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Art. XX.—*Australian and Tasmanian Coleoptera Inhabiting or Resorting to the Nests of Ants, Bees, and Termites.*

By ARTHUR M. LEA.

(With Plates XXV.-XXVII.).

[Read 14th July, 1910].

For about twenty years, whenever the opportunity presented itself, I have examined the nests of ants, bees, and termites, in which, as is well known, many remarkable forms of insect life are to be found. Many species have been recorded from such nests by past and present workers at Australian beetles, but no paper dealing with them as a whole has hitherto been published. In 1904, however, I had the privilege of offering to this Society a short paper dealing with some ants'-nest beetles, including two very curious new genera, that were taken in the Mallee by Mr. J. C. Goudie. Since then Mr. Goudie has taken other curious forms, and Messrs. H. W. Davey of Geelong, H. W. Cox and Dr. E. W. Ferguson of Sydney, have sent many species from ants' nests, and at various times a few others were received from Messrs. C. French of Melbourne, George Masters, H. J. Carter, W. W. Froggatt and Taylor Bros. of Sydney, H. H. D. Griffith of Adelaide, H. Elgner of Cape York, H. Hacker of Cairns, Mrs. F. H. Hobler of Toowoomba, and Mr. Aug. Simson of Launceston. A few also were received from the Australian Museum that were taken by the late Rev. R. L. King. As the total number of species now known to me is very considerable, it was thought advisable to prepare a paper dealing with them, but including in it all the species hitherto recorded as having been taken in the nests of ants, bees and termites in Australia. It is hoped also that papers dealing with species of other orders of insects found in ants' nests will be published shortly, as materials for such have been accumulating for some time, and several specialists have been requested to deal with them.

As instancing the abundance that insects sometimes occur with ants, the following extracts from Mr. Davey's letters should be of interest:—

"It came on to heavy rain as soon as I arrived at Ocean Grove, but I made for some good, old-established nests of Irids (*Iridomyrmex nitidus*) among cranberries, and shook a few handfuls, ants and all, into a small bag, and went through this. The debris yielded 16 *Staphylinidae* (*Dabra termitophila* var. *victoriensis*, *D. myrmecophila*, a minute *Homalota* and a minute *Hymenopteron*[1]), 60 *Nepharis* (*N. costata*), 16 *Pselaphidae* (*Articerus cylindricornis* and *Euplectops gibbosus*), 2 *Anthicidae* (*Anthicus australis*), 2 Curculios (*Achopera lachrymosa*, and a minute species of *Erirhinides*[2]), 1 larva (of ?), 1 *Oligotoma* (also in the larval form), and Acarids. The cranberry was badly infested with scale insects, and the ants roof these over, and I always thought would prove good collecting. One great advantage is no waste of time—just bag them and go through them at night. The disadvantage is the swarms of ants you have to bag." Later Mr. Davey wrote:—"The name of the cranberry is *Styphelia humifusa*, and I have seen plenty of *Nepharis* on the stems, when the plant is roofed in by Irids, but they are difficult to take there, but by shaking into a bag I certainly got more than I expected, and hope to try the bag again before long."

Some of the species here recorded are certainly not ants'-nest beetles in the ordinary sense, but having been taken in nests they are included, as with long records such species may be frequently recorded as being found there, and their presence not at all accidental.[3] At the same time it appears probable that certain specimens were really dragged into ants' nests

1 The minute size and narrow body of this insect no doubt deceived Mr. Davey on his preliminary examination, and in fact until carefully examined it is like many of the smaller *Staphylinidae*. Its wings, too small for flight, are folded much as in the species of *Thrips*.

2 Neither of these is a true ants'-nest beetle; the *Achopera* may be taken in abundance under bark and on rotting wood in all the Australian States; it was probably swept into the bag from the cranberry foliage, as also the other minute weevil. The latter, in general appearance, is like a very small *Bagous*, but with much shorter and wider tarsi, although not quite as in *Niphobolus deceptor*.

3 In this connection see H. St. J. Donisthorpe in Trans. Ent. Soc. London, 1909, p. 397. He also refers to it as to a well-known fact that many ants'-nest beetles are to be found in the nests of birds, hedgehogs, moles, etc.

against their will, and on the nest being disturbed by the covering stone being removed, such victims temporarily regained their liberty.

In addition to the species now recorded a very small flavous beetle was seen in fair numbers in a nest of white ants on the Richmond River, but all were extremely active, and managed to escape with one exception, which was rather badly crushed. Its antennae are clavate, and it has a conspicuous curved stria on each side of the prothorax. It is in anything but good condition for examination, but such as it is Mr. Blackburn suggests the possibility of its belonging to the *Erotyllidae*. Mr. Elgner also sent some large larvae as from white ants' nests. One is almost three inches in length, and evidently belongs to the *Carabidae* (probably *Feronides*). A second species (two of it sent) is about an inch and a-half in length, with a very large body and minute head; it is evidently Coleopterous, but I have no idea as to its family. A third larva evidently belongs to the *Erotyllidae*, but is too large to belong to the species here described as *Episcaphula termitophila*.

As some of the species are very singular I was unable to place them in their families or genera at sight, and being usually represented by single specimens, that it was inadvisable to destroy in examining their mouth parts, I sent some to the Rev. T. Blackburn for his opinion, and one to Mr. George Lewis, and under such species their opinions are herein given.

This paper is purely systematic; as although the relations existing between the ants and their guests, often very unwelcome ones, are very interesting; it was not now considered advisable to deal with such relations, as they would have unduly lengthened an already long paper, and are best considered separately.

For most of the names of the ants, bees and termites I have to thank Mr. W. W. Froggatt. Many of the beetles, however, were unfortunately simply noted as being from nests, without specimens of the ants, etc., being saved for reference. The known hosts are as follows:—

ANTS.

Amblyopone australis, Er.
Camponotus aeneopilosus, Mayr.

Camponotus dorycus, Smith.
Camponotus nigriceps, Mayr.
Camponotus novae-hollandiae, Mayr.
Colobopsis gasseri, Fab.
Dolichoderes scabaridus, Roger.
Ectatomma metallicum, Smith.[1]
Ectatomma reticulatum, Forel.
Ectatomma socialis, Macl.[2]
Iridomyrmex glaber, Forel.
Iridomyrmex gracilis, Lowne.
Iridomyrmex nitidus, Mayr.
Iridomyrmex rufoniger, Lowne.
Leptomyrmex detectus, Smith.
Lobopelta excisa, Mayr.
Myrmecia forficata, Fab.
Myrmecia pyriformis, Fab.
Pheidole bos, Forel.
Pheidole concentrica, Fab.
Pheidole conflicta, Forel.
Pheidole tasmaniensis, Mayr.
Ponera lutea, Mayr.
Podomyrma gratiosa, Smith.

BEES.

Trigona carbonaria, Smith.
Apis mellifica, Linne.

WHITE ANTS.

Coptotermes lacteus, Frgt.
Coptotermes raffrayi, Wasm.

The beetles are as follows:—

CARABIDAE.

On commencing the present paper Mr. T. G. Sloane was asked as to whether he knew any *Carabidae* that could really be regarded as ants'-nest beetles. In reply he wrote:—"I have

1 This species has numerous varieties.
2 Probably *Ponera lutea*.

always thought that the species of *Silphomorpha* are, in the imago state, predatory on the little black ants that frequent trees; Dodd holds the same view, and sent me a species of *Silphomorpha* with an ant on a card, with the note that it was a devourer of these ants. I have seen *S. suturalis* beset by ants, and killing them, but the ants were too plentiful and lively for it to have any chance of making a dinner. The *Pseudomorphini* are the only Carabs that I know of as being ant-eaters."

Adelotopus celeripes, n.sp. (Fig. 1.)

Black, highly polished; appendages bright red, tarsi somewhat darker. Margins of elytra with pale and almost regular setae.

Head about twice as wide as long, with an extremely faint median line; punctures absent. *Prothorax* about three times as wide as the length down middle, apex emarginate to receive the head to half-way between the eyes; margins moderately wide; median line short and very indistinct; punctures very minute and vague. *Elytra* with a strong puncture or small fovea on each side of base close to suture; with moderately dense and very minute punctures, and with some slightly larger ones forming feeble rows; margins narrow and very finely serrated. *Abdomen* with rather small punctures transversely arranged. Length 5, width $2\frac{3}{4}$ mm.

Hab.—W. Australia: Swan River (A. M. Lea).

Readily distinguished from all other species known to me by its great width (even more than that of *brevipennis*), high polish (as in *politus*), and uniformly coloured elytra (not even diluted with red at the tip), on which are two conspicuous sub-basal punctures. Several other species have such punctures, but are narrower or have the elytra not entirely deep black. In most of the black species of *Adelotopus* the sterna and abdomen are red, but in this species they are as dark as the upper surface. The seriate punctures on the elytra are visible only from certain directions.

One of the two specimens before me was taken from the nest of a stingless "sugar" ant, probably of the genus *Camponotus;*

it was extremely active, and I had to strike it quickly (and in so doing broke one of the elytra) to capture it.[1] Of the other specimen I have no record as to how it was taken.

Adelotopus variolosus, n.sp.

Black, highly polished; pygidium, metasternum, abdomen and appendages reddish; glabrous.

Head regularly convex, more than twice as wide as long; without punctures or median line. *Prothorax* about twice as wide as long, apex emarginate to receive head up to about one-third the length of eyes; margins moderately wide; punctures very indistinct. *Elytra* with very minute punctures, and with rows of very minute but slightly larger ones; margins narrow and not at all serrated. *Abdomen* with rather small and fairly numerous punctures. Length $7\frac{1}{2}$, width $3\frac{1}{2}$ mm.

Hab.—N.S. Wales: Sydney (A. M. Lea).

The proportions are almost as in the common *dytiscoides*, but it differs from that species in being smaller, more polished, and with the fine sculpture very different. Scattered over the upper surface are numerous small, small-pox-like impressions, or the marks made in drying mud by rain, and they are shallower and larger on the prothorax than on the elytra, but although distinct enough on close scrutiny, they are not very conspicuous. I have not seen similar impressions on any other species. The polish is almost as high as in *politus*, but that species is smaller and narrower, with the fine sculpture different. *Brevipennis* has the proportions much the same, but is smaller, and with the fine sculpture different. From certain directions the extreme tip of the elytra appears to be diluted with red, but from others the elytra appear entirely black.

The type was obtained under a stone from a nest of ants; several other specimens probably belonging to the species were seen associated with ants near Sydney, under stones, but they managed to escape capture by their extreme agility. The type was sent shortly after its capture to Mr. Sloane, and returned

1 Judged by their outlines and short legs one would think that the species of *Silphomorpha* and *Adelotopus* would be amongst the slowest of all the *Carabidae*, but as a matter of fact some of them are amongst the quickest moving beetles known.

as unknown to him. The whole of its appendages are damaged, but the parts that are left are of the same shade of red as the abdomen.

Adelotopus fasciatus, Cast.

Fairly common in nests of a small blackish-brown ant that occurs under bark of several species of *Eucalyptus* and *Banksia* about Sydney.

Philophlaeus, sp.

A single specimen of this genus was taken from under an old log in a nest of *Colobopsis gasseri*, and its presence there some distance from the nearest living tree could hardly have been accidental. It is closely allied to *quadripennis*, *obtusus* and *truncatus*, but with the hind angles of the prothorax more strongly rounded off. As the markings of the species of this genus are often very variable, and I have seen but the one specimen, it is not now dealt with in full.

Thenarotes discoidalis, Blackb.

Mr. Davey sent a specimen of this species as having been taken in the nest of a small black ant in a log. It was probably there by accident, however.

Tachys olliffi, Sloane.

Mr. Davey sent a single specimen as having been taken from an ants' nest at Portland (Victoria), and wrote: "This is the same beetle that I have seen five or six of in one nest in a rotten log on the Gellibrand River, but I was not too keen on them at the time, and they soon got out of sight, but there is little doubt, I think, that it associates with ants."

STAPHYLINIDAE.

Falagria fauveli, Sol.

A single specimen of this species was taken on Mount Wellington, Tasmania, right in the centre of a large nest of *Colobopsis gasseri*. It moved freely amongst the ants, who did not

interfere with it in any way. The species is common under logs which have most of their under surface free from the ground; and, although often seen near ants' nests, I cannot remember seeing more than this one specimen actually in a nest.

Myrmedonia clavigera, Fvl.

One specimen taken in a nest of a small red ant.

Polylobus semiopacus, n.sp.

Head, elytra and metasternum piceous-brown, prothorax somewhat paler, abdomen testaceous, towards apex somewhat darker; legs and palpi flavous; antennae smoky brown, but basal joints somewhat paler. Head, prothorax and elytra opaque, abdomen shining.

Head slightly transverse, base rounded. Eyes small. Antennae slightly passing base of prothorax, slightly thickened towards apex, most of the joints transverse. *Prothorax* lightly transverse, front angles obtusely rounded, hind angles almost rectangular, sides almost parallel, a wide shallow depression on each side; with dense, minute punctures. *Elytra* not much wider than prothorax, sides very feebly dilated posteriorly; with dense, small punctures. *Abdomen* about half total length, parallel-sided, margins strongly raised, especially towards base; punctures indistinct. Length $1\frac{1}{2}$, to apex of elytra $\frac{3}{4}$ mm.

Hab.—Tasmania: Hobart, Huon River, Launceston. In nests of *Ectatomma metallicum* (A. M. Lea).

The elytra are usually diluted with testaceous towards the base; the apical half of the abdomen is somewhat darker than the basal half, but there is no sharply defined meeting of the shades of colour. The prothorax, although paler than the head, is never so pale as the base of the abdomen.

Readily distinguished from all the following species by the opaque head, prothorax and elytra, with the prothorax shallowly bifoveate, although from some directions the impressions are indistinct.

On this and the five following species the clothing is much alike, and consists of dense fine pubescence on the lower surface of abdomen, rather sparser and longer on its upper surface, very

fine on elytra, and with the surface elsewhere glabrous or apparently so. The first six are from nests of the "green-head" stinging ant, and in size and colour are more or less alike.

The following table, in which, however, three species from the nests of other species of ants are included, may be of use in distinguishing them.

Upper surface entirely black - - - - - - *colobopsis*
Upper surface not entirely black.
  Elytra entirely pale - - - - - - *pallidominor*
  Elytra partly or entirely dark.
    Prothorax decidedly opaque - - - - *semiopacus*
    Prothorax more or less shining.
      Sides of prothorax gently rounded towards base.
        Prothorax of uniform colour - - *ectatommae*
        Prothorax paler at sides of base than on disc - - - *intrepidus*
      Sides of prothorax oblique towards base.
        Head opaque - - - - *coxi*
        Head shining.
          Head pale - - - - *infuscaticornis*
          Head dark.
            Abdomen entirely pale *daveyi*
            Abdomen partly dark - *tasmaniensis*

Polylobus coxi, n.sp. (Fig. 28).

Of a dingy piceous-brown, head almost black; prothorax of a dingy red; legs somewhat flavous. Head opaque, prothorax and elytra feebly shining.

Head as long as wide, hind angles rather strongly rounded. Eyes small and fairly prominent. Antennae not passing base of prothorax, moderately thickened towards apex, most of the joints strongly transverse. *Prothorax* feebly transverse, front angles rather strongly rounded, sides feebly but distinctly decreasing in width, with straight outlines to base, hind angles rectangular, with a small feeble impression in middle of base; with dense minute punctures. *Elytra* flat, not much wider than prothorax, and visible portion along middle very little longer, sides very feebly increasing in width posteriorly; with

dense, minute punctures. *Abdomen* almost parallel-sided; punctures indistinct. Length $1\frac{1}{2}$, to apex of elytra $\frac{3}{4}$ mm.

Hab.—N.S. Wales: Sydney. In nests of *Ectatomma metallicum* (H. W. Cox).

The elytra and abdomen are almost of the same shade of colour, but the abdomen is more shining, from some directions, however, its apex appears to be somewhat paler. The palpi are somewhat darker than the legs, and somewhat paler than the base of antennae; the rest of the antennae, however, is much darker. The sides of the prothorax are very thin and appear to be separated from the disc (which in consequence appears fairly convex) by a shallow longitudinal impression, which, however, is nowhere well defined or foveate in character.

Polylobus tasmaniensis, n.sp.

Head, elytra and metasternum blackish brown, prothorax and abdomen of a dingy reddish testaceous, the median segments of the latter more or less stained with piceous; antennae piceous brown, basal joints slightly paler; legs and palpi somewhat obscurely flavous.

Head and antennae of much the same shape as in *semiopacus; prothorax, elytra* and *abdomen* also with similar outlines. *Prothorax* very feebly but evenly convex throughout, punctures indistinct. *Elytra* with dense, minute punctures. Length $1\frac{3}{4}$, to apex of elytra 1 mm.

Hab.—Tasmania: Hobart, Launceston, Huon River, in nests of *Ectatomma metallicum* (A. M. Lea).

The general outlines are almost exactly as in *semiopacus*, but the prothorax is without fovea, and is shining, as are also the head and elytra. It appears to be the commonest of all in Tasmania.

Some specimens have the elytra entirely dark, but in others they are slightly diluted with red towards the base. The dark median portion of the abdomen is distinct enough, but not sharply defined, and is usually more noticeable on the upper surface than the lower.

Five specimens from Hobart appear to belong to the species, but differ in having the head but little, or not at all, darker

than the prothorax, and the abdomen nowhere piceous. In colour, except that the elytra are darker, they agree with *infuscaticornis*, but have the head somewhat larger and the elytra wider.

Polylobus daveyi, n.sp.

Head, elytra and metasternum more or less piceous-brown, prothorax of a dull red, abdomen reddish testaceous; legs, palpi, and base of antennae somewhat obscurely flavous.

Head rather small and feebly transverse, hind angles strongly rounded. Eyes small and inconspicuous, antennae just passing base of prothorax, lightly incrassated towards apex, most of the joints distinctly transverse. *Prothorax* lightly transverse, front angles strongly rounded, sides then slightly oblique, basal angles rectangular; punctures very indistinct. *Elytra* more convex than usual, sides feebly rounded; with very feeble punctures. *Abdomen* rather narrower than usual, parallel sided throughout; margins rather strongly and evenly raised. Length 2 (vix), to apex of elytra 1 mm.

Hab.—Victoria: Forrest, in nests of *Ectatomma metallicum* (H. W. Davey); N.S. Wales: Sydney, in nests of same species of ant (A. M. Lea).

Rather more shining than *tasmaniensis*, obliquity of sides of prothorax more pronounced, and abdomen entirely pale; elytra uniformly darker than prothorax, although not very dark. The outlines of the prothorax are almost exactly as in *Coxi*, but the sides do not appear separated from the disc by a shallow longitudinal impression; in consequence the convexity is almost even throughout.

Two specimens from Tasmania (Launceston) differ in having the elytra diluted with red towards the base.

Polylobus infuscaticornis, n.sp.

Of a rather pale reddish testaceous; elytra entirely or towards apex, and metasternum slightly infuscated, antennae infuscate except basal joints; legs and palpi somewhat flavous.

Head rather small and feebly transverse, base rather strongly rounded. Eyes small but fairly prominent. Antennae compara-

tively thin, just passing base of prothorax, most of the joints rather lightly transverse. *Prothorax* and *elytra* with outlines and punctures as in preceding species. *Abdomen* feebly diminishing in width posteriorly. Length 2 (vix), to apex of elytra 4-5 mm.

Hab.—Victoria: Ararat, in nests of *Ectatomma metallicum* (H. W. Davey); N.S. Wales: Forest Reefs, in nests of same species of ant (A. M. Lea).

In build close to preceding species, but head smaller and entirely pale, and elytra paler. The pale head will readily distinguish from all the other species here described. The elytra, even in the darkest specimens, are not very dark.

Polylobus ectatommae, n.sp. (Fig. 29.)

Reddish testaceous, abdomen somewhat paler than prothorax, head more or less infuscated, elytra more or less piceous brown, but at base but little, or not at all, paler than prothorax, legs and palpi paler than abdomen, apical half or two-thirds of antennae infuscated. Head, prothorax and elytra feebly shining.

Head rather longer than wide, base rather strongly rounded. Eyes small and inconspicuous. Antennae rather thin, distinctly passing base of the prothorax, but few of the joints decidedly transverse. *Prothorax* lightly transverse, front angles moderately, the hind angles feebly rounded, sides very feebly rounded; base with three small and very feeble impressions; with dense minute punctures. *Elytra* very little longer and scarcely wider than prothorax, basal and apical angles rounded, sides elsewhere parallel, with dense minute punctures. *Abdomen* parallel, not much narrower than elytra; punctures feeble. Length 1 4-5, to apex of elytra .4-5 mm.

Hab.—Tasmania: Launceston, in nests of *Ectatomma metallicum* (A. M. Lea).

Several specimens have the head no darker than the prothorax, and two have the middle of the abdomen very feebly infuscated.

More parallel-sided and rather more depressed than any of the preceding species, and with the prothorax evenly rounded on

the sides, and scarcely oblique to the base, which is of equal width with the apex. In colour it is very close to the preceding species.

Polylobus colobopsis, n.sp.

Black, shining, legs of a pale dingy brown. With very short, indistinct pubescence.

Head about as long as wide, behind eyes almost parallel sided. Antennae extending to middle coxae, first joint about as long as three following combined, second longer than wide, third very small, fourth to tenth transverse and feebly increasing in width, eleventh ovate, slightly longer than ninth and tenth combined. *Prothorax* moderately transverse, sides and angles gently rounded, base and apex of even width; punctures indistinct. *Elytra* slightly wider than prothorax and about once and one-fourth as long, sides almost parallel; with small, dense punctures. *Abdomen* parallel-sided almost to apex; punctures indistinct. Length $1\frac{1}{4}$, to apex of elytra .2-3 mm.

Hab.—Tasmania: Mount Wellington, in a nest of *Colobopsis gasseri* (A. M. Lea).

The minute size and deep black colour readily distinguish this from all other species known to me. The disc of the prothorax on the type is slightly depressed, but this may be due to accident, as the depression is not quite median.

Polylobus intrepidus, n.sp.

Of a rather dingy brownish flavous, some parts darker. With short, pale and moderately dense pubescence.

Head feebly transverse, sides gently rounded; antennae slightly passing middle coxae, first joint moderately long, second slightly longer than wide, third and fourth small, fifth to tenth transverse and of almost even width, eleventh elongate-ovate, the length of three preceding combined. *Prothorax* moderately transverse, sides and base gently rounded; punctures indistinct. *Elytra* very little wider than prothorax, and along middle no longer; almost parallel-sided; with dense and very small punctures. *Abdomen* parallel sided almost to apex; with dense, minute punctures. Length $1\frac{1}{2}$, to apex of elytra $\frac{3}{4}$ mm.

Hab.—Tasmania: Huon River (A. M. Lea).

The evenly rounded base of prothorax and bi-coloured elytra readily distinguish from the species associated with *Ectatomma metallicum*. In many respects close to the description of *tasmanicus*, but the colours dingy, abdomen with less of the segments dark, elytra not subtriangularly marked about the suture, and not "considerably longer than the prothorax," punctures of the latter not moderately strong, etc.

The head, upper surface of fourth abdominal segment, hind angles of elytra to a large extent, and the suture, are blackish brown, or at least much darker than the other parts; on the elytra the dark parts are not sharply limited, but extend almost to the shoulders and suture. The second to fourth abdominal segments on the under surface are moderately infuscated; the hind angles of the prothorax are slightly diluted in colour; the legs are uniformly of an almost clear flavous; the antennae are about the same at the base, but the apical joints are feebly infuscated. From some directions the prothorax appears to have a large shallow depression on each side at the base, but this appearance is due solely to colour. The abdomen is curiously distorted at the apex in the two specimens before me, but as this may be due to violent protrusion of the genital organs, it is perhaps best not formally described as of specific importance.

On turning over the stone covering these beetles the ground was seen to be swarming with the small black *Colobopsis gasseri* and a "jumper," *Myrmecia*. Almost as soon as it was turned a series of battles was waged between the two species of ants, but amongst them the beetles moved with unconcern. I would have liked to have examined the nests at length, but the jumpers were getting rather too familiar.

Polylobus pallidominor, n.sp.

Of a rather dingy flavous; basal half of head and third and fourth abdominal segments stained with brown. With moderately dense, short, pale pubescence.

Head distinctly transverse, sides moderately rounded. Antennae short, not extending to base of prothorax, most of the joints transverse, eleventh briefly ovate, slightly longer than

ninth and tenth combined. *Prothorax* rather strongly transverse, sides rather strongly rounded, base feebly rounded and slightly wider than apex; with dense minute punctures. *Elytra* scarcely wider than prothorax, and along middle a trifle shorter, sides parallel; punctures very small and dense. *Abdomen* parallel sided except at tip; with dense minute punctures. Length 1¼, to apex of elytra 2-3 mm.

Hab.—N.S. Wales: Sydney, in a nest of *Iridomyrmex rufoniger* (H. W. Cox).

A pale minute species.

Calodera cuneifera, n.sp.

Black, appendages piceous-brown. With rather dense, short pubescence, sparser and slightly longer on abdomen than elsewhere; sides, except of head, with sparse and moderately long setae, on abdomen at apex of segments as well as on sides.

Head lightly transverse, sides rather strongly rounded; with dense minute punctures. Antennae passing middle coxae, first joint as long as second and third combined, second very little longer than third, fourth to tenth transverse, the fourth and fifth slightly narrower than the others, which are of even width, eleventh almost as long as four preceding combined. *Prothorax* almost twice as wide as long, sides and base moderately rounded, the latter not much but distinctly wider than apex; punctures dense and very minute. *Elytra* at base no wider than prothorax and very little wider at apex, along middle no longer; punctures dense and very minute. *Abdomen* long, the five basal segments parallel-sided, thence tapering to apex; punctures indistinct except posteriorly. Length 3, to apex of elytra 1¼ mm.

Hab.—Victoria: Ararat, from a nest of *Ectatomma metallicum* (H. W. Davey).

Differs from *atypha* in being considerably narrower and less polished, antennae not conspicuously paler at base than at apex, and pubescence of prothorax and elytra denser, finer and more depressed.

The apical joint of antennae from one direction appears to be parallel-sided, with the apex gently rounded; from another direction it is seen to diminish in width from the base to the

apex; so as to be wedge-shaped, as in some of the species of *Dabra;* the eighth, ninth and tenth joints from some directions appear to be quite regularly transversely oblong.

Calodera punctiventris, n.sp.

Bright reddish castaneous, elytra and parts of fifth and sixth abdominal segments darker, appendages flavous or reddish flavous. With moderately short and fairly dense pubescence, longer and sparser on abdomen than elsewhere; sides, except of head, with sparse and moderately long setae.

Head rather small, very little wider than long, sides evenly rounded; punctures indistinct. Eyes prominent. Antennae comparatively thin, scarcely passing middle coxae, first joint as long as second and third combined, second not much longer but distinctly wider at apex than third, fourth shorter than third, but not transverse, fifth to tenth transverse, and gradually increasing in width, eleventh rather briefly ovate, about the length of ninth and tenth combined. *Prothorax* not much wider than long, scarcely the width of head across eyes, sides and base very feebly rounded, the latter about the width of apex, which is truncate; punctures dense and minute. *Elytra* very distinctly wider than prothorax, but along middle no longer, shoulders rounded, sides parallel; punctures rather more distinct than on prothorax. *Abdomen* long, parallel-sided to about the middle, thence gradually tapering to apex; each segment with dense and rather coarse punctures at the base, becoming smaller or disappearing posteriorly. Length 3, to apex of elytra 1 mm.

Hab.—Victoria: Ararat, in a nest of *Ectatomma metallicum* (H. W. Davey).

The head is a trifle darker than the prothorax, the elytra are less noticeably stained with brown about the sides and base than elsewhere, but at a glance appear of an almost uniform shade of colour. The fifth abdominal segment, except its margins and tip, and the basal half of the sixth, except its margins, are almost black.

Calodera laticollis, n.sp.

Pale reddish castaneous, disc of elytra slightly infuscated, head almost black, except muzzle; abdomen with dark parts as

in preceding species; appendages flavous, but antennae slightly infuscated, except towards base. Clothing as in preceding species.

Head distinctly transverse, sides behind eyes (which are not specially prominent) very feebly rounded; punctures small and indistinct. Antennae as in preceding species, except that the fourth joint is transverse. *Prothorax* almost twice as wide as the length down middle, sides and base rather strongly rounded, the latter distinctly wider than apex; punctures very minute, but with a few larger (but still small) ones forming a transverse series near base. *Elytra* slightly wider than prothorax, and scarcely longer along middle; sides feebly dilated to apex; with dense and small, but fairly distinct, punctures. *Abdomen* parallel-sided to beyond the middle, and then feebly tapering to apex; with rather dense punctures, on the four basal segments coarser at base than elsewhere. Length $2\frac{1}{2}$, to apex of elytra 1 mm.

Hab.—Tasmania: Bagdad, in a nest of *Ectatomma metallicum* (A. M. Lea).

In general appearance very close to the preceding species, but eyes less prominent, prothorax less convex, and wider than head, instead of narrower, and antennae somewhat infuscated towards apex; the stronger abdominal punctures are also somewhat smaller and are not present on all the segments.

Homalota australasiae, n.sp.

Of a pale dingy brown, head, elytra and fourth and base of fifth abdominal segments darker, legs almost flavous, antennae about the same at base but slightly infuscated towards apex. With moderately dense, but extremely short pubescence.

Head moderately transverse, sides evenly rounded, antennae just passing base of prothorax, first joint moderately long, second slightly longer than wide, third small, fourth to tenth transverse and of almost even width, eleventh ovate, slightly longer than ninth and tenth combined. *Prothorax* about once and one-half as wide as long, sides and base gently rounded, the latter scarcely perceptibly wider than apex; punctures dense and minute. *Elytra* slightly wider than prothorax, and about

once and one-half as long, sides parallel, punctures dense and minute. *Abdomen* long and parallel sided almost to apex; punctures minute and indistinct. Length 1½, to apex of elytra ¾ mm.

Hab.—Victoria: Forrest (H. W. Davey), Emerald; Tasmania: Mount Wellington, Hobart, Huon River, Swansea; N.S. Wales: Sydney, Forest Reefs, Dalmorton; W. Australia: Swan River, Karridale, Albany, Bridgetown, Pinjarrah (A. M. Lea).

In general appearance like *atyphella* but somewhat paler and much smaller. On some specimens the elytra are but little, or not at all, darker than the prothorax; the dark parts of the abdomen are sometimes extended to the second and sixth segments; the head is occasionally black, but as a rule is of a rather dark brown.

Mr. Davey sent two specimens as from the nest of a small black ant in a log, on another occasion he sent twenty-five as from close to a nest of the same species of ant. Most of the specimens taken by myself were from flood debris.

Dabra nitida, n.sp. (Fig. 2.)

Shining. Reddish castaneous; elytra and several abdominal segments slightly stained with piceous. Very finely pubescent, a few setae at sides of abdomen; hind angles of prothorax and elytra each tipped with a seta.

Head slightly swollen behind the eyes, and somewhat flattened between them. Antennae longer and thinner than in other species of the genus, and passing base of prothorax, first joint slightly longer than second and third combined, eleventh as long as ninth and tenth combined, some of the intermediate joints wider than long, but none strongly transverse. *Prothorax* about twice as wide as long, very flat, sides not channelled, but a vague depression on each side in front, apex feebly incurved to middle, front angles rounded; base distinctly wider than apex, and bisinuate, hind angles acute; with minute punctures, more noticeable on sides than elsewhere. *Elytra* about as long and as wide as prothorax, sides not channelled, hind angles acute; with dense, minute punctures. Upper surface of *abdomen* with a row of small setiferous punctures at the apex

of each segment. *Legs* rather long and thin. Length 3½, to apex of elytra 1 2-3 mm.

Hab.—Victoria: Sea Lake and Birchip (J. C. Goudie), Geelong (H. W. Davey). In nests of *Iridomyrmex nitidus.*

All the other known species of the genus have several joints of the antennae strongly transverse. The prothorax nonsetose at the sides associates this species with *termitophila,* from which it is readily distinguished by its highly polished and considerably flatter prothorax, with the elytra not channelled at the sides and the antennae considerably longer.

Dabra termitophila, Lea.

There is a specimen from Hobart (the only Tasmanian example before me) which I cannot distinguish from the types, but it differs in being somewhat smaller (2¼ mm.) and slightly narrower, with the antennae rather more inflated in the middle. It may represent a variety, but it does not appear desirable to name it as a variety without seeing additional specimens.

The original specimens were from a nest of *Coptotermes raffrayi.*

Dabra termitophila, Lea, var. *victoriensis,* n.var.

Messrs. J. C. Goudie and H. W. Davey have sent from Sea Lake and Geelong numerous specimens of a species, which appears too close to *termitophila* to be regarded as distinct, but which differ from the types of that species in having the prothorax slightly more convex, and with less channelled sides. In the types of *termitophila* the channel on each side is well marked and continuous from apex to base, although narrowing posteriorly; as a consequence the margins appears to project almost horizontally. In the present variety the channel on each side usually does not extend more than two-thirds of the way to the base, and on several specimens is confined to the apical fourth or even less; on one specimen, in fact, the channels are absent; as a consequence the margins, or the greater portion of them, appear to project obliquely downwards. The Victorian specimens were taken in the nests of *Iridomyrmex nitidus.*

Dabra convexicollis, Lea.

Occurs in nests of *Ectatomma metallicum.*

Dabra myrmecophila, Oll.

Recorded originally as from ants' nests. Messrs. Goudie and Davey have taken it in nests of *Iridomyrmex nitidus.*

Dabra cuneiformis, Oll.

Recorded originally as from ants' nests.

Dabrosoma, n.g.

Head rounded at the base. Eyes small and mediolateral. Prothorax almost truncate at apex, bisinuate at base, with the hind angles feebly produced. Other characters much as in *Dabra.*

In *Dabra*, although not mentioned in the original description, the head is closely applied to the prothorax, and produced on each side at the base into a rather acute angle, and the eyes are sub-basal.[1] In the present genus the head is rounded on each side of the base, and the eyes are much smaller and more median.

Dabrosoma pubescens, n.sp. (Fig. 3.)

Of a dull reddish brown, head and prothorax stained with piceous, median segments of abdomen almost black. Finely pubescent all over, except upper surface of four basal segments of abdomen, which are shining and each with a row of small setiferous punctures; a few small setae at sides of prothorax, elytra and abdomen.

Head rounded, obtusely produced between antennae, with indistinct punctures. Antennae passing base of elytra, not very thin, first joint stouter and about as long as second and third combined, these sub-equal in length and sub-triangular, fourth to tenth gradually increasing in width, but none more than moderately transverse, eleventh somewhat wedge shaped, slightly

1 The figure of the head (Proc. Linn. Soc. N.S. Wales, vol. i., 2nd series, pl. 7, fig. 2), is misleading.

longer than three preceding combined. *Prothorax* feebly convex, more than twice as wide as long, front angles obtusely rounded, hind very feebly produced, base not much wider than apex; with dense minute punctures. *Elytra* slightly longer, but not wider than prothorax, apex feebly sinuous; with dense minute punctures. *Abdomen* strongly margined, parallel-sided to rear apex; about apex with small dense punctures. *Legs* rather long and thin. Length 1, to apex of elytra 2¼ mm.

Hab.—Tasmania: Hobart, Parattah, in nests of *Colobopsis gasseri* (A. M. Lea); Victoria: Geelong, in nest of *Iridomyrmex nitidus* (H. W. Davey).

The prothorax usually has its angles somewhat paler than the disc. One small specimen has the abdomen entirely dark. Two have the abdomen terminated by a peculiar process, somewhat like the closed forceps of an earwig; but this has probably been forced out, as in the other specimens it is not visible.

Termophila, n.g.

Head rounded, of moderate size. Eyes round, lateral, finely faceted. Antennae inserted slightly in front of and close to inner margin of eyes, slightly thickened externally, eleven-jointed. Labial palpi two-jointed. Maxillae with numerous spines. *Prothorax* strongly transverse, sides strongly rounded, all angles rounded. *Scutellum* small and normally not visible. *Elytra* short, outline subcontinuous with that of prothorax. *Abdomen* strongly margined, sides feebly decreasing in width. *Mesosternum* with a narrow keel separating the middle coxae. *Femora* stout; tibiae rather short and thin; tarsi thin, two front pair four-jointed, the hind pair five-jointed.

In Olliff's table of the *Aleocharina* (Proc. Linn. Soc. N.S. Wales, 1886, pp. 408-9) this genus would be placed with *Placusa*, from his description of which it differs in the maxillae and rounded head, etc. In some respects it is close to *Dabra*, but differs in head, antennae, hind angles of prothorax, and in the tarsi. Specimens of *latebricola* were sent to the Rev. T. Blackburn some years ago, and he wrote of them: "No doubt an *Aleocharid*. A most delightful little thing of no genus known to me."

Termophila latebricola, n.sp.

Testaceous-brown, abdomen and appendages paler, as also the margins of the prothorax, and margins and suture of elytra; mouth parts pale flavous. Shining. Head, prothorax and elytra with a few straggling setae, not confined to sides; abdomen with more numerous ones on upper surface, mostly confined to apex and sides of the segments; on under surface somewhat more evenly distributed.

Head smooth, base rounded, gently convex. Eyes not very large. Antennae passing base of prothorax, first joint about once and one-half the length of second, second to tenth subequal in length but gradually increasing in width, tenth about once and one-half as wide as long, eleventh about as long as ninth and tenth combined. *Prothorax* scarcely twice as wide as long, regularly and rather strongly convex, but with very narrow reflexed sides, sides rather strongly rounded, front angles strongly rounded, hind ones moderately so, base very gently rounded. *Scutellum* small and usually concealed. *Elytra* slightly longer than prothorax, regularly convex. *Abdomen* about half total length, decreasing in width hindwards, five basal segments strongly margined. Length $2\frac{1}{4}$, to apex of elytra $1\frac{1}{4}$ mm.

Hab.—N.S. Wales: Galston, in nest of termites (A. M. Lea).

The upper surface of the abdomen is often paler than the elytra, but sometimes is just as dark. The appendages, however, are always paler, but the mouth parts, even in apparently immature specimens, are always much paler (almost white). The head, prothorax and elytra are without punctures, as is also the abdomen, except for reception of setae. In nearly all the specimens the abdomen is curled upwards to its tip.

Obtained in abundance from a termites' nest in the pipe of a large "Iron-Bark." Hundreds of specimens could have been taken on the only occasion when the species was found. Many of the specimens are entirely pale, perhaps from immaturity.

Termophila punctiventris, n.sp. (Fig. 4.)

Testaceous brown, prothorax slightly paler than head or elytra, abdomen still paler, but with the fifth segment piceous;

appendages of a rather pale testaceous. Shining. Head glabrous, prothorax and elytra with short sparsely distributed setae; abdomen with rather sparse but more noticeable setae, more or less confined to apex and sides of the segments.

Head wide, somewhat flattened in middle. Eyes rather small. Antennae extending almost to apex of elytra, first joint moderately long, second to tenth subequal in length, but gradually increasing in width, eleventh as long as ninth and tenth combined, and obtusely rounded at apex. *Prothorax* gently convex, twice as wide as long, wider than head and at base the width of elytra, front angles strongly, the hind ones moderately rounded, apex gently incurved to middle, base gently but distinctly rounded. *Scutellum* transverse and distinct. *Elytra* along middle somewhat shorter than prothorax, but longer at sides, hind angles somewhat acute. *Abdomen* with four basal segments sub-parallel and strongly margined, the others distinctly decreasing in width, and only the fifth with a margin (which is much less distinct than on the basal ones), fourth longitudinally strigose on upper surface, fifth with very distinct punctures on both surfaces, sixth feebly punctate, apex semicircularly emarginate. Length $2\frac{1}{2}$, to apex of elytra $1\frac{1}{2}$ mm.

Hab.—W. Australia: Bridgetown, in a nest of white ants (A. M. Lea).

A highly polished and (except for the abdomen) impunctate species like the preceding, but with prothoracic margins (which although slightly upturned or flattened at the hind angles, are not narrowly reflexed) different, and with a distinct scutellum. It possibly should have been referred to a new genus, but having but one specimen I have not ventured to risk breaking it to make sure of this, nor have I been able to count the tarsal joints. It should, however, be readily identified amongst the Australian *Staphyhinidae* by its peculiar fifth abdominal segment.

Conosoma activum, Oll.

One specimen sent by Mr. Davey as having been taken in the nest of a small black ant in a log.

Conosoma rufipalpe, Macl.

Taken by Mr. H. W. Cox in a nest of *Ponera lutea*.

Conosoma barycephalum, Lea.

Taken in a nest of *Camponotus Novae-Hollandiae.*

Conosoma myrmecophilum, Lea.

The type was taken from an ants' nest.

Scopaeus latebricola, Blackb.

Mr. Cox sent three specimens of this species as having been taken from a nest of *Iridomyrmex rufoniger.*

The type was from flood debris in S. Australia. I have also taken the species in flood debris in N.S. Wales.

Sunius aequalis, Blackb.

An occasional visitor to ants' nests under stones. Mr. Davey has also taken the species from nests of a small black ant in logs.

Oxytelus sparsus, Fvl.

Two specimens of this very common dung beetle were sent by Mr. Davey as having been taken in a nest of *Ectatomma metallicum.*

Oxytelus micropterus, Lea.

One specimen taken from a nest of *Iridomyrmex gracilis*, but possibly there by accident.

Lispinus sidneensis, Fvl.

Mr. H. W. Cox writes that he has taken this species in a nest of *Termes lactis.* It is a common species under bark in the coastal districts of N.S. Wales.

Trogophlaeus myrmecophilus, n.sp.

Black, sub-opaque, legs (femora more or less piceous), palpi and basal joint of antennae obscurely testaceous. Very finely pubescent.

Head with a shallow groove on each side between eyes; with small dense punctures. Antennae passing base of prothorax, first joint rather large, second slightly longer and distinctly thicker than third, the others feebly increasing in width. *Prothorax* lightly transverse, wider at apex than at base, the

width of head, but slightly narrower than elytra (at base much narrower), with two distinct curved impressions, a rather short one in middle, and a longer one at base so curved as almost to extend to the apex on each side; punctures as on head and elytra. *Elytra* subquadrate, shoulders square, sides parallel, apex gently incurved to middle. *Abdomen* parallel-sided, sides strongly margined; punctures dense and small. *Legs* rather short. Length 1½, to apex of elytra 2-3 mm.

Hab.—N.S. Wales: Sydney, three specimens from a nest of *Iridomyrmex rufoniger* (H. W. Cox).

The elytra are quite as black as the rest of the upper surface. The impressions on the prothorax are separated by a slight ridge, the basal one is somewhat interrupted, so that from some directions it appears to consist of several shallow transverse or slightly curved foveae.

Of the size of *exiguus*, but with prothorax distinctly sculptured and legs paler.

Eleusis nigriventris, n.sp. (Fig. 5.)

Castaneous, abdomen black.

Very flat. *Head* almost parallel-sided behind eyes, hind angles gently rounded, with a short narrow neck, front somewhat produced between antennae and obtuse, with two strong median impressions not quite continued to base, and a finer but continuous impression on each side; with fairly large, clearly defined punctures. Eyes small, projecting, and at one-third from apex. Antennae inserted on extreme sides half-way between eyes and apex, eleven-jointed, rather thin and of almost uniform thickness; first slightly stouter and about once and one-fourth the length of second, second slightly longer than third, and third than fourth, fourth to tenth slightly transverse, eleventh obovate, almost twice the length of tenth. *Prothorax* slightly narrower than head, moderately transverse, widest at apex, thence with oblique sides to base; punctures smaller than on head, and forming two almost regular median lines, the space between which is impunctate. *Scutellum* equilaterally triangular, impunctate. *Elytra* oblong, about one-fourth longer than wide, and the width of head; with denser but smaller punctures

than on prothorax. *Abdomen* about as long as prothorax and elytra combined, sub-parallel sided to near apex. Length $2\frac{3}{4}$, to apex of elytra $1\frac{1}{2}$ mm.

Hab.—Victoria: Portland (H. W. Davey); Tasmania: Hobart (A. M. Lea).

The specimen from Portland was taken "under bark of a swamp gum in a nest of small black ants that run about with their abdomens cocked in the air." No record was kept as to how the Hobart specimen was taken.

It is with doubt that this species is referred to *Eleusis*, as the shape of the prothorax is very different to that of the two species (*planicollis* and *parva*) previously recorded from Australia, the head is of somewhat different shape, with strong impressions, the eyes are smaller and prominent, and the front coxae (which are comparatively small, subglobular and contiguous) are smaller and more rounded. The tarsi appear to be the same, but I am unable to decide as to the number of their joints, owing to the basal half being obscured by fine setose clothing; they appear to be three-jointed, with the two basal joints indistinctly separated and thin, the third long and thin, but inflated at apex, and with strong claws. Quite possibly, however, they are four-jointed, or even five-jointed, as their clothing renders them indistinct. They appear to be as in *planicollis*. The labial palpi are minute.

Under a compound power the whole upper surface appears covered with minute granules of uniform size. With a Coddington lens it appears densely and minutely punctate, with larger punctures scattered about. The abdomen at first appears to be immarginate, but on close examination a fine impressed line can be seen near the side of each segment. A few short setae are scattered about on the sides.

Glyptoma myrmecophilum, n.sp.

Reddish castaneous. Feebly shining. Apparently glabrous.

Head obtusely triangular in shape, but with a distinct neck, obtusely bicarinated along middle and finely bicarinated on each side, with between the two lateral carinae a small elevation. Eyes rather small and lateral, very distinct from above, but

more so from below. Antennae rather short, eighth to tenth joints transverse, and, with the briefly oval eleventh, forming a loose club. *Prothorax* moderately transverse, sides almost parallel on apical two-thirds, but then suddenly decreasing to base; with a number of irregular costae, more numerous but less defined at apex than at base. *Elytra* as long as wide, almost square; each with at least six costae separating distinct rows of punctures. *Abdomen* about half total length, four basal segments narrower at base than apex, and each with a distinct row of punctures, fifth slightly narrowed to apex, sixth triangular. *Legs* rather short; front and hind coxae touching, middle almost touching. Length 2 1-6, to apex of elytra 1 - 1$\frac{1}{6}$ mm.

Hab.—Victoria: Forrest, four specimens from an ants' nest (H. W. Davey).

Under a Coddington lens the punctures, except on the elytra and abdomen, are indistinct, but with a compound power they are seen to be dense all over; under a compound power also, an extremely sparse golden pubescence becomes visible. The tarsi are apparently three-jointed. Seen directly from in front the head appears to have four longitudinal carinae placed at equal distances. From the sides the median carinae are indistinct, but the lateral ones more distinct and with a small elevation between them, immediately above the insertion of antennae. From behind or directly above it is difficult to make out the number or disposition of the carinae.

Differs from the description of *sculptum* in having the head with more than three carinae, and each elytron with more than four, and distinctly longer than the prothorax. The surface also is densely punctate. From the description of *sordidum* in being larger, and in the sculpture of upper surface; the length of its elytra, however, is apparently in the same proportion as in *sordidum*.

Glyptoma kingi, n.sp. (Fig. 6.)

Of an almost uniform and rather bright chestnut-red, apical joint of antennae somewhat paler. Apical segments of abdomen finely setose, appendages finely pubescent, elsewhere glabrous.

Head with a large obtuse semi-double tubercle in middle of base, a flattened ridge above each eye, the two ridges with their apices finely connected across middle of head. First joint of antennae about as long as second and third combined, second about as long as wide, the others feebly increasing in width and becoming more transverse, so that the tenth is more than twice as wide as long, eleventh briefly ovate. *Prothorax* not twice as wide as long, margins thin, flat and rounded, front angles somewhat acute and slightly produced, extreme base almost rectangular and the width of apex; with a strong narrow carina somewhat closer to each side than middle; with a shallow but distinct median line. *Scutellum* distinct, apex rounded. *Elytra* slightly wider and longer than prothorax; obtusely elevated on each side of suture, with two strong costae on each side, one forming the margin, the other close to it, the two conjoined on shoulder. *Abdomen* with segments gradually decreasing in width, closely applied together and elliptic in section. *Coxae* comparatively small, front and hind pair touching, middle pair almost touching; femora tibiae and tarsi thin. Length 2¼, to apex of elytra 1 mm.

Hab.—N.S. Wales: Liverpool (R. L. King), Sydney, in nests of *Iridomyrmex nitidus*[1] (H. W. Cox); Victoria: Birchip and Sea Lake, in nests of same ant (J. C. Goudie).

Under a Coddington lens the whole of the upper surface appears impunctate. From each side there appear to be two strong costae at the side of the head, prothorax and elytra. From some directions the cephalic tubercle appears to be single, but from behind it is seen, quite distinctly, to be double.

I refer this species with some doubt to *Glyptoma*, as although the tarsi appear to be three-jointed, it is not at all sure that there is not a small hidden basal joint. The strongly costate upper surface, however, seems out of place in any other genus than *Glyptoma* (unless a new genus should be erected for the species) the limits of which (as it occurs in other parts of the world) I am by no means sure of. The eyes, although very convex, are quite invisible from above from certain directions. The antennae and legs are apparently as in *myrmecophilum*, but the abdomen is very different.

1 Mr. Cox has also recently taken it in a nest of *Ectatomma metallicum*.

The species is dedicated to the memory of the late Rev. R. L. King, the discoverer of many interesting ants'-nest beetles, some of which are still undescribed. In his collection (now in the Australian Museum) it was labelled as a *Dinarda*, but it is not even close to that genus, which (as noted by the late A. S. Olliff) is close to *Dabra*, and which has the abdomen strongly margined. In this species even the basal segments are immarginate.

PSELAPHIDAE.

The species of this family are often referred to as ants'-nest beetles, although many of them occur in moss, tussocks, under fallen leaves, etc. Still many of them do occur in nests of ants and termites. Of many of those recorded from Australia, the type specimens were obtained during floods, or on fence tops, etc., at dusk; when their connection with their hosts could not be ascertained; although they really are inhabitants of nests most of their lives. In many cases also the describers, although they were informed that specimens were obtained in such nests, failed to mention the same. This is also true of the *Staphylinidae* and *Scydmaenidae*. Whilst it is probable that some of the anomalous species of other families are also really ants'-nest beetles, although not so recorded.

Euplectops sculptus, King.

A specimen from Forrest (Victoria) sent by Mr. H. W. Davey, as from a nest of small black ants in a log, probably belongs to this species. It agrees well with the description, and is very close to a species named (with a query) by M. Raffray as *sculptus* from W. Australia; the latter specimen, however, has the median line of the prothorax rather feebly impressed, whilst the Forrest specimen has it more deeply impressed (in the original description King says "foveola elongata media" and also "the median impressed line or elongated foveola." King referred the species to *Bryaxis*, but in the index to *Euplectus*.

Euplectops gibbosus, King.

I have a specimen from King's collection, named as *Batrisus gibbosus*, and agreeing with his description. It is congeneric

with the preceding species, and readily distinguished from all others of that genus known to me by the very strong prothoracic sculpture. The type was from an ants' nest, and Mr. Davey has taken several specimens in the nests of *Iridomyrmex nitidus* at Geelong (Victoria).

In Raffray's recent monograph the species is referred to *Batrisodes*, but this is not surprising, as King did not state that three of the abdominal segments are strongly margined.

Euplectops odewahnii, King.

I have a co-type of this species, and also a specimen so identified by M. Raffray.

The species occurs in N.S. Wales, Victoria and Tasmania, as well as in S. Australia. Some of the Tasmanian specimens were obtained from moss. Two specimens sent by Mr. Davey were from the nest of a small black ant in a log.

Euplectops villosus, n.sp.

♀. Pale castaneous, appendages slightly paler. With very sparse and indistinct pubescence, but in addition with numerous, rather long, straggling, pale hairs.

Head with a strong curved median impression, behind which the surface is very convex and longitudinally impressed in middle; antennary tubercles distinct, the inter-space rather strongly depressed. Antennae rather thin, extending to base of prothorax, two basal joints rather stout, third to eighth small and subglobular, ninth somewhat larger but subglobular, tenth somewhat transverse, narrowed in front, eleventh subovate, slightly longer than three preceding joints combined, apex produced. *Prothorax* slightly longer than wide, widest just in front of middle, thence strongly narrowed to apex, near base strongly transversely impressed with three longitudinal impressions, the median one rather fine and not continuous to apex, the lateral ones shorter and deeper. *Elytra* about as long as wide, with eight small basal foveae, and with fairly distinct scattered punctures, subsutural and discal striae distinct, but the latter not continuous to apex. Upper surface of *abdomen*

with a feeble medio-basal node, on each side of which is a short oblique stria; lower surface rather strongly convex along middle. *Legs* rather thin. Length 1½ mm.

Hab.—Victoria: Lovat, in nest of small black ant (H. W. Davey).

The type is probably a female, but was described as the secondary sexual characters in this genus are seldom very pronounced, and the numerous long straggling hairs with which it is clothed should render it very distinct. It is more convex and with decidedly longer hair than in *odewahnii*, and the base of the prothorax is not as in *sculptus*. The median line of the prothorax is continued across the basal impression, but the latter is not forced backwards in consequence, as it is in other species.

Plectostenus, n.g.

Head rather small. Eyes small. Antennae thin. Palpi small, with three joints visible, the first small and almost concealed, second thin, not very long and inflated at apex, third about as long as second, elliptic, ob-ovate and terminated by a seta. Under surface with a distinct conical projection on each side concealing base of palpi. *Prothorax* longer than wide, with a transverse sub-basal impression, median line absent. *Elytra* rather small, with two short dorsal striae on each. *Metasternum* and abdomen elongate. *Legs* rather long and thin; hind coxae almost touching; tarsi thin, first joint very short, second elongate, third somewhat shorter and terminated by a single claw.

Allied to *Macroplectus* but narrow, the club and abdomen and under surface of head different.

Plectostenus gracilicornis, n.sp. (Fig. 7.)

♂. Reddish castaneous, tarsi and palpi paler. With extremely fine pubescence.

Head strongly constricted near base; convex between eyes, with a minute central fovea; a rather large fovea close to each eye, and open in front. Antennae thin, basal joint par-

tially concealed, second moderately stout, about the length of first, but distinctly longer than the exposed portion of that joint, third to eighth each slightly longer than wide, ninth to eleventh forming a thin club, ninth about twice the length of eighth, and at base no wider, but slightly dilated to apex, tenth slightly shorter and wider than ninth, and very feebly transverse, eleventh about as long as ninth and tenth combined. *Prothorax* slightly longer than wide, sides widest and evenly rounded somewhat nearer apex than base; near base with a strong transverse impression marked by three small foveae, one in middle and one on each side; punctures indistinct. *Elytra* almost as long as wide, sides gently rounded, angles distinctly rounded; with six small basal foveae; each with two faint dorsal striae; punctures rather indistinct. *Abdomen* with segments rather long on upper surface, and with strong margins; the lower surface with a narrow, strongly ridged intercoxal process, second to fourth segments narrowed across middle, fifth strongly narrowed, and, with the fourth and sixth, flattened. *Metasternum* vaguely depressed along middle, but with a conspicuous sub-conical tubercle on each side, half way between coxae. Front *trochanters* very feebly dentate; four hind tibiae spinose at apex. Length 2 mm.

♀. Differs in having antennae somewhat shorter, abdomen almost parallel-sided, instead of rather strongly dilated posteriorly, and convex along middle of under surface; metasternum unarmed and tibiae without apical spines. Length 1 2-3 mm.

Hab.—W. Australia: Swan River, Bridgetown, from nests of *Ponera lutea* (A. M. Lea).

Seen from the side each eye appears to be at the point where two conical tubercles should meet, one concealing the base of the antennae, the other on the lower surface of head. In appearance the antennae are suggestive of some species of *Heterognathus* of the *Scydmaenidae*. The dorsal striae are very faint, and the two on each elytron are seldom visible from the same direction; they arise from the basal foveae, and are fairly distinct to the basal third, but are vaguely traceable to beyond the middle. The tubercles on the metasternum are very distinct from the sides.

Batrisodes myrmecophilus, n.sp.

♂. Reddish-castaneous. Clothed with fine, pale, subdepressed pubescence.

Head with a deep impression on each side, curved round and joined together in front so as to be shaped like an ∩, the apices subfoveate, the enclosed space rather strongly convex, and with a feeble median impression; with dense and fairly distinct punctures. Antennae extending to middle coxae, first joint slightly longer than second, the others to eighth very slightly shorter and narrower than ninth, this the length of but slightly narrower than tenth, eleventh briefly ovate, about half as long again as tenth. *Prothorax* slightly longer than wide, widest across middle, thence regularly decreasing to apex and irregularly to base; with a distinct median line not quite extending to apex, and terminated near base in a fovea; basal half irregular; punctures as on head. *Elytra* very little wider than long, shoulders obtusely dentate; each with a narrow sutural stria, and a lightly curved discal one, which, however, is not continued beyond the middle; punctures at base as on prothorax, but smaller elsewhere. *Abdomen* with dense and fairly distinct punctures; on each side of upper surface of three segments with a fine impressed line, under surface somewhat flattened along middle. *Metasternum* with a wide shallow impression. *Legs* rather long; hind trochanters each with a strong curved tooth, the median pair indistinctly dentate; femora rather stout; tibiae distinctly curved. Length $2\frac{1}{2}$ mm.

Hab.—Victoria: Sea Lake, in a nest of *Ponera lutea* (J. C. Goudie).

The absence of a cephalic carina and the structure of the head generally will readily distinguish from most species of the genus. In general appearance it is somewhat like *hamatus*. The base of the prothorax appears to consist of two lobes, with their convex ends in front, and at the side each appears from some directions to be dentate, but this is due principally to a deep medio-lateral impression; this impression is continued, with interruptions, to the base, and from some directions can be vaguely traced to the apex.

A specimen from Sydney, taken in a nest of the same species of ant, appears to be the female; it differs in being slightly

larger (2 2-3 mm.), shoulders more obtusely dentate, metasternum flattened and trochanters unarmed.

Batrisodes nobilis, King.

A single badly damaged male before me probably belongs to this species. It was taken at Galston from the nest of a white ant in the "pipe" of an "ironbark" eucalyptus tree. The type of *nobilis* was also from a white ants' nest at Parramatta (quite close to Galston), but King considered it was there by accident.

The head of the Galston specimen is much as in Raffray's figure of *ursinus*,[1] except that it has no basal carina. Each of its hind trochanters is armed with a small, acute, curved spine.

Batrisus angulatus, Westw.

Recorded originally as from ants' nests. The species is omitted from Raffray's recent monograph in Wytsman's Genera Insectorum. As the genus *Batrisus* is now defined, *angulatus* certainly cannot belong to it, as the abdomen is figured as being decidedly margined.

Batraxis armitagei, King.

Mr. Cox has taken single specimens of this species from nests of *Ponera lutea* and *Ectatomma metallicum*, near Sydney.

The species was referred to *Bryaxis* by King, to *Batrisus* by Schaufuss, and to *Batraxis* by Raffray.

Batraxis laevigata, Raffr.

The specimens described by M. Raffray were taken from a nest of *Camponotus aeneopilosus*.

Eupines hospes, n.sp.

♂. Blackish brown, elytra dark reddish-brown; legs pale castaneous, fifth and ninth to eleventh joints of antennae darker. Upper surface with conspicuous and rather long pale hairs.

1 Proc. Linn. Soc. N. S. Wales, 1900, pl. x., fig. 27.

Head with a shallow but fairly distinct impression close to each eye, and a much less distinct one behind base of each antenna. Antennae with fifth joint inflated and briefly elliptic, ninth moderately, tenth strongly transverse, eleventh large and subovate, but somewhat lopsided. *Prothorax* widest at about one-third from apex. *Elytra* moderately dilated posteriorly, and comparatively large, dorsal striae traceable at extreme base only. *Metasternum* rather narrowly and not deeply impressed along middle. *Abdomen* with second segment rather vaguely impressed along middle. Front *trochanters* finely and acutely dentate. Length 1 mm.

Hab.—Victoria: Portland, in a nest of ants (H. W. Davey).

Darker and with much more conspicuous clothing than any other species known to me, with the fifth joint of antennae inflated. From *nigricollis* it also differs in the club. The metasternum is less strongly impressed than in *globulifer*, and the abdomen is longitudinally impressed.

The eleventh joint of antennae is not quite so dark as the ninth and tenth, but the difference is very slight.

Eupines flavoapicalis, n.sp.

♂. Castaneous, tip of abdomen flavous.

Head with small but fairly deep inter-ocular impressions, frontal ones very indistinct. Antennae with second joint slightly longer than wide, third to ninth short, tenth largest of all and feebly transverse, eleventh briefly ovate. *Prothorax* rather short, widest quite close to apex. *Elytra* rather short; dorsal striae vaguely traceable and only on basal slope. *Metasternum* rather largely impressed posteriorly. *Abdomen* with two small tubercles farly close together near apex of second segment, apical segment widely flattened in middle. Front *trochanters* subtriangularly dentate; middle tibiae somewhat inflated and conspicuously dentate just beyond the middle. Length 1—1¼ mm.

♀. Differs in having the tenth joint of antennae much smaller than eleventh (not half its length and somewhat narrower), metasternum impressed only between hind coxae, abdomen more convex and non-tuberculate, and legs edentate.

Hab.—N.S. Wales: Sydney (E. W. Ferguson and H. W. Cox); Victoria: Birchip and Sea Lake (J. C. Goudie); W. Australia; Donnybrook, Bridgetown (A. M. Lea).

The sexual characters are apparently somewhat as in *picta*, but neither Schaufuss nor Raffray make any mention of the conspicually pale tip of abdomen (affecting at least two segments on the upper surface, and one on the lower), and Schaufuss describes the head and abdomen of that species as darker than the other parts. Raffray describes it as generally unicolorous, but with the head and club sometimes darker, and his description of the male metasternum disagrees with this species. *Militaris* is described as having somewhat similar middle tibiae and abdomen, but the colour and tenth joint of antennae are very different. *Capitata* has the head differently impressed, and the second ventral segment with one instead of two tubercles.

At first sight the upper surface appears to be glabrous, but on close examination a very fine sparse pubescence becomes visible. The tenth joint is conspicuously larger than the eleventh. The tubercles are very indistinct from some directions, and are not at the extreme apex of the second segment.

The specimens from Dr. Ferguson, Mr. Goudie and I, were all taken in nests of *Ponera lutea*, and Mr. Cox took it in nests of that species and also of *Iridomyrmex rufoniger*.

Eupines exigua, King.

Mr. H. W. Cox has taken this species in a nest of *Iridomyrmex rufoniger*.

Eupines clavatula, King.

Also taken by Mr. Cox from a nest of *I. rufoniger*.

Rybaxis quadriceps, Westw.

A male specimen in the National Museum of Victoria (Howitt collection) bears a label *Bryaxis quadriceps*, and is probably that species. It is very feebly punctured, however, and the front femora are minutely dentate near the trochanters,

characters which are at variance with the original description. The epipleurae of its elytra have a narrow marginal stria, and a deep furrow slightly curved posteriorly, and continuous almost to base and apex.

Rybaxis strigicollis, Westw.

Described originally as from an ants' nest in Victoria. The species occurs also in Tasmania, but the specimens before me were taken on fence tops at dusk.

Rybaxis lunatica, King.

Five specimens of this species were sent for identification by the National Museum, of which one was marked "Out of hollow branch containing nest of *Podomyrma gratiosa*, F. P. Spry."

Rybaxis, sp.

A single specimen of this genus was taken from a nest of *Amblyopone australis* at Sheffield (Tasmania). It perhaps represents a variety of *electrica*, from which it differs in being larger (almost the size of *5-foveata*), and with slightly longer clothing. It is a female, possibly the male would prove the species to be distinct, as I have never taken an undoubted specimen of *electrica* in ants' nests, although it is the commonest species of the family in Tasmania.

Bryaxis atriventris, Westw.

Recorded originally as from ants' nests. M. Raffray regards the genus *Bryaxis* as being entirely absent from Australia, and the species previously referred to it are mostly now referred to *Rybaxis* and *Eupines*. This species, however, he placed[1] as a synonym of *Pselaphophus clavatus*, King, but in this he seems to be in error.

I have two specimens (seen by M. Raffray) that were compared, and agreed with the types of *clavatus;* King described the head of that species as having two inter-ocular elongate

1 Proc. Linn. Soc. N.S. Wales, 1900, p. 202.

foveae, becoming confluent in front. Westwood, on the other hand, described and figured the head of *atriventris* as having a single large inter-ocular fovea. As the type is probably still extant, it is desirable that its correct generic position should be recorded.

Briara basalis, King.

A specimen of this species was taken by Mr. Cox from a nest of *Iridomyrmex rufoniger*, and another from a nest of *Ponera lutea.*

Anarmoxys simplicifrons, Raffr.

A specimen of this species was taken by Mr. Cox from a nest of *Iridomyrmex rufoniger.*

Cyathiger punctatus, King.

I have a record as to a specimen of this species being taken from an ants' nest under a stone, but do not now know on what authority. The types were taken from beneath half-buried logs.

Pselaphus flavipalpis, n.sp.

♀. Reddish castaneous, tarsi and palpi flavous. Clothed with sparse and rather short but suberect straggling pale pubescence, sparser on elytra than elsewhere, apex of elytra sparsely fringed with short depressed setae. Under surface with dense whitish pubescence at base of abdomen, and on meso- and pro-sternum.

Head shorter than usual, very feebly channelled; with punctures between eyes. Antennae, for the genus, rather short, none of the joints from second to eighth distinctly longer than wide. Palpi elongate, club of apical joint rather more than one-third the length of peduncle. *Prothorax* comparatively short, with a strong transverse subbasal impression, connecting five small foveae. *Elytra* almost as long as abdomen, wider (at apex) than long, each with a sutural, a discal and a submarginal stria. Length 1½ mm.

Hab.—Queensland: Townsville, from nest of small ground ant (F. P. Dodd).

Of the species known to me comes closest to *pilosus*, but differs in being smaller, antennae shorter, with terminal joint smaller, clothing shorter, whitish, and on the elytra more conspicuously linear in arrangement. In general appearance it is also rather closer to *geminatus*, but the clothing is longer, the head is different, and the discal stria (which is strongly curved) is double only on the basal half. The head is without tubercles between the eyes, and from most directions appears to be without a channel, but at the apex the channel is suddenly deepened, so that, from some directions, there appear to be two conspicuous inter-antennal tubercles.

Pselaphus tuberculifrons, Raffr.

Only the female of this species was described by Raffray. The male differs in having the metasternum very shallowly and widely impressed, and the impression continued on to the large segment of abdomen. The Western Australian specimens before me, from Bridgetown, were from nests of *Dolichoderes scabaridus*.

Tasmanian specimens, obtained from tussocks, have the interocular tubercles not quite so conspicuous, but in all other respects agree well with the Bridgetown ones.

Pselaphus geminatus, Westw.

Described originally as from an ants' nest. The only specimen I have seen is in Mr. Goudie's collection, and was taken by him at Sea Lake (Victoria) in a nest of *Ponera lutea*.

Pselaphus antipodum, Westw.

Described originally as from an ants' nest. The species may often be taken in abundance during floods in N.S. Wales and Victoria.

Curculionellus riparius, Raffr.

Taken by Mr. Cox in nests of *Ectatomma metallicum* and of *Iridomyrmex rufoniger*.

Ctenisophus.

Probably all, or at any rate most, of the species of this genus are to be taken occasionally in the nests of ants. They have not been so recorded, however, this probably being due to most of the specimens having been taken in flood debris, on fence tops at dusk, or at lights. One of the more satisfactory characters for distinguishing species of the genus is the impression on the middle of the third ventral segment of the male; but in the descriptions of most species of the genus this has not even been mentioned. Apart from this the sexes are readily distinguished by the antennae, in the male the four terminal joints forming a club, in the female the apical joint only, or the two apical, forming the club.

Ctenisophus morosus, Raffr.

I have seen but Tasmanian specimens of this species, but in Tasmania it is the most common of the genus. Specimens have been taken in flood debris, in tussocks, on fence tops at night, and in the nests of two species of ants (*Colobopsis gasseri* and *Camponotus nigriceps*). It may be readily identified by the strong transverse impression on the third abdominal segment of the male.

Ctenisophus patruelis, Raffr.

Two specimens of this species were taken in the nest of a small brownish ant, perhaps an *Iridomyrmex*.

Ctenisophus impressus, Sharp.

Described by Sharp from W. Australia, but recorded by Raffray (who had a co-type) from S. Australia and Victoria as well. Specimens before me, which appear to belong to the species, are from N.S. Wales (taken by Dr. Ferguson in the nest of a white ant, *Eutermes* sp.); Victoria (Birchip, J. C. Goudie, Ararat, H. W. Davey in a nest of small black ants rather larger than *Colobopsis gasseri*); Adelaide (from King's collection) and W. Australia (Darling Ranges, A. M. Lea, from a nest of *Termes lacteus*).

Ctenisophus inaequalis, Raffr.

Described by M. Raffray from my sending, but the name was not given to me till after its publication, when he wrote me that it was my number 609. Apparently I sent him all my specimens as I appear to have now none of 609, and cannot recognise the species in my collection. Under 609 I have a record that it was taken with white ants; but the only specimen that I now have mounted with white ants of my own taking is one that appears to belong to *impressus*, and which has the impression on the third ventral segment of the male so faint that it could practically be regarded as absent.

Ctenisophus, sp.

Dr. Ferguson has sent three specimens of a species of this genus from a nest of white ants at Narromine. They appear to be undescribed and different to all in my collection; but as they are all females, and without very distinctive features, it appears best to leave them undescribed at present.

Ctenisophus rivularis, n.sp.

♂. Pale reddish-castaneous, appendages somewhat paler. Moderately covered with pale scale-like setae, denser at apex of elytra and of the basal segments of abdomen than elsewhere.

Head with two large shallow foveae between eyes. Antennae rather long, first joint stout and slightly longer than second, second stouter and slightly longer than third, third to seventh small and subequal, eighth to eleventh combined distinctly longer than first to seventh combined, eighth slightly but distinctly longer than ninth and just perceptibly longer than tenth, eleventh elongate-elliptic, longer than ninth and tenth combined. Three apical joints of palpi each with a long thin appendage. *Prothorax* widest at about apical third, thence gently decreasing in width to base; with a large subbasal fovea open posteriorly. *Elytra* each with a distinct sutural stria and a somewhat curved discal one; punctures small but fairly distinct. *Metasternum* deeply sulcate. *Abdomen* with third segment large, and middle of under surface with a rather small and shallow round fovea. *Legs* long and thin. Length 1 mm.

♀. Differs in the antennae being shorter, with the ninth joint no longer than the eighth, the tenth stouter and longer than the ninth (but much shorter than in the male), and the eleventh somewhat shorter than in the male, but as long as the four preceding joints combined, the abdomen also is nonfoveate.

Hab.—W. Australia: Swan and Vasse Rivers (A. M. Lea).

Close to the description of *parvus* (the abdominal impression of which is not mentioned), but that species is said to have the prothorax with the sides "not dilated in the middle, so that it is not narrower at the base than in the middle." In the present species it is quite certainly narrower at the base than at the middle, and the apex is much narrower than the middle. The third abdominal segment of the male with a quite round fovea distinguished from the description of *inaequalis*, in which it is said to be suboblong. The antennae are slightly longer than in *morosus* (or at least fully as long) instead of slightly shorter as in the description of *patruelis*. (Of the latter species the abdominal impression is not mentioned.)

Three only of the numerous specimens before me are noted as from ants' nests, two of these (sexes) being from a nest of *Crematogaster laeviceps*.

Somatipion globulifer, Schfs.

Messrs. Goudie and Davey have taken numerous specimens of a species from nests of *Iridomyrmex nitidus*, which certainly belongs to *Somatipion*, and probably to *globulifer*. The genus[1] is readily identified amongst the Australian *Pselaphidae* by its antennae and abdomen. The former are eleven jointed with a large globular terminal joint, whilst the abdomen has a very decided median longitudinal impression on its upper surface.

The specimens before me have the head rather longer than in the figure, the abdomen less inflated in the female, and still less inflated in the male. These specimens range from $2\frac{1}{2}$ to 4 mm. in length, the indicator at the side of the figure is 3 mm. in length. The pubescence on some specimens is rather looser than on others, but this is probably due to treatment.

1 Raffray's beautiful figure renders the genus easy of identification. Reference to this figure (Revue d' Entomologie, 1890, pl. iii., fig. 31) is omitted from his recent generic revision of the family.

There appear to be no special masculine features. The male is smaller, usually much smaller, than the female, somewhat thinner, with the fourth abdominal segment more noticeably incurved at apex, and the subbasal impression of the prothorax somewhat closer to the base.

Tmesiphorus ponerae, n.sp.

♂. Of a rather dark reddish-castaneous; elytra and metasternum somewhat paler, palpi somewhat flavous. Clothed with pale pubescence, sparser on head and prothorax, and denser at apex of elytra and under surface of abdomen, than elsewhere; but under surface of head with a distinct fascicle behind each eye.

Head with dense distinct punctures; with two small shallow foveae between eyes, base feebly impressed, the impression very feebly continued to between the antennae, where it suddenly deepens. Antennae fairly stout, extending to middle coxae, first joint distinctly longer than second, second slightly but distinctly shorter than third, and slightly longer than fourth, fourth to eighth short and subequal, ninth and tenth larger and wider, their combined length about equal to that of eleventh, which is ovate. Palpi with the antepenultimate joint setose at apex, the subapical with a thin appendage, and the apical produced at apex and dilated on one side of base. *Prothorax* slightly longer than wide, strongly convex; punctures as on head; with a small round, subbasal fovea, and a larger and somewhat irregular one on each side near base. *Elytra* not as long as greatest width and shorter than abdomen; punctures smaller than on prothorax, each with a strong sutural stria, becoming deep at base, another still deeper and larger at base, and strongly impressed to slightly beyond the middle of disc, where it rather abruptly terminates. *Abdomen* with a narrow carina towards each side of first segment on upper surface, and continued on to basal third of second; under surface with a large median fovea common to two segments, but deeper posteriorly. *Metasternum* rather deeply impressed posteriorly. *Legs* long and thin; front tibiae curved and widened in middle. Length $2\frac{1}{3}$ mm.

♀. Differs in being somewhat thinner, antennae rather shorter and thinner, and abdomen nonfoveate.

Hab.—W. Australia: Bridgetown and Donnybrook—in nests of *Ponera lutea* (A. M. Lea).

Of rather more slender build than *formicinus* and with ventral impressions different. In the male of *formicinus* the second segment is shallowly foveate in the middle of the apex, and the third feebly impressed in the middle, the impression shallower than on the second. In the present species the impression on the second is wider and shallower, whilst that on the third is decidedly deeper than that on the second, from some directions appearing as a round deep fovea. From the sides the basal joint of the antennae appears to be fully twice as long as the second, but from above the second appears to be about two-thirds its length.

Tmesiphorus curvipes, n.sp.

♂. Of a rather bright reddish-castaneous, tarsi and palpi somewhat paler. Clothed with short depressed and rather sparse pubescence, but with a small fascicle on each side of under surface of head behind each eye.

Head with dense, strong punctures; with two deep and fairly large foveae between eyes, with a feeble basal impression. Antennae fairly stout, almost extending to hind coxae, first joint cylindrical, about as long as three following combined, second slightly stouter, but no longer than third, third slightly longer than fourth, fourth to eighth short and subequal, ninth about twice as long, and twice as wide as eighth, and slightly narrower but no shorter than tenth, the two combined slightly longer than eleventh, which is irregularly ovate. *Prothorax* slightly longer than wide, sides somewhat angularly dilated at apical third, thence strongly diminishing in width to apex, and feebly to base, with a small sub-basal suboblong fovea, and a larger irregular one on each side near base; punctures as on head. *Elytra* distinctly wider than long, much shorter than abdomen; punctures sparser than on prothorax but clearly defined; each with a distinct sutural stria, and a strong impression between suture and shoulder. *Abdomen* with a narrow

carina towards each side of upper surface, and rather longer but less distinct than in preceding species; under surface with a feeble impression in middle of second segment, and a similar one on third. *Metasternum* strongly impressed along middle. *Legs* long and thin; front tibiae strongly curved and somewhat thickened in middle, the middle pair moderately curved near apex, the hind pair almost straight. Length 2 mm.

Hab.—Victoria: Ocean Grove—in a nest of *Iridomyrmex nitidus* (H. W. Davey).

The head has a peculiar appearance, as of having a spine over the base of each antenna, when viewed from the side, as in *formicinus*, but it differs from that species in being smaller, with cephalic foveae more, and the abdominal ones less, pronounced and the clothing shorter and sparser. The size and clothing are much as in *macleayi*, but that species has the tenth joint of antennae very distinctly shorter than the ninth. The palpi are much as in the preceding species, but the antennae (especially the basal joint), abdominal impressions, clothing and shape are different.

Each elytron at the base has a strong impression, its inner wall from some directions appearing carinated posteriorly, but the impression terminates before the middle, and could scarcely be regarded as a stria. The type has been described as a male, as its ventral impressions, although faint, are quite distinct.

Tmesiphorus brevicornis, n.sp.

Dark reddish castaneous, elytra club and tarsi paler, palpi still paler. With very short pale pubescence.

Head transverse; with two small inter-ocular foveae; with a deep impression between antennary ridges; with a short spine behind each eye on the side; densely and rather coarsely punctate. Antennae rather short and stout, scarcely extending to base of prothorax, first joint from above apparently slightly shorter than second, but really about twice as long, second to eighth transverse, ninth considerably longer and wider, but feebly transverse, tenth the width of but shorter than ninth, eleventh briefly ovate. *Prothorax* strongly convex, slightly

longer than wide, sides moderately rounded and widest almost in exact middle; with three subbasal foveae, of which the lateral ones are rather large, and the median one rather small, but still conspicuous; punctures almost as on head. *Elytra* lightly transverse, shoulders strongly the sides moderately rounded; dorsal striae deep and wide on basal half, subsutural striae wide at base; with small dense punctures. *Abdomen* scarcely wider but considerably longer than elytra; second segment with three strong ridges, of which the median one is somewhat shorter and less pronounced than the others, third segment with a fairly strong ridge towards each side, but scarcely ridged along middle; lower surface flattened along middle. *Metasternum* flattened in middle, but excavated posteriorly. *Legs* moderately long; four front tibiae obtusely spurred at apex. Length $2\frac{3}{4}$ mm.

Hab.—Queensland: Townsville, from a nest of white ants (H. J. Carter from F. P. Dodd).

The dorsal ridges of abdomen and post ocular spines associate this species with *termitophila*, which, however, is a much larger and shining species, with very different antennae, etc. In size and general appearance it is like *ponerae*, but the head antennae and abdomen are different.

The space between the dorsal and subsutural striae on the basal half of each elytron appears to be obtusely ridged. The second and third ventral segments appear somewhat flattened but not foveate, and as I can see no distinctly masculine features the type is probably a female.

Tmesiphorus formicinus, Macl.

I have seen specimens of this species from the nests of *Ponera lutea*, from New South Wales, Victoria and West Australia. It was described by Macleay as from the nests of *Ectatomma socialis*, but his description of that ant reads as if it was founded on *P. lutea*, instead of on an *Ectatomma*.

Tmesiphorus termitophilus, Raffr.

Occurs in nests of *Coptotermes raffrayi*.

Tmesiphorus macleayii, King.

One of the types originally recorded as "being found under bark, in company with . . . some small ants."

Palimbolus, sp.

A single female of this genius was taken in the Illawarra district by Mr. Cox from a nest of *Iridomyrmex rufoniger;* but as it has no very distinctive features (such as are always present in males of the genus) it is best left undescribed at present. No species of the genus has hitherto been recorded as occurring in ants nests.

Gerallus palpalis, King.

Taken by Mr. Cox from a nest of *Ectatomma metallicum*.

Tyromorphus humeralis, Westw.

Described originally as from an ants' nest.

Tyromorphus spinosus, Westw.

Described originally as from an ants' nest.

Tyromorphus formicarius, n.sp.

♂. Reddish castaneous, suture and apex of elytra and knees somewhat darker. Clothed with short pale pubescence, appearing almost like scales on head and prothorax, on elytra more distinct, and denser on abdomen (both surfaces) than elsewhere.

Head rather wide; with dense, shallow punctures; with a rather small fovea on each side of middle, antennary ridges separated by a deep and somewhat oval impression. Antennae passing middle coxae, first joint almost as long as second and third combined, second transverse, third thinner and longer than second or fourth, fourth to eighth transverse and of almost even width, but fifth slightly larger and eighth shorter than the others, ninth about twice as long and almost twice as wide as eighth, tenth shorter and slightly narrower than ninth, eleventh briefly ovate (almost globular) and distinctly shorter

than ninth and tenth combined. *Prothorax* about as long as wide, widest at apical third, thence strongly narrowed to apex and moderately to base, base slightly wider than apex; with three small foveae near base, one in the middle and one on each side; punctures as on head. *Elytra* slightly wider than long, with a distinct sutural stria, and each side of base with remnant of a discal one; with numerous distinct punctures. *Abdomen* distinctly longer than elytra; under surface with a feeble median impression; fourth segment incurved to middle, fifth very strongly incurved to and scarcely traceable across middle. *Metasternum* strongly impressed in middle apex. *Legs* rather long and thin; tibiae feebly bisinuate on lower surface, front pair obtusely mucronate at apex. Length 2½ mm.

Hab.—N.S. Wales: Sydney, in nest of *Iridomyrmex rufoniger* (H. W. Cox).

The palpi are smaller than in other species of *Tyromorphus*, and the terminal joint is thinner, but as in other respects it agrees with the genus, and I have but a single specimen under examination, it does not appear desirable to propose a new genus for its reception. The club of the antennae, however, is very different to that of any other described species. From the side the base of each antenna appears to be set beneath a curved spine. The head and prothorax are subopaque.

Articerus.

All the species of this genus occur in ants or termites' nests, generally but few specimens occur in individual nests, but those of several species of ants are seldom without them. Two species *breviceps*, King and *regius* King,[1] were overlooked by Schaufuss and Raffray; also *sharpi* Masters, a name used to replace *tumidus* Sharp, *tumidus* having been previously used by Westwood, but the species described by both Westwood and Sharp under the name *tumidus* appear to be identical.

Articerus cultripes, Raffr.

Occurs in nests of *Iridomyrmex rufoniger* and of a species of *Colobopsis*.

1 Trans. Ent. Soc. N.S. Wales, vol. ii., pp. 55-56.

Articerus hamatipes, Raffr.

Occurs in nests of *Iridomyrmex glaber*.

Articerus regius, King.

In the original description of this species the abdominal fovea is not mentioned. Mr. Masters has sent two specimens for examination both males and from Liverpool, one of which is probably the cotype mentioned as being deposited in the Macleay Museum.

The abdominal fovea is confined to the basal segment, and is bounded on each side of the middle by an oblique ridge, of which the apices are separated fully twice the width of the bases. The front femora are larger, and the middle femora much larger, than the head.

Articerus breviceps, King.

Mr. Masters has sent for examination a co-type of this species, probably a female, and unfortunately with both antennae missing. In the original description the abdomen is not even mentioned; its fovea is, for the genus, comparatively shallow, somewhat encroaching on middle of second segment, and with a wide flattened oblique ridge on each side of the middle. The prothoracic fovea is unusually large, the punctures on each side of and behind it coarse, but in front much finer. The base of the head has a distinct longitudinal impression. The tibiae are strongly (but, for the genus, moderately) inflated towards the apex.

Articerus aurifluus, Schfs. (Fig. 30).

Mr. H. H. D. Griffith has sent from Adelaide[1] nine specimens that appear to belong to this species. They have the antennae, prothorax and abdomen (the clothing at the sides is remarkable) as described, but the head is more rounded in front than triangular, although from some directions it appears feebly triangular.

The hind tibiae of the male are narrow at the base, then suddenly inflated and subparallel to near the apex, where they

1 The type was recorded from Melbourne.

are obliquely truncated. Its metasternum is strongly convex along the middle. The length varies from $1\frac{1}{2}$ to $1\frac{3}{4}$ mm.

The ant in whose company it is taken appears to be a species of *Colobopsis*. Mr. Davey has also sent the species from the nest of a small black ant at Geelong (Victoria).

Articerus brevipes, Sharp.

Described from a single female and as probably from Champion Bay. Two females from N.W. Australia in the Macleay Museum appear to agree with the description.

Articerus curvicornis, Westw.

The late Rev. R. L. King stated that he had frequently captured this species at Liverpool (N.S. Wales) "in the nest of the small black ant." It appears to be the commonest species of the genus, and occurs in Tasmania as well as N.S. Wales and Victoria, and in the nests of several species of ants, including *Colobopsis gasseri*, *Iridomyrmex nitidus* and *I. gracilis*.

Articerus bipartitus, Raffr.

In nests of two species of ants, *Crematogaster*, sp., and *Colobopsis?*, sp. Also in nests of a species of white ant.

Articerus dilaticornis, Westw.

Mr. Goudie has sent a male from a nest of *Iridomyrmex nitidus* that probably belongs to this species. It agrees well with the description; but differs from the figure in having the eyes less prominent, prothorax rather wider across apex, and abdominal fovea not rounded behind but subtriangular—much as in *mastersi*.

Articerus gibbulus, Sharp.

Occurs in nests of *Crematogaster laeviceps* and of *Iridomyrmex nitidus*.

Articerus fortnumi, Hope.
bostocki, Pasc.
odewahni, Pasc.

Appears to be a common species in nests of *Crematogaster laeviceps* in S. Australia. The synonymy is according to Dr. Schaufuss.

Articerus tumidus, Westw.
tumidus, Sharp
sharpi, Masters.

There appears to be no doubt, but that the same species was described under the name of *tumidus* by Westwood and Sharp, and there is therefore no need for the name *sharpi* proposed as a substitute for *tumidus*, Sharp.

Articerus angusticollis, Westw.

Recorded originally as from ants' nests.

Articerus setipes, Westw.

Recorded originally as from ants' nests.

Articerus asper, Blackb.

Recorded as taken from flood debris. It is curious that this is the only species that has been so recorded, as nests must frequently be flooded out, and although I have seen thousands of *Pselaphidae* in flood debris, I have never yet taken an *Articerus* in it.

The following species, although not so recorded, are certain to occur in the nests of ants or termites.

A. Deyrollei, Sharp.
A. Duboulayi, Waterh.
A. falcatus, Raffr.
A. foveicollis, Raffr.
A. Kingius, Sharp.
A. nitidicollis, Raffr.
A. Pascoeus, Sharp.
A. Selysi, Schfs.
A. spinifer, Sharp.
A. Westwoodi, Sharp.

Articerus raffrayi, n.sp. (Figs. 32, 33.)

♂. Reddish-castaneous, greater portion of each elytron somewhat paler than elsewhere. With short depressed setae, resembling scales on head prothorax and parts of elytra, abdomen with sparse erect setae, but fasciculate on each side of base.

Head short, flat, densely punctate and without longitudinal impression. Antennae short wide and flat, about as long as head, narrow at base, then strongly inflated, and then feebly diminishing in width to apex, widest portion with a feeble impression in middle. *Prothorax* widest at apical third, where the width is almost twice as great as the length, with a feeble medio-basal impression, punctures as on head. *Elytra* with dense punctures, rather sparser on disc than elsewhere, sutural stria distinct. *Abdomen* with basal fovea strongly transverse, and not encroaching on second segment, its sides parallel, near each side with a feebly elevated ridge almost parallel with the margin and behind the fovea becoming narrower and more distinct; under surface largely excavated, each side of middle of fourth segment with a small acute tooth, similar but smaller teeth on first, middle of fifth with a loose facicle. Metasternum obtusely ridged along middle, the ridge terminating in a feeble tooth. *Femora* fairly stout; tibiae inflated towards apex, the middle pair strongly mucronate at apex. Length $1\frac{3}{4}$—2 mm.

♀. Differs in having under surface of abdomen simple, metasternum edentate, less convex along middle and the middle tibiae not mucronate.

Hab.—N.W. Australia (Macleay Museum).

Seen from behind and the side each antenna appears to be placed in the middle of a semicircular emargination, to be thin with the apical third suddenly thickened. The apex itself is somewhat oval in outline. From some directions the sides of the prothorax appear to be obtusely produced at the apical third, with the produced portion obtusely serrated.

Articerus dentipes, n.sp. (Figs. 31, 34, 35.)

♂. Reddish castaneous, greater portion of each elytron somewhat paler. Clothed with fine depressed setae, but becoming longer and denser at apex of elytra; abdomen with fine more or less erect setae, and fasciculate on each side of base.

Head short, flat, densely punctate and without longitudinal impression. Antennae slightly longer than head, wide and flat, base narrow, then strongly inflated to middle, and thence very feebly diminishing in width to apex. *Prothorax* about

once and one-third as wide as long, sides very feebly diminishing in width from apex to base, with a shallow, longitudinal medio-basal impression, punctures as on head. *Elytra* with dense punctures, rather sparser on disc than elsewhere; sutural stria feeble. *Abdomen* with a large transverse basal fovea, somewhat produced on each side, each side with a feebly elevated oblique ridge; under surface somewhat excavated. *Metasternum* flattened along middle, but with a small apical tooth. *Femora* stout, the middle pair especially; middle trochanters each produced into the form of a strong curved tooth, about half the length of the femur; tibiae short, middle pair strongly inflated, front pair mucronate at apex. Length $1\frac{1}{3}$ mm.

Hab.—Victoria: Birchip, two males from an ants' nest (J. C. Goudie).

Rather smaller than *curvicornis*, antennae wider, etc. In many respects close to the description of *pascoeus*, but with the prothorax decidedly transverse instead of "quite as long as broad." The middle legs are much as in the description of *tumidus*, but Sharp describes the prothorax of that species as "about as long as broad"; its metasternum is also not ciliated in the middle, but shining and with a small apical process. The abdominal fovea is also large instead of small. From the species identified as *brevipes* it differs in being less compact, in the antennae being less flattened, the elytral clothing longer and the abdominal fovea not quite the same. It comes very close to the description and figure of *setipes*, but has a distinct sutural stria, whereas that species is twice stated to be without such, and is also so figured. The length also is much less than a line. The antennae from the sides are as in the preceding species but from above they are seen to be longer and thinner, with the greater length due principally to a longer basal stem.

Articerus irregularis, n.sp. (Figs. 36, 37.)

♂. Colour and clothing as described in *raffrayi*, except that the abdomen has fine depressed setae in addition to the erect ones, and that the basal fascicles are less conspicuous.

Head rather short and flat, with a scarcely traceable median impression. Antennae short wide and flat, base narrow, then

strongly inflated to middle, and then rather strongly narrowed to apex; a distinct longitudinal impression in middle of both surfaces. *Prothorax* about once and one-third as wide as long, sides rounded in front, and feebly diminishing in width to base, with a shallow but distinct medio-basal impression; punctures as on head. *Elytra* with dense punctures, rather less crowded on disc than elsewhere; sutural stria distinct. *Abdomen* with fovea strongly transverse, each side at base with a feebly raised oblique ridge, each side at apex continued as a strong oblique impression; under surface with a large and almost circular fovea. Metasternum almost flat along middle, edentate at apex. *Femora*, for the genus, rather thin; tibiae inflated at apex, the middle pair strongly mucronate at apex. Length $1\frac{3}{4}$ mm.

Hab.—Victoria: Forrest, a single male from the nest of a small black ant in a log (H. W. Davey).

Each antenna is suddenly inflated about the middle, but the inflation is not uniform on both sides, being slightly nearer to the base on the inner than the outer side, from some directions the inner inflation appears almost tuberculate. From the side each appears to have the basal half thin (the thinnest portion being just before the expanded part) with the apical half strongly inflated. The apex itself is oval. The oblique continuations of the abdominal fovea are very distinct.

Articerus excavipectus, n.sp.

♂. Colour and clothing much as in *raffrayi*.

Head rather wide and almost flat, not depressed along middle, densely punctate. Antennae wide and flat, slightly shorter than head, strongly inflated to about middle, and thence almost parallel-sided, without median impression. *Prothorax* about once and one-fourth as wide as long, widest near apex, thence feebly diminishing in width to base; punctures as on head, with a fairly large medio-basal fovea. *Elytra* with dense punctures, becoming sparser on disc, and with on each a small almost impunctate spot at about the middle at the apical third; sutural stria rather feeble. *Abdomen* with basal fovea very large, and posteriorly regularly decreasing in depth, instead of being

convex in middle, sides distinctly narrower than behind the fovea, each side with a feebly raised and indistinct ridge; under surface less excavated than usual, but the excavation joining on to a very large one on metasternum. Hind *coxae* each with a strong triangular tooth at right angles to the general level; femora fairly stout; hind tibiae inflated towards apex, the front pair less and the middle pair still less noticeably so. Length $1\frac{3}{4}$ mm.

♀. Differs in having the abdomen gently convex on the under surface, the apex of the metasternum very feebly impressed, and the hind coxae unarmed.

Hab.—Victoria: Birchip (J. C. Goudie); S. Australia (Macleay Museum).

The antennae are very wide as in *raffrayi*, but not of the same shape, and not impressed on the upper surface; the latter character will also distinguish it from *aurifluus*. *Asper* is described as having the prothorax nonfoveate.

Seen from the sides each antenna appears to have the basal third thin, with the rest swollen, rather more noticeably on the under than the upper surface. From some directions the sides of the prothorax almost appear to be ridged. The impunctate spot on each elytron is distinct on one specimen, fairly distinct on another, but practically absent from a third. The large spurs on the hind coxae of the male appear at first to be part of the metasternum. The apical segments of the male are so strongly drawn inwards that the pygidium appears to be in the exact middle of the under surface of the abdomen.

Articerus Mastersi, n.sp.

♀. Colour and clothing much as in *Raffrayi*.

Head wide, flat and densely punctate, without median impression. Antennae slightly longer than head, wide and flat, base narrow, then strongly inflated to middle, and thence feebly diminishing to apex, with a distinct but rather shallow depression in middle. *Prothorax* about once and one-third as wide as long, sides almost parallel, with a large but rather shallow medio-basal fovea; punctures as on head. *Elytra* with dense punctures, becoming sparser on disc; sutural stria

distinct. *Abdomen* with basal fovea large and encroaching in the form of a wide triangle on to middle of second segment, each side of base with a wide flat feebly elevated oblique ridge. Metasternum gently convex in middle. *Femora* moderately stout; tibiae inflated towards apex. Length 1⅓ mm.

Hab.—S. Australia (type in Macleay Museum).

The abdominal fovea is of very different shape to that of the species I suppose to be *brevipes*, and the metasternum, although shining, is not highly polished along the middle as in that species; the antennae also are different. In size and general appearance, however, the two species are very similar. The antennae and abdominal fovea are somewhat as in *dilaticornis*, but that species is described and figured as having the prothorax longer than wide. The antennae, both from above and the sides, have the outlines as in *dentipes*, but are distinctly impressed in the middle. One of the specimens was labelled as *setipes*, but it differs from the description of that species in having a distinct sutural stria, and the tibiae without long setae towards the apex; the latter character may be sexual but not the former. Its abdominal fovea also is not as figured in *setipes*.

Articerus constricticornis, n.sp. (Figs. 38, 39.)

♀. Dark reddish castaneous, greater portion of each elytron somewhat paler. Clothed with short, depressed setae, except on abdomen where they are sparser and more erect, each side of base also with a thin elongated ridge or depressed fascicle, middle of metasternum with a line of golden setae.

Head (for the genus) rather long, flat, densely punctate, and without median impression. Antennae moderately wide, somewhat curved, the length of, or slightly longer than, head. *Prothorax* widest near apex, where the width is about once and one-half the length, sides gently but distinctly decreasing to base; medio-basal impression rather small and feeble; punctures as on head. *Elytra* with dense punctures, becoming sparser at inner disc; sutural stria distinct. *Abdomen* with basal fovea strongly transverse and deep, near each side with a wide very feebly elevated oblique ridge, sides with margins

continued to beyond the middle. Metasternum gently convex along middle. *Femora* not very stout; tibiae strongly inflated towards apex. Length 2 (vix) mm.

Hab.—N.S. Wales: Murrurundi (type in Macleay Museum).

Readily distinguished from all other species known to me by the shape of the antennae as seen from the side, each there appears rather stouter than is usual towards the base, in the species having wide antennae, in the middle it is strongly constricted, with the apex but little wider than the base. From above each appears to have the inner outline straight (except for a slight projection at the basal third), but the outer side dilated to beyond the middle and then straight to apex. The middle, from some directions, appears largely scooped out. The convex portion of the upper surface of the abdomen is almost circular in outline.

Articerus constrictiventris, n.sp. (Fig. 40.)

♀. Reddish castaneous. Clothed with short depressed setae, and with sparse suberect ones; abdomen with longer suberect ones only and fasciculate on each side of base.

Head rather wide, flat and densely punctate, without median impression. Antennae long and thin, apical fourth strongly, although not suddenly, inflated, base feebly curved, apex circular in outline. *Prothorax* about once and one-half as wide as long, base distinctly rounded and wider than apex, sides gently rounded; with a large but rather shallow medio-basal impression; punctures very distinctly sparser than on head. *Elytra* with smaller punctures than usual, especially on apical half, towards base becoming subseriate in arrangement; sutural stria distinct. *Abdomen* with basal fovea large and deep, with its walls suddenly and strongly constricted in middle so that it appears as if divided into two. Metasternum gently convex along middle. *Legs* long and thin. Length $1\frac{3}{4}$—2 mm.

Hab.—Victoria: Wangaratta, two females from an ants' nest under a stone (A. M. Lea).

In many respects close to description of *spinifer*, but antennae not twisted at apex, and apex of body with sparse and rather short setae instead of numerous elongate ones. It is also

close to *nitidicollis*, but head not longitudinally foveate, antennae hardly more than once and one-half the length of the head,[1] prothorax not very shiny, with a large shallow circular fovea, certainly not "transversim late impressus. . . . fovea antebasali minuta," and without a basal carina. Other characters of the metasternum and abdomen with which the specimens disagree are probably sexual.

The head from certain directions appears to be supplied with a very narrow, shining, median carina. The prothorax wider at the base than near apex, and with different punctures to those on head are very distinctive features.

Articerus femoralis, n.sp. (Fig. 41.)

♂. Colour and clothing much as in *raffrayi*.

Head wide, flat and densely punctate; with a very feeble but somewhat shining median depression. Antennae slightly longer than head, rather thin but gently increasing in width to apex, which is circular in outline. *Prothorax* not much wider than long, front angles rounded, basal two-thirds parallel-sided; with a fairly large medio-basal impression; punctures as on head. *Elytra* with fairly dense punctures, becoming denser at base; sutural stria distinct. *Abdomen* with basal fovea large and deep, its hind margin semicircularly encroaching on the second segment, the semicircle bounded on each side by a distinct, but small tubercle, itself being the apex of a feeble oblique sublateral ridge; under surface largely excavated but not foveate. Metasternum ridged along middle, with two small apical teeth. *Femora* stout, hind pair with a strong triangular subapical tooth; tibiae inflated. Length $1\frac{1}{2}$ mm.

♀. Differs in having the under surface of abdomen and the metasternum on an almost even plane, with the latter not armed at apex, and the femora unarmed.

Hab.—N.S. Wales: Sydney, in nest of *Iridomyrmex rufoniger* (H. W. Cox), in nest of a small ant[2] (E. W. Ferguson).

1 Although Raffray describes the antennae as twice as long as head, he does not so figure them, the proportions being as $8\frac{1}{2}$ to 13 millimetres.

2 Perhaps *I. rufoniger*, but the specimen sent by Dr. Ferguson is very pale and somewhat distorted.

Antennae considerably thinner than in *curvicornis*, when viewed from the sides almost straight, and, when cut across in any part of their length, circular in section; the abdominal tubercles also are not as in that species. The general appearance is much like *hamatipes*, and the antennae are very similar, but the abdominal fovea and legs are different. *Bipartitus* is similar in many respects, but also has abdomen and legs different and much more clothing.

Articerus cylindricornis, n.sp. (Figs. 8, 42.)

♂. Reddish-castaneous, greater portion of each elytron somewhat paler. Head and prothorax with short depressed setae, resembling scales, elytra with longer but still depressed setae, condensed into a feeble fascicle at the middle of the apex of each; abdomen with sparse suberect setae, and with a long loose fascicle on each side of base; with a ridge of setae along middle of metasternum.

Head about twice as long as wide, without median impression; eyes less prominent than usual. Antennae cylindrical, not much longer than head, base narrow, apex circular in outline, surface with numerous small granules. *Prothorax* not much wider than long, front angles strongly rounded, basal two-thirds almost parallel-sided; medio-basal impression absent or extremely feeble; punctures as on head. *Elytra* with dense punctures, becoming sparser on disc; sutural stria distinct. *Abdomen* with basal fovea large and strongly continued hindwards, internally at base rather suddenly deepened, then towards each side with a feeble oblique ridge; under surface largely excavated but not foveate, base strigose towards sides. Metasternum obtusely ridged along middle, with two small apical teeth. *Trochanters* minutely dentate; femora rather thin; tibiae flattened, front pair feebly dentate at about apical third, middle pair strongly mucronate at apex. Length $2\frac{1}{4}$ mm.

♀. Differs from male in having under surface of abdomen evenly convex, trochanters not dentate, front tibiae narrower and not dentate and middle pair not mucronate.

Hab.—Victoria: Sea Lake and Birchip (J. C. Goudie), Portland (H. W. Davey), at all three places in nests of *Iridomyrmex nitidus;* N.S. Wales: Gunning (Macleay Museum).

Some time ago[1] I doubtfully identified this species as *regius*. It differs, however, from that species (of which I have recently seen virtually a co-type) in being smaller, the head shorter and the abdominal fovea very different. Seen from the sides the antennae are feebly curved, narrow at the extreme base, but elsewhere of even width, except that the apex is feebly dilated. The median portion of the abdominal fovea is distinctly longer than wide. There are numerous specimens before me, and all the males, as in the males of *cûrvicornis*, each have a seta projecting from the mouth.

Clavigeropsis.[2]

This genus is recorded as monotypic in Raffray's recent generic revision of the *Pselaphidae*.[3] It belongs to the *Clavigerides*, and has the antennae six-jointed, but the basal joint small and normally concealed, so that they appear to be but five-jointed. The type of the genus (*formicarius*, Raffr.) was from Abyssinia, and an excellent figure of it is given in Revue d' Entomologie.[4] I have now to record the genus from a single specimen taken in an ants' nest in New South Wales.

Clavigeropsis australiae, n.sp. (Fig. 9.)

Reddish-castaneous. With sparse golden setae on upper surface; but becoming dense at sides of base of abdomen; metasternum with fairly dense setae along middle.

Head slightly longer than wide, densely punctate. Antennae about as long as head, two basal joints short, the first quite concealed from above, third subtriangular, fourth slightly wider and shorter, fifth wider and slightly shorter than fourth, sixth truncate, and slightly longer than fourth and fifth combined. *Prothorax* about as long as wide, sides rounded near apex, thence almost parallel to base, with a wide and rather shallow median fovea, connected by a very indistinct median line with apex; punctures as on head. *Elytra* about as long as wide, shoulders

1 Proc. Roy. Soc. Victoria, 1905, p. 376.
2 Raffray, Rev. d' Ent., 1882, p. 3.
3 In Wytsman's Genera Insectorum.
4 1890, pl. iii., fig. 28.

round, sides dilated to near apex, hind angles gently rounded; each with a distinct sutural stria, a fine but moderal distinct discal one, and near base very faint traces of others; with sparse indistinct punctures. *Abdomen* slightly longer than elytra, base transversely strongly impressed, thence regularly and strongly convex, sides of depression strongly margined, the convex part with finer margins; under surface with basal segment short, its middle subcarinated, second and third fairly long and of equal length, fourth and fifth strongly incurved to, and narrow across middle. *Metasternum* strongly convex. *Legs* rather short; femora not very stout; tibiae rather strongly inflated to apex; tarsi thin. Length $1\frac{1}{2}$ mm.

Hab.—N.S. Wales: Wollongong—in a nest of ants (A. M. Lea).

From some directions the base of the elytra appears to have numerous fine striae; whilst from others the elytra appear to be very finely strigose throughout. From the side the abdomen appears almost globular. The type appears to be a female.

Paussidae.

All the species of this family recorded from Australia are here noted, as although but few of them have been actually taken from ants' nests, it is practically certain that they all do resort to the nests of ants or termites. Nearly all the species are extremely rare, and many, so far, have only been taken at lights.

Arthropterus brevis, Westw.

I have taken this species in a nest of *Ectatomma metallicum*, in the spongy bark of a species of Eucalyptus near Sydney, and under stones and loose bark of living trees.

Arthropterus nigricornis, Macl.?

Two specimens (from Narromine in N.S. Wales and Cunnamulla in Queensland) probably belong to this species; they are, however, larger ($11\frac{1}{2}$ and 12 mm. respectively) than the type (5 lines). The dark antennae are opaque (except along the middle), and densely covered with minute granules. The hind

tibiae are about three times as long as wide, instead of only twice as long as wide, or even not much longer than wide (as in most species of the genus). The disc of the prothorax, as well as of the elytra, is clothed with brownish suberect setae.

Arthropterus Westwoodi, Macl.

Two specimens from Gayndah were received as co-types of this species. They have the sides of the elytra at the base with clothing as on the sides of the prothorax, but scattered all over the elytra are some exceedingly fine setae, that readily escape observation, even from the sides; especially if, as is usually the case, they are a trifle greasy or dusty.

Arthropterus angulatus, Macl.

A co-type of this species has elytral clothing as described for the above species, to which it is remarkably close.

Mr. Aug. Simson has taken several specimens of the species in ants' nests at Bowen.

Arthropterus subcylindricus, Macl.

Two specimens *in cop.* were taken under a stone at Queanbeyan, close to a nest of ants; and another pair under a stone at Millthorpe, also not far from a nest of ants.

Arthropterus neglectus, n.sp.

Dark reddish-castaneous, margins suture and appendages (tarsi excepted) somewhat paler; head black. With very short and very sparse setae, except on sides and pygidium, where they are fairly numerous; sides also with a few short hairs.

Head with dense irregular punctures; sides subtuberculate behind eyes. Antennae with more numerous punctures along sides, and paler and less polished than along middle, third to tenth joints each about five or six times as wide as long, eleventh almost as long as three preceding combined. *Prothorax* about two-thirds as long as greatest width, which is near apex, sides thence strongly rounded to apex itself, and feebly diminishing to base; margins slightly upturned, more

noticeably about base than elsewhere; median line narrow and short, but distinct; with fairly dense, irregular punctures. *Elytra* about four times as long as prothorax, and about base with somewhat smaller and sparser punctures, becoming much smaller posteriorly. Hind *tibiae* more than three times as long as their greatest width. Length 12—12¾, width 4½—4¾ mm.

Hab.—N.S. Wales: Murrumbidgee (Macleay Museum), Wagga Wagga (R. Helms); Victoria: Mallee (H. W. Davey).

The largest of the genus known to me, although a trifle smaller than the length (seven lines) given for *wilsoni;* under which name I received a specimen from the Macleay Museum.[1] It differs, however, from that species in having the prothorax distinctly transverse; instead of subquadrate,[2] and with a short but distinct median line. Its head also is decidedly black. The hind tibiae are narrower than in most species of the genus, as is the case also with *wilsoni*, but the species I have identified as *nigricornis*, although otherwise very different, agrees with it in this respect, and the hind tibiae of *quadricollis* are also so figured.[3]

The third to tenth joints combined are about twice and one-half as long as wide. The scutellum when fully exposed is seen to be transversely impressed at the base, but in this, and, in fact, in most, if not all, species of the genus, it is liable to be partially covered by the prothorax, so that it is of little use to mention it in descriptions.

Arthropterus latus, n.sp.

Black, or almost black, lateral margins of prothorax, suture and appendages reddish-castaneous. Discs of prothorax and elytra quite glabrous, the sides and pygidium with short dense setae, sides of elytra with a few short hairs.

Head with moderately dense but rather small and irregular punctures; sides behind eyes scarcely tuberculate. Antennae

1 And it appears to be the species several times referred to as *wilsoni* by Macleay,

2 In Westwood's figure in Thes. Ent. Oxon., the prothorax by measurement is actually a trifle longer than wide.

3 Westwood's figure of *quadricollis* would do very well for this species except for the antennae, and inter-ocular impressions.

rather darker and less punctate along middle than on sides, third to tenth joints each about eight times as wide as long, apical joint slightly longer than three preceding combined. *Prothorax* scarcely two-thirds as long as greatest width, sides strongly rounded on apical half and decidedly oblique on basal half, sides feebly raised and thickened, median line very feeble; with fairly numerous but small punctures about apex and apical sides, but elsewhere almost or quite impunctate. *Elytra* wide, not three times as long as prothorax, with numerous small punctures, becoming extremely minute posteriorly. Hind *tibiae* about once and one-half as long as their greatest width. Length 10, width 4 mm.

Hab.—N.S. Wales: Sydney (A. J. Coates).

Comparatively wider than any other described species of the genus. The prothorax is considerably wider than in *brevis*, apical joint of antennae longer, and the whole insect bulkier; in *brevis* the extreme width of the prothorax appears to be scarcely, if at all, greater than the extreme length, in the present species it is about once and one-half its length. The third to tenth joints combined are rather more than once and one-half as long as wide. The disc of the prothorax appears to be extremely feebly corrugated (as in many *Carabidae*), and is almost impunctate.

There are several other species before me that are possibly undescribed, but as Macleay usually omitted to describe the comparative width of the hind tibiae I do not feel justified in describing them till able to examine his types.

The other recorded species are:—

A. adelaidae, Macl.
A. angulicornis, Macl.
A. bisinuatus, Macl.
A. brevicollis, Macl.
A. cylindricollis, Macl.
A. cylindricus, Masters.
    subcylindricus, Westw. (n.pr.).
A. darlingensis, Macl.
A. denudatus, Westw.
    angusticornis, Macl.
A. depressus, Macl.

A. elongatulus, Macl.
A. foveicollis, Macl.
A. foveipennis, Blackb.
A. hirtus, Macl.
A. hopei, Westw.
A. howitti, Macl.
A. howittensis, Masters.
howitti, Westw. (n.pr.).
A. humeralis, Macl.
A. kingi, Macl.
A. latipennis, Macl.
A. macleayi, Don.
A. mastersi, Macl.
A. melbournii, Westw.
A. montanus, Macl.
A. occidentalis, Blackb.
A. odewahnii, Macl.
A. ovicollis, Macl.
A. parallelocerus, Westw.
A. picipes, Macl.
A. politus, Macl.
A. punctatissimus, Westw.
A. puncticollis, Macl.
A. quadricollis, Westw.
A. riverinae, Macl.
A. rockhamptonensis, Macl.
A. scutellaris, Macl.
A. subumpliatus, Macl.
A. subsulcatus, Westw.
A. turneri, Macl.
A. waterhousei, Macl.
A. wilsoni, Westw.
A. wyanamattae, Macl.
Phymatopterus macleayi, Westw.
distinctus, Thoms.
P. piceus, Westw.
Paussus australis, Blackb.
Megalopaussus amplipennis, Lea.

SCYDMAENIDAE.

Scydmaenus clientulus, n.sp.

Dark reddish—or brownish—castaneous, under surface darker, appendages somewhat flavous. Clothed with rather sparse, straggling hair, or fine setae, but becoming fairly dense on sides of prothorax.

Head smooth, with small prominent eyes. Antennae just passing base of prothorax; with a distinct four-jointed club, which is about equal in length to the six preceding joints combined. *Prothorax* slightly longer than wide, apex and apical sides rounded, base scarcely narrower than greatest width; with four deep basal punctures, and a slightly oblique longitudinal impression on each side towards base. *Elytra* oblong-ovate, somewhat flattened, sides gently rounded, with a shallow depression on each side of base; with sparse, indistinct punctures. Front *tibiae* rather strongly inflated to apex. Length 1 mm.

Hab.—Tasmania: Burnie, in a nest of a small variety of *Ectatomma metallicum* amongst stones close to sea beach (A. M. Lea).

The front tibiae are dilated somewhat as in *gulosus* (this, however, appears to be a masculine character only), but the elytra and antennae are darker, and the antennae are somewhat shorter. The whole upper surface is of an almost uniform shade of colour.

Scydmaenus colobopsis, n.sp.

Reddish-castaneous, appendages paler. Clothed with pale and rather sparse, straggling hair or fine setae, becoming dense on sides of prothorax, and almost or quite absent from its disc.

Head and antennae as described in preceding species. *Prothorax* scarcely longer than wide, outlines much as in preceding species, base with four deep punctures, feebly connected by a shallow transverse impression, which on each side becomes a short deep groove. *Elytra* depressed, oblong ovate, sides gently and regularly rounded; basal impressions feeble; with sparse indistinct punctures. Front *tibiae* in one sex rather strongly inflated to apex. Length 1 mm.

Hab.—Tasmania: Swansea. One specimen from a nest of *Colobopsis gasseri* (A. M. Lea).

The males have the front tibiae dilated as in *gulosus*, but the head and prothorax are much darker in that species. The club of the antennae is rather stouter than in the preceding species, but is otherwise the same, the sides of the prothorax are rather more densely clothed. The elytra are somewhat wider and the whole insect slightly larger.

From some directions the elytra appear to be of the same shade of colour as the prothorax, but from others they appear to be paler.

Scydmaenus daveyi, n.sp.

Of a bright castaneous, appendages paler. Upper surface with sparse pubescence, but becoming longer and denser on sides of prothorax.

Head smooth, eyes distinct but not prominent; antennae as in *clientulus*, except that the eighth joint is somewhat smaller, although distinctly part of the club. *Prothorax* slightly longer than wide, sides widest and gently rounded near apex, base with four large punctures or small foveae, the two on each side shallowly connected with each other, but the two median ones separated by a feeble ridge or carina. *Elytra* oblong-ovate, rather strongly inflated to near middle; basal impressions rather shallow; with sparse indistinct punctures. Front *tibiae* moderately inflated towards apex. Length 4-5th mm.

Hab.—Victoria: Forrest, Geelong, in nests of a small black ant *Colobopsis*? (H. W. Davey).

Close to *castaneoglaber*, but antennae thinner, elytra not quite so highly polished and not quite glabrous. From *colobopsis* it differs in being smaller, elytra with sparser and much shorter clothing, sides of prothorax much less densely clothed, and antennae thinner.

Scydmaenus glabripennis, n.sp.

Head and prothorax blackish brown, under surface somewhat paler; elytra brightly castaneous, suture somewhat darker; appendages somewhat, the tarsi quite, flavous. Head at base, and prothorax at apex and sides, with fairly dense reddish hair or fine setae; rest of upper surface almost or quite glabrous.

Head smooth; eyes small and very prominent. Antennae very distinctly passing base of prothorax, with a very distinct four-jointed club. *Prothorax* slightly longer than wide, basal two-thirds subparallel, thence narrowed to apex, with a deep puncture on each side of middle of base, and a smaller one on each side. *Elytra* somewhat depressed, briefly oblong-ovate, sides strongly rounded from base to apex; basal impressions distinct; impunctate. *Legs* long and thin; femora clavate; hind tibiae long and bisinuate internally, the others slightly thickened towards apex. Length $1\frac{1}{2}$ mm.

Hab.—Tasmania: Devonport, in a nest of *Polyrachis hexacantha* (A. M. Lea).

The dark head and prothorax, with dense clothing at sides of latter, and the highly polished and glabrous elytra, will readily distinguish from all previously named Australian species. There are, however, several as yet unnamed species that are fairly close to it in appearance.

I have regarded the club as four-jointed, but it might almost fairly be regarded as five-jointed, as the seventh joint, although decidedly narrower than the eighth, is dilated to its apex, and very distinctly longer than the sixth. The hind tibiae are probably simple in the female. From some directions the median prothoracic punctures appear to be completely isolated, but from others they are seen to be connected by a shallow impression.

Scydmaenus ectatommae, n.sp.

Brownish castaneous, metasternum and abdomen almost black, appendages of a dingy pale brown. Sparsely pubescent.

Head smooth; eyes distinct but not very prominent. Antennae comparatively stout, scarcely passing base of prothorax; with a very distinct, four-jointed club, that is equal in length to the six preceding joints combined. *Prothorax* slightly longer than wide, apex and apical sides rounded, slightly wider at apical third than elsewhere; base with four small, deep, completely isolated punctures. *Elytra* oblong-ovate, sides rather strongly inflated about middle; basal impressions very feeble; with very sparse, indistinct punctures. Length $1\frac{1}{4}$ mm.

Hab.—Tasmania: Hobart, Bagdad, Huon River, Launceston, in nests of *Ectatomma metallicum* (A. M. Lea).

A rather dingy species. The absence of dense clothing from the sides of prothorax will readily distinguish from any of the preceding species. The median prothoracic punctures are very distinct from certain directions, but indistinct from others.

Scydmaenus duplicatus, n.sp.

Reddish castaneous, appendages paler. Upper surface sparsely clothed with pale, straggling hair or fine setae, becoming denser (but not very dense) on sides of prothorax.

Head and antennae as described in *clientulus*. *Prothorax* distinctly longer than wide, widest almost in middle, which is gently rounded; base with four deep, isolated punctures, of which the two median ones are slightly larger than the others, each side with a partially concealed oblique impression. *Elytra* oblong ovate, sides rather strongly rounded; basal depressions rather feeble; with sparse, indistinct punctures. Length 1 mm.

Hab.—W. Australia: Swan River, in an ants' nest (A. M. Lea).

In general appearance close to *daveyi*, but more elongate and prothoracic punctures distinctly isolated, although close together. From some directions the elytra appear to be slightly paler than the prothorax.

Scydmaenus castaneoglaber, n.sp.

Of a bright pale castaneous and highly polished, appendages paler. Upper surface glabrous except for a very few hairs or fine setae at sides of prothorax.

Head very smooth and rather wide; eyes small and fairly prominent. Antennae distinctly, but not by much, passing base of prothorax, with a distinct four-jointed club, that is as long as the six preceding joints combined. *Prothorax* about as long as wide, basal two-thirds parallel-sided, apical third strongly narrowed; each hind angle with a single deep puncture. *Elytra* briefly oblong ovate, depressed, sides strongly inflated in middle; basal depression deep but not large; impunctate. *Legs* long; femora clavate; hind tibiae longer than usual. Length 4-5th mm.

Hab.—Tasmania: Parattah, in a nest of *Colobopsis gasseri* (A. M. Lea).

A short, pale, highly polished species.

Scydmaenus microps, n.sp. (Fig. 10.)

Pale reddish castaneous, appendages slightly paler, somewhat infuscated at junction of prothorax and elytra. Elytra with sparse and very short pubescence, rest of upper surface with somewhat longer clothing.

Head smooth, regularly dilated from a strong basal constriction to between antennae; eyes minute and invisible from above. Antennae thin, none of the joints transverse, distinctly passing base of prothorax; with a distinct four-jointed club, the joints of which are much thinner than usual. *Prothorax* longer than wide, sides distinctly rounded, and widest slightly nearer apex than base; base with four distinct punctures. *Elytra* oblong-ovate, at base scarcely wider than base of prothorax, but at widest (just beyond the middle) about twice as wide; basal impressions feeble; punctures rather sparse and indistinct. *Legs* long; femora clavate. Length 1½ mm.

Hab.—W. Australia: Swan River, in a nest of *Ponera lutea* (A. M. Lea).

Readily distinguished from all previously described Australian species by the shape of its head, small eyes and thin antennae. The second joint of the antennae is as long as the third and fourth combined, but this proportion is much as in all the preceding species. In size and appearance, except for shape of head, much like *optatus*, but the club also is very different. Both front tibiae and tarsi are missing in the type.

Scydmaenus simplicicornis, n.sp.

Deep shining black, antennae, abdomen and base of femora piceous, or diluted in parts with red, palpi and tarsi flavous. With rather sparse pale pubescence.

Head transverse; eyes small and fairly prominent; clypeal sutures distinct. Antennae long and thin, fully four of their joints passing base of prothorax, not clubbed, first joint partly concealed from above, almost as long as second and third com-

bined, second very little longer than third, third to tenth subequal or very feebly increasing in length, eleventh as long as ninth and tenth combined. *Prothorax* slightly longer than wide, rounded at apical third, with sides strongly diminishing in width to apex, and gently to base; base with a feeble transverse impression; with minute, scattered punctures. *Elytra* oblong-ovate, at base scarcely wider than base of prothorax, rapidly increasing in width to basal third, thence gently rounded to apex; base gently conjointly arcuate and without depressions; with sparse but, for the genus, fairly distinct punctures. *Legs* long; femora clavate; tibiae somewhat thickened about basal third, then slightly narrowed. Length 2 mm.

Hab.—Victoria: Geelong, in a nest of *Iridomyrmex nitidus* (H. W. Davey).

I have not been able to examine the labial palpi of the type, and the species may eventually be regarded as belonging to a new genus, but at present I think it is best referred to *Scydmaenus*. At first glance it rather strongly resembles an *Anthicus*.

From some directions the extreme elytral margins appear reddish. The abdomen is strongly notched at apex, the notch fringed with fine pubescence; but this is probably a male characteristic. All the tibiae are thickened about the basal third, but the middle pair less noticeably than the others.

Scydmaenus optatus, Sharp.

In the original description of this species no mention is made of an impression between the antennae; but on seven specimens from W. Australia before me such an impression is quite distinct. The species is readily identifiable by its two jointed club, with the ninth joint more than twice as long as wide, and about as long as the two preceding combined.

Sharp simply records it from West Australia. I have taken it at Swan River, Newcastle, and Donnybrook, and in the nests of *Camponotus dorycus* and *Ponera lutea*.

Two specimens from N.S. Wales (National Park—H. W. Cox—from a nest of *Ponera lutea*), and one from Victoria (Sea Lake

—J. C. Goudie—from the nest of an unspecified ant), differ from the typical form in having no impression between the antennae, but as I can discover no other distinguishing feature, I have not considered it advisable to treat them as distinct.

Scydmaenilla pusilla, King.

Six specimens, apparently belonging to this species, were sent by Mr. H. W. Cox from Sydney and the National Park (N.S. Wales) as having been taken from nests of *Ponera lutea*.

Scydmaenilla constricta, n.sp.

Reddish castaneous; appendages and abdomen somewhat paler. Upper surface uniformly, but not densely, clothed with straggling yellowish hair or fine setae; shorter and denser on under surface.

Head very shallowly impressed between eyes, these small and prominent. Antennae just passing base of prothorax, with a distinct three-jointed club, which is about the length of the six preceding joints combined. *Prothorax* distinctly longer than wide, apex and apical sides rounded, basal third somewhat narrowed; with a strong, continuous transverse impression at about basal third, the impression simple across middle but with punctures at sides. *Elytra* oblong-ovate, greatest width about twice that of prothorax; with a distinct impression on each side of base; with sparse indistinct punctures. *Legs* long; hind coxae touching; femora clavate. Length 1 1-5th mm.

Hab.—Tasmania: Hobart, in nests of *Amblyopone australis* (A. M. Lea).

Decidedly larger and somewhat wider than *pusilla*, and with longer clothing.

Heterognathus carinatus, King.

Occurs in the nests of several species of ants, including *Iridomyrmex nitidus*, an allied species in W. Australia; and in nests of a species of termites.

Hab.—Victoria (Sea Lake, Birchip, Ocean Grove), N.S. Wales (Liverpool), W. Australia (Swan River).

Heterognathus princeps, King.

Recorded by King as associated with the preceding species in an ants' nest. I have taken the species at Glen Innes (N.S. Wales), but have no record as to how obtained.

Phagonophana kingi, King.

Mr. Cox informs me that he has taken this species in nests of *Iridomyrmex rufoniger*.

Phagonophana latipennis, n.sp.

Reddish-castaneous, elytra (suture and base excepted), and legs somewhat brighter. Upper surface with fairly dense, straggling, reddish hair, denser at base of head than elsewhere; under surface and legs with shorter, denser and paler clothing.

Head convex; eyes prominent and rather coarsely faceted. Antennae passing base of prothorax, feebly increasing in width to apex, and not clubbed, eleventh joint about as long as ninth and tenth combined. *Prothorax* distinctly longer than wide, apex rounded, sides gently incurved between middle and base; with a large, round, deep puncture, or small fovea, on each side of base, but normally more or less concealed, each side towards base with a similar puncture or fovea. *Elytra* distinctly wider at base than prothorax, increasing in width to about middle and then rapidly diminishing; with a wide, shallow impression on each side of base; and with a few indistinct punctures. *Legs* long; femora strongly clavate. Length 3 mm.

Hab.—W. Australia: Bridgetown, numerous specimens obtained under a log on sandy ground in the company of ants (A. M. Lea).

In general appearance close to *kingi*, but elytra considerably wider (fully one-fourth more) and less convex, much wider at base, with more pronounced humeral ridges; their clothing also is sparser and longer. The femora also, although almost as stout at their widest, are not so suddenly inflated.

The male differs from the female in being narrower, with slightly longer legs, and apex of abdomen not simple.

Phagonophana macrosticta, n.sp. (Fig. 11.)

Dark reddish castaneous, palpi slightly paler, knees somewhat infuscated; elytra black, with three large reddish spots, one on each side of middle and the other apical. With rather dense reddish pubescence, denser and shorter on head and prothorax than on elytra, and very short on under surface.

Head (excluding mandibles) almost as long as wide; with small more or less concealed punctures. Eyes prominent and coarsely faceted. Antennae passing middle coxae, joints very feebly but regularly increasing in width, the apical ones not clubbed, eleventh subcylindrical but its apex conical, slightly longer than ninth and tenth combined. *Prothorax* slightly longer than wide, widest near apex, sides thence regularly decreasing in width to base; each side of base with two small but deep foveae, the sides with some smaller more or less concealed ones. *Elytra* at base scarcely wider than base of prothorax, rather strongly dilated to about the middle, and then strongly diminishing in width to apex; with a large fovea on each side of base; punctures indistinct. *Femora* stout, lower surface finely grooved. Length 2 2-3rd mm.

Hab.—Tasmania: Marrawah (A. M. Lea).

Readily distinguished from *kingi*, and the preceding species, by the dark elytra with conspicuous markings. The apical spot commences on the suture about summit of the posterior declivity, the median ones do not touch the sides or suture, and each extends from about the basal fourth to slightly beyond the middle. The femora at the apex are almost as stout as in those species, but the inflation is much less abrupt, and they are finely but distinctly grooved almost throughout.

One specimen was taken from an ants' nest[1] under a stone, a second under a near by stone but not associated with ants.

SILPHIDAE.

Anisotoma myrmecophila, n.sp.

Castaneous, appendages somewhat paler; club infuscate.

Head with small dense punctures. *Prothorax* with numerous but very indistinct punctures. *Elytra* with regular rows

1 A small reddish-brown species, probably an *Iridomyrmex*.

of rather small punctures, becoming smaller towards base and absent from shoulders; interstices with very minute but rather clearly defined punctures, as distinct on shoulders as elsewhere. *Metasternum*, except in middle, with dense and rather coarse punctures. *Legs* short and wide; hind femora with a thin flange-like extension at inner apex; front tibiae somewhat inflated, and with a few stiff bristles, four hind ones strongly dilated to apex and with short stiff bristles. Length 2 mm.

Hab.—Tasmania: New Norfolk—a single specimen from a nest of *Colobopsis gasseri* (A. M. Lea).

Much like *tasmaniae* in general appearance, but distinctly smaller, and hind femora edentate, although at apex they have a thin flange-like extension which partially covers the tibiae when at rest.

Clambus myrmecophilus, n.sp.

Black, highly polished; appendages, hind coxae excepted, reddish flavous. Glabrous.

Upper surface apparently impunctate; subsutural striae absent. Hind *coxae* with very minute punctures, and, as also the metasternum and abdomen, highly polished. Length 1 mm.

Hab.—Victoria: Portland, in a nest of a small variety of *Ectatomma metallicum* (H. W. Davey).

In general appearance something like *tierensis*, but subsutural stria absent and under surface very different. The highly polished hind coxae and metasternum will readily distinguish from *simsoni*, and the colour from *tropicus*.

Although from some directions the upper surface appears to be entirely black, from others the tips of the elytra and sides of the prothorax appear to be diluted with red. The club is concealed on the type. The hind coxae are fully twice as large as the metasternum.

Myrmicholeva, n.g.

Head small, with a wide concealed neck. Eyes small, prominent, latero-basal, moderately faceted. Clypeus rather large and narrowed in front. Antennae slightly thickened towards apex, but not clavate. Mentum wide. Labial palpi minute.

Maxillary palpi four-jointed; first joint almost entirely concealed, second long and rather thin, third short and subtriangular, fourth elliptic ovate, not much shorter than second. *Prothorax* transverse, base strongly bisinuate, each side with a conspicuous stria commencing near the apex on the extreme margin, and curved round so as to touch the base half-way between side and scutellar lobe. *Scutellum* small. *Elytra* elliptic or elliptic-ovate, epipleurae fairly wide at base, and very narrow at apex. *Prosternum* with distinct sutures, not carinated along middle. Mesosternum narrowly produced between coxae. Metasternum moderately long; episterna narrow in front, gradually widened posteriorly. *Abdomen* with six segments, the apical one very small or sometimes concealed. Front coxae large, conical, prominent, cavities open behind; middle pair almost touching; hind pair lightly separated, sides almost touching elytra; trochanters rather small; femora rather long and thin, edentate; tibiae thin, apical spurs minute; tarsi five-jointed, rather thin but basal joints of the two front pairs inflated in male; claws thin and simple. *Body* winged.

Although there are four species before me I have not been able to examine the mouth parts at all well. But, both from above and below, they appear to be produced into a more or less triangular tongue, with the labial palpi not very far from its tip. The mouth parts are certainly not like those of any other Australian *Silphidae* known to me, but as in its other characters and general appearance the genus appears to belong to the *Silphidae*, and, in addition, Mr. Blackburn has suggested the probability of its belonging to that family, I am content for the present to place it there. Amongst the Australian genera it may be provisionally placed near *Choleva*.

At least two of the species here described were taken in ants' nests; a third was taken in moss, but was probably there associated with ants, as many were seen when picking over the moss for insects. The fourth was probably also from an ants' nest, although I have now no record as to how it was taken. I know, however, that I paid very considerable attention to ants' nests whilst at Karridale.

Myrmicholeva lata, n.sp. (Fig. 43.)

Blackish brown, margins and suture slightly diluted with red; appendages pale castaneous, but tibiae and antennae (except basal and apical joints) somewhat darker. With moderately dense and rather long straggling hairs; under surface and appendages moderately pubescent.

Head strongly transverse between clypeal suture and neck, but including mandibles longer than wide; densely and rather coarsely punctate; labrum more than twice as wide as long; punctures sparser and smaller than on rest of head. Antennae almost extending to hind coxae, first joint lightly curved; slightly longer than third, and distinctly longer than second, second to fifth subcylindrical, fourth slightly longer than fifth and slightly shorter than third, sixth slightly shorter than fifth, seventh slightly wider but no longer than sixth, eighth the width of seventh but slightly shorter, ninth and tenth slightly larger and feebly transverse, eleventh slightly wider than tenth, but very little longer except on one side where it is produced into a moderately acute point. *Prothorax* rather strongly convex, scarcely twice as wide as long, sides strongly rounded, apex decidedly narrower than base and gently incurved to middle, stria on each side strongly impressed and marking off a flattened outer portion; punctures fairly numerous but very small. *Elytra* cordate, scarcely once and one-half as long as wide; with fairly strong punctures in feeble striae; interstices with very feeble punctures, the suture moderately raised posteriorly. Length 3 mm.

Hab.—W. Australia: Bridgetown, from an ants' nest (A. M. Lea).

The four front tarsi of the type are somewhat inflated, but much less noticeably so than in the type of *ligulata;* but it is probably a male.

Myrmicholeva acutifrons, n.sp. (Fig. 44.)

Flavous or castaneous, some parts darker. With moderately long, pale pubescence, becoming short on under surface.

Head (behind clypeal suture) strongly transverse, but including mandibles slightly longer than wide, the apical portion

acute; with clearly defined but not very dense or coarse punctures, becoming small on labrum. Antennae just passing middle coxae, second joint slightly shorter than second, and slightly longer than third, third, fourth and fifth subequal, sixth slightly smaller, seventh larger and transverse, eighth smaller, ninth and tenth larger and slightly more transverse, eleventh briefly ovate, slightly shorter than ninth and tenth combined. *Prothorax* moderately convex, not twice as wide as long, apex not much narrower than base, and gently incurved to middle, sides moderately rounded, sublateral striae close to margin on apical three-fifths, and thence deep and oblique to base; punctures very indistinct. *Elytra* more than twice as long as wide, shoulders moderately, sides very feebly rounded; with strong punctures in rather feeble striae; interstices with feeble punctures, suture scarcely raised posteriorly. Length 2—2 1-6th mm.

Hab.—Victoria: Forrest (H. W. Davey), Somerville (A. M. Lea); Tasmania: Burnie, Frankford (Lea).

The specimens vary considerably in colour; those from Forrest are flavous, with the under surface and apical half of antennae somewhat darker, a Burnie specimen has the same shades of colour, whilst another has the general tone castaneous, with the prothorax (except at base) and head darker than elsewhere; the Somerville specimen has these parts almost black. The head appears to be produced into a subtriangular joint. The four front tarsi of the male are somewhat dilated towards the base, but otherwise the sexual differences are not pronounced.

Mr. Davey sent the specimens in spirits together with several larvae, which he believed to belong to the species. Unfortunately in the same tube were some other ants' nest insects, and thinking the larvae in question were simply sent as being from a nest they were not kept; as the tube was received some days before the explanatory letter. The beetles themselves were taken from right in the middle of a nest of small black ants in a log.

In the preceding species and in *ligulata*, the sublateral striae of the prothorax almost regularly increase in distance from the margins, although the distance is considerably increased posteriorly; but in the present species they are almost marginal

to the basal two-fifths; when they suddenly become oblique to the base; in the following species they are intermediate between this and the preceding species.

Myrmicholeva punctata, n.sp. (Fig. 45.)

♀. Of a pale but rather dingy castaneous, prothorax (except sides and base), head, apical half of antennae and under surface somewhat darker. Moderately densely clothed with long pubescence or short hair, becoming much shorter on under-surface.

Head behind clypeal suture and across the eyes about twice as wide as long, but including mandibles about as long as wide; with clearly defined and moderately dense punctures, becoming sparser and smaller on labrum, which is about thrice as wide as long. Antennae much as in preceding species, except that the second joint is still shorter than the first, although slightly longer than the second. *Prothorax* strongly convex, about twice as wide as the length down middle, sublateral striae deeply impressed, with the margins somewhat flattened; disc with dense and clearly defined punctures, becoming smaller towards sides. *Elytra* much as in preceding species, except that they are slightly shorter, with slightly stronger punctures. Length 2¼ mm.

Hab.—W. Australia: Karridale (A. M. Lea).

In general appearance very close to the preceding species, but readily distinguished therefrom by the conspicuous prothoracic punctures. As all the tarsi are thin at the base the type is certainly a female.

Myrmicholeva ligulata, n.sp. (Fig. 12.)

♂. Dark reddish castaneous, appendages paler; under-surface (tip of abdomen diluted with red) almost black. Densely clothed with rather long pale pubescence, becoming somewhat shorter and sparser on under surface.

Head between clypeal suture (which is rather indistinct) and neck about twice as wide as long; with clearly defined but rather small and not very dense punctures; labrum longer and more convex than in all the preceding species and almost

impunctate; apparently with a rather long tongue in front, so that from its tip to the base of the head that part is almost twice as long as wide. Antennae extending to hind coxae, first to sixth joints subcylindrical, seventh to tenth slightly dilating to their apices; first almost twice as long as second, third about once and one-half as long as second, and distinctly longer than fourth, fifth and sixth slightly diminishing in length, seventh a trifle larger than sixth, which is just perceptibly larger than eighth, ninth larger and feebly transverse, tenth slightly shorter than ninth, but the same width, eleventh not much longer than ninth, except on one side where it is moderately produced. *Prothorax* scarcely once and one-fourth as wide as long, sides moderately rounded, apex distinctly narrower than base, and very feebly incurved to middle; sublateral striae deeply impressed, the margins less convex than the disc but scarcely flattened; with fairly numerous but very minute punctures. *Elytra* elongate subcordate, almost twice as long as wide; with moderate punctures in moderate striae; interstices with numerous small but fairly distinct punctures, suture scarcely separately raised posteriorly. Length 3 2-3rd mm.

Hab.—Tasmania: Waratah, in moss (A. M. Lea).

From some directions the elytra appear to have the suture paler than the sides, but from others they appear to be of uniform colour. The basal joints of the four front tarsi on the type are very wide, on the front pair the first joint is distinctly wider than the tibia, and subtriangularly dilated from its base to its apex, the second and third are small and strongly transverse; on the middle pair the three basal joints are somewhat smaller, with the first joint less triangular and no wider than the tibia.

The species may be tabulated as follows:—

Elytra much less than twice as long as wide - - -	*lata*
Elytra about, or more than, twice as long as wide.	
Second joint of antennae shorter than third - -	*ligulata*
Second joint longer than third.	
Prothorax with feeble punctures - -	*acutifrons*
Prothorax with clearly defined punctures -	*punctata*

TRICHOPTERYGIDAE.

Rodwayia.

A curious genus of blind species, quite commonly found in the nests of many species of ants. Its nearest ally (*Limulodes*) also occurs in the nests of ants in N. America.

Rodwayia minuta, Lea.

Quite common in nests of *Colobopsis gasseri*, and occasionally with *Ectatomma metallicum*.

Rodwayia occidentalis, Lea.

Occurs in nests of a *Camponotus*[1] under stones.

Rodwayia orientalis, Lea.

Occurs in nests of *Colobopsis gasseri*, *Ectatomma metallicum*, *Pheidole tasmaniensis* and *Iridomyrmex rufoniger*.

Rodwayia ovata, Lea.

Abundant in nests of the common *Polyrachis hexacantha*, and also to be taken with *Camponotus novae-hollandiae*.

HISTERIDAE.

Paromalus miliaris, Mars.

Two specimens from Forrest and Portland sent at different times by Mr. Davey as occurring in the nests of "the small black ants that mostly nest in trees and run about with their abdomens cocked in the air." One of the specimens "found in centre of nest." It appears, however, only to be an occasional visitor.

Chlamydopsis and Orectoscelis.

Of these remarkable and allied genera nine species have been described, and all with the exception of *formicicola*, apparently from single specimens. I have now to add six more, also all

1 In general appearance fairly close to *C. novae-hollandiae*.

from single specimens. The reason for this paucity of material is probably the fact that, whilst many ants' nests have been superficially examined, they have seldom been specially searched for species of these genera, and their deceptive resemblance to ants or insect remains is very strong; when mounted this resemblance would hardly be thought possible. They probably also, except when coming out to mate, live deep in the nests. Probably when nests have been systematically dug out in Australia and sent through sieves, etc., they will be found more plentifully. Although several of the specimens described were not taken in ants' nests, there is no doubt but that all the species are truly myrmecophilous.

Orectoscelis humeralis, Lewis.

Taken by Dodd from an ants' nest at Townsville, and so recorded by Lewis.

Chlamydopsis comata, Blackb.

Described from "A single specimen found in a pool of water."

Chlamydopsis duboulayi, Westw.

Taken originally by Duboulay, who frequently examined the nests of ants; but ants are not mentioned at the foot of the description.

Chlamydopsis formicicola, King (*Byzenia*). (Fig. 15.)

This species was recorded by Lewis as a synonym of *striatella*, but this is not correct. It differs in many respects from *striatella* (of which I have a Swan River—the type locality—example) but in particular by the shoulders and striation. The following remarks by King, on the elytra, apply only to this species of all the genus known to me:—"They are marked by four strong ridges, all rising towards one point, and nearly meeting behind the shoulder, the apparent perforation between the points being fringed with a few stiff yellowish setae."

I have, from the late Rev. R. L. King's collection, two specimens which were obtained as co-types of *Byzenia formicicola*, and from Liverpool (the type locality). Mr. Froggatt also sent me a specimen. King described the colour as "Piceus," and

said, "The species is readily known by its black colour," but my specimens are of a chestnut brown colour. To be quite certain, therefore, I sent my third specimen to Mr. Rainbow for comparison with the types, and in reply he wrote, "I have carefully examined your specimen with King's types, and there can be no doubt that they are one and the same species, the only difference being that yours is a shade darker; neither of them are black." There can be no doubt therefore but that King wrongly described the colour as black, and in fact he appeared to regard all fairly dark shades of colour as black. On Mr. Rainbow returning the specimen it was forwarded to Mr. Lewis, who wrote of it: "The specimen of *Chl. formicicola* is quite distinct from *striatella*."

Chlamydopsis inaequalis, Blackb.

Described from a single specimen from the top of a rotten fence post "in which *Hymenoptera* were making their nests."

Chlamydopsis inquilina, Lewis.

"Reported as occurring in ants' nests" (Lewis).

Chlamydopsis pygidialis, Blackb.

"Obtained by beating dead branches and probably connected with some species of *Hymenoptera* inhabiting the dead wood" (Blackburn).

Chlamydopsis sternalis, Blackb.

The type was taken in the same way as the type of *inaequalis*.

On comparing *Chlamydopsis* and *Orectoscelis* Lewis states, "In the genus *Orectoscelis* there is no prosternal keel, and *C. duboulaii* certainly (from Westwood's figure) and *C. sternalis*, Blk., probably belong to it." But so far as *sternalis* is concerned he must be in error, as Blackburn states of that species, "prosterno medio longitudinaliter late fortiter carinato, carina media longitudinaliter profunde sulcata."

Chlamydopsis striatella, Westw.

"Reported as occurring in ants' nests" (Lewis). A specimen before me was beaten from dwarf *Eucalypti* at Fremantle.

Chlamydopsis reticulata, n.sp. (Fig. 16.)

Brownish castaneous, appendages somewhat paler. Glabrous, except for humeral membranes, and some sparse pubescence on appendages.

Head with shallow reticulate punctures. Antennae fitted into grooves at apex of prothorax, basal joint very large, with punctures as on head, curved, with a strong inner groove; club about as long as basal joint, lightly curved and subcyclindrical. *Prothorax* about twice as wide as long, disc gently convex; front margins narrowly but distinctly raised, sides gently incurved to middle; with regular, shallow, reticulate punctures. *Elytra* about as wide as long; with a wide, deep, highly polished, subbasal impression, which, close to the base has a flattened space on each side of scutellar region terminating abruptly; shoulders in the form of raised, arched, striated epaulettes beyond each of which projects a fine and rather short membrane covered with golden pubescence, each epaulette separated from base by a narrow wedge-shaped space, and bounded posteriorly by a distinct notch; middle beyond subbasal depression finely striated, the striae towards apex merging into punctures as on prothorax, similar punctures elsewhere; each side with a large shallow depression about middle and a smaller one about apex; outer margins with strong striae converging to subbasal notches. *Pygidium* and propygidium with punctures as on prothorax, but becoming feeble at apex. *Prosternum* not ridged along middle, but with a narrow oblique ridge on each side marking the inner side of the femoral receptacle; punctures in middle as on pronotum but becoming obliterated at sides. Mesosternum with a wide, punctate, intercoxal process. Metasternum impunctate. *Abdomen* with punctures towards sides and a row of small ones at base of intercoxal process. *Legs* rather long; tibiae near base suddenly and strongly inflated and then gently narrowed to apex, the inflated parts thin and each with a shallow groove for the reception of tarsi. Length $2\frac{1}{3}$ mm.

Hab.—Australia (a single specimen, without locality label, from the late Rev. R. L. King's collection).

In many respects close to *striatella*, but the depressed basal part of elytra with a greater portion highly polished, the epaul-

ettes larger and from some directions apparently free, the hollows they cover larger, with the tuft of golden hair much longer (although not as long as described in *comata*). Each of these tufts, under a Coddington lens, appears to be a fine membrane covered with golden pubescence. The metasternum also has not a row of distinct punctures close to its side pieces, but is impunctate to its sutures. In many respects it is close to the description of *inaequalis*, but the upturned margin of prothorax is not in six lobes but four, the two median small and rounded, the others much larger, and sweeping round with an even curve to the sides, but the inner corners appear almost like the two inner lobes; *inaequalis* also is not described as having subhumeral fascicles or membranes, and is almost twice the length.

The subbasal depression of the elytra is covered towards the sides by the epaulettes, but at each side appears as the notch. The inflated portion of the four hind tibiae commences at about the basal two-fifths; on the front tibiae it is not so pronounced and commences rather nearer the base.

On this and several other species parts of the derm are covered with a dense network of fine ridges, dividing the parts affected into numerous honeycomb-like areolets; in the strict sense of the word they are probably not punctures.

Chlamydopsis excavata, n.sp. (Fig. 17.)

Dark piceous-brown, pronotum almost black, legs castaneous. Prothorax, head, py- and propygidium with short and rather sparse pubescence, apex of elytra and legs with much sparser pubescence, membranes pubescent, elsewhere glabrous.

Head with shallow reticulate punctures. Antennae with basal joint large with punctures as on head. *Prothorax* about twice as wide as long; disc gently convex; margins feebly raised in middle of apex into two rounded lobes, thence to sides more distinctly raised and sweeping round antennary receptacles with a rather strong curve; sides almost parallel; with punctures as on head. *Elytra* about as long as wide; highly polished; with a deep, wide excavation commencing at base, widest at about basal third, then narrowed with strong and regularly

diminishing walls till it opens out at about two-fifths from apex; about base on each side of scutellar region with a feebly raised space within the excavation; shoulders in the form of strongly raised eqaulettes, projecting beyond each of which is a membrane; surface impunctate; outer margins with strong striae converging to subbasal notches. *Pygidium* and propygidium obsoletely reticulated. *Under surface* and *legs* as described in preceding species. Length $2\frac{1}{3}$ mm.

Hab.—Tasmania: near Hobart (A. M. Lea).

In its shining elytra, which from some directions appear to be quite glabrous, agrees with description of *comata*, but with little else in common. The antennae on the type are completely immersed within the prothoracic grooves, so that only the outer side of the basal joint of each is visible, with the tip of the club. The epaulettes are of the same shape and size as the preceding species, and are similarly bounded, but they are non-striated; projecting beyond them also are similar golden clothed membranes. Many of its features exactly resemble those of the preceding species. The type was obtained near Brown's river under a stone which covered the nests of three species of ants—

1. Myrmecia pyriformis.
2. Ectatomma metallicum.
3. Pheidole conflicta.

Chlamydopsis longipes, n.sp. (Fig. 18.)

Black or almost so; head, pronotum, apex of prosternum, epaulettes and appendages reddish castaneous. With sparse short setae scattered about on body and appendages.

Head with shallow reticulate punctures. Antennae with basal joint large, curved, of irregular shape, with a deep inner groove and with punctures as on head; club large, gently curved and subcylindrical. *Prothorax* about once and one-half as wide as long, disc moderately convex; front margins narrowly raised and divided into lobes, sides gently incurved to middle, but with minute subgranular projections; with uniform punctures as on head. *Elytra* slightly longer than wide; with a large, wide, basal impression, which on each side of scutellar region has a

feebly elevated, flattened, feebly reticulated space; shoulders strongly elevated, and in the form of reticulated irregular epaulettes; behind these the elytra are strongly elevated, with each elevation strongly sloping inwards and rearwards, and vertical outwards; surface with punctures as on prothorax, except that about the inner walls of the post humeral elevations they become striated; with small scattered granules; outer margins with strong striae converging to a depression, which is bounded by the outer wall of the outer humeral emargination. *Pygidium*, propygidium and under surface with punctures as on prothorax, but coarser on prosternum than elsewhere. *Prosternum* without ridges and femoral grooves. Metasternum fully as long as prosternum, with a narrow, continuous median line. *Abdomen* about two-thirds the length of metasternum. *Legs* very long; femora thickened towards apex and not grooved, four hind pair moderately curved; tibiae the length of femora, somewhat curved, without flange-like extensions, the two front pairs at about middle somewhat thickened (with the thickened portion commencing angularly), and thence to apex each with a groove for the reception of tarsi; the hind pair strongly thickened at apical two-fifths, with the thickened portion not commencing angularly, and densely granulate-punctate, terminated by a short distinct mucro, and with a narrow deep tarsal groove. Length 3 mm.

Hab.—Victoria: Bannockburn (H. W. Davey).

Apparently closer to *inaequalis* than to any other described species, but base of elytra and punctures not as in description of that species, and legs much longer (the four front legs of *inaequalis* are described as longer than the elytra, and the hind pair longer than the entire body; in the present species the four front legs are longer than the entire body, whilst the hind legs are twice the length of the body.

The raised front margin of the prothorax is divided into six small median lobes, but of these the two outer ones represent the inner ends of strong curved lines that sweep round the antennary receptacles; from some directions these curves appear quite regular, but from others each is seen to have a small median elevation. No part of the elytral excavation is highly polished and all parts are reticulated. The epaulettes each are

strongly emarginated; the inner emargination is semicircular, with its outer points overhanging the basal excavation in such a manner that a line between them would be oblique; looking down into this emargination there may be seen fine golden setae, and apparently remnants of a membrane, but there is no projecting membrane or fascicle as in some other species. The outer emargination is deep, but narrow to its apices, with the outer wall narrowly raised and oblique.

On presenting the specimen to me Mr. Davey wrote, "I have just returned home from Bannockburn, and when there took the most extraordinary ant-nest beetle that I have ever seen or heard of, the nest in which it occurred was under a large stone, the ants were small green metallic ones,[1] and after a little time this beetle came tumbling up out of one of the tunnels in a most comical way, and for a moment or two I took no particular notice of it, merely thinking it was the severed head and thorax of a slightly larger ant, the way it tumbled about in the sunlight (although it has very good eyes); the hind legs are greatly developed, and its antennae most peculiar."

Chlamydopsis glabra, n.sp. (Figs. 19, 46.)

Almost black, margins of elytra towards base, and all appendages more or less reddish castaneous. Glabrous.

Head impunctate. *Prothorax* almost twice as wide as long, disc gently convex and gently undulated to sides, which are not raised, apex gently incurved to middle, front angles strongly rounded off, sides thence gently increasing in width to base; impunctate. *Elytra* slightly longer than wide; with a strong, transverse, subbasal depression which is widest in middle, but of irregular shape, and terminated just before the margins; shoulders feebly depressed; sides gently sinuous; about middle with a wide, feeble, elongated depression, near apex with a somewhat curved and deeper one; with sparse, minute, irregularly distributed punctures; margins with a few minute scratches, but without striae. *Pygidium* and propygidium impunctate. *Under surface* with scarcely visible punctures. Prosternum without a median ridge, but with a fine oblique one on each

1 The ants belonged to *Ectatomma metallicum*.

side marking the side of the femoral groove. Metasternum almost as long as pro- and mesosternum combined, and distinctly longer than abdomen, with a narrow continuous median line. *Legs* rather long; hind coxae unusually large; femora grooved for reception of tibiae, and tibiae for reception of tarsi; tibiae with thin, wide, flange-like extensions. Length $4\frac{1}{2}$, width 3 mm.

Hab.—N.S. Wales: Grenfell (E. W. Ferguson).

The total absence of striation and almost total absence of punctures (such as are present are very small and indistinct), with the smooth surface (although with depressed parts), absence of humeral tufts, and larger size, render this species very distinct. The absence of epaulettes with the very large hind coxae are probably indicative of generic rank, but the species of this genus (as also of *Articerus*) differ in so many important details that it seems advisable to allow very considerable latitude in features that ordinarily would be regarded as generic.

The pale elytral margins are very distinct, but rapidly merge into the general colour without a distinct dividing line; the apical half of their margins, as also the entire lateral margins of the prothorax, from some directions, are seen to be diluted with red, but from other directions appear scarcely, or not at all, paler than the general colour. Except for a few indistinct setae on the under surface of the tarsi, the insect is entirely glabrous. On the type the antennae are completely immersed with the receptacles for them, so that only the basal joint of each is visible. Each in area is about as large as the head, irregularly triangular in shape, and impunctate. Several of its legs are damaged, but the four hind tibiae each have a strong flange-like extension rather suddenly commencing about the basal third, and gradually diminishing, with a rounded outline, to apex.

Dr. Ferguson found the type on Weddin Mountains, September, 1907, under a log in company with remains of ants.

Chlamydopsis carbo, n.sp. (Figs. 20, 47, 48.)

Black, subopaque, legs reddish castaneous, elytral margins obscurely diluted with red. With a few short pale setae scat-

tered about on head, apex and sides of elytra, on pygidium, and legs.

Densely covered all over (less coarsely on elytral margins than elsewhere) with strong punctures of almost uniform size, the spaces between densely and minutely punctate. *Head* irregularly oblong, very gently concave. Antennae with basal joint large, curvilinearly triangular, and with much smaller punctures than on head. *Prothorax* slightly longer than wide, but slightly wider than long if a median projection be excluded; the projection occupies about three-fifths of the apex, is directed obliquely upwards and forwards so as to overhang the head, is deeply impressed along the middle from its apex to its base, with apex widely bilobed and the outer angles somewhat produced; sides bisinuate. *Elytra* quadrate; with an oblique impression on each side of base; behind each impression the shoulder, which is not elevated, projects forwards, and is tipped at the inner apex with a closely set oblique line of golden setae; apical angles strongly rounded. *Prosternum* longer than usual, each side of base with a strong femoral groove, marked internally by a fine oblique ridge, middle not ridged. Metasternum slightly shorter than abdomen, and distinctly shorter than prosternum. Basal segment of abdomen rather more than half its total length along middle, and more at sides. *Legs* wide, and, for the genus, rather short; femora grooved for reception of tibiae, and tibiae for tarsi; tibiae each with a wide flange-like extension, but on the front pair narrower than on the others. Length 2 2-3rd mm.

Hab.—Victoria: Sea Lake (J. C. Goudie).

The prothorax of *sternalis* seems to be crested somewhat as in this species, but the description of the prosternum, shoulders, etc., is very different. Mr. Blackburn referred *sternalis* and *inaequalis* to *Chlamydopsis*, but evidently with considerable hesitation. Mr. Lewis apparently regards the non-keeled prosternum as the main feature distinguishing *Orectoscelis* from *Chlamydopsis*, and this species should perhaps be referred to *Orectoscelis*, although probably a new genus will ultimately be proposed for it. This I do not venture to do at present, as the head of the type is retracted, with the antennae and eyes concealed, and to render them visible would probably mean its partial destruction.

In appearance it is like a little bit of charcoal, and I venture to suggest for it the "popular" name of "Goudie's charcoal beetle," the name by which it has been frequently mentioned in correspondence. It was taken by Mr. Goudie in a nest of very small ants under a board.

The punctures are very dense, but not net-like as in several species of the genus, nor do they anywhere become striated in appearance.

Chlamydopsis variolosa, n.sp. (Fig. 21.)

Dark brown, appendages more reddish; feebly shining.

Head immersed in prothorax; face vertical and with distinct and fairly numerous punctures. Antennae with basal joint large, irregularly triangular in shape, and about two-thirds the expanse of head. *Prothorax* about twice as wide as the length down middle, front margins narrowly raised and lobed, the lateral margins wider and less raised; with fairly large and rather dense punctures, the interspaces with smaller and dense ones. *Elytra* about as long as wide; with a wide irregular transverse depression near base, the depression scarcely punctate, but not highly polished; each side of suture at base with an obtuse densely punctate tubercle; between this and shoulder a large, subtriangular, raised, densely punctate space, its inner apical margin somewhat irregular; each shoulder divided from the medio-basal space by an oblique line, from the apex of which proceeds a small and thin pencil of hairs, its apex widely notched and sides irregularly obliquely striated, the striae all converging to the notch; behind medio-basal elevation on each side with an obtuse tubercular elevation; the surface elsewhere feebly undulating and with punctures much as on prothorax. *Under surface* and py- and propy-gidium with punctures as on pronotum, except that the larger ones are rather deeper and smaller. Prosternum feebly lobed in front, not depressed or carinated along middle. Metasternum slightly longer than pro- and meso-sternum combined, with a deeply impressed median line. *Abdomen* with basal segment about half the length of metasternum. *Legs* long, femora narrowly grooved; tibiae strongly inflated near base, and thence regularly narrowed to apex; tarsi long and thin. Length $2\frac{1}{3}$ mm.

Hab.—Queensland: Dalby (Mrs. F. H. Hobler).

The shoulders, although very different to those of *formicicola*, are nearer to those of that species than to those of any other described one, but the parts behind them, the prothorax, punctures, etc., are very different. The antennae on the type are completely immersed in their cavities, so that only the outer face of the basal joint of each is visible. The larger punctures cause a curious small-pox like appearance, especially on the prothorax. The side pieces of the mesosternum project between the elytra and prothorax much as in weevils of the subfamily *Baridiides*. The type was sent in spirits, with many other insects, without comment.

NITIDULIDAE.

Brachypeplus auritus, Murray.

Nearly always to be found in nests of the little native bee (*Trigona carbonaria*) near Sydney.

Brachypeplus basalis, Er.

Seems a fairly common visitor to nests of the little native bee near Sydney; and numerous specimens were once seen in W. Australia about a hive bees' nest in a fallen tree. It is, however, quite a common bark insect.

Circopes pilistriatus, Macl.

A single specimen was taken in a nest of *Camponotus nigriceps*, but it was probably there by accident.

Pria rubicunda, Macl.

Six specimens sent by Mr. Davey as occurring in nests of a "small black evil smelling ant" in a rotten log. I have also seen the species in the company of ants, both in N.S. Wales and Tasmania.

In Masters' Catalogue the species is recorded only from Gayndah, but it is common in many parts of Eastern Australia and Tasmania.

TROGOSITIDAE.

A specimen of this family, regarded by Mr. Blackburn as probably belonging to a new genus near *Trogosita*, was taken in a nest of *Pheidole bos* at Mount Barker (W. Australia). Having but the one specimen and the cephalic appendages being very small I have not considered it advisable to deal with it at length. It is, however, a curious insect, with an outline and general appearance much as in some of the narrow black species of *Adelotopus*.

COLYDIIDAE.

Nepharis alata, Cast.

(*Hiketes thoracicus*, King).

Recorded by King from specimens "found in the nest of a large black ant, under a stone at King George's Sound. Messrs. Goudie and Davey have taken it in Victoria from nests of *Iridomyrmex nitidus*.

Nepharis costata, King.

Recorded by King as being "found in the nest of a small red ant living in wood and under bark of dead trees on the ground." Messrs. Goudie and Davey have taken it in abundance from nests of *Iridomyrmex nitidus*.

Nepharis goudiei, Lea.

Occurs in nests of *Crematogaster laeviceps*.

Originally referred with some doubt to *Nepharis*. M. Grouvelle, to whom a specimen was sent, wrote to me that he considered it generically distinct, but I will leave to him the task of proposing a new genus for its reception.

Nepharis serraticollis, n.sp. (Fig. 22.)

Reddish-brown, margins and legs somewhat paler. Without pubescence.

Head flattened, somewhat dilated between antennae, apex notched, a dentiform projection behind each eye, which is small and lateral, with dense and coarse punctures, becoming smaller

in front. *Prothorax* about as long as greatest width, base and apex subtruncate, base slightly wider than apex; margins flattened and strongly serrated; with dense, strong punctures. *Scutellum* minute. *Elytra* very little wider than prothorax, almost parallel-sided to beyond the middle, apex strongly notched, sides with rather narrow flattened margins; regularly (except that the alternate interstices are sometimes feebly raised) cancellate-punctate, in about ten rows, the punctures of almost even size throughout. *Under surface* with punctures as on prothorax. *Femora* very stout; tibiae rather thin but somewhat inflated at apex; tarsi thin. Length 2 2-3rd mm.

Hab.—Victoria: Geelong—in a nest of *Iridomyrmex nitidus* (H. W. Davey).

The antennae are short and indistinctly jointed much as in *goudiei*, so that if it becomes necessary to regard that species as belonging to a new genus, this species should be associated with it. From *goudiei*, however, it differs in being longer and almost twice as wide, with the head of different shape and eyes larger. It has no projecting submentum as in *costata*.

On the type there are thirteen teeth of almost equal size on one side of the prothorax, and fourteen on the other.

Ditoma villosa, n.sp. (Fig. 23.)

Dingy reddish brown, under surface and appendages paler. With numerous long straggling yellowish hairs; under surface pubescent.

Head densely and coarsely punctate, with two feeble tubercles in middle, shallowly depressed between antennae and strongly raised above each antenna, the distance between the tips of the raised parts equal to, or slightly greater than, that between the outer margins of the eyes. Antennae about as long as greatest width of head, first joint entirely concealed from above, second slightly longer than third, but from above appearing somewhat shorter; tenth joint slightly larger than eleventh, the two forming a club. *Prothorax* at its greatest width about twice as wide as the length down middle, densely granulate, sides strongly serrated or denticulated; the front angles strongly produced, and also serrated externally. *Elytra* with margins

finely serrated, but otherwise parallel-sided to near apex; with close, regular rows of large punctures. *Under surface* densely punctate. *Legs* rather short; femora stout. Length 3½—3 2-3 mm.

Hab.—Victoria: Birchip, in nests of *Crematogaster laeviceps* (J. C. Goudie); N.S. Wales: Clarence River (G. Compere), Forest Reefs, under a log close to an ants' nest (A. M. Lea).

Several species of the genus are known to have short setae, but on this species the clothing is decidedly long. The teeth on each side of the prothorax vary in number from four to six, exclusive of those (which are usually much smaller) on the produced front angles.

Kershawia rugiceps, Lea.

Occurs in nests of *Iridomyrmex nitidus*.

Both Messrs. Goudie and Davey have sent a bright red larva as belonging to this species. It is of an almost blood-red colour, and subopaque, with the head shining and dark brown, except the muzzle, which is somewhat reddish; on the first thoracic segment there is an infuscate shining M; on each of the two following segments there are two rounded, infuscate, shining spots. The apical segment on its upper surface is shining, the colour of the head, and with two long pale acute processes curved at their apices. Scattered all over the upper surface and sides are some long yellowish hairs; the under surface has much shorter but similarly coloured hairs. The length of a full-grown larva is 6 mm.

Bothrideres tibialis, Blackb.

Mr. Davey informs me that he has taken numerous specimens of this species under the bark of Eucalyptus trees, in the nests of *Colobopsis gasseri*. They were probably there by accident, however.

TRETOTHORACIDAE, n. family.

Antennae ten-jointed, non-clavate. Mentum wide, entirely concealing mouth parts. Metasternum elongate. Four front tarsi five-jointed, the others four-jointed, subapical joint of each not bilobed.

Additional details are given under the generic synopsis. The family at present may be placed between the *Rhysodidae* and *Cucujidae*.

The entire, or almost entire, concealment of the palpi is a character that is not unique in beetles, but so far as I am aware, outside of the *Rhysodidae*, only occurs in myrmecophilous genera.

Tretothorax, n.g.

Head elongate, narrowed behind eyes and strongly constricted at base, sides in front of eyes incurved, and then suddenly inflated at antennae, apex abruptly truncate and without clypeal sutures. Eyes rather large, round, lateral, rather finely faceted, inserted much closer to base than apex. Antennae ten-jointed, short, fairly stout, of almost even width throughout, first joint longer than tenth, this moderately, all the others strongly transverse, apex abruptly truncate. Palpi entirely concealed. Mentum strongly transverse, entirely concealing the mouth parts, front semicircularly emarginate in middle. Gular sutures represented by two short, deep basal grooves. *Prothorax* elongate, deeply grooved both longitudinally and transversely, prosternal sutures deep in front. *Scutellum* minute. *Elytra* long and somewhat depressed, sides gently rounded, and clasping the body. *Mesosternum* fairly long, outer side pieces much larger than the inner, and with deep sutures, the inner not well defined. Metasternum elongate, hind apex notched in middle; episterna very narrow. *Abdomen* long, first segment about as long as second and third combined, second slightly longer than third, third than fourth, and fourth than fifth. *Legs* rather short and thin; front coxae touching, globose, inserted at extreme base of prosternum, and with open coxal cavities, middle coxae slightly larger, but deeply buried and lightly separated; hind coxae still larger, transverse, sides touching elytra, separated internally by a triangular intercoxal process; femora linear, not grooved, edentate, hind pair scarcely passing middle of abdomen; tibiae slightly shorter than femora, terminated by two short stout spines; tarsi linear, not spongiose on lower surface, apical joint slightly longer than first, and first

than any of the others, two first pairs five-jointed, the hind pair four-jointed; claws small and simple. Body winged.

A highly remarkable genus which I have been unable to place in any family by any system of classification I have looked into. Thinking that the Rev. T. Blackburn, with his wider experience, could help me, I sent a specimen to him for his opinion, suggesting that it possibly came close to the *Rhysodidae* or *Colydiidae*, and of it he wrote:—

"One of the most remarkable insects I have seen for a long time past, and not falling naturally into any family known to me. Possibly a new family, but this could not be determined without knowing whether the other sex is heteromerous. If it is I should say that this represents an uncharacterised family (or rather subfamily). If, however (as is probable), this is a male and the female is pentamerous, I should place it in the *Rhysodidae* without much hesitation, and consider it as presenting a character in the tarsi which is by no means rare in the *Clavicornis* (e.g., in *Cucujidae* and *Cryptophagidae*). If, however, it is ♂ of a species with ♀ tarsi pentamerous it would be worthy of note that it is something of the nature of a "missing link" between *Colydiidae* and *Rhysodidae*. You will, of course, remember that these remarks are made without my having examined the under surface. The antennae are certainly as you note, *Colydiiform*, but I should give greater weight to the structure of the tarsi, palpi and pronotum; as far as I can see beneath the head there are some points of analogy with the Passandrides. I think the tarsi are impossible for a *Colydiid*."

Since the specimen mentioned was sent to him I have seen many others (nearly a hundred), and all have the tarsi 5-5-4. Such tarsi are at once suggestive of the *Heteromera*, but they appear to be quite negatived by the apparent entire absence of palpi, whilst the antennae are certainly close to those of several genera of *Colydiidae*, and, as with those, the missing eleventh joint appears to be completely buried within the apex of the tenth. The under surface of the head is not at all like any of the *Passandrides* that I have examined. In the *Rhysodidae*, although the palpi are apparently absent, the mentum is strongly produced instead of emarginate in the middle, and the front coxae are strongly separated instead of touching.

The venation has been of no assistance to me, but as it probably may be to others, a sketch of a wing is given.

Tretothorax cleistostoma, n.sp. (Figs. 13, 14, 49.)

Black or blackish-brown, and rather feebly shining; elytra and under surface usually a trifle paler.

Head more than twice as long as wide; convex and with rather coarse punctures between eyes, a groove close to each eye filled with short dense reddish setae, the same continued, but as a feeble ridge on each side to about the apical third, base with similar but denser setae; between the sublateral setose ridges with a feebly elevated impunctate carina; obtusely semicircularly raised between antennae, and with coarse punctures, becoming smaller, but still distinct, to apex. Under surface with a few coarse punctures, sides behind eyes with setae as on upper surface. Antennae scarcely as long as head, width slightly more than that of front tibiae. *Prothorax* about once and one-half as long as greatest width, sides gently narrowed to apex, and gently towards basal third, thence dilated to near base; with a deep longitudinal groove in middle, and another curved one on each side, the three traversed by a deep groove at about basal third; in consequence each side of the base appears in the form of a raised lobe, obtusely pointed, and almost touching the obtuse point of a longer frontal lobe; the latter with coarse punctures in front, but smooth behind, the basal lobes with a few punctures about extreme base only. *Elytra* narrow but distinctly wider than prothorax, base gently arcuate, sides very feebly dilated to about the basal third, and then feebly narrowed to apex, apex itself feebly notched; with a row of minute punctures on each side of suture, but elsewhere with large dense punctures, rather larger and more rounded towards sides than suture; with short subsutural striae towards apex. Epipleurae rather narrow throughout, each with a regular row of round punctures. *Under surface* with rather dense punctures, rather smaller than on elytra, except on mesosternum and just in front of front coxae, where they are as large. *Legs* densely and rather coarsely punctate, front tarsi with first joint slightly longer than wide, and feebly dilated to

apex, second, third and fourth transverse, and feebly diminishing in size, fifth slightly narrower than fourth, about as long as the first; middle tarsi with the joints, except the fifth, somewhat longer, and only the fourth feebly transverse; hind tarsi with first and fourth joints moderately long; all the tarsal joints (except the claw joint) very feebly grooved on lower surface. Length $8\frac{1}{4}$—$11\frac{1}{2}$ mm.

Hab.—Queensland: Little Mulgrave River, in nests of *Lobopelta excisa*, and of *Odontomachus coriarius* (H. Hacker).

I am unable to point out sexual differences; there is a slight difference in the comparative width across eyes, and between antennae, but these differences are probably individual, rather than sexual. Each puncture of the head and legs contains a short seta. The antennae are rather densely setose. From each side near the base a hole can be seen right through the prothorax, but this is usually filled with mud, on the largest specimens it is just possible for a number eleven Kirby and Beard pin to pass through it up to the head. Mr. Hacker sent two specimens at first as having been taken on a log;[1] later he sent a single one as from the nest of an ant, and still later numerous specimens from nests of two species of ants to Mr. French, who kindly allowed me to examine them.

Cryptophagidae.

Mr. Davey sent a species belonging to this family as from a nest of small black ants. As, however, it was represented by a single specimen of very minute size, and of somewhat doubtful genus, it is not fully worked out at present.

Lathridiidae.

Holoparamecus kunzei, Aube.

On one occasion numerous specimens of this species were taken from a nest of ants under bark in W. Australia. I have to thank M. Grouvelle for the identification of the species.

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1 He thought they possibly belonged to the *Brenthidae*, and there is certainly a striking superficial resemblance to some genera of that family. And there is even a short groove behind each antenna, almost like a scrobe.

Dermestidae.

Mr. Goudie has seen numerous larvae belonging to this family in ants' nests, but so far has not taken the adult beetles.

Trogoderma socium, Lea.

Originally referred to *Anthrenus*, but, as suspected by Mr. Blackburn, really belongs to *Trogoderma*. Numerous larvae were seen in several nests of a small black ant,[1] but only one adult beetle was obtained.

Byrrhidae.

Microchaetes, sp.

Mr. Goudie and Mr. Davey each sent a single specimen of this genus as from a nest of *Iridomyrmex nitidus*; but they are too badly abraded to be identified with certainty.

Scarabaeidae.

A species of this family, apparently close to *Maechidius*, is represented in my collection by a single specimen that was taken in the nest of a white ant at Swan River. Mr. Blackburn returned it as unknown to him, and as probably not a *Maechidius*. Unfortunately its antennae are badly damaged, so it is not now described.

Maechidius.

Specimens of this genus may frequently be found under bark of Eucalypti close to masses of small black ants, and the ants will often run over them. But as such ants often swarm under such bark and run over many other species of beetles that are certainly not ants'-nest species, probably not much importance can be attached to this. But the appendages of the head are certainly very curiously modified (and protected) in comparison with other *Melolonthides*.

1 Specimens of ants mounted with the type are badly injured, but evidently belong to the genus *Iridomyrmex*.

Maechidus tibialis, Blackb.

Numerous specimens of this species were seen on one occasion by Mr. Froggatt in galleries of *Coptotermes lacteus*.

Phyllotocus bimaculatus, Er.

An occasional visitor to nests of *Myrmecia pyriformis*.

Cryptodus.

Probably all the species of this genus, at one time or another, resort to the nests of ants, the very curious modification of the cephalic appendages seeming to demonstrate the need of some special protection. They do not appear, however, to be interfered with by the ants.

Cryptodus caviceps, Waterh.

Of this species a pair *in cop.* were taken on top of a nest of the common mound-building ant *Leptomyrmex detectus*. It quite frequently comes to light in S.W. Queensland.

Cryptodus paradoxus, W. S. Macl.

This species may frequently be seen with small black ants[1] under logs, and Mr. Cox has taken it in nests of *Camponotus nigriceps*.

Cryptodus tasmannianus, Westw.

A specimen, apparently a small male of this species, was taken in a nest of *Camponotus nigriceps*, near Sydney, by Mr. W. H. Cox.

Cryptodus variolosus, White.

Common in the coastal districts of W. Australia in nests of a small blackish ant (probably an *Iridomyrmex*) that builds nests of small chips and twigs than can sometimes be set on fire.

1 Probably a Colobopsis or Iridomyrmex.

Novapus bifidus, n.sp. (Figs. 50, 51, 53.)

♂. Of an uniform reddish-brown, except that the head and some parts of the legs and of the prothoracic margins are black or blackish. Under surface with long reddish hair, becoming lineate in arrangement on the abdomen, pygidium and legs.

Head small, with coarse punctures; in front with three projections, a median one truncate at its tip, and a smaller one about half way between the median one and each eye. With a strong erect horn, slightly longer than head is wide, and distinctly bifid at its apex, punctured as the rest of head at its lower front, but the punctures decreasing in size upwards and becoming very small at the apices. *Prothorax* about once and one-third as wide as long; with an excavation occupying about one-half of its width, its hinder margin evenly curved, but sides almost straight; slightly notched behind head; with rather dense and shallow punctures, somewhat sparser, in excavation than elsewhere. *Scutellum* with punctures only about base. *Elytra* slightly narrower than widest part of prothorax; with punctures somewhat as on prothorax, but sparser and more irregular, and in places in feeble geminate striae; with smaller punctures irregularly distributed, and becoming fairly numerous towards sides. *Abdomen* with dense punctures at sides, but becoming sparse and seriate across middle. *Legs* stout; front tibiae with three strong teeth, the front one rounded, the others somewhat larger and triangular, spur just passing base of front tooth, and about the length of claw joint; middle tibiae with two semicircular ridges tipped with stout setae, in addition to the strong apical ridge, with two stout spurs of uneven size, the shorter as long as the first tarsal joint, the other as long as the two first tarsal joints combined; hind tibiae with somewhat similar ridges and spurs. Length 25, width 14 mm.

♀. Differs in having a much smaller cephalic horn, divided at the tip but with parallel sides, and the punctures coarser. The prothorax is nowhere quite as wide as the greatest width of elytra, the excavation is represented by a very small frontal impression, scarcely visible from some directions, the punctures are more numerous and slightly larger. The elytra have rather more distinct punctures. The abdomen has rather numerous punc-

tures in the middle, and the spur of the front tibiae is smaller and does not quite extend to the base of the apical tooth, and the two hind teeth are less acute. Length 23, width 13 mm.

Hab.—Queensland: Cape York, in a large nest of white ants (H. Elgner).

Close to *crassus*, but cephalic horn of male stouter (except at the base, where it is much thinner), shorter and very distinctly bifid, instead of rather obtusely bilobed (compare figures 50 and 52); prothoracic excavation with parallel sides instead of almost circular in outline (compare figures 53 and 54), the excavation itself with comparatively sparse and more or less rounded punctures, instead of with very dense and more or less transverse ones. The teeth of the front tibiae are also more acute, with deeper notches between them, whilst the spurs are shorter and thinner. The female differs from the female of *crassus* in having the horn larger and bifid, scutellum with punctures on basal half only, front tibiae with larger and more acute teeth, but the spur on each much smaller and less conspicuous. *Crassus* is a fairly common species in W. Australia, where it occurs in the rotting cores of species of *Xanthorrhoea*. *Adelaidae*, described as close to *crassus*, is stated to have the head of the female without a horn; *striatopunctulatus* as with the scutellum densely punctate and prothorax not wider than elytra. The other described species have the cephalic horn simple. Of *rugosicollis* only the female has been described (and it is the only sex known to me), but it also has the cephalic horn simple.

Mr. Elgner saw numerous larvae and pupae in pupal cases in the nest, and sent one of the pupae for examination, in addition to the beetles themselves.

Elateridae.

Tetralobus, sp.

Mr. Elgner has sent a very fine species of this genus as from a large nest of white ants at Cape York, but for want of the necessary literature I have been compelled to leave it unnamed at present.

PTINIDAE.

Several remarkable genera belonging to this family are to be taken in ants' nests, the species occurring sometimes in quite considerable numbers, but usually sparingly. They are all characterised by remarkable antennae and extremely minute palpi, and many have a very large prothoracic fovea. They are all apterous.

Polyplocotes longicollis, Westw.

Occurs with ants.

Polyplocotes nitidus, Westw.

Occurs with ants

Diplocotes howittanus, Westw.

Occurs in nests of ants under bark.

Diplocotes foveicollis, Oll. (Figs. 24, 55.)

Occurs in nests of ants under bark.[1]

Diplocotes niger, v.d. Poll.

I have not seen the original description of this species, but Mr. Blackburn[2] regards it as synonymous with *Diphobia familiaris*, Oll.

Diplocotes armicollis, n.sp. (Figs. 25, 26.)

Dark reddish castaneous, club somewhat paler. Upper surface entirely glabrous; sterna with a median stripe of very short golden clothing.

Head transverse; behind antennae bisinuate; each side of base subacutely produced; densely punctate. Antennae extending to middle coxae, first joint stout, slightly curved, and as long as second and third combined, second slightly longer than third and curved at the base, third to ninth very feebly decreasing in size, tenth slightly longer than eighth and ninth

1 An ant sent with this species by Mr. Davey is very much like *Colobopsis gasseri*, but is somewhat larger, with the abdomen different.

2 Proc. Linn. Soc. N.S. Wales, 1892, p. 300.

combined, base rounded, sides almost parallel, eleventh about half the length of tenth and somewhat narrower, its tip densely pubescent. *Prothorax* slightly longer than wide, each side just before middle produced into an acutely angular tubercle, just behind middle feebly and obtusely produced, and then gently rounded towards base; densely strigose, most of the strigae converging to a large deep fovea, that is nearer base than apex. *Elytra* ovate, strongly convex; with regular rows of rather small and narrow punctures; interstices impunctate, not separately convex. *Abdomen* with first and second segments strigose at sides, the third throughout; elsewhere with somewhat irregular punctures. *Legs* moderately long. Length $1\frac{3}{4}$—2 mm.

Hab.—S. Australia: Adelaide, under bark with ants (H. H. D. Griffith).

Remarkably close in general appearance to *foveicollis*, but with a sharp tubercle or projection on each side of prothorax. In *foveicollis* this projection is rounded or in the form of "an obtuse angle." The present species also has the elytra slightly wider and quite glabrous, instead of sparsely pubescent. The club is slightly compressed, so that from one direction it appears but little wider than the ninth joint, but from another direction distinctly wider.

Diplocotes decemarticulatus, n.sp. (Fig. 57.)

Dark reddish castaneous, elytra, legs and club somewhat paler. Elytra with very sparse and extremely short pubescence, prothorax with a few moderately long thin setae; sterna as in preceding species.

Head and antennae as in the preceding species, except that the antennae are slightly shorter, and with only ten joints. *Prothorax* and *elytra* the same, except that the latter have very minute punctures on the interstices. *Abdomen* densely and finely strigose, except on middle of second segment, where there are a few punctures. *Legs* moderately long. Length 2 mm.

Hab.—W. Australia: Geraldton (A. M. Lea).

Except for a slight difference in colour of elytra, perhaps not constant, it would be practically impossible to distinguish a specimen of this from one of the preceding species, if the

antennal joints were not counted; the extremely curious prothoracic sculpture being identical. The clothing on the upper surface is scarcely perceptible, and the minute punctures on the elytral interstices are very indistinct.

Diplocotes strigicollis, n.sp.

Reddish castaneous; legs and club somewhat paler. With fairly numerous, pale, short, stiff setae, becoming lineate in arrangement on the elytra.

Head as in two preceding species. Antennae extending to middle coxae, first joint stout and very little longer than second, second slightly longer than third, third to eighth equal in width and subequal in length, ninth inflated, subovate, almost as long as three preceding joints combined, tenth slightly narrower and about half the length of ninth, its apex truncate and densely pubescent. *Prothorax* slightly longer than wide; each side just before middle produced into a small acutely angular tubercle, and at basal third notched; densely longitudinally strigose; transversely impressed at basal third, and feebly depressed (but not foveate) in middle of depression. *Elytra* briefly ovate, strongly convex; with regular rows of moderately large but shallow punctures; interstices finely punctate, not separately convex. *Abdomen* densely longitudinally strigose. *Legs* moderately long. Length 1¼ mm.

Hab.—S. Australia (type in Australian Museum).

In general appearance like a small setose specimen of the preceding species, and also with ten-jointed antennae, but the club comparatively much wider, and the prothorax with a shallow submedian impression instead of a deep fovea.

The species known to me may be tabulated as follows:—

Antennae ten-jointed.
- Prothorax with a very large fovea - *decemarticulatus*, n. sp.
- Prothorax without such a fovea - - - *strigicollis*, n. sp.

Antennae eleven-jointed.
- Prothorax without a very large fovea - - *howittanus*, Westw.
- Prothorax with such a fovea.
  - Prothorax acutely armed, and elytra glabrous *armicollis*, n. sp.
  - Prothorax obtusely armed, and elytra clothed *foveicollis* Oll.

Ectrephes.

Prof. Westwood referred to this genus two species that certainly appear to be generically different from *formicarum*, its type. In Thesaurus Entomologicus Oxoniensis, plate 3, compare—

Fig 1.—*E. formicarum*, Pasc., with
Fig 2.—*E. kingii*, Westw., and
Fig. 3.—*E. pascoei*, Westw.

It will be seen that the two latter have the prothorax deeply foveate, whilst the first has it without a fovea at all. The antennae also are different.

In *formicarum* and *kingi* the antennae are three-jointed, but the third joint is very different *inter se*. In *pascoei* the antennae are figured as six-jointed, but in the description Westwood says, "antennarum clava oblongo-ovali, depressa, disco supero et infero transverse tri-impresso." The club, according to the figure, is composed of four joints. I believe that the three species should in fact be regarded as belonging to three genera.

Ectrephes formicarum, Pasc.
(*Anapestus kreusleri*, King.)

Taken in ants' nests both in South and Western Australia.

Ectrephes pascoei, Westw.

Described as having been taken under bark, but probably there associated with ants.

Ectrephes kingii, Westw.

Described originally as from Swan River. Mr. Goudie sent me a specimen that was "found in a small black ant's nest in a piece of stick lying on the ground, August, 1908." Mr. Davey captured a specimen at the same time, and it should now be in the National Museum.

Enasiba tristis, Oll.

I have been unable to obtain any additional particulars to those contained in the original description of this species; but

as the genus is allied to *Diphobia* and *Diplocotes*, its only species is practically certain to have myrmecophilous habits.

Paussoptinus laticornis, Lea.

Frequently taken by Messrs. Davey and Goudie in nests of *Iridomyrmex nitidus*.

Paussoptinus brevipennis, Pic.

Recorded from Moora, W. Australia.

Ptinus exulans, Er.

Sometimes occurs in abundance in deserted beehives.

Diphobia familiaris, Oll.

Occurs under loose bark of Eucalypti in company with *Iridomyrmex nitidus*.

Hexaplocotes sulcifrons, Lea.

The type of this species was taken from under a stone in an ant's nest.

TENEBRIONIDAE.

Tribolium myrmecophilum, Lea.

Numerous specimens were taken by Messrs. Davey and Goudie in nests of *Iridomyrmex nitidus*.

Amarygmus termitophilus, n.sp.

Metallic blue or green, scutellum and under surface (the latter in parts obscurely diluted with red) black, appendages red, but five apical joints of antennae more or less black. Glabrous.

Head with dense, clearly defined punctures. Clypeus almost twice as wide as long, basal two thirds with somewhat similar punctures to the rest of head, apical third membranous, impunctate, and almost flavous. Labrum with clearly defined punctures of moderate size, with a few larger ones scattered about. Antennae passing hind coxae, third joint longest of all. *Prothorax* about twice as wide as long, sides strongly rounded; with small dense punctures, the interspaces finely shagreened; with a fine, impunctate, median line. *Elytra*

elongate-cordate, rather more than twice as long as wide; strongly striated, the striae with punctures of moderate size; interstices strongly convex, and with small and fairly numerous punctures; epipleurae smooth, and almost impunctate. *Abdomen* finely wrinkled, second and third segments each with a row of small punctures at the base. *Legs* long and thin. Length 5—6 mm.

Hab.— Queensland: Cape York, in a nest of white ants (H. Elgner); N. Territory, Port Darwin (N. Davies).

The larger or the two Queensland specimens before me has the elytra of a beautiful dark blue colour, from some directions appearing almost purple, but the head and prothorax are more green than blue; as on the smaller specimen; the latter has the elytra much the colour of the prothorax, but from certain directions they appear purplish-blue. Each elytron has a short, oblique subsutural stria, extending for about thrice the length of the scutellum. The elytral interstices are much more convex than in any other small species known to me. The outlines, but scarcely anything else, are much as in *indigaceus*.

Mr. Elgner in forwarding the specimens to me wrote: "In one nest about twelve feet high, when down about half, I noticed these little beetles coming out of the passages of the nest." They probably live with the white ants simply as a matter of convenience. All the fairly numerous specimens of *A. rimosus*, that I found some years ago, were seen in tunnels in citrus trees made by the fine longicorn *Uracanthus cryptophagus*.

CISTELIDAE.

Iophon myrmecophilus, Champ.

Recorded by Champion as occurring in the nests of *Ectatomma reticulatum* under stones.

LAGRIIDAE.

Lagria formicicola, Lea.

Occurs in nests of *Myrmecia forficata* and of a smaller stingless species.[1]

1 Unfortunately no specimen of the smaller species was kept, but it was about the size of *Polyrachis hexacantha*.

Lagria grandis, Gyll.

An occasional visitor to ants' nests under stones.

ANTHICIDAE.

Anthicus australis, King.

Two specimens, sent by Mr. Davey as from a nest of *Iridomyrmex nitidus*, evidently represent a variety of this species. They differ from the normal form in having the basal joint of antennae much darker (almost black) than the other joints, and the under surface and legs (except that the tarsi are piceous) entirely black. One has the postmedian fascia rather narrower than usual, but from the other it is entirely absent.

Anthicus glaber, King.

Six specimens (two each from three nests) taken near Hobart[1] from nests of *Colobopsis gasseri*. The species was originally recorded from S. Australia without any indication as to its habits. I have also taken it at Tamworth (N.S. Wales) in flood debris.

CURCULIONIDAE.

Tasmanica myrmecophila, Lea.

A minute blind weevil, the first noted specimen of which was taken from under a stone, in the nest of a small red ant. A second dried and discoloured specimen was subsequently obtained under a stone.

BRENTHIDAE.

Cordus hospes, Germ.

Occurs in the nests of many species of ants (including *Iridomyrmex nitidus*[1]) and of several species of termites; and is the only species of its family known to occur in all the Australian States.

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1 Previously unrecorded from Tasmania.

1 Mr. Davey on one occasion found an "immense" number in a large nest of this ant.

CHRYSOMELIDAE.

Mr. Davey sent a small species of *Agetinus* as from a nest of *Iridomyrmex nitidus*, but such a typically leaf-eating species was almost certainly there by accident. In sending it he wrote, "This was surrounded by ants, and though not in the nest proper, was roofed over by the ants."

EROTYLLIDAE.

Tritomidea tasmaniae, n.sp. (Fig. 26.)

Black, some parts diluted with red, appendages reddish castaneous; shining and glabrous.

Elliptic, moderately convex. *Head* immersed in prothorax up to the eyes, widely transverse; with rather dense but small punctures; clypeal suture deep on sides, but feeble across middle. Antennae short, club three jointed, its first joint small but distinctly transverse, the others considerably large and more transverse. Prothorax fully twice as wide as long, sides strongly rounded, and very narrowly margined, apex semicircularly emarginate and much narrower than base, the latter with a large scutellar lobe, but outside of this straight to the margins; punctures as on head. *Scutellum* minute. *Elytra* with outlines continuous with those of prothorax, and with similar margins, widest at about basal fourth, thence regularly rounded and decreasing in width to apex; finely striate, the striae with very feeble punctures, and the two on each side of the suture were very feeble; the interstices with small but fairly distinct punctures. Epipleurae moderately wide at the base, becoming very narrow posteriorly. *Prosternum* wide and smooth, hinder apex gently incurved to middle and feebly longitudinally impressed. Intercoxal process of mesosternum about thrice as wide as long. Metasternum slightly longer than two following segments combined, with minute but fairly distinct punctures; episterna very narrow. *Abdomen* with first segment slightly longer than second and third combined, these equal in length, and each slightly longer than fourth, fifth very slightly longer than third. *Femora* rather short and stout; tibiae

rather short, moderately dilated to apex; tarsi thin, apical joint elongate. Length 2 4-5th—3 mm.

Hab.—Tasmania: Hobart, four specimens from a nest of *Amblyopone australis* (R. A. Black), Parattah (A. M. Lea).

The front and sides of prothorax, tips of elytra (and sometimes the suture) head and under surface are more or less noticeably diluted with red; the tip of the abdomen is usually no darker than the legs, of these the tarsi are almost flavous.

The genus, to which this species belongs, is represented by several others in Australia, and for long was an enigma to me. An allied species, from N.S. Wales, was sent some time ago to Mr. George Lewis for his opinion, and he returned it marked as probably a *Tritomidea*.[1] Mr. Blackburn when applied to wrote: "I have this species, and have regarded it as probably an *Erotylid*. I sent a specimen some time ago to Dr. Sharp for his opinion, but unfortunately the box and the enclosed insect were smashed in the post." The majority of the species live in fungi; on my mentioning this to Mr. Black, and questioning his obtaining the specimens in the nest of an ant, he was quite positive that they were so obtained. I do not remember how the Parattah specimen was taken.

Episcaphula termitophila, n.sp. (Fig. 27.)

Black and red, shining. Glabrous, except for some very fine and sparse pubescence on the under surface.

Head about once and one half as wide as long; with dense and distinct punctures, somewhat smaller in middle than elsewhere. Antennae about as long as the width at apex of prothorax, third joint distinctly longer than second or fourth; club about as long as five preceding joints combined, each of its joints strongly transverse. *Prothorax* not twice as wide as long, front angles acute, hind ones almost rectangular; base widely bisinuate; with numerous minute punctures, and with some coarse ones in irregular clusters towards sides, about base and apex. *Scutellum* with minute punctures. *Elytra* widest at about basal fifth, thence regularly diminishing in width;

1 As it seems desirable to include the present species in this paper, I have accepted his opinion as correct; if not a *Tritomidea*, it belongs, at any rate, to a genus not yet recorded.

with rows of very small punctures, but becoming moderately large towards the base in the fourth and fifth rows, and sometimes in the third; interstices with sparse and extremely small punctures. *Legs* rather short and stout. Length 7—7½ mm.

Hab.—Queensland: Cape York, three found together in a large nest of white ants (H. Elgner), Somerset (C. French); Darnley Island (Elgner).

The outlines are much as in *australis*, but the markings are very different. The upper surface of the head is black; the prothorax is red, with a moderately large, irregular, transversely oblong, medio-basal black patch, and the margins narrowly blackish; the scutellum is black; the elytra are black, but each with two large red patches, one subbasal and not quite touching the side and narrowed towards, but not touching, the suture; the other postmedian, and more fasciate in appearance, but not quite touching the side or suture. The under surface and legs are reddish, the former feebly stained in the vicinity of the legs. The antennae are of a rather dark red, with the club somewhat darker.

That such a typically fungus beetle as an *Episcaphula* should be found in a white ants' nest is surprising; but Mr. Elgner also sent larvae of another species as from a white ants' nest, and another species of the family is here recorded as from a true ants' nest.

Var. subapicalis, n.var.

Two specimens (from Somerset and Darnley Island) differ from the typical ones only by having an additional subapical spot on each elytron.

The elytral markings of this variety, although not quite the same, are somewhat as in *nigrofasciata*, but that species is considerably less convex, the seriate punctures on the elytra larger and more regular, the interstices with quite distinct, although small, punctures, and the width at the junction of the prothorax and elytra considerably less.

CORYLOPHIDAE.

A single very minute specimen, apparently belonging to the genus *Orthoperus*, was taken from a nest of *Colobopsis gasseri* at Launceston.

EXPLANATION OF PLATES XXV.–XXVII.

Plate XXV.

Fig. 1.—Adelotopus celeripes, Lea.
2.—Dabra nitida, Lea.
3.—Dabrosoma pubescens, Lea.
4.—Termophila punctiventris, Lea.
5.—Eleusis nigriventris, Lea.
6.—Glyptoma kingi, Lea.
7.—Plectostenus gracilicornis, Lea.
8.—Articerus cylindricornis, Lea.
9.—Clavigeropsis australiae, Lea.
10.—Scydmaenus microps, Lea.
11.—Phagonophana macrosticta, Lea.
12.—Myrmicholeva ligulata, Lea.
13. } Tretothorax cleistostoma, Lea.
14. }

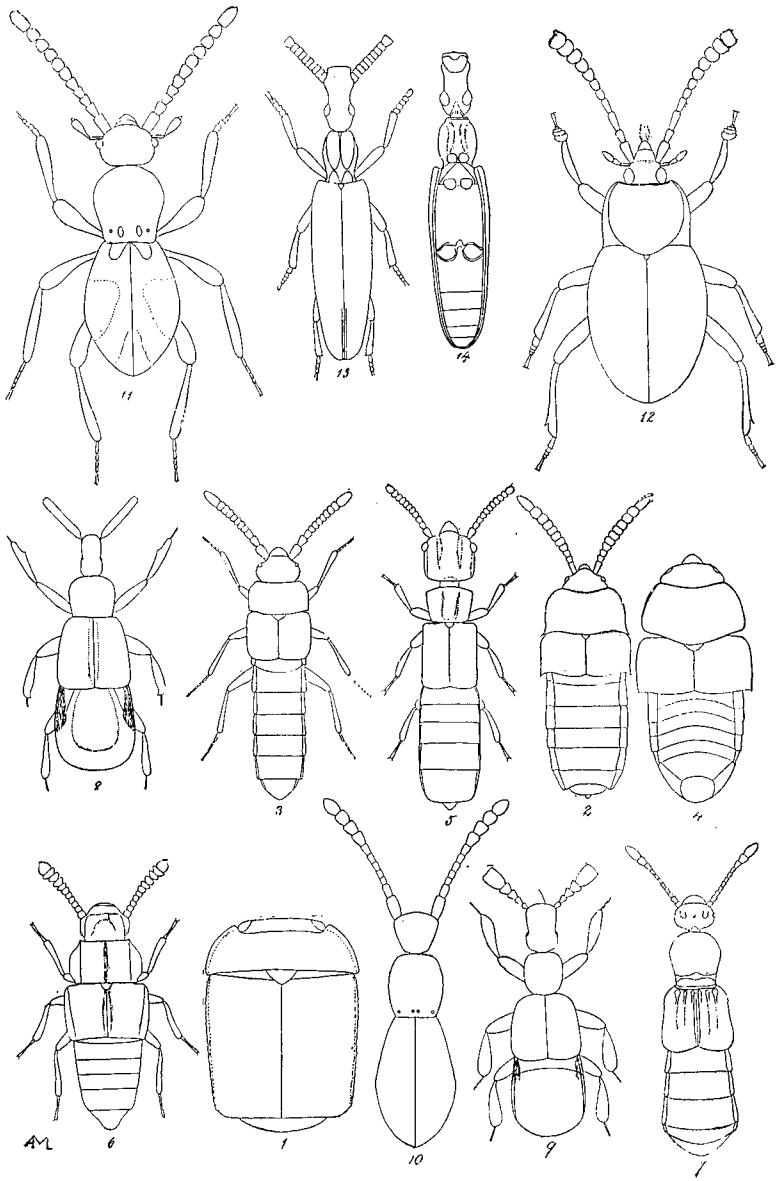
Plate XXVI.

Fig. 15.—Chlamydopsis formicicola, King.
16.— ,, ,, reticulata, Lea.
17.— ,, ,, excavata, Lea.
18.— ,, ,, longipes, Lea.
19.— ,, ,, glabra, Lea.
20.— ,, ,, carbo, Lea.
21.— ,, ,, variolosa, Lea.
22.—Nepharis serraticollis, Lea.
23.—Ditoma villosa, Lea.
24.—Diplocotes foveicollis, Oll.
25.— ,, armicollis, Lea.

Plate XXVII.

Fig. 26.—Tritomidea tasmaniae, Lea.
27.—Episcaphula termitophila, Lea.
28.—Prothorax of Polylobus coxi, Lea.
29.— ,, ,, ,, ectatommae, Lea.
30.—Hind leg of Articerus aurifluus, Schfs.

31.—Middle „ „ dentipes, Lea.
32. } Antenna of Articerus raffrayi, Lea; from above and
33. } the side.
34. } Antenna of Articerus dentipes, Lea; from above and
35. } the side.
36. } Antenna of Articerus irregularis, Lea; from above
37. } and the side.
38. } Antenna of Articerus constricticornis, Lea; from
39. } above and the side.
40.—Antenna of Articerus constrictiventris, Lea.
41.— „ „ „ femoralis, Lea.
42.— „ „ „ cylindricornis, Lea.
43.—Prothorax of Myrmicholeva lata, Lea.
44.— „ „ „ „ acutifrons, Lea.
45.— „ „ „ „ punctata, Lea.
46.—Face of Chlamydopsis glaber, Lea.
47.— „ „ „ carbo, Lea.
48.—Side view of prothorax of C. carbo.
49.—Wing of Tretothorax cleistostoma, Lea.
50. } Cephalic horns of Novapus bifidus, Lea.
51. }
52.— „ „ „ „ crassus, Sharp.
53.—Prothoracic excavation of Novapus bifidus, Lea. ♂
54.— „ „ „ „ „ crassus, Lea. ♂
55.—Antenna of Diplocotes foveicollis, Oll.
56.— „ „ „ armicollis, Lea.
57.— „ „ „ decemarticulatus, Lea.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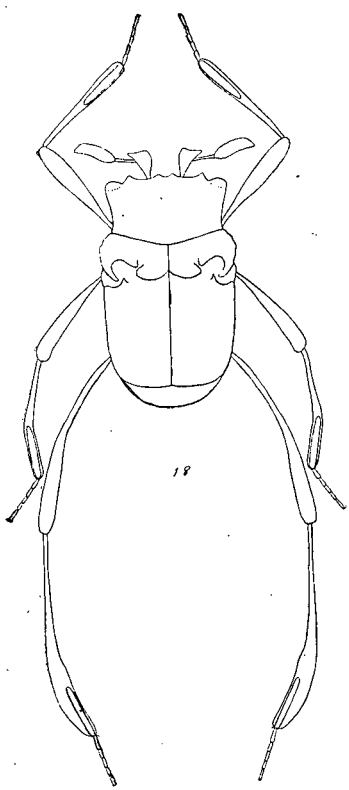
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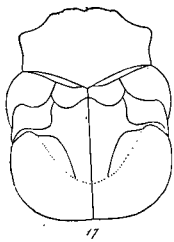
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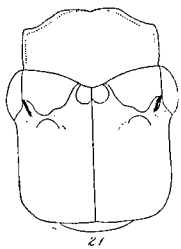
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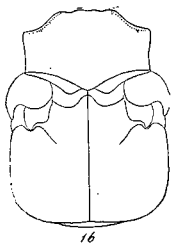
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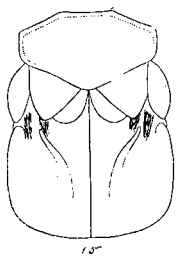
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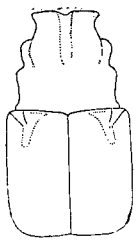
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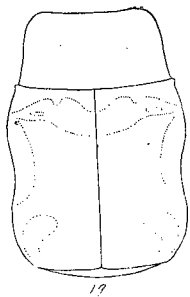
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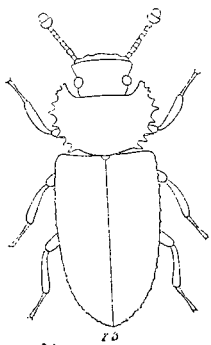
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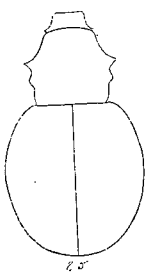
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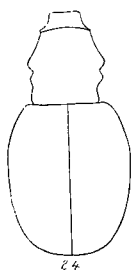
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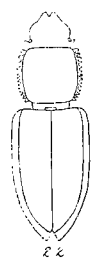
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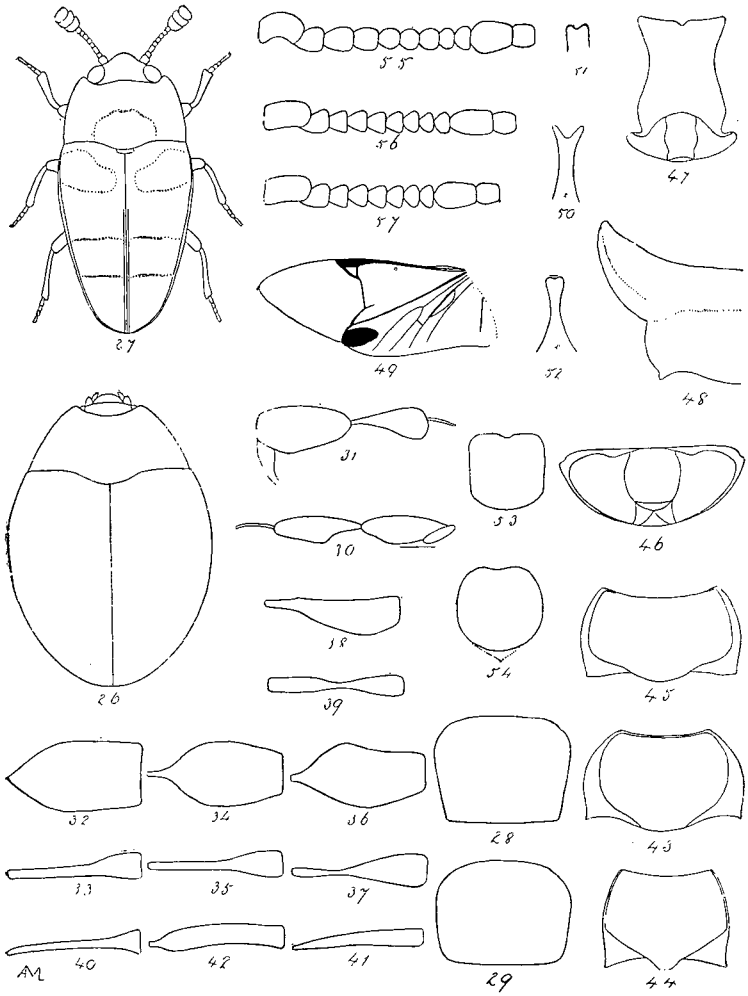
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