles, antennae and legs brown, tarsi reddish; on some examples the mandibles and legs quite reddish.

Shining. Mandibles longitudinally striate, coarsely so on apical third. Head longitudinally striate, with large shallow punctures between the striae behind. Pronotum, mesonotum and anterior of epinotum longitudinally striate-rugose behind, declivity transversely striate. Node longitudinally striate-rugose. Postpetiole much more finely longitudinally striate-rugose in front, more punctate-

rugose behind, the rugae appear more as elongate punctures. Gaster microscopically punctate.

Hair yellow, erect, abundant throughout, very long on mandibles and gaster, short and suberect on antennae, a little longer on legs. Pubescence very fine and whitish, very close lying, longer and more abundant on postpetiole and sides of gaster forming a thin covering at middle of posterior border of postpetiole, on the gaster the pubescence is bright golden red, long, dense and adpressed, hiding the sculpture.

Head slightly broader than long, sides convex, occipital border concave, angles rounded. Mandibles fully their width at base, longer than head, parallel, external border convex, inner border furnished with four large, sharp, erect teeth at apex, behind these the teeth becoming shorter and broader to base, where they are obsolete. Scapes extend to occipital border; first and third segments of funiculus equal in length, second one and one-half times longer. Thorax fully twice as long as broad; pronotum almost twice as broad as long, sides and front strongly convex, dorsum flat; mesonotum as long as pronotum, about one-fourth broader than long, strongly convex in all directions, excision deep and narrow; epinotum one and one-half times longer than broad, bluntly rounded in front, dorsum convex; in profile pronotum evenly convex from apex to base, mesonotum slightly higher than pronotum and epinotum, highest in front, evenly convex from apex to base, epinotum twice as long as declivity into which it is rounded. Node very slightly broader than long, broadest behind middle, one-fourth broader behind than in front, anterior and posterior borders straight, sides convex; in profile slightly higher than long, anterior face vertical, feebly convex, posterior face straight, both faces rounded into the convex dorsum, ventral spine triangular, sharp pointed. Postpetiole one and one-half times broader than long, broadest at posterior third, constriction deep and wide. First segment of gaster broader than long. Legs robust.

*Female.* Length 15-15.5 mm.

Colour and pilosity as on the worker, sculpture similar but much coarser.

Head one-eighth broader than long, occipital border and sides feebly convex, angles broadly rounded. Mandibles slightly longer than head, external and inner borders feebly convex, inner border furnished with nine large, broad, sharp, erect teeth in front of middle; behind these the teeth are smaller and directed forward (backward in worker). Scapes barely reach occipital border. Thorax fully twice as long as broad; pronotum three times broader than long; mesonotum broader than long, broadly convex in front, mayrian furrows feebly indicated, parapsidal furrows weakly impressed; scutellum almost twice as broad as long, strongly convex; epinotum one and one-half times broader than long. Node one-fourth broader than long, broadest behind middle, anterior and posterior borders straight, sides strongly convex; in profile higher than long, anterior and posterior faces straight, vertical, rounded into the feebly convex dorsum, ventral spine triangular, short and sharp. Postpetiole one-third broader than long, strongly convex. First segment of gaster slightly broader than long, slightly broader behind than in front. Legs robust. Wings hyaline.

*Male.* Length 11.5-12.5 mm.

Colour as on the worker. Hair and pubescence longer and more abundant throughout. Sculpture more punctate-rugose, the bottom of punctures densely and finely punctate.

Head as long as broad, occipital border short, straight or feebly convex, sides strongly convex. Mandibles short, triangular, the angle on inner border forming a sharp tooth. Scape twice as long as first segment of funiculus, second segment three times longer than scape. Thorax twice as long as broad. Pronotum very

short, eight and one-half times longer than broad. Mesonotum slightly broader than long, broadly rounded in front, mayrian and parapsidal furrows deeply impressed. Scutellum one-third broader than long. Epinotum one-third broader than long; in profile pronotum raised vertical, convex above, mesonotum raised convex in front, feebly convex on top, mayrian furrows deeply impressed. Scutellum high, dome-shaped. Epinotum straight, as long as declivity into which it is bluntly rounded. Node one-fourth broader than long, convex in all directions; in profile higher than long, anterior and posterior faces vertical, rounded into the feebly convex dorsum, ventral spine translucent, long and sharp, broad at base, postpetiole barely one-third broader than long, broadest at basal third. First segment of gaster slightly broader than long, broader behind than in front. Legs long and robust. Wings hyaline.

*Habitat*.—*South Australia*: Adelaide (type locality); Mt. Lofty (A. H. Elston).

*Western Australia*: Emu Park (H. Reynolds); Perth; Mundaring; Collie; Albany (J. Clark).

*Promyrmecia laevinodis* sp. nov.

Plate XVII, figs. 94, 95

*Worker*. Length 11-14 mm.

Black; mandibles, antennae and legs reddish-brown.

Shining. Mandibles finely striate longitudinally, with shallow, elongate punctures between the striae. Head finely striate longitudinally, interstices wide, with large, shallow punctures. Pronotum and mesonotum longitudinally striate, coarser than on head. Epinotum and node coarsely and irregularly rugose, declivity transversely striate. Postpetiole and gaster microscopically punctate; on some examples indications of a few large punctures, very feeble and obsolete.

Hair yellow, erect, rather sparse on head and thorax, longer and more abundant on postpetiole and gaster, short and suberect on legs. Pubescence white, very fine and adpressed, longer and more abundant on postpetiole and sides of gaster; on the dorsum of gaster it is bright, reddish-yellow, long, hiding the sculpture.

Head one-seventh broader than long, sides feebly convex, occipital border straight or feebly concave, angles broadly rounded. Mandibles slightly longer than head, about half their breadth longer, external border straight at middle, convex at basal fourth, inner border furnished with five erect, sharp teeth on apical fourth, behind these the teeth obsolete, almost effaced. Scapes extend beyond occipital border by their thickness; first and third segments of funiculus equal in length, second one-fourth longer than first. Thorax fully twice as long as broad. Pronotum barely twice as broad as long, almost circular, dorsum flat. Epinotum as long as pronotum, one-third broader than long, oval; excision deep and narrow. Epinotum one and one-half times longer than broad; in profile evenly convex from apex of pronotum to base of mesonotum, excision deep, narrow at bottom; epinotum feebly convex in front, strongly convex into declivity behind. Node one-sixth broader than long, broader behind than in front, sides strongly convex, anterior and posterior borders feebly convex; in profile very slightly higher than long, anterior and posterior faces straight and vertical, rounded into the feebly convex dorsum, ventral spine triangular, half as long as broad at base, bluntly pointed. Postpetiole one-fourth broader than long, broadest at posterior fourth, constriction deep and wide. First segment of gaster slightly broader than long. Legs long and robust.

*Female*. Length 15-16 mm.

Colour and pilosity as on the worker. Sculpture much coarser.

Head broader than long, occipital border feebly concave. Mandibles shorter than head, broad, external borders straight in middle, inner border convex, furnished

with eight or nine large, broad, sharp, erect teeth and behind these three or four shorter and blunt directed forwards. Scapes not extending to the occipital border by almost their thickness. Thorax twice as long as broad; pronotum three and one-half times broader than long, dorsum feebly convex. Mesonotum one-sixth broader than long, parapsidal furrows feebly indicated. Scutellum one-third broader than long. Epinotum slightly broader than long, feebly convex transversely; in profile pronotum and mesonotum raised and evenly convex to base of mesonotum, pro-mesonotal suture feebly impressed. Scutellum raised slightly above mesonotum, convex. Epinotum convex from base to foot of declivity. Node one-seventh broader than long, broadest behind middle, anterior and posterior borders straight, sides convex. Postpetiole one and one-half times broader than long, strongly convex in all directions, constriction deep but not wide. First segment of gaster one-ninth broader than long. Legs robust. Wings hyaline.

*Male.* Unknown.

*Habitat.*—*Western Australia:* Armadale; Albany; Bunbury (J. Clark).

*South Australia:* Lucindale; Melrose (A. M. Lea); Kangaroo Island (A. Campbell).

*Victoria:* Mallee (J. E. Dixon).

Similar to *P. mandibularis* Smith, but separated by the smooth postpetiole.

### *Promyrmecia piliventris* Smith

Plate XVII, figs. 84-86

*Myrmecia piliventris* Smith, Cat. Hymn. Brit. Mus., vi, p. 146, 1858, ♂; Roger, Berl. Ent. Zeitschr., v, p. 36, 1860-61, ♂; Mayr, Verh. Zool. Bot. Ges. Wien, xii, p. 727, 1862, ♂; Jour. Mus. Godeffroy, xii, p. 93, 1876, ♂ ♀.

*Myrmecia (Pristomyrmecia) piliventris* Emery, Genera Insect., fasc. 118, p. 21, 1911, ♂ ♀.

*Myrmecia (Promyrmecia) piliventris* Wheeler, Colony-founding among Ants, p. 67, 1933, ♂.

*Worker.* Length 10-15.5 mm.

Black; mandibles, antennae and legs dark brown, tarsi lighter, more reddish.

Shining. Mandibles obliquely striate on apical half, more finely striate and punctate on basal half. Head longitudinally striate in front, more striate-rugose behind, the interstices very finely reticulate. Pronotum, mesonotum, anterior epinotum and node longitudinally striate-rugose, declivity transversely rugose, more coarsely than on head, interstices finely reticulate. Postpetiole and gaster microscopically punctate.

Hair yellowish, erect and abundant, particularly long on mandibles, clypeus and apical segments of gaster, short and suberect on legs. Pubescence greyish, very fine and close-lying on antennae and legs, yellow, long and forming a dense covering on gaster and posterior of postpetiole.

Head one-eighth broader than long, sides straight, occipital border feebly concave, angles broadly rounded. Mandibles slightly longer than head, parallel, straight or feebly convex on external border, inner border with five strong, sharp, erect teeth on apical fourth, behind these the teeth short and directed backwards, sawtooth-like. Scapes extend to occipital border; first and third segments of funiculus equal in length, second almost one-fourth longer. Thorax fully twice as long as broad. Pronotum almost twice as broad as long, sides and front strongly convex, dorsum flattened. Mesonotum as long as pronotum, one-fourth broader than long, dorsum feebly convex, meso-epinotal excision deep and wide. Epinotum one-fifth longer

than broad, almost flat transversely; in profile pronotum raised, strongly convex from apex to base. Mesonotum convex, highest in front and slightly higher than pronotum and epinotum, excision deep, sharp at bottom. Epinotum convex from base to foot of declivity. Node very slightly broader than long, broadest at middle, broader behind than in front; in profile slightly higher than long, anterior and posterior faces straight and vertical, both rounded into the feebly convex dorsum, ventral spine long, thin and sharp, as long as broad at base. Postpetiole one-third broader than long, strongly convex in all directions, constriction deep but not wide. First segment of gaster very slightly broader than long, broader behind than in front. Legs long and robust.

*Female.* Length 16-20 mm.

Colour as on the worker. Sculpture coarser. Pilosity more abundant and longer, the pubescence on postpetiole and gaster longer and more abundant, bright brass yellow.

Head one-ninth broader than long, sides and occipital border straight, angles rounded. Mandibles much shorter than head, external borders straight or feebly convex, inner border strongly convex, furnished with twelve long, sharp, erect teeth, broad at base. Scapes not extending to occipital border by fully their thickness. Node one-third broader than long, broadest just behind middle, anterior and posterior borders straight, sides convex. Postpetiole three-fifths broader than long, strongly convex. First segment of gaster broader than long, broadest in front of middle, broader behind than in front. Wings with a yellow tinge.

*Male.* Length 11.5 mm.

Colour, and pilosity, as in the worker, sculpture more punctate-reticulate.

Head as broad as long, strongly arched from behind, semi-circular. Mandibles triangular, inner border furnished with one large sharp tooth at basal angle. Scapes not extending to posterior border of eyes, twice as long as first segment of funiculus, second segment three times longer than scape. Thorax barely twice as broad as long. Pronotum very short, semi-circular. Mesonotum broader than long, parasidal furrows sharply impressed, mayrian furrow sharply impressed in front, feebly impressed behind. Scutellum slightly broader than long, dome-shaped. Epinotum one-third broader than long, strongly convex. Node as long as broad, slightly broader behind, almost circular. Postpetiole one-fifth broader than long, broadest behind middle, bluntly rounded in front, constriction deep and wide. First segment of gaster broader than long, sides strongly convex. Legs slender. Wings with a yellowish tinge.

*Habitat.*—*New South Wales:* Sydney; Thornleigh; Peak Hill (W. W. Froggatt).

*Queensland:* Stanthorpe; Fletcher (E. Sutton).

*Tasmania:* Burnie (N. Howes).

*Victoria:* Frankston (C. Barrett); Belgrave (J. Clark); Eltham (J. E. Dixon); Broadmeadows (F. P. Spry).

The specimens from Tasmania are identical in every detail with those from Sydney.

*Promyrmecia piliventris* Smith s.sp. *rectidens* Forel

Plate XVII, fig. 87

*Myrmecia piliventris* Smith var. *rectidens* Forel, Rev. Suisse Zool., xviii, p. 5, 1910.

*Myrmecia (Pristomyrmecia) piliventris* Smith var. *rectidens* Emery, Genera Insect., fasc. 118, p. 21, 1911.

*Myrmecia (Promyrmecia) piliventris* Smith s.sp. *rectidens* Wheeler, Colony-founding among Ants, p. 68, 1933.

*Worker.* Length 9.5 mm.

Mandibles, antennae and legs reddish-brown, head, thorax and node brownish-black, postpetiole and gaster brown.

Shining. Mandibles with a few coarse striae on apical third, almost smooth behind, a few shallow elongate punctures. Head finely striate longitudinally. Pronotum and mesonotum longitudinally striate, much coarser than on head. Epinotum coarsely rugose, longitudinal on anterior fourth, irregular behind, transverse on declivity. Node coarsely and irregularly rugose, postpetiole and gaster microscopically punctate.

Hair yellow, short and erect, sparse throughout, long and more numerous on clypeus, mandibles and apical segments of gaster, short and suberect on scapes and legs, longer at apex of femur. Pubescence not apparent except on postpetiole and gaster, where it forms a dense golden covering hiding the sculpture.

Head almost as long as broad, sides feebly convex, occipital border feebly concave, angles broadly rounded. Mandibles fully their width longer than head, straight and parallel, bent at basal fourth, inner border furnished with five large, sharp, erect teeth slightly inclined backward; behind these is a series of very small backward-directed denticles. Scapes extend to occipital border, first and third segments of funiculus equal in length, fully half as long as second. Thorax fully twice as long as broad. Pronotum almost twice as broad as long, dorsum flattened. Mesonotum as long as pronotum, one-fourth broader than long, meso-epinotal constriction deep and narrow. Epinotum one-fifth longer than broad, dorsum feebly convex; in profile mesonotum raised above level of pronotum and epinotum, excision deep and narrow; pronotum evenly convex from apex to base; mesonotum highest in front, evenly convex; epinotum evenly convex from base to foot of declivity. Node as long as broad, anterior and posterior faces straight, vertical, rounded into the feebly convex dorsum, ventral spine long and thin, not as long as wide at base. Postpetiole one and three-fourths times broader than long, strongly convex, constriction wide but not deep. First segment of gaster one-fifth broader than long. Legs slender.

Male and female unknown.

*Habitat.*—*New South Wales:* ? Kingstown (W. W. Froggatt); Uralla (W. W. Froggatt).

*Victoria:* Ararat (G. F. Hill).

Re-described from a co-type received some years ago from Mr. Froggatt. The locality label on the co-type states *King's Sound 142* in Froggatt's writing. This is undoubtedly an error as this form is found plentiful around Kingstown and Uralla in New South Wales. Forel gives the locality as Kingstown, Australia

*Promyrmecia piliventris* Smith var. *femorata* Santschi

Plate XVII, figs. 88-90

*Myrmecia (Pristomyrmecia) piliventris* Smith var. *femorata* Santschi, Bull. Soc. Vaud. Sc. Nat., lvi, p. 466, 1928, ♀.

*Myrmecia (Promyrmecia) fulvipes* Roger var. *femorata* Wheeler, Colony-founding among Ants, p. 70, 1933, ♀.

This form differs from *piliventris* only in the colour of the coxae and femora, red on some examples. Many specimens from the same nests cannot be separated

from the typical form, the colour and sculpture being identical. It can be regarded only as a slightly colour variety and the name retained to prevent future confusion. The female and male also are included in the above remarks as both are distinguished only by the red femora.

*Habitat*.—*Victoria*: Foreston (C. L. Barrett); Belgrave; Ferntree Gully (J. E. Dixon, J. Clark); Eltham (J. E. Dixon).

*Promyrmecia luteiforceps* Forel

Plate XVII, fig. 96

*Myrmecia* (*Pristomyrmecia*) *fulvipes* Roger r. *gilberti* Forel var. *luteiforceps* Forel, Arkiv. f. Zool., ix (16), p. 9, 1915, ♀.

*Myrmecia* (*Promyrmecia*) *gilberti* Forel var. *luteiforceps* Wheeler, Colony-founding among Ants, p. 74, 1933, ♀.

*Worker*. Length 12 mm.

Black; mandibles yellow, antennae and legs brown, tarsi reddish.

Apical half of mandibles obliquely striate, basal half smooth and shining. Head finely striate-rugose longitudinally in front, irregularly rugose behind, interstices densely punctate-reticulate. Pronotum and mesonotum longitudinally striate-rugose, more coarsely than on head, epinotum and node irregularly punctate-rugose, the declivity transversely rugose, interstices and bottom of punctures densely punctate-reticulate. Postpetiole and gaster densely and finely punctate.

Hair yellowish, short and erect, long and abundant on mandibles, clypeus and gaster, none on antennae, very short and suberect on legs. Pubescence yellowish, sparse except on gaster, where it forms a dense covering, some scattered pubescence on middle of posterior fourth of postpetiole.

Head slightly broader than long, sides feebly convex, occipital border straight or feebly concave, angles rounded. Mandibles longer than head, parallel, external border straight, inner border furnished with five large, sharp, erect teeth on apical third, on the basal two-thirds the teeth short, sharp and directed backwards. Scapes not extending to occipital border by their thickness; second segment of funiculus one-fifth longer than first. Thorax fully twice as long as broad. Pronotum one and one-half times broader than long, strongly convex; mesonotum one-third broader than long, oval, meso-epinotal excision deep. Epinotum one-fourth longer than broad, feebly convex on top; in profile, dorsum of the three segments forming a straight line, meso-epinotal excision deep and wide, pro-mesonotal suture feebly indicated, pronotum strongly convex in front, forming a straight surface with mesonotum behind, mesonotum dropping convex at excision; epinotum raised slightly convex in front, dorsum flattened, rounded into declivity. Node a fraction broader than long, almost circular; in profile as high as long, anterior face vertical, feebly convex rounded into dorsum, posterior face very short, broadly rounded into dorsum, ventral spine short and sharp, half as long as broad at base. Postpetiole barely one-third broader than long, almost semi-circular in front. First segment of gaster one-sixth broader than long, broader behind than in front. Legs slender.

Male and female unknown.

*Habitat*.—*North Queensland*: Herberton (E. Mjöberg).

Described and figured from a co-type. Forel described this as a variety of *gilberti*, stating that the yellow jaws are the main reason for separating them. The only features in common on both forms is the pubescence on postpetiole and gaster.

*PromyrmeCIA fulviculis* Forel

Plate XVII, fig. 97

*MyrmeCIA* (*PristomyrmeCIA*) *fulvipes* Roger r. *fulviculis* Forel, Bull. Soc. Vaud. Sc. Nat., xlix, p. 174, 1913, ♀.*MyrmeCIA* (*PromyrmeCIA*) *fulvipes* Roger s.sp. *fulviculis* Wheeler, Colony-founding among Ants, p. 70, 1933, ♀.*Worker*. Length 13-14.5 mm.

Head, thorax and node black, mandibles and antennae reddish-brown, postpetiole and anterior two-thirds of first segment of gaster brown, apical third of first segment and the following segments yellowish, legs, including coxae, reddish-yellow.

Mandibles coarsely and obliquely striate on apical third, finely and longitudinally striate behind. Head finely and longitudinally striate-rugose, irregularly punctate-rugose behind, striae widely spaced, the spaces densely reticulate. Thorax much more coarsely rugose, the rugae almost longitudinal on pronotum and mesonotum, irregularly on epinotum and node. Postpetiole and gaster microscopically reticulate.

Hair yellow, erect, long and fine throughout, coarser, shorter and suberect on antennae and legs. Pubescence whitish, very fine and close lying, very dense, yellow, long and adpressed on postpetiole and gaster, where it forms a dense golden covering hiding the sculpture.

Head very slightly broader than long, sides and occipital border straight, angles broadly rounded. Mandibles slightly longer than head, external border straight or feebly convex, inner border furnished on apical third with five large, sharp, erect teeth, from these to base the teeth widely spaced, short and directed backward. Scapes extend to occipital border; first and third segments of funiculus equal in length, second two and one-fourth times longer than first. Thorax fully twice as long as broad. Pronotum one-third broader than long, strongly convex, mesonotum one-fifth broader than long, oval, epinotum about one-third longer than broad; in profile mesonotum scarcely raised above level of pronotum and epinotum, excision deep, sharp at bottom, pronotum and mesonotum forming an even arch, mesonotum dropping abruptly behind. Epinotum feebly convex on dorsum, almost twice as long as declivity into which it is broadly rounded. Node one-sixth broader than long, broadest at middle, sides and posterior border strongly convex, anterior and posterior faces straight and vertical, rounded into the convex dorsum, ventral spine triangular, sharp, half as long as broad at base. Postpetiole one-third broader than long, strongly convex in all directions, constriction deep and wide. First segment of gaster slightly broader than long. Legs robust.

Male and female unknown.

*Habitat*.—*New South Wales*: Sydney (A. M. Lea); Como (E. H. Zeck); Lismore (C. F. Deuquet).

*Queensland*: Brisbane; Bribie Island (H. Hacker); Fletcher; Stanthorpe (E. Sutton).

The type of this species was collected at Sydney, not Tasmania, as stated in Forel's description. Co-types received some years ago from Froggatt had Lea's label attached in addition to one in Froggatt's handwriting with the name Tasmania and his number to Forel. Lea sent many specimens of New South Wales ants from Hobart to Froggatt for identification and apparently Froggatt did not notice Lea's label. This species differs too much from both *P. fulvipes* and *P. piliventris* to be attached to either.

*Promyrmecia fulvipes* Roger

Plate XVI, figs. 81-83

*Myrmecia fulvipes* Roger, Berl. Ent. Zeitschr., v, p. 36, 1861, ♀; Mayr, Verh. Zool. Bot. Ges. Wien, xii, p. 726, 1862, ♀; Jour. Mus. Godeffroy, xii, p. 93, 1876, ♀.

*Myrmecia (Pristomyrmecia) fulvipes* Emery, Genera Insect., fasc. 118, p. 21, 1911; Forel, Bull. Soc. Vaud. Sc. Nat., xlix, p. 173, 1913, ♀.

*Myrmecia (Promyrmecia) fulvipes* Wheeler, Colony-founding among Ants, p. 69, 1933, ♀.

*Worker.* Length 10-12 mm.

Black; mandibles and antennae brown, coxae and legs reddish-yellow, tarsi slightly darker.

Shining. Apical half of the mandibles obliquely striate-rugose, basal half almost smooth, with large, shallow, elongate punctures. Head longitudinally striate-rugose in front, more punctate-rugose behind, the interstices finely punctate-reticulate. Pronotum, mesonotum, anterior fourth of epinotum and node more coarsely striate-rugose, more or less longitudinally, remainder of epinotum irregularly rugose, declivity transversely striate-rugose. Postpetiole and gaster microscopically punctate.

Hair yellow, erect, rather short except on mandibles, clypeus and apical segments of gaster, much shorter and suberect on antennae and legs. Pubescence greyish-yellow on postpetiole, longer and more abundant on middle of posterior third; brass yellow on gaster, longer and more abundant, forming a dense covering.

Head one-tenth broader than long, sides and occipital border feebly convex, angles rounded. Mandibles one-tenth shorter than head, parallel, external border straight, inner border furnished with seven large, sharp, erect teeth on apical half, short and directed backward, sawtooth-like on basal half. Scapes just reach occipital border; first and second segments of funiculus of equal length, apical slightly longer. Thorax twice as long as broad. Pronotum twice as broad as long, convex in all directions. Mesonotum one-third broader than long, strongly convex in all directions; meso-epinotal constriction deep and narrow. Epinotum one-third longer than broad, feebly convex transversely; in profile mesonotum scarcely higher than pronotum and epinotum, meso-epinotal constriction deep but not wide, pronotum raised, strongly convex. Mesonotum flatly convex, highest behind, epinotum strongly convex from base to foot of declivity. Node one-fifth broader than long, broadest just behind middle, strongly convex in all directions; in profile higher than long, anterior face straight, sloping gently backward, rounded into the feebly convex dorsum, posterior face short, sloping slightly backward, rounded into dorsum, ventral spine long and sharp, as long as broad at base. Postpetiole one and one-half times broader than long, strongly convex, constriction behind deep and wide. First segment of gaster one-tenth broader than long, broader behind than in front. Legs long and stout.

*Female.* Length 15 mm.

Colour, sculpture and pilosity as in the worker.

Head fully one-sixth broader than long. Mandibles shorter than head, external border feebly concave at middle, inner border strongly convex, furnished with nine large, sharp, erect teeth on apical three-fourths, from the ninth to base the teeth smaller and broad. Node fully one-fourth broader than long, oval. Postpetiole one-third broader than long. First segment of gaster one-fourth broader than long. Legs robust. Wings hyaline, slightly yellowish.

*Male.* Length 10.5 mm.

Colour as in the worker. Sculpture similar but finer. Hair longer and more abundant throughout.

Head very slightly broader than long, sides and occipital border convex. Mandibles short, triangular, inner border with a sharp cutting edge, without teeth. Scapes extend slightly beyond middle of eyes; second segment of funiculus two and one-half times longer than scapes and eight times longer than first segment. Thorax fully twice as long as broad. Pronotum short, strongly convex. Mesonotum slightly broader than long, parapsidal and mayrian furrows impressed. Scutellum one-fifth broader than long, strongly convex in all directions. Epinotum almost twice as broad as long, convex transversely; in profile pronotum almost vertical, convex above. Mesonotum evenly convex from apex to base, highest at base, mayrian furrows distinct. Scutellum high, its base level with pronotum and epinotum, dome-shaped. Epinotum short, convex from base to foot of declivity. Node one-fifth broader than long, broader behind than in front, broadest at middle; in profile higher than long, anterior face straight and vertical, dorsum convex, rounded into short posterior face, ventral spine long, slender and sharp. Postpetiole one-third broader than long, constriction wide and deep. First segment of gaster one-fifth broader than long, broader behind than in front. Legs slender. Wings hyaline, slightly yellowish.

*Habitat.*—*South Australia:* Murray River (S. W. Fulton).

*Victoria:* Ferntree Gully; Millgrove; Beaconsfield; South Morang; Grampians; Gellibrand (J. Clark).

*Tasmania:* Hobart (A. M. Lea); Wynyard (F. A. Cudmore); Trevallyn (V. V. Hickman); St. Patrick's River (F. A. Cudmore).

*New South Wales:* Batlow (W. W. Froggatt); Barrington Tops (H. J. Carter); Uralla (W. W. Froggatt); Sydney (A. Musgrave).

The following two forms are not represented in our collection, but for convenience Wheeler's descriptions are given below.

*Myrmecia (Promyrmecia) fulvipes* Roger s.sp. *barbata* Wheeler, Colony-founding among Ants, p. 71, 1933, ♂ ♀.

*Worker.* Length 12-14.5 mm.

Head broader than in the preceding forms, especially behind, and therefore more rectangular. Mandibles somewhat shorter, stouter and distinctly curved, the subapical teeth smaller. Petiole and postpetiole as in *fulviculis*, but the former more sharply truncated anteriorly. Surface of head, thorax and petiole somewhat more shining, with more regular rugosity. Pilosity more abundant, conspicuously long on the gula. Pubescence dense, present on the postpetiole and gaster as in the typical *fulvipes*, but fine and dull, greenish-golden as in *M. piliventris*. Black; antennae and mandibles red; legs reddish-yellow as in *fulviculis*; sting black.

*Female* (deālated). Length 14.5 mm.

Very similar to the worker. Mandibles broader and somewhat shorter, with subapical teeth larger and occupying fully one-half of the inner border. Thorax more robust, with larger mesonotum and scutellum and shorter epinotum. Petiole and postpetiole broader. Gular hairs shorter; pubescence on abdomen as in the worker and fully as dense on the postpetiole as on the gaster.

Described from ten workers from Dorrigo, New South Wales (W. Heron), and a worker and female from Belgrade.

*Promyrmecia fulvipes* Roger s.sp. *coelatinoda* Wheeler*Myrmecia* (*Promyrmecia*) *fulvipes* Roger s.sp. *coelatinoda* Wheeler, Colony-founding among Ants, p. 72, 1933, ♀.*Worker*. Length about 13 mm.

Mandibles as in  *barbata*, but the subapical teeth worn away, the serrate basal denticles very minute and indistinct. Petiole as in  *barbata*, postpetiole one and one-half times as broad as long, semi-circular anteriorly, its posterior border somewhat emarginate in the middle. Gaster slender, the first segment nearly as long as broad. Sculpture as in  *barbata*, but much more of the posterior portion of the epinotum transversely and the petiolar node more coarsely rugose. Unlike all the preceding forms of  *fulvipes*, the postpetiole is sculptured, being sharply, longitudinally rugulose, with elongate foveolae between the rugules as in  *M. mandibularis rugosa*. Pilosity somewhat less abundant than in  *fulviculis*, the pubescence of the pelisse on the gaster of the same bright golden colour, but coarser, longer and less distinctly converging at the mid-dorsal line. On the postpetiole there is only a minute patch of golden pubescence at the emargination of the posterior border. Mandibles, antennae, legs and gaster red; head, thorax and petiole blackish-red.

Described from a single specimen from Belair, South Australia (J. W. Haacke). This subspecies is readily distinguished from all the other forms of  *fulvipes* by its colour and its sculptured and posteriorly emarginate postpetiole.

## EXPLANATION OF PLATES.

## PLATE XII

Dorsal and lateral view of body.

- Fig. 1. *Promyrmecia aberrans* Forel. Worker.  
 2.  *nobilis* sp. nov. Worker.  
 3.  *nobilis* sp. nov. Female.  
 4.  *nobilis* sp. nov. Male.  
 5.  *froggatti* Forel. Worker.  
 6.  *maura* Wheeler. Worker.  
 7.  *maura* Wheeler. Female.  
 8.  *eupoecila* sp. nov. Female.  
 9.  *greavesi* sp. nov. Female.  
 10.  *picta* Smith. Worker.  
 11.  *picta* Smith. Female.  
 12.  *picta* Smith. Female (ergatoid).  
 13.  *picta* Smith. Male.  
 14.  *fucosa* Clark. Female.  
 15.  *fucosa* Clark. Worker.  
 16.  *fucosa* Clark. Male.

## PLATE XIII

17. *Promyrmecia michaelsoni* Forel. Worker.  
 18.  *michaelsoni* Forel. Female.  
 19.  *queenslandica* Forel. Worker.  
 20.  *ruginodis* sp. nov. Worker.  
 21.  *ruginodis* sp. nov. Female.  
 22.  *ruginodis* sp. nov. Male.  
 23.  *chrysogaster* sp. nov. Worker.

