

ART. II.—*Revision of the Australian Cistelidae*

ORDER COLEOPTERA.

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(With Plate VI.).

[Read May 13th, 1915].

There is considerable difficulty in determining the species and sometimes the genera of insects of this family. The ill-defined genera and the uncoordinated work of individual authors have alike contributed to this. The following attempt to clear the atmosphere may be some assistance towards the coherent classification of the whole group. A great quantity of material has been placed at the author's disposal, for which special thanks are due to the following museum authorities and private collectors:—The British Museum of Natural History (specimens sent from which have been compared with the types of Pascoe, Bates and Blackburn), National Museum, Melbourne, South Australian Museum, Queensland Museum, Mr. A. M. Lea (who owns the best private collection in Australia), Dr. E. W. Ferguson. The author's own collection contains material largely taken by himself in various parts of Australia, while an examination of Macleay's types has been made in the Australian and Macleay Museums in Sydney, the latter also containing the valuable collection made by the late Mr. G. Masters. In the new catalogue of Junk (Berlin), this family has been edited by Herr Borchmann, under the name *Alleculidae*, the genus *Cistela*, F. (Sys. Ent., 1775), being placed as a synonym of *Gonodera*, Muls. (Col. Fr. Pect., 1856). Not having been able to procure the papers by Seidlitz, which apparently discusses this point, I have kept to the historically earlier name *Cistelidae*, as employed by Lacordaire. The earliest reference to *Allecula*, F., is Sys. El. ii., 1801, p. 21.

According to Leconte and Horne the only two characters that isolate this family are—(1) The pectinate claws; (2) Anterior coxal cavities closed behind.

The family is also clearly separated from the *Tenebrionidae* by the presence of lamellae on the tarsi; in the Australian species there are in general two on each of the four anterior tarsi, and a single

lamella on the penultimate joint of the post tarsi. Our genera may be readily arranged into two groups

Group I.—Mandibles simple, acutely pointed, head produced into a muzzle.

Group II.—Mandibles bifid at apex, head little produced.

The genera belonging to Group I. may be tabulated as follows :—

Group I. Mandibles simple, acutely pointed. Head produced into a beak.

- | | | | |
|----|----|---|---|
| 1 | 8 | Prothorax oblong or cylindric | |
| *2 | 6 | Antennae with joint 11 nearly or quite as long as 10, body navi-
cular | |
| 3 | | Prothorax cylindric, intercoxal process truncate or rounded | <i>aethysius</i> , Pasc
<i>atractus</i> , Lac
<i>neoatractus</i> , Borch |
| 4 | 6 | Prothorax more depressed, intercoxal process sharply triangular | |
| 5 | | Elytra brilliantly metallic, ♂ with post tibiae excised and flattened | <i>alcmeonis</i> , Bates |
| 6 | | Elytra not brilliantly metallic, ♂ with post tibiae (and sometimes
femora) widened | <i>chromomoea</i> , Pasc.; <i>Licymnius</i> , Bates |
| 7 | | Antennae with joint 11 much shorter than 10, body oblong | <i>anaxo</i> , Bates |
| 8 | | Antennae with joint 11 nearly three times longer than 10, body
obovate | <i>synatractus</i> , Macl |
| 9 | | Prothorax transverse with evenly rounded sides | <i>hemicistela</i> , Blackb |
| 10 | 16 | Prothorax much wider at base than at apex | |
| 11 | 15 | Antennae short | |
| 12 | | Eyes large and approximate, tibiae generally curved | <i>apellatus</i> , Pasc |
| 13 | 15 | Eyes smaller and distant, tibiae straight | |
| 14 | | Elytra not wider than base of prothorax, procoxae separated by
lamina | <i>neocistela</i> , Borch
(now <i>praeoce.</i>) <i>pseudocistela</i> , Blackb |
| 15 | | Elytra wider than base of prothorax, procoxae contiguous | <i>atoichus</i> , n. gen. |
| 16 | | Antennae long | <i>tanychilus</i> , Newm |

In some of the genera, especially of Group I. (e.g., *Aethysius* and *Chromomoea*), the species exhibit great colour variations. This is more notable in the legs, which are sometimes bicoloured, sometimes monocoloured, with either of the two colours prevailing. The abdomen and sometimes the elytra undergoes change of colour. In such cases it is difficult to say how far—if at all—colouration may alone constitute specific differentiation. The combined information of the field and cabinet naturalist is necessary to state if certain variations are constant geographical characters, or merely indivi-

* Except in *C. foreicollis*, Bates, in which the apical antennal joint is shorter than 10, though not so markedly as stated by Bates.

dual "freaks." In specimens examined by the author from the Bates's collection (British Museum), every such colour variation is noted by a label, with n. sp. written thereon—and often with a specific MS. name. The author does not agree with the great majority of these distinctions, and ventures further to suggest that some of Bates's genera are insufficiently differentiated from their kindred.

It would appear also that the late Canon Blackburn's writings, to whose industry and comprehensive work Australian entomology owes a great debt of gratitude, tend somewhat in the same direction. It is Blackburn who pointed out the necessity for studying the sexual characters of Group I.—in differentiating genera. He also first, so far as I know, pointed out the forciculate anal appendage in the male of the species he (mistakenly) believed to be *Metistete pimeloides*, Hope (Proc. Linn. Soc., N.S.W., 1888, p. 1436). I find this anal appendage in all cases examined of the larger species of Group II. (e.g., *Homotrysis*), and in some genera of Group I., and it is only the difficulty of examining small specimens in a dried condition that prevents at present a more complete statement on this point.

For example, in *Chromomoea (Licymnius) foveicollis*, Bates, the anal appendage can be readily extruded—if not already evident—and presents the appearance of a lamina, on which the forceps are seen in relief. It was apparently this appendage that was considered by Bates as the sixth abdominal segment. It is also evident in ♂ of *Chromomoea picta*, Pasc., though neither Pascoe nor Bates mention the number of abdominal segments in this genus. I have drawn this appendage with the aid of a camera lucida from specimens of eight species, shown in the accompanying plate.

Aethyssius, Pasc.

Atractus, Lac.

Neo-attractus, Borch.

- | | | | |
|---|---|---|-----------------------------------|
| 1 | 5 | Whole upper surface brilliantly metallic | |
| 2 | | Surface densely pubescent, closely and strongly punctate | |
| | | | <i>eros</i> , Pasc |
| 3 | 5 | Upper surface slightly, or not, pubescent, pronotum and elytral intervals sparsely punctate | |
| 4 | | Legs and underside (in general) dark, seriate punctures large and transverse | |
| | | | <i>viridis</i> , Boisd |
| | | | var. <i>columbinus</i> , Boisd |
| | | | var. <i>rubriventris</i> , n.var. |

5	Legs red, seriate punctures smaller and round	<i>virescens</i> , Boisduval
6 8	Prothorax black, elytra metallic, legs dark	
7	Elytral intervals coarsely rugose punctate	<i>rugosulus</i> , Macleay
8	Elytral intervals very lightly punctate	<i>cyaneus</i> , Macleay
9	Prothorax red with central black vitta	<i>vitticollis</i> , Macleay
10 14	Prothorax red, without black vitta	
11	Head red (except in var. of <i>ruficollis</i>)	
12	Pronotum densely punctate, elytra reddish	<i>flavipes</i> , Macleay
13	Pronotum sparsely punctate, elytra blue	<i>ruficollis</i> , Macleay
14	Head black, elytra red	<i>atriceps</i> , n.sp.

Pascoe long since pointed out that Lacordaire's generic term *Atractus* was preoccupied, and proposed the name *Aethyssius* (Jour. Ent., 1863, p. 45). It is difficult to see any reason for Herr Borchmann's proposal of *neo-attractus* (Deutsch Ent., Zeitschr., 1909, p. 713), as well as the placing of *Aethyssius* merely as a sub-genus in the new catalogue of Junk, both very needless complications.

The species of *Aethyssius* are often closely related, vaguely described, and not easy to tabulate except by colour distinction, which may prove misleading. Boisduval unfortunately described three, which, Lacordaire notes, might well be varieties of the same species. That *viridis* and *columbinus* are merely colour variations admits of little doubt, the latter being purple or violet, the former (the more common), green or golden. It is a very common insect, ranging from South Australia to Queensland, found on the flowers of *leptospermum* in early summer in countless numbers. Like all common insects, it is subject to great variations in colour and size. Specimens with red legs cannot be otherwise distinguished from the typical *viridis* (with dark or metallic legs), while a Queensland variety (generally purple or violet above) has the whole underside and legs red, and would be considered by some writers as a distinct species. It may be named *viridis* var. *rubriventris*. I have specimens that vary in size from 8 x 2.5 mm. to 15 x 4.5 mm. The pronotum is only lightly and sparsely punctured, the elytra has series of large transverse punctures, separated by sub-cancellate ridges, the intervals being sparsely punctured and more or less wrinkled.

Ae. virescens, Boisduval, is quite distinct, and constant in colour—so far as I have seen—with quite a different elytral sculpture, the intervals more nitid, not wrinkled, the seriate-punctures smaller. The elytra are dark green, legs clear red, abdomen black, or very dark metallic.

Ae. eros, Pascoe, is common in the Blue Mountains, and other inland districts of New South Wales. It differs from *viridis* Boisduval,

in its strongly pubescent upper surface, and closer and stronger punctuation of pronotum and elytral intervals; its size too is generally larger than *viridis*.

I have examined all Macleay's types. Of these *rugosculus*, *cyaneus*, *vitticollis*, and *flavipes*, appear to have been described from single specimens, or very scanty material, and do not appear in other collections. *Rugosulus* may readily be separated by its rugose sculpture, and *vitticollis* by its colour distinction, though it may well be an immature example of *Ae ruficollis*, with some adventitious black marking.

Ae cyaneus, Macl., may only prove to be a small dark variety of *viridis*; at present it can be distinguished by its black pronotum.

Ae flavipes, Macl., gives the appearance of immaturity. The description is also misleading, stating the colour as "brownish-black, opaque, the elytra nitid brassy-brown, the legs yellow"; whereas the coloration is as follows:—Head and basal half of antennae red, prothorax obscure, reddish above, clear red beneath, elytra metallic but reddish; abdomen and tibiae red, femora pale yellow. The pronotum is densely and confluent punctate; scarcely "granulate."

Atractus vittipennis, Macl., from its triangular intercoxal process, smaller and more transverse eyes, thin first joint of antennae must be placed in *Chromomoea*, near *picea*, Macl., and *rufescens*, Bates.

Ae ruficollis, Macl., seems to be more generally known in collections. The colour variations I note as follows:—

- (a) Legs, dark. New Holland. Brit. Mus.
- (b) Abdomen with three basal segments red, apical segments black. A second specimen has moreover the elytra margined yellow.
- (c) Head and prosternum black.

The three specimens under (b) and (c) are labelled "Rockhampton, Bates's Coll.," and have separate MS. names.

Aethyssius atriceps, n. sp.

Elongate, navicular, nitid, head (except labrum), antennae scutellum, tarsi and underside (mostly) black, pronotum, elytra and legs, also basal segments of abdomen red, elytra with a slight metallic lustre. Head rather coarsely punctate, maxillary palpi long, last joint narrowly cultriform, labrum red, eyes large, reniform, separated by a space equal to the diameter of one, antennae long, robust, joint 1 twice as long as 2, 3 longer than 4, 4-10 subequal and obconic, last joint oval and about as long as 10.

Prothorax truncate at base and apex, sub-cylindric and slightly flattened, feebly narrowed and rounded in front, posterior angles obtuse, finely and evenly punctate, without medial line, and with a round depression near base. *Scutellum* widely rounded behind. *Elytra* considerably wider than prothorax at base, shoulders rather prominent and round, flanks slightly depressed in middle, moderately tapering to the apex; striate punctate, the punctures in striae round and regular, the two sutural intervals convex, the rest flat, intervals finely punctate, underside with short, sparse white pubescence, and finely punctate. Hind femora of ♂ swollen, but not dentate, last segment of abdomen in ♂ with small quasi-forciculate appendages.

Dimensions.—6.9 x 2.3 mm.

Habitat.—Rockhampton (Bates's Coll., Brit. Mus.), Port Denison (Macleay Mus.).

Var.—One specimen in the Brit. Mus. has the legs and underside entirely black, but is, I consider, conspecific with the others, though labelled by Bates with a different MS. name. Type in Brit. Mus.

Alcmeonis, Bates.

Prothorax red, elytra blue, abdomen black	<i>pulcher</i> , Bates
Prothorax, elytra and abdomen metallic	
♂ with post femora dentate	<i>punctulaticollis</i> , Blackb
♂ with post femora undentate	<i>excisipes</i> , n.sp.
Whole surface metallic black	<i>paradoxus</i> , n.sp.

This genus is very doubtfully distinct from *Aethyssius* in the slightly flatter form, wider prothorax (its base feebly bisinuate) and post intercoxal process sharply triangular. In *Aethyssius* the metasternal plate is not in general excised behind, thus forming a truncate limitation of the triangular intercoxal process. In *Alcmeonis* and *Chromomoea* this plate is also triangularly excised, so that the triangular process is fully completed—not rounded or truncate at apex. The distinction between *Alcmeonis* and *Aethyssius* can scarcely be defined by sexual characters, the dentate femora in the ♂ of *Aethyssius* only being found in the first three sp. of my table; while from an examination of eight specimens of *A. pulcher*, I can find no leg character indicating sex; certainly nothing like the curious male characters displayed in the post tibiae of *A. punctulaticollis* and *A. excisipes*. In *A. paradoxus* the post-tibiae of the ♂ are a little flattened and feebly hollowed on the basal half.

Alcmeonis excisipes, n. sp.

Elongate, navicular, upper and lower surface bronze purple, with short white pubescence, this scanty above, denser beneath, basal joints of antennae, legs and tarsi pale testaceous, with knees black and apical two-thirds of antennae fuscous. *Head* densely and rather coarsely punctate, eyes large and distinct, epistoma arcuate, antennae with joint 1 thickened, 2 short, 3 longer than 4, 4-8 subequal, somewhat filiform, but thickened at outer end; 9-11 thinner than 10, but of some length, 11th finely pointed. *Prothorax* oblong, depressed, slightly narrower than head, feebly narrowed at apex, posterior angles slightly obtuse, rather closely punctate and a little rugose, a faint medial line terminating in a large foveate depression before the base, the latter slightly transversely ridged. *Scutellum* very transverse. *Elytra* wider than prothorax at base, shoulders squarely rounded, sides tapering rather straightly towards apex, striate punctate, the seriate punctures irregular in size and somewhat transverse, intervals convex and strongly punctate. Sternum closely and strongly, abdomen very minutely punctate, posterior intercoxal process narrowly triangular, abdomen with 6 segments in ♂, 5 in ♀, the 4th shorter than the rest; the 6th segment in the ♂ is long, divided into two pointed lobes, with a triangular excision in the middle. Legs long and thin, femora *much less* expanded than in *A. punctulaticollis*, Blackb., and without any angulation or tooth, tibiae of ♂ hollowed on the inside, with a large curved excision about the middle. Tarsi lamellate on the penultimate joint in posterior, on the two penultimate joints in the other feet.

Habitat.—Dorrigo (R. J. Tillyard).

Compared with *A. punctulaticollis*, Blackb., this species shows the following differences:—*Colour*, unicolorous bronze-purple, the purple predominating above the bronze beneath, with pale testaceous legs and black knees. Form flatter than usual, the femora undentate, the post tibiae of ♂ excised on inside, the sixth segment of abdomen long and divided throughout. In the ♂ of *A. punctulaticollis*, Blackb., the sixth segment of abdomen is shorter, and not divided throughout, while its post femora are strongly thickened and dentate.

Types in the Queensland Mus.

Alcmeonis paradoxus, n. sp.

Elongate, navicular, glabrous, nitid metallic black, elytra with violet reflections, basal joints of antennae and legs red, with apex

of femora and tarsi (sometimes wholly or in part) black, labrum yellow. *Head* coarsely punctate, the punctures defined, round and not very close, eyes widely separated and prominent, antennae long, extending to the basal third of elytra in the ♂ joint 1 tumid, 2 very short, 3 cylindric, 4-10 shorter than 3, but wider (elongate ovate), 11th shorter and much finer than 10. *Prothorax* longer than wide, sub-cylindric, more convex and a little narrowed in front, slightly depressed behind, truncate at apex and base, distinctly but more finely and sparsely punctate than on head (as in *Ae virescens*, Boisd.), medial line distinct, but not quite continuous to the apex, and a large basal foveate depression. *Scutellum* very small and transverse. *Elytra* one and a-half times wider than prothorax at base, shoulders prominent and squarely rounded, sides gradually tapering to a finely pointed apex; striate punctate, the striae deep, the seriate punctures encroaching on the raised intervals, the latter much more sharply convex than in *Ae virescens*, Boisd. Underside finely pubescent, and minutely punctate, procoxae contiguous, post intercoxal process slightly rounded, mid-tibiae rather strongly curved, hind tibiae of ♂ flattened and hollowed on the inside, of ♀ rounded. Legs, especially the posterior, very long, claw joints of tarsi very fine.

Dimensions.—♂ 10 x 2.2 mm., ♀ 11 x 3 mm.

Habitat.—North Sydney (Dr. Clark), Gosford and Blue Mountains (the author), Dorrigo (W. Heron).

Four specimens, 3 ♂, 1 ♀, examined. The maxillary palpi base the last joint narrowly cultriform, the short terminal joint of antennae, unarmed femora, navicular form, long legs give it a position between Bates's *Alcmeonis* and *Licymnius*, but on his plan would still require a new generic title. There are distinct metallic reflections on the upper surface. It may for the present be considered as an anomalous member of the genus *Alcmeonis*, the long legs, antennae and coxal structure prohibiting its inclusion under *Chromomoea*. The prothorax is much as in *Aethyssius*, the antennae show an alliance with *Anaxo*. Types in the author's coll. :—

TABLE OF CHROMOMOEAE, Pasc.

LICYMNIUS, Bates.

- | | | | |
|---|----|---|---------------------|
| 1 | 21 | Species without strong hairy covering | |
| 2 | 8 | Elytra with pattern (white vitta on black ground) | |
| 3 | 7 | Surface finely pubescent, prothorax black | |
| 4 | 6 | Femora of ♂ dentate | |
| 5 | | Antennae, legs (except apex of post femora) and elytra largely yellow | <i>picta</i> , Pasc |

6	Antennae (except base) black, legs bicolorous, elytra with narrower vitta	<i>pascoei</i> , Bates <i>vittata</i> , Bates
7	Femora of ♂ not dentate, elytral vitta shorter	<i>fastigiata</i> , Germ <i>foveicollis</i> , Bates
8	Surface glabrous, prothorax yellow (atractus)	<i>vittipennis</i> , MacL
9 21	Species with elytra more or less concolorous	
10 14	Head black, elytra testaceous (sometimes subfuscate at suture and sides)	
11 13	Prothorax nearly smooth	
12	Antennae dark (not necessarily synonym of preceding) ¹	<i>pallida</i> , Bates <i>nigriceps</i> , Champ
13	Antennae variegated	<i>maculicornis</i> , Blackb
14	Prothorax closely punctate, shorter and wider than preceding (Anaxo)	<i>occidentalis</i> , Blackb
15	Head and thorax black, elytra red	
16	Antennae and legs black Antennae brown, legs red	<i>Deplanchei</i> , Fauv <i>rufipennis</i> , Blackb var. <i>Mastersi</i> , MacL
17 19	Species with whole surface red	
18	Elytral intervals evidently punctate	<i>rufescens</i> , Bates ? (Anaxo) <i>puncticeps</i> , Blackb
19	Elytral intervals smooth (or nearly so)	<i>picea</i> , MacL
20 21	Species with surface distinctly metallic	<i>unicolor</i> , Bates (Anaxo) <i>aereus</i> , Blackb var. <i>Sydneyanus</i> , Blackb var. <i>lindensis</i> , Blackb
21	Elytra with finer sculpture than preceding	<i>laaffinis</i> , Blackb
22 26	Species with strong hairy covering	
23	Elytra yellow, with apex and basal spot black ²	<i>ornata</i> , n.sp.
24 26	Upper surface concolorous	
25	Prothorax subcylindric	<i>fusca</i> , n.sp.
26	Prothorax subquadrate	<i>ochracea</i> , n.sp.
27	Elytra with sparse covering of long white hair, prothorax as in <i>occidentalis</i>	<i>opacicollis</i> , n.sp.

Notes on the Species.—The distinction drawn by Bates for the generic characters of *Licymnius* are inadequate to separate this genus from *Chromomoea*, of which he admitted himself to be ignorant when describing *L. foveicollis* (Trans. Ent. Soc., 1868, p. 272). In a later paper (l.c., p. 317) he expressed doubts as to the sex of the specimen so described, while stating that *Licymnius* is quite distinct from *Chromomoea* without giving any reason. Having subjected many specimens to a microscopic scrutiny, the only distinctions to be noted are—(1) The rather (not “much shorter,” as the author states) shorter terminal joint of antennae; (2) no pronounced sexual features in the posterior legs of ♂.

¹ Species unknown to, or not definitely determined by the author.

² For varietal coloration of this readily determined species see description infra.

Bates's note as to the punctures and rugosity of the antennae is valueless. I find the same feature in many sp. of *Chromomoea*. Finally, there seems little doubt but that *L. foveicollis*, Bates, had already been described by Germar as *Allecula fastigiata*, a name omitted from Borchmann's catalogue, and unnoticed by Blackburn, though a common insect in South Australia.

Licymnius strigicollis, Fauv., is quite unknown to me, and has therefore been omitted from the above table.

L. bicolor, Blackb.—This insect is so unlike *L. foveicollis*, Bates, in the structure of the prothorax and antennae that it cannot be included in the same genus. It will be found later under my n. gen. *Atoichus*.

C. picta, Pasc.—It may be considered doubtful whether *picta*, *pascoei*, Bates, and *vittata*, Bates, are not merely varieties of the same species. Specimens compared with the types have been sent from the British Museum, and I am unable to separate *pascoei* from *vittata*, which must be considered as synonyms. In *C. picta* the yellow colour largely predominates on the elytra, only the suture and sides being black, while the legs and antennae are yellow (except the apex of the hind femora). I have only seen specimens of *C. picta* from Queensland, and Northern New South Wales. Pascoe gives Brisbane as its habitate. Most Australian collections have used the three names rather indiscriminately, and I have hitherto regarded the common Sydney species (*C. pascoei*, Bates) as *picta*, Pasc. Specimens from Dorrigo, N.S.W., which I regard as *Pascoei* var., are unusually dark in colour, with the elytral vitta reduced, and the legs sometimes quite black. It is very probable that *Eutrapela australica*, Bohem., is the same as *C. pascoei*, Bates, in which case the latter name becomes a synonym.

C. nigriceps, Champ.—I have never seen an authentic specimen of this, even from an old Tasmanian collector like Mr. Lea. From the description I am unable to separate it from *pallida*, Bates, though its author says he has compared it with all Bates's types. While placing it under *pallida* in my table, I do not necessarily imply that it is a synonym of that species, which, however, is a very variable insect, and may well include its Tasmanian ally.

C. maculicornis, Blackb.—I think I have identified this, which again may be considered but a variety of *pallida*.

C. Mastersi, Macl., only differs from *C. Deplanchei*, Fol., in the colour of the legs, and shade of the antennae—characters of doubtful value. I have a specimen from Sydney like the Queensland type. I include under *Chromomoea* several species that Blackburn

called *Anaxo*—a genus very narrowly differentiated from *Chromomoea*, but which must be more strictly limited if retained as distinct from *Chromomoea*. Evidently Blackburn's idea of *Anaxo* differs from Bates's, since *A. aereus*, Blackb. = *C. unicolor*, Bates. The latter author specially excluded the narrower navicular species from *Anaxo*, while the wider, more depressed form, short terminal joint of the antennae, black colour, more robust head (less contracted behind the eyes), are characters which in combination are true of the species retained below under *Anaxo*.

Synonymy.—*C. pascoei*, Bates = *C. vittata*, Bates = (?) *Eutrapela australica*, Bohem.

C. (allicula) fastigiata, Germ. = *C. (Licymnius) foveicollis*, Bates.

C. Deplanchei, Fauv. = *C. rufipennis*, Blackb.
var. *C. mastersi*, Macl.

C. rufescens, Bates = *Anaxo puncticeps*, Blackb.

C. unicolor, Bates = *Anaxo aereus*, Blackb.
var. *sydneyanus*, Blackb.
var. *lindensis*, Blackb.

The first two cases above have been already discussed. The synonymy of *rufipennis*, Blackb., with *Deplanchei*, Fauv., has been noted by Borchmann. Evidently *C. mastersi*, Macl., is only a slight colour variety, the antennae being castaneous brown instead of black, and the legs, except the apex of post femora, red.

Anaxo puncticeps, Blackb.—There are three specimens so named in the Melbourne Museum, probably by Blackburn, from Victoria, the original habitat. These correspond with the description, and are certainly conspecific with what I consider is *C. rufescens*, Bates, a fairly common insect in New South Wales.

Anaxo aereus, Blackb.—The synonymy of this with *C. unicolor*, Bates, is confirmed by Mr. Blair, who has compared the types. Blackburn himself surmised this in his note under *A. sydneyanus* (Trans. Roy. Soc., S. Aus., 1893, p. 134), the latter having slight colour differences in the antennae. With regard to *lindensis* the author gives slight differences of size, colour and the relative width of head to that of prothorax to distinguish its from *aereus*. The size and colour are of no account. I have seen so-called specimens from the South Aus. Mus. of both species, of varied size, and colour without any distinction, as is also the case with labelled specimens from the Brit. Mus. The head wider or narrower than the prothorax, is again a variable character, so difficult to assess, that with eight so-called *aereus* and seven so-called *lindensis* before

me, four of each showed little, if any difference. I think it extremely likely that *A. affinis*, Blackb., is only another variety, but not having seen any authoritative specimen, I must withhold any opinion on this. My specimens are largely from the Blackburn collection, kindly lent by Mr. A. M. Lea.

C. (atractus) vittipennis, Macl.—A species generally easy to identify, from its large size, and the ninth antennal joint clear yellow, the others being black (except the basal joints). Two smaller insects from Cairns are probably males of this species, and are without this yellow joint, a fact noticed by Macleay.

Synatractus variabilis, Macl. (misspelt *syntractus* in the Junk catalogue), is well named, and exhibits more than the usual colour variations of this group, the elytra being red, black or variegated, the thorax always red. The species is readily determined by its marked antennal characters, as well as by the distinct but small basal angles of the prothorax, formed by the raised collar-like basal margin.

Hemicistela discoidalis, Blackb., is apparently a common insect in New South Wales and Victoria. It has very much the facies of *apellatus*, from which it differs in its transverse round-sided prothorax. I have specimens taken near Sydney, identical with a co-type in the South Aus. Mus. Having examined it under a Zeiss binocular, I find it has one-pointed mandibles—not bifid—as surmised, but not ascertained by Blackburn (Trans. Roy. Soc., S.A., 1891, p. 332).

Chromomoea ornata, n. sp.

Ovate, depressed, clothed with short, recumbent hair; head, antennae (except apical joints), underside, tarsi and legs (except middle part of front femora) *black*; prothorax red, elytra *red* with a large circular macula behind scutellum, and the apical third *black*; apical joints of antennae and middle part of front femora red. *Head* strongly produced in front, narrower than prothorax, eyes moderate, not prominent, surface closely punctate, antennae with joint 3 scarcely longer than 4, cylindrical; 4-10 subtriangular and successively shorter, 11th oval, narrower than 10. *Prothorax* trapezoidal, slightly wider at base than at apex, truncate at both, sides straight, rounded anteriorly, subrectangular behind, medial line impressed throughout and foveate at base, recumbent hairs on surface lying transversely on each side of medial line.

Scutellum black, small and round. *Elytra* wider than prothorax at base, ovate and rather flat, widest behind middle, apex bluntly

rounded; finely striate, any puncturation obscured by the close recumbent clothing; sternum closely and finely punctured, abdomen with a short, sparse and fine reddish pubescence.

Dimensions.—9 x 3 mm.

Habitat.—Endeavour River (South Aus. Mus.), Coen River (W. Dodd).

Var. A.—With elytra black, shoulders and sides near base narrowly red, sometimes also with a red spot on each elytron near middle, and the middle femora with a variable amount of red.

Var. B.—Elytra red, apex black, without the black circular spot near base.

Eight specimens examined, two of which are coloured as in *Var. A*, one as *Var. B*. It is easily distinguished from all described species by its depressed and more ovate form, trapezoidal prothorax and coloration.

Types in the South Australian Museum.

Chromomoea fusca, n. sp.

Narrowly elongate ovate, navicular; upper surface opaque fuscous, sometimes reddish brown, covered with fine adpressed reddish hair, underside and legs black (or nearly so), tibiae underside of the femora, and parts of abdomen, sometimes reddish, tarsi, palpi and basal joints of antennae red.

Head as wide as prothorax, eyes prominent, oral parts less produced than usual, apical joint of maxillary palpi shortly securiform; antennae short, joint 3 cylindric, slightly longer than 4, 4-10 triangular, nearly equal, 11th oval as long as 10. *Prothorax* subcylindric, longer than wide, slightly rounded in front, sharply rectangular at base, truncate, and of equal width at apex and base; like the head, thickly clothed with fine adpressed hair, longitudinally arranged, sometimes with a faint indication of a medial line at base. *Scutellum* oval, larger than usual.

Elytra convex, narrowly ovate, wider than prothorax at base, shoulders rounded, sides tapering to a pointed apex; finely seriate punctate, the seriate punctures visible, though more or less obscured by hirsute clothing; underside, especially sternum, closely punctate and clothed with whitish pubescence, legs without sexual distinction, the sex easily seen by the usual structure of the last segment of abdomen, excavate with a small quasi-sixth segment in the ♂. The ♀ usually larger and wider.

Dimensions.—5-6 x 1.5-1.8 mm.

Habitat.—Brisbane, Queensland (H. Hacker), Camden, N.S.W. (Macleay Mus.).

Many specimens sent by the Queensland Mus., also from the South Aus. Mus., from the same source. The colour is variable from a unicolorous grey-brown to a reddish-brown, the latter showing the reddish legs, and in some examples a partly reddish abdomen. Types in the Queensland Museum.

Chromomoea ochracea, n. sp.

Narrowly ovate, upper surface and prosternum flavous, abdomen black, sometimes yellow, legs yellow (in some examples apex of femora and the whole tibiae black) antennae with basal joints yellow, the rest black, whole surface clothed with yellow adpressed hair.

Head narrower than prothorax, eyes large and prominent, widely separated surface closely punctured, antennae short (not extending far beyond base of prothorax), joints less widely triangular than in *C. fusca*, joint 3 scarcely longer than 4, 4-10 of equal length, but successively wider, 11th ovate, as wide and long as 10. *Prothorax* subquadrate, a little rounded in front, rectangular at base, truncate at base and apex, medial line indicated near base only, clothing as in *C. fusca*. *Scutellum* small, oval. *Elytra* convex, slightly wider than prothorax at base, shoulders rounded, apex less acute than in *C. fusca*, very finely striate punctate, the punctures obscured by the close recumbent hair. Underside less strongly punctate than in *C. fusca*.

Dimensions.—6.8 x 2.3 mm.

Habitat.—Galston (Sydney district, Dumbrell), Mackay, Queensland (Adelaide and Melbourne Museums).

Thirteen specimens examined, show an insect very near some of the lighter coloured specimens of *C. fusca*, but evidently differing, apart from colour distinctions, in the shorter, squared, prothorax, greater size, more robust form, and quite differently shaped antennal joints.

Type in the South Australian Museum.

Chromomoea opacicollis, n. sp.

Elongate, elliptic; dark chestnut brown, prothorax reddish, and (with the head) opaque, elytra very nitid, underside nitid piceous red, almost black at apex of abdomen, upper surface sparsely clothed with long upright white hairs. *Head* and pronotum coarsely, con-

fluently punctate with short white hairy pubescence, eyes prominent and widely separated, last joint of maxillary palpi securiform, antennae moderately long, joint 1 tumid, 2 considerably shorter and thinner, 3 subcylindric and as long as 4, 4-8 elongate, enlarged and rounded at apex, 9-10 of same length as preceding but finer, 11 as long as 10, finely pointed. *Prothorax* convex, wider than long, truncate at apex and base, sides well rounded, widest near (or rather in front of) middle, widely rounded before the narrowed apex, basal half slightly converging, nearly straight, posterior angles subrectangular, slightly blunted, a faint medial depression near base, but without distinct medial line, or the usual basal foveae. *Scutellum* widely rounded behind. *Elytra* one and a-half times wider than prothorax at base ($2\frac{1}{4} : 1\frac{1}{2}$ mm.), narrowly elliptic, striate punctate, the striae well marked, punctures regular and round, sutural intervals slightly convex at apex, all intervals with a single distinct row of setiferous punctures, each bearing a long upright white hair. Procoxae contiguous, post intercoxal process rather widely triangular, sternum closely and coarsely punctate, abdomen finely setose punctate, the hairs shorter than on elytra, and very sparse. Legs slender, tibiae curved.

Dimensions.—5-6 x 1.7-2 mm.

Habitat.—Sydney (Dr. E. W. Ferguson and the author).

Seven specimens of this puzzling little species are before me. They show no sexual characters in legs and antennae. At first considered as a *neocistela*, I find the antennae, head and especially the prothoracic structure quite exclude this classification. Though differing in the wider and rounded prothorax from the typical *Chromomoea*, it is so close to the species which Blackburn called *Anaxo occidentalis*, in structure, that it must be placed in the same genus as that species. Possibly these two insects will be placed on further evidence in a separate genus. The nitid setiferous elytra, with the pale coloured but quite opaque pronotum, renders it easy to identify. The legs vary in colour from red to piceous-red.

Types in the author's coll.

TABLE OF ANAXO, Bates.

1	8	Elytra black	
2	5	Punctures of head evidently closer than those of prothorax	
3	5	Interstices of elytra closely punctate	
4		Legs black, femora of ♂ angulate	later, Blackb
5		Legs partly yellow, femora of ♂ simple	<i>brevicornis</i> , Bates
6	8	Punctures of head and prothorax equally (or nearly so) close	

1 Species unknown to, or not definitely determined by the author.

7	Interstices of elytra finely and sparsely punctate	1 <i>sparsus</i> , Blackb
8	Interstices of elytra more closely and strongly punctate	<i>cylindricus</i> , Germ
9	Elytra violaceus	<i>fuscio-violaceus</i> , Fairm

NOTE.—The above table is largely following Blackburn (Trans. Roy. Soc., 1891, p. 312), omitting the species placed now in *Chromomoea* (vide supra).

TABLE OF APELLATUS.

1	3	Elytra with suture, apex and sides black	
2		Eyes of ♂ nearly contiguous	<i>lateralis</i> , Boh <i>palpalis</i> , Macl <i>Mastersi</i> , Maci
3		Eyes of ♂ more widely separated	<i>apicalis</i> , Blackb
4	9	Elytra with sides and apex only black	
5	8	Lateral black vitta of elytra narrow	
6		♂ with front tibiae dentate, mid and post tibiae strongly ciliate	<i>amoenus</i> , Pasc <i>lateralis</i> , Pasc <i>nodicornis</i> , Blackb
7		♂ with post tibiae nodose within	<i>simplex</i> , n.sp.
8		♂ with all tibiae entire	<i>tasmanicus</i> , Champ
9		Lateral black vitta of elytra wide	<i>lineatus</i> , n.sp.
10		Elytra testaceous, with dark-red lines	
11	15	Elytra concolorous	<i>plebejus</i> , n.sp.
12		Surface non-pubescent, elytra brown	
13	15	Surface pubescent	<i>nigripes</i> , n.sp.
14		Elytral intervals raised, tibiae black	<i>concolor</i> , n.sp.
15		Elytral intervals flat, legs pale yellow	

A. nigricornis, Blackb., has been omitted as undetermined. It seems possible that it is one of the many varieties of *lateralis*, Boh.

As Blackburn pointed out, the most striking character of this genus lies in the antennae of the male. For this reason a close examination is necessary. With a Zeiss binocular the species can be thus readily differentiated. The following notes have been made on the species.

Synonymy.—*A. lateralis*, Boh. = *A. palpalis*, Macl. = *A. Mastersi* Macl.

The synonymy of the last two was noted by Blackburn. The Queensland specimens of the ♀ (*Mastersi*) are often nearly black.

A. lateralis, Boh., was described as from Sydney, and the description answers to the commonest Sydney species, which I find identical with the type of *palpalis*, Macl. The wide distribution of this from Queensland to South Australia is noteworthy.

The ♂ has short antennal joints of nearly equal length, joints 8-10 strongly hollowed beneath, with one angle a little produced.

1 Species unknown to, or not definitely determined by the author.

and joint 11 flattened. In the ♀ all joints are rounded, not hollowed beneath or flattened.

A. apicalis, Blackb.—I cannot make out very definite distinctions between some West Aus. specimens I have (which answer to Blackburn's description) and the former species, except that the eyes are certainly less approximate in the ♂

A. Amoenus, Pasc.—The description was evidently taken from a female, though Pascoe thought it a male (Jour. Ent., 1863, p. 46), or he could scarcely have overlooked the strong sexual characters shown (i.e., if the specimen sent from the British Mus., labelled *A. amoenus*, Pasc., compared with type, is correctly named). In this specimen the front tibiae are dentate on the inside, in the middle, the mid and posterior tibiae are clothed with long, curly cilia on the inside, the post tibiae being curiously flattened, widened and strongly curved. The joints 6-8 of antennae have a sharp triangular tooth on the inside apex, that does not occur in the ♀. The two apical joints are much narrower than the preceding. Besides the British Mus. specimen (without locality label), I have only one other ♂ specimen before me. This is on a card with a ♀ specimen, labelled "*Forest Reefs*, A. M. Lea."

A. nodicornis, Blackb.—The ♀ specimens are very like those of *amoenus*, but the 3rd antennal joint is of the same length as the 4th, whereas in *amoenus* 3 is shorter than 4. The elytral punctures are smaller in *nodicornis*. In the ♂ the 7th joint of antennae is widely produced, and the four apical joints are evidently finer and smaller.

A. Simplex mihi is also very close to both *amoenus* and *nodicornis* so far as female specimens go, but it is usually smaller, with much stronger and closer punctures on the head. In the ♂ joints 6-9 are hollowed beneath, and triangularly widened, but are not produced at the apex, joints 10-11 are much finer, the 11th very finely pointed. The hind angle of the prothorax is rather less than 90 deg. The species *tasmanicus*, *lineatus* and *plebejus* may be readily identified by colour, and more filiformed antennae. In *A. tasmanicus* the black colour nearly covers the elytra, only the suture is distinctly yellow, soon shading off into the black.

Apellatus simplex, n. sp.

Elongate ovate, head and antennae black or piceous, the basal joints of the latter red, prothorax and elytra reddish-yellow, the sides and apex of the latter narrowly black, underside red, with apex of abdomen piceous.

♂ Head, eyes large and approximate, nearly contiguous beneath, forehead strongly punctate, antennae joint 3 as long as 4, cylindric, 4-11 about equal in length, 7-9 triangularly widened and hollowed beneath, not at all produced at apex, 10-11 much narrower than preceding.

Prothorax less wide than head, and rounded in front, widest at middle, then subparallel to the subrectangular posterior angles, these with a slight acute tendency, base bisinuate, with a medial basal depression and two small basal foveae. *Scutellum* rounded behind. *Elytra* very much as in *A. amoenus*, Pasc., for colour arrangement, but seriate punctures larger. Intervals flat, strongly pubescent and finely punctate, underside closely punctate, fore and mid tibiae straight, post tibiae slightly curved, without any sign of nodose enlargement.

♀ With eyes less approximate, antennae joints 7-9 less enlarged and not hollowed beneath.

Dimensions.—♂ 6 x 2 mm., ♀ 8.5 x 3 mm.

Habitat.—Brisbane (H. Hacker), Killarney (the author), Sydney (Lea), Clarence River (Zietz, South Aus. Mus.).

Twenty-six specimens examined. Very near *A. amoenus*, Pasc., so that female specimens can be easily confused, but for the very different sculpture. Under a Zeiss binocular the difference is strongly marked in the closer and coarser punctures of the head and thorax. The males may easily be differentiated by their simple tibiae and the antennal joints not at all toothed, nor the apical joints flattened as in Pascoe's species. It cannot be very near *A. nigricornis*, Blackb., which has a black suture, and apical joint of antennae longer than joint 10. Types in the author's coll.

Apellatus plebejus, n. sp.

Elongate, subparallel, pale-brown, sometimes piceous, glabrous, antennae piceous or reddish, femora pale yellow, underside tibiae and tarsi red, head black, labrum and palpi red. *Head*, eyes large, separated by a space about half the diameter of one eye, closely punctate, antennae joint 3 rather shorter than 4, 4-11 of about equal length, subfiliform (slightly enlarged at apex). *Prothorax* rounded in front, rectangular behind, base sinuate; closely punctate with a large post-medial and two small basal foveae. *Scutellum* rather widely rounded behind. *Elytra* wider than prothorax at base; striate punctate, the striae well marked, the punctures small and close, intervals minutely and sparsely punctate. Underside closely punctate. Tibiae simple in both sexes.

Dimensions.—6 x 1.5 mm.

Habitat.—Murray River, South Australia (H. S. Cope).

Ten specimens examined show very slight sexual, or other, differences. The males have joints 7-8 slightly flattened beneath. The antennae are much slenderer and more filiform than usual, and in this respect are like those of *A. tasmanicus*, Champ. It is a rather characterless insect, of uniform colour, and of narrower form than usual, without the usual pubescence. Types in the South Aus. Mus.

Apellatus lineatus, n. sp.

Elongate, subcylindric. Head black or piceous, antennae, palpi, underside, tibiae and tarsi red, prothorax reddish or testaceous, elytra pale testaceous, with dark red lines following the striation throughout. Underside yellow, apex of abdomen piceous, femora pale testaceous. *Head*, eyes large, prominent and rather approximate, space between about $\frac{1}{4}$ diameter of one eye; closely and strongly punctate, antennae with joints 3 and 4 of about equal length. All joints subfiliform, 4-9 slightly widened at apex, 10-11 very thin, 11th finely pointed. *Prothorax* rounded in front, subrectangular behind, with rather blunted angles; densely and finely punctate. *Scutellum* widely rounded behind. *Elytra* wider than prothorax at base, rather cylindric; finely punctate striate, and clothed with a hairy pubescence; intervals minutely punctate. Underside finely punctate, all tibiae straight and simple.

Dimensions.—6-7 x 2 mm.

Habitat.—Geraldton, West Australia (Lea).

Two specimens, the sexes in Mr. A. M. Lea's collection, differ from all described species in their subcylindric form, and the elytra with dark red lines on a testaceous ground. The antennae are somewhat as in *plebejus* (above), but the joints are more enlarged at apex, except the apical two. In the female the eyes are wider apart, and the prothorax is wider and darker in colour (the last probably individual).

Types in Mr. Lea's coll.

Apellatus concolor, n. sp.

Elongate ovate, pubescent; whole surface, legs and appendages pale testaceous, the apical half of antennae slightly piceous. Head and prothorax closely punctate (forehead more sparsely so). Eyes more widely separated than usual, the distance between them fully

half diameter of one in the ♂ rather wider apart in the ♀. Antennae subfiliform, joints 4-10 subequal, very slightly enlarged at apex, 3rd shorter than 4th, 11th shorter than 10, the two penultimate joints in ♂ slightly flattened. *Prothorax* rather wider than usual, and of the typical shape, rounded and narrowed in front, rectangular behind, with three subequal foveae at base. *Scutellum* arcuate triangular. *Elytra* wider than prothorax at base, ovate elliptic, finely striate punctate, the intervals quite flat and strongly punctate. Underside minutely punctate. Legs simple, tibiae straight.

Dimensions.—5-6.5 x 1.5-2 mm.

Habitat.—Brisbane (A. M. Lea).

A pair in Mr. Lea's collection are the only specimens I have seen. It is quite distinct from *plebejus* in its lighter colour, and pubescent clothing, while from *nigripes* besides colour it may be distinguished by its flat elytral intervals. Types in Mr. Lea's coll.

Apellatus nigripes, n. sp.

Elongate navicular, pubescent; head, prothorax, elytra, underside, base of femora, and tarsi, red; antennae, tibiae and apex of femora, black. Eyes very large and almost contiguous, epistoma closely and deeply punctate, antennae rather short, joint 3 cylindric as long as 4, 4-10 nearly equal in length and thickness, obconic, moderately enlarged, but not produced apically, 11th as long as 10, thin and finely pointed. *Prothorax* closely punctate, narrowed and rounded in front, sides parallel on base half, posterior angles rectangular, medial line marked throughout by a wide depression, foveate at base with two transverse basal foveae. *Scutellum* rounded behind. *Elytra* only slightly wider than prothorax at base, soon widening and gradually tapering to the apex; striate punctate, the striae deeper, the punctures therein larger than usual, intervals distinctly convex and quite impunctate. Underside, especially meso and metasternum, very closely dotted with deep round punctures, abdomen with smaller punctures. All tibiae straight, hind tibiae nodulose on the inside near apex.

Dimensions.—6.5 x 1.5 mm.

Habitat.—Nicol Bay, West Australia.

A single ♂ (?) specimen, with locality label, and a second label with "F. Bates, 81-19," thereon, has been sent from the British Museum. It differs from its congeners in colour, large seriate punctures, and smooth raised intervals. The antennae are rather fine,

and equal jointed, not excavate beneath. The nodular hind tibiae suggests the male sex from analogy. Type in the British Museum.

Neocistela, Borch.

Pseudocistela, Blackb. (nom-praeocc.).

Having dissected and examined *N. ovalis*, Blackb., very closely, I find that the maxillary palpi have the last joint securiform, not triangular, as the author states, with the apical edge much longer than the longer side. The antennae are remarkable in having the 2nd joint nearly as long as, but less tumid than, the first joint. The eyes are somewhat as in *Chromomoea*.

Atoichus, n. gen.

Head prolonged into a beak, mandibles simple and acutely pointed, maxillary palpi last joint cultriform, labial palpi last joint triangular, antennae robust, 2nd joint nearly as long as the 1st, 3-10 obconic subequal, 11th as long as 10, finely pointed. Prothorax widest at base, arcuately narrowed, or nearly straightly converging to the apex. Elytra ovate, wider than prothorax at base, procoxae contiguous without separating partition, posterior inter-coxal process sharply triangular, tibiae straight and slender, claw-joint very slender, minutely pectinate.

A genus which includes the insect named by Blackburn, *Licymnius bicolor*, which may be taken as the type. It differs from *Neocistela* in having the elytra wider than prothorax at base, and in the procoxae being contiguous, without any separating partition. The species may be differentiated inter se as follows:—

Atoichus, n. gen.

1	3	Head, elytra and legs black	
2		Prothorax yellow or red	<i>bicolor</i> , Blackb
3		Prothorax black	<i>tasmanicus</i> , n.sp.
4	6	Upper surface (mostly) and legs yellow	
5		Base of head and eyes black, knees piceous	<i>flavus</i> , n.sp.
6		Elytra with black markings	<i>crassicornis</i> , n.sp.

Atoichus tasmanicus, n sp.

Ovate, nitid black, glabrous, tibiae, base of femora, prosternum, and (sometimes) basal joints of antennae reddish. Head and prothorax strongly punctate, the punctures round and sub-contiguous, apical joints of maxillary palpi securiform, eyes small and widely

separated, head narrow; antennae with joint 3 cylindrical, as long as 4, 4-10 shortly obconic and of equal size, last joint as long as 10 and pointed. *Prothorax* narrower than in *N. ovalis*, Blackb., widest at base, thence arcuately narrowed to apex, and there as wide as the head, posterior angles acute. *Scutellum* small, transverse. *Elytra* slightly wider than prothorax at base, glabrous, and strongly striate punctate, the seriate punctures large, the intervals transversely rugose punctate and slightly raised at apex, underside nearly smooth; tibiae simple and straight.

Dimensions.—6.7 x 1.6-2 mm.

Habitat.—Hobart, Tasmania.

Six specimens examined, one pair in the author's coll., possibly taken by himself, three in Mr. Lea's coll., and one in the South Aus. Mus. It is readily separated from *neocistela ovalis* by its strongly punctate and glabrous upper surface, the well-defined striation of the elytra, the narrower head and prothorax, and contiguous procoxae. Types in the author's coll.

Atoichus flavus, n. sp.

Oval, base of head and eyes black, rest of surface and appendages reddish-yellow, knees piceous, elytra with sparse hairy pubescence. *Head* and *prothorax* closely subconfluently punctate, the punctures coarser than in *N. ovalis*, but finer than in *A. tasmanicus*, eyes small and flat, antennae as in those species, but joints rather more elongate than in *N. ovalis*. *Prothorax* shaped as in *A. tasmanicus*, subconvex, widest at base, the posterior angles subrectangular (slightly blunted), base bisinuate. *Elytra* slightly wider than prothorax at base, clearly striate punctate, the seriate punctures finer and closer than in *tasmanicus*, intervals quite flat and minutely punctate, underside finely punctate, post-intercoxal process narrowly triangular; tibiae straight.

Dimensions.—5.6 x 1.2-2 mm.

Habitat.—Dividing Range, Victoria. (South Aus. Mus.).

Var.—Head and prothorax black.

Ten specimens examined, including two coloured as in *var.*, which are indistinguishable otherwise from the rest (the more so since both specimens have mutilated antennae). The species is intermediate in sculpture between *neocistela ovalis* and *A. tasmanicus*, but while quite differing in colour is nearer the latter in form. The ♂ specimens are smaller, narrower, with the apical joints of the antennae more enlarged than in the ♀.

Types in the South Aus. Mus.

Atoichus crassicornis, n. sp.

Narrowly ovate, head, prothorax, and legs yellow, elytra yellow with irregular black or piceous markings, and the extreme apex black, abdomen, apical joints of tarsi, antennae (except the two basal joints yellow) also black. *Head* and prothorax sparsely punctate, eyes prominent, as in *N. ovalis*, making the head slightly wider than base of prothorax, antennae short, unusually stout and hairy, joint 2 nearly as long as 1, 3 cylindric, 4-10 subequal, subovate (wider at apex than at base), 11th shorter than 10. *Prothorax* widest at base, rounded and narrowed in front, anterior sides deflexed, posterior angles obtuse and slightly blunted. *Elytra* slightly wider than prothorax at base, subcylindric or narrowly elliptic, finely punctate striate, intervals flat and sparsely punctate setose. Legs simple, tibiae straight, underside finely punctate.

Dimensions.—4.5 x 1.5.

Habitat.—Brisbane, Queensland (H. Hacker).

Two specimens examined (sex ?). It can readily be distinguished from *flavus* by its smaller size, black underside and antennae, and the short, thick joints of the last. There may be a doubt as to whether this insect may not require separate generic rank, but at present the combination of pointed mandibles, obconic prothorax, widely separated eyes, justifies its inclusion under *atoichus*.

Type in the Queensland Mus.

Tanychilus, Newm.

- | | | | |
|---|---|--|---|
| 1 | 3 | Colour metallic (sometimes greenish) black, elytral intervals convex, 15-25 mm. long | |
| 2 | | Meta- and epi-sterna densely and finely punctate, legs black | <i>striatus</i> , Newm |
| 3 | | Meta- and epi-sterna sparsely and coarsely punctate, legs red | <i>dubius</i> , Newm |
| | | | var. legs black, <i>splendens</i> , Bless |
| 4 | | Colour brilliant purple, elytral intervals nearly flat | <i>pulcher</i> , n.sp. |
| 5 | | Prothorax back, elytra red, 10 mm. long | <i>minor</i> , n.sp. |
| 6 | | Whole surface red | <i>ruber</i> , n.sp. |

There are also two species *T. metallicus*, White, and *T. sophorae*, Brown, from New Zealand, and one *T. kanelensis*, Perroud, from New Caledonia, which are not included in the above table. The first of these has been omitted from Junk's catalogue (edited by Borchmann).

T. dubius, Newm., should really be considered as the *var.* of *T. splendens*, Bless., but it has priority of publication in its favour.

Immature specimens of all the black species are red, but the distinction between *striatus* and *splendens* is very marked in the sculpture of the undersurface, while the seriate punctures of *striatus* are smaller and less defined than in *splendens* and *dubius*.

T. minor and *T. ruber* differ from the first four species in the above table, in the forehead between the eyes being wider, and without the raised subcarinate impression shown in those species.

Tanychilus pulcher, n. sp.

Ovate and convex; upper surface brilliant metallic purple, prothorax darker, sometimes greenish, the suture and apex of elytra brilliant green, antennae underside and legs black, abdomen with purple reflections. Head and prothorax very similar to that of *T. striatus*, Newm., but more decidedly, but not strongly punctate, antennae long, joint 3 longer than 4, 4-10 successively shorter than the preceding, two apical joints, narrower than the 9th, 11th as long as 10. *Prothorax* widest and truncate at base, arcuately narrowing to apex, posterior angles rather widely acute, a small basal depression, without medial line.

Scutellum, scutiform, punctured. *Elytra* scarcely wider than the prothorax at base, ovate and convex, striate punctate, the punctures in striae small, close and regular, the intervals flat, or nearly so, minutely punctate; meso and metasternum coarsely punctate, abdomen finely striotate. Legs, especially the posterior, long, tibiae and femora simple in both sexes.

Dimensions—14 x 5 mm.

Habitat.—Mary River, Northern Territory (Dodd).

Five specimens examined, two (slightly damaged) in the author's coll., from Mr. Dodd, one old specimen labelled "New Holland" in the British Mus. consignment, and two fresh specimens (type ♂ and ♀) in the South Aus. Mus. While very similar in structure to the common southern species, *striatus*, Newm., and *splendens*, Bless., it is readily differentiated by its brilliant colour, and flat elytral intervals. Types in the South Aus. Mus.

Tanychilus minor, n. sp.

Elongate, navicular, glabrous, prothorax black, head, elytra, abdomen and basal points of antennae red, apical joints obfusate, tips of mandibles black, legs and palpi yellow, the knees sometimes piceous. *Head*, labrum strongly produced; closely punctate, eyes very large and prominent, separated by a distance less than the

apparent diameter of one, antennae long, joints sublinear, 3rd little longer than 4, 4-7 equal, 8-11 successively shorter. *Prothorax* at base a little wider than the length, sides parallel on basal half, then arcuately narrowed to apex; this considerably narrower than base, narrowly margined at base and apex, medial line impressed and terminating in a large basal foveate depression; disc closely and rather coarsely punctate. *Scutellum* transverse, widely rounded behind. *Elytra* narrowly elliptic, slightly wider than prothorax at base and three and a-half times as long, shoulders rounded, apex finely pointed; striate punctate, seriate punctures large and close, intervals convex and finely punctate; sternum distinctly and closely, abdomen minutely and sparsely punctate, mid-tibiae curved. Male without sexual characters, except the extended quasi-sixth segment, with its small external forceps; posterior intercoxal process rounded.

Dimensions.—10 x 3 mm.

Habitat.—Sydney (the author).

Four examples taken by the author are superficially like *Chromomoea rufescens*, Bates, but the following are amongst the many structural differences:—(1) Long, linear joined antennae; (2) large prominent eyes, width of head across eyes 2 mm., space between .5 mm.; (3) prothorax black, much wider at base than at apex, apical half arcuately narrowed; (4) widely rounded intercoxal process. Types in author's coll.

Tanychilus ruber, n. sp.

Elongate, sharply ovate, the whole red except the eyes, tips of mandibles, and apex of femora (sometimes) black.

Head elongate in front, closely punctate, the clypeus more coarsely so than the forehead, and separated from it by an arcuate depression; forehead wider and flatter between the eyes than in *T. splendens*, Bless., space between eyes about two-thirds of the diameter of one eye; last joint of maxillary palpi securiform, of labial triangular; antennae with joints filiform and elongate, 2nd very short, 3 longer than 4, 4-11 successively and very gradually shorter than the preceding. *Prothorax* narrower than the head and truncate at apex, feebly bisinuate at base, slightly arcuately widening from apex to base; sides not so much constricted and rounded as in a typical *Tanychilus*, distinctly margined throughout, but only basal and apical margins visible from above, closely and distinctly punctate, with a defined medial line and large basal foveate depression, and two narrow transverse foveae near basal

margin. *Scutellum* widely rounded behind, finely punctate. *Elytra* wider than prothorax at base, and more than three times as long, finely pointed at apex, striate punctate, the punctures in striae less defined and more irregular than in *T. minor*, the intervals convex, and more distinctly and closely punctate than in that species. Underside rather finely and distantly punctate, mid-tibiae curved, legs simple, femora tumid, posterior tarsi with basal joint as long as the rest combined, ♂ with distinct anal clasping appendage.

Dimensions.—♂ 9-11 x 2.6-3 mm., ♀ 13 x 4 mm.

Habitat.—Dorrigo (Tillyard), Tambourine Mountain (Hacker), Blue Mountains (Dr. Ferguson).

Five examples. Both this species and *T. minor* differ from the typical *Tanychilus* (*striatus* and *splendens*) in the wider and flatter forehead, and in the less subconic form of the prothorax, with the anterior part less constricted and rounded (in section). In these respects they form a link between *Chromomoea* and *Tanychilus*. The filiform and elongate antennae, very large eyes, head wider than apex of prothorax, the latter not cylindrical or oblong, justify their inclusion under *Tanychilus* unless another ill-defined genus is to be founded for their reception. The type ♂ in the Queensland Mus., the ♀ in the author's coll.

Group II. Mandibles bifid at apex, head little produced.

- | | | | |
|----|----|--|---|
| 1 | 19 | Winged. | |
| 2 | | Mandibles grooved (scarcely bifid) at apex (one sp. one pointed?) | <i>Dimorphochilus</i> , Borch |
| 3 | 25 | Mandibles distinctly bifid at apex | |
| 4 | 14 | Hind femora much longer than the distance from their base to the external margin of the elytra. | |
| 5 | 12 | Head much narrower than apex of prothorax | |
| 6 | 9 | Antennal joints more or less elongate and slender | |
| 7 | 13 | Elytra striate punctate | |
| 8 | | Eyes, in general, more or less widely separated | <i>Homotrysis</i> , Pasc |
| 9 | | Eyes large and approximate in ♂ | <i>Hybrenia</i> , Pasc |
| 10 | 14 | Antennal joints short and widened at apex | |
| 11 | | Upper surface metallic, colour dark | <i>nypsius</i> , Champ |
| 12 | | Upper surface non-metallic, colour yellow | <i>Jophon</i> , Champ |
| 13 | | Head scarcely narrower than apex of prothorax | <i>Ommatophorus</i> , MacI |
| 14 | | Elytra finely striate, prothorax as wide as elytra | <i>Barycistela</i> , Blackb |
| 15 | 19 | Hind femora scarcely longer than the distance from their base to the external margin of the elytra | |
| 16 | | Body very convex and oval (facies of <i>Choleva</i>) | <i>Nocar</i> , Blackb |
| 17 | 19 | Body more depressed, elytra parallel on basal half | |
| 18 | | Head very narrow (facies of <i>Harpalides</i>) | <i>Scaletomerus</i> , Blackb
<i>Otys</i> , Champ |

19	Head wide (facies of <i>Alphitobius</i>)	<i>Taxes</i> , Champ
20 25	Apterous	
21	Eyes small, widely separated, body ovate, epipleurae wide (facies of <i>Otiorrhyncus</i>)	<i>Simarus</i> , Borch <i>Ismarus</i> , Haag
22	Eyes large, more approximate, ♀ obvate, epipleurae narrow	¹ <i>Metistete</i> , Pasc <i>Lisa</i> , Haag
23 25	Epipleurae scarcely separated from elytra, labial palpi oval or clavate	
24	Legs without sexual characters, elytra striate punctate	<i>Melaps</i> , Cart (?) <i>Oocistela</i> , Borch
25	Tibiae dentate, femora hollowed and laminated in ♂, elytra tuberculate	<i>Notocistela</i> , n.gen.

Synonymy.—*Scaletomerus*, Blackb. = *Otys*. Champ.

By comparison of types in the Brit. Mus. Mr. Blair notes that—

S. proximus, Borch. = *O. harpulinus*, Champ.

Simarus, Borch. = *Ismarus* Haag. (nom pre-occ).

The former name was substituted by Borchmann for *Ismarus*.

Metistete, Pasc. = *Lisa*, Haag.

(?) *Melaps*, Cart. = *Oocistela*, Borch.

The synonymy of *Lisa*, Haag., with *Metistete* is pointed out under *Metistete* below.

I am not quite sure as to the synonymy of *oocistela* with *Melaps*, having been unable to understand the last phrase in Herr Borchmann's description, "rundlich-viereckige Eudglied der Maxillartaster." If this last word is a misprint, as would appear from the figure and description, and applies to the *labial* and not the *maxillary* palpi, I think the synonymy would hold good. In *Melaps pilosus* the palpi and mentum are very similar to those in the figure of *Oo. convexa*. My original classification of *Melaps* as a *Tenebrionid* was an error, the tarsal claws being finely pectinate.

Dimorphochilus, Borch.

Herr Borchmann has described three species, *D. apicalis*, *D. diversicollis* and *D. sobrinus*. It seems quite possible that all three are but varieties of a very common insect, which I have taken myself in West Australia, and which is found in all collections. Having closely examined by microscope several specimens of *D. diversicollis*, I find that the mandibles distinctly place the genus in my second group, having a broad apex, more or less distinctly divided, as in fig. given (Fauna Sud., West Aus., 1905, p. 354), though in general

¹ The ♂ of *Metistete gibbicollis*, Newm., is winged.

facies this species most resembles *Tanychilus*, but with much less prolonged muzzle. *D. apicalis* was described from a single specimen, in which both mandibles had lost their points, so that the statement, "jaws probably one-pointed" (oberkeifer wahrschemlich einspitzig) seems rather hazardous. The character chiefly relied on for distinguishing this species may be merely individual (the inner edge of each elytron at apex widened and forming two points).

D. sobrinus, also described from a single specimen, is stated in the very brief description to have one pointed mandibles. As the only other distinctions of this species from *D. diversicollis* are the want of yellow edging to the clypeus (which I find in some specimens of *diversicollis*), shorter and more compressed form, very slight differences of sculpture and more curved tibiae, this species requires further investigation. The figure given by the author of a mandible of *D. sobrinus* is so different from any I have examined, as to suggest the possibility that this also has been mutilated. The insect described by Macleay as *Metistete Pascoei* is certainly congeneric with *D. diversicollis*, and, indeed, is very close to it as a species. Macleay might well have been misled by Pascoe's scanty diagnosis of *metistete*, with its final and erroneous clause, "rest as in *Tanychilus*," but the insect is actually widely separated from *metistete*. *D. Pascoei* may be readily distinguished from *D. diversicollis* by the following differences:—

- (1) Without strong sexual dimorphism.
- (2) Mandibles very clearly bifid at apex.
- (3) Prothorax longer, more *Tanychilus* like, with larger and coarser punctures on the basal half, the apical half, especially near sides, nearly smooth. (A character noted by Borchmann for *D. sobrinus*.)

The species of *Dimorphochilus* may thus be tabulated:—

Dimorphochilus, Borch.

Apex of mandibles distinctly bifid	<i>Pascoei</i> , MacL
Apex of mandibles slightly grooved	<i>diversicollis</i> , Borch
	var. (?) <i>apicalis</i> , Borch
Apex of mandibles, one pointed (?)	<i>sobrinus</i> , Borch

Homotrysis, Pasc.

Group I. The "*Carbonaria*" group.—Form very convex, sexual dimorphism pronounced. Size generally large (12-15 mm. long). Eyes widely separated.

1	7	Whole upper surface black	
2		Prothorax strongly pilose	<i>carbonaria</i> , Germ

1 Species unknown to author, of doubtful value.

- | | | | |
|----|----|--|----------------------------|
| 3 | 7 | Prothorax smooth (or nearly so) | |
| 4 | 6 | Elytral intervals punctate . | |
| 5 | | Antennae and middle of tibiae red | <i>ruficornis</i> , Macf |
| 6 | | Antennae and legs black (striae subgeminatae) | <i>subgeminatus</i> , Macf |
| 7 | | Elytral intervals laevigate | <i>regularis</i> , Macf |
| 8 | | Elytra obscurely bronze, intervals clearly punctate | <i>debilicornis</i> , Haag |
| 9 | 11 | Elytra brown, intervals rugose | |
| 10 | | Scutellum smooth (♂ with elytra sometimes red or pale brown) | <i>cisteloides</i> , Newm |
| 11 | | Scutellum albo-pilose | <i>canescens</i> , Hope |
| 12 | 14 | Elytra variegated with patches of white hair | |
| 13 | | Ground colour reddish-brown, patches irregularly placed | <i>maculata</i> , Haag |
| 14 | | Ground colour black, patches regularly placed | <i>ornata</i> , n.sp. |

Group II.—Sexual dimorphism not pronounced (at least in size and colour), less convex, size smaller than in Group I. (7-12 mm. long, except with *H. luctuosus*, Champ., which is 14½-17 mm.), eyes in general less widely separated.

- | | | | |
|----|----|--|-------------------------------|
| 1 | 14 | Upper surface black | |
| 2 | 4 | Upper surface very nitid | |
| 3 | | Prothorax at base almost, or quite, as wide as elytra, surface smooth | <i>laticollis</i> , Boh |
| 4 | | Prothorax at base much narrower than elytra, surface with short erect pile | <i>tenebrioides</i> , Blackb |
| 5 | 9 | Upper surface subnitid black | |
| 6 | | Size large, intervals almost laevigate | <i>luctuosus</i> , Champ |
| 7 | 9 | Size small, intervals densely punctate | |
| 8 | | Eyes approximate, antennae and tibiae red | <i>rufulicornis</i> , Borch |
| 9 | | Eyes more distant, antennae and tibiae black | <i>lugubris</i> , Blackb |
| 10 | 14 | Upper surface opaque black, prothorax widest anteriorly | |
| 11 | 13 | Prothorax normally convex | |
| 12 | | Size larger, elytral intervals nearly flat, seriate punctures small | <i>Pascoei</i> , Macf |
| 13 | | Size smaller, elytral intervals convex, seriate punctures large | <i>obscura</i> , Borch (?) |
| 14 | | Prothorax depressed on disc, size smaller than 13 | <i>planicollis</i> , Macf |
| 15 | | Upper surface cyaneous, form narrow and parallel, elytra sub-sulcate | <i>leurticornis</i> , Haag |
| 16 | | Upper surface brown | |
| 17 | | Prothorax as wide as elytra at base, elytral intervals slightly convex | <i>flavicornis</i> , Macf |
| 18 | | Prothorax not as wide as elytra at base, elytral intervals flat | <i>Mastersi</i> , Macf |
| 19 | 33 | Upper surface wholly red | |
| 20 | 24 | ♂ with triangular tooth on inside of front tibiae | |
| 21 | 23 | Prothorax not widened anteriorly | |
| 22 | | Prothorax canaliculate | <i>rufipes</i> , F |
| 23 | | Prothorax not canaliculate | <i>rubicunda</i> , n.sp. |
| 24 | | Prothorax widely rounded and widened anteriorly | <i>callabonensis</i> , Blackb |

25	33	♂ without triangular tooth on front tibiae	
26	28	Prothorax narrowed to apex, little rounded on sides	
27		Head strongly and closely punctured between eyes	<i>larida</i> , Blackb
28		Head finely and sparsely punctured between eyes	<i>isitiens</i> , Blackb
29	33	Prothorax short and strongly transverse	
30	32	Third joint of antennae longer than the fourth	
31		Elytral intervals finely and closely punctate	<i>fusca</i> , Blackb
32		Elytral intervals subgranulate	<i>iscabrosa</i> , Champ
33		Third joint of antennae shorter than the fourth	<i>rubra</i> , n.nom. <i>rufa</i> , Blackb
34		Elytra obfuscate or black	<i>bicolor</i> , Champ
35		Elytra with lateral vittae obfuscate or black	<i>limbata</i> , Blackb

Synonymy.—(1) *H. carbonaria*, Germ. = *H. tristis*, Germ.

(2) *H. (allecula) cisteloides*, Newm. = *H. fuscipennis*, Bless. = *H. microderes*, Pasc.

(3) *H. (Helops) rufipes*, F. = *H. (allecula) angusticollis*, Boh. = *H. (allecula) australis*, Bois. (?)

(4) *H. ruficornis*, Borch. = *H. ruficornis*, Blackb. (nom praeocc).

(5) *H. rubra*, Cart. = *H. rufa*, Blackb. (nom praeocc).

With regard to (1) Blackburn has pointed out that *carbonaria* is the ♂ and *tristis* the ♀ of the same species.

(2) Specimens of *H. cisteloides*, Newm., and of *H. microderes*, Pasc., sent me from the Brit. Mus., show their identity with *H. fuscipennis*, Bless. This very common insect occurs in all the eastern States, from Queensland to South Australia, and, like all common insects, is very variable in size and colour, the ♂ being generally darker, sometimes nearly black. It can be distinguished from other species by the confused transversely rugose punctate sculpture of the elytral intervals. It is doubtful if *H. canescens*, Hope, is specifically distinct. Specimens labelled *canescens*, Hope, in the Blackburn coll., is a smaller insect with a white scutellum, caused by a close clothing of white recumbent hair, which I have only seen from Brisbane and Northern New South Wales. (Blackburn's specimens were from Werris Creek, N.S.W.) These are also identical with a specimen from the Brit. Mus. labelled with a MS. name by Bates. For the present I have followed Blackburn's determination in this until it is possible to clear up Hope's species. I have been much disappointed in failing to get the Hope types for examination.

(3) A specimen of *Helops rufipes*, F., compared with type, was sent from the Brit. Mus., and is identical with the common Sydney

1 Species determined from description only.

species *H. (allecula) angusticollis*, Boh. Fabricius' description is misleading, not only in its brevity and misplaced genus, but in the words "caput nigrum," "thorax niger," whereas in fresh specimens the whole insect is ferruginous. Boisduval's few words of description of the species *Allecula australis* apply also to this insect, and is so determined by Blackburn.

(4) *H. ruficornis*, Blackb.—This name was praeoccupied by Macleay, and Borchmann suggested the name *rufulicornis*.

(5) If I am correct in merging the Australian species of *Allecula* with *Homotrysis*, *H. rufa*, Blackb., is praeoccupied by *A. rufa*, Solier, which may be the same insect. I have not been able to get M. Solier's paper, so that I am unable to give any opinion on this (vide infra).

Allecula.—This genus has not been clearly defined, and has been used as a "dumping ground" for Australian species of a very different facies. Following the classification of Solier and Mulsant, who reserve this genus for species having (1) only one small lamella on the penultimate joint of each tarsus, (2) antennae with joint 3 much shorter than 4, I find that none of the so-called "*Allecula*" of Australia comply with condition (1), while *H. rufa*, Blackb., is the only species I have examined which fulfils condition (2), and that species, like all the others, has two distinct lamellae on the anterior four feet, and one on the two posterior. Moreover, except in size and colour, and in variable proportions in size of antennal joints, I cannot distinguish between *Allecula* and *Homotrysis*. The species described under these genera have therefore been classed together as *Homotrysis*. After deducting those species which have been considered as *Hybrenia*, or other genera, and synonyms, I find 37 sp. described, to which I propose to add two new species. The following eight species have not been identified:—*A. costata*, Haag., *A. cylindricollis*, Bois., *A. foveicollis*, Hope, *A. Gouldii*, Hope, *A. Melancholica*, Hope, *A. nigricans*, Hope, *A. rotundicollis*, Casteln., *A. rufa*, Sol.

Notes on the Species.—*H. ruficornis*, Macl., and *H. subgemmatum*, Macl., are closely allied in size, form and sculpture, but the former has red antennae, the latter dark antennae, while the striae are narrowly branched, at least on the apical part of elytra, forming the subgeminate striae referred to in the description. I have only seen three specimens of the latter.

H. laticollis, Boh., is a common Sydney insect, found also in many other parts of New South Wales (Blue Mountains, Illawarra, Northern Rivers district), and was described as from Sydney. It is strange that Blackburn apparently failed to identify it.

H. tenebrioides, Blackb.—I have been much puzzled by the discrepancy between the description of this insect and specimens so labelled in Blackburn's handwriting, in his own coll. (kindly sent me for examination by the authorities of the South Aus. Mus.). These specimens correspond with a species I have from *Cootamundra*, *Forbes*, *Angledool* (N.S.W.), *Toowoomba*, (Q.), and *Eucla* (S.A.). They do *not* correspond with the description in colour "nigro-coeruleo, prothorace laete cyaneo-micans, sutura obscure rufescenti," being quite black. It is possible that the type was a colour var., but the description reads very much like that of *H. curticornis*, Haag., especially in the subgibbous prothorax and the elytra "fortiter striatis." As tabulated above I have considered the specimens labelled by Blackburn as correct. If this is wrong, the species so placed in my table will require a name.

H. luctuosus, Champ.—I believe I have correctly determined this in a specimen taken by myself on Mt. Wellington, Hobart, and two specimens in Mr. Lea's coll., from Gladstone, Tasmania. It is much the largest species in the group in which I place it, and as anomalous in other ways in facies somewhat like a *Tanychilus* (without, however, the prolonged head), the elytra considerably widened posteriorly. The wide, flat, almost smooth elytral interstices are a distinguishing feature.

H. obscura, Borch.—I have rather doubtfully identified this as a very common Western Australian species, found in most collections, and taken by myself at Perth, Armadale and Gingin. The description is meticulously detailed in head and mouth characters, which are common to many species (or only microscopically differentiated), while it omits important details in elytral sculpture, in which the *Cistelidae* vary greatly. From the other opaque black species *obscura* (as identified by me) is distinguished by its large somewhat rectangular seriate punctures separated by subcancellate ridges, on the same plane as the convex intervals. There is a specimen in the Brit. Mus. consignment bearing a MS. name by Bates.

H. arida and *H. sitieus*, Blackb., have been included in my tabulation, since they are among the few species tabulated by that author. They are unknown to me, and appear very slightly differentiated.

Allecula rugulosa, Bois.—Specimens so labelled by Blackburn in his coll., and evidently referred to (Trans. Roy. Soc., South Aus., 1891, p. 323), are, I find, identical with *Ommatophorus Mastersii*, Macl.

H. limbata, Blackb., has a wide distribution throughout New South Wales and Victoria. I have taken it on flowers at Gosford, Medlow, Jindabyne, Mount Macedon. There is a variety in which the black lateral vitta is wanting.

Homotrysis ornata, n. sp.

Ovate, nitid black, elytra adorned with white pubescent longitudinal patches placed on the 1st, 3rd and 5th intervals; head, underside and legs clothed with recumbent white, silky hair, tarsal claws red. *Head* punctate and pubescent, eyes large and separated by a distance less than the diameter of one, antennae joint 3 of equal length to 4, and slightly longer than the succeeding, 5-11 subequal. *Prothorax* about as long as wide, wider at base than at apex, basal half parallel, arcuately narrowed apically, the apex bisinuate, anterior angles rounded, depressed and feebly advanced, posterior angles obtuse, base truncate, disc with sparse shallow punctures, medial line clearly impressed on anterior half, a medial basal fovea and transverse basal depressions on each side. *Scutellum* rounded behind, pubescent. *Elytra* oval, wider than prothorax at base, shoulders well marked, raised and rounded, apex rather finely pointed; striate punctate, with a short scutellary row, and nine other rows of rather large round regularly placed and equal sized punctures placed in shallow striae (these striae only well marked on apical half), intervals nitid and impunctate, except where pubescent; the white pubescence forming short longitudinal patches covering parts of the 1st, 3rd and 5th intervals behind the middle (when abraded these patches marked by close, fine punctures), with some irregular pubescence on apical declivity. Sternum and abdomen with rather close white pubescence, the anal segment of ♂ showing the usual falcate protuberance (meeting behind), tarsi with the usual lamellation (two on the four anterior feet, one on the posterior). Legs simple, tibiae straight.

Dimensions.—9-11 x 3.2-4 mm.

Habitat.—Cooktown, North Queensland (H. Hacker and R. J. Tillyard). A very common North Queensland species, of which seven specimens are under examination, of which six are certainly ♂. At first it seemed that it might be the ♂ of *H. maculata*, Haag., but I find both sexes of the latter, which may be distinguished by the following characters:—Size larger, colour reddish-brown, pubescence irregular and extending over the whole surface of elytra (if abraded their position indicated by punctures), prothorax coarsely

punctate, with sulcate medial line, and much less cylindrical in form inter alia. In *ornata* the clear white patches are found in two regions only on the elytra, (a) a post median generally consisting of three parallel patches, (b) apical declivity, with irregular patches.

Types in the author's coll.

Homotrysis rubicunda, n. sp.

Elongate ovate, red, upper surface thickly clothed with short red tomentum; oral organs, antennae and legs pale red or testaceous. *Head* and pronotum closely, finely punctate, last joint of maxillary palpi securiform, of labial triangular, eyes large; prominent, in ♂ close in front, wider behind, in ♀ separated by a space about half the diameter of one, antennae very thin, joints linear, 4-11 subequal. *Prothorax* widest at base, gradually narrowing to apex, sides rounded and a little deflexed anteriorly, posterior angles acute, narrowly margined throughout (not evident from above on sides near anterior angles), apex truncate, base bisinuate, medial depression distinct, and two triangular basal depressions near sides. *Scutellum* triangular, rounded behind.

Elytra of same width as prothorax at base, convex and oval, shoulders evident, slightly rounded; striate punctate, the striae containing close, deep punctures, separated by fine cancellate divisions, intervals convex, finely and closely punctate, and a little transversely rugose. *Sternum*, with round, sparse and rather coarse punctures, abdomen more closely and finely punctate; fore-tibiae of ♂ with angulate enlargement inside near base; hind tibiae swollen; tarsi bilamellate on front four, unilamellate on hind feet.

Dimensions.—10 x 4 mm.

Habitat.—Cairns (A. M. Lea).

Six specimens in the S.A. Mus. belong to the *angusticollis*, Boh., section; differing from that species in the wide prothorax, and dense puncturation of pronotum and elytra. Types in the South Aus. Mus.

Hybrenia, Pasc.

- | | | | |
|---|----|---|--------------------------|
| 1 | 21 | Colour black | |
| 2 | 17 | Appendages black (or nearly so) | |
| 3 | 9 | Elytral intervals flat (sometimes slightly convex at sides) | |
| 4 | 8 | Pronotum strongly (not densely) punctate | |
| 5 | | Seriate punctures much larger than interstitial | <i>nitida</i> , Blackb |
| 6 | 8 | Seriate punctures about the same size as the interstitial | |
| 7 | | Eyes contiguous in ♂ | <i>elongata</i> , Macl |
| 8 | | Eyes not contiguous in ♂ | <i>pimeloides</i> , Hope |
| 9 | | Pronotum sparsely and finely punctate | <i>sublaevis</i> , Macl |

10	17	All elytral intervals convex	
11	16	Whole surface nitid	
12	14	Pronotum densely punctate	
13		Seriata punctures large, intervals subcarinate	<i>subsulcata</i> , MacI
14		Seriata punctures smaller, intervals subconvex	<i>angustata</i> , MacI
15		Pronotum sparsely punctate, seriata punctures very large	<i>laticollis</i> , MacI
16		Pronotum smooth	<i>nitidior</i> , n.sp.
17		Head and pronotum opaque	<i>rugicollis</i> , n.sp.
18	20	Appendages red	
19		Size large (22 mm. long), posterior angles of prothorax obtuse	<i>grandis</i> , Borch
20		Size smaller (13-15 mm. long), posterior angles of prothorax acute	<i>planata</i> , n.sp.
21		Femora yellow, tibiae black	<i>femorata</i> , n.sp.
22		Elytra with alternate intervals red ¹	<i>vittata</i> , Pasc
23		Colour pale yellow	<i>pallida</i> , n.sp.

Hybrenia is, I consider, generically distinct from *Homotrysis*, though it must be admitted that the dividing line between them is not very clearly defined. In so large a group, however, as that formed by insects described under *Allecula*, *Homotrysis* and *Hybrenia*, it is convenient to seize on any characters that facilitate classification. The genus *Hybrenia* as tabulated above contains the largest insects of the Australian Cistelidae, and have the following combinations of characters:—Eyes, large and approximate (especially so in the ♂ prothorax closely applied to the elytra and generally but slightly narrower than it; form generally less convex (more flattened) than in *Homotrysis*.

Synonymy.—*H. (Allecula) pimeloides*, Hope = *H. princeps*, Blackb.
H. vittata, Pasc. = *H. insularis*, Pasc. = *H. subvittata*,
 MacI.

I have pointed out Blackburn's mistaken determination of *H. pimeloides* as a *Metistete* (see *Metistete* below). A specimen compared with Hope's type has been sent me from the Brit. Mus. As Blackburn noticed Hope's insect is larger than any specimens of *M. omophloides*, Hope, which he (Blackburn) described at length (*Proc. Linn. Soc., N.S.W.*, 1888, p. 1436), under the name *pimeloides*. I have a specimen of *H. pimeloides*, Hope, from Angledool (Western New South Wales).

Specimens of *H. vittata*, Pasc., and of *H. insularis*, Pasc., have also been sent for examination. Pascoe carelessly overlooked the

¹ *H. vittata*, var. *concolor*, n. var., may be distinguished from the other black species by the following combinations: Appendages black, eyes of ♂ subcontiguous, pronotum and elytra intervals densely punctate, elytra striate, intervals quite flat, seriata and interstitial punctures commingled and of equal size.

subdominant but evident (in certain lights) vittae in *insularis*. (These are often very obscure). But there is no doubt of their identity. I have compared these with the type of *H. subvittata*, Macl., and find them identical. The species of *Hybrenia* are in general readily distinguished by their very strongly individualised sculpture. There is a concolorous black species in N. Queensland not to be otherwise distinguished from *H. vittata*, which I have named *H. vittata* var. *concolor*.

H. grandis, Borch.—I think I have correctly identified this species from the description. I have only seen three specimens; a pair (the sexes) in the Melbourne Mus., from Victoria, and a ♂ in my own coll., taken by myself at Medlow, Blue Mountains. The sexual differences are well defined, as stated by the author, the ♂ having a triangular enlargement on the fore tibiae. Borchmann gives West Australia as the locality, but this seems open to question, i.e., assuming my determination to be correct.

Hybrenia rugicollis, n. sp.

Elongate, ovate (♂ sometimes slightly obovate), black subnitid (head and prothorax subopaque), oral organs, antennae and tarsi piceous. Head and pronotum densely rugose punctate, eyes large, prominent and subapproximate (about .8 mm. apart in ♂ about 1.2 mm. in the ♀), antennae long, joint 1 stout, 2 very short, 3 half as long again as 4, 4-11 successively shorter than preceding, labrum with castaneous fringe, maxillary palpi with last joint triangular. *Prothorax* convex, about as long as broad, widest at middle, slightly wider at base than at apex, bisinuate at both, the anterior angles widely rounded and slightly advanced, sides well rounded, feebly sinuate near the subrectangular and well-marked posterior angles, with raised margins throughout, but lateral margins not evident from above; disc with slight medial and a transverse basal depression.

Scutellum very large, scarcely, or very finely, punctate, widely rounded behind. *Elytra* considerably wider than prothorax at base, and about three times as long, subparallel or slightly obovate, sulcate punctate, with a short scutellary and nine other rows of large square punctures, placed in wide sulci and separated by sub-cancellate ridges, continuous, with little difference of size to the extreme apex, the 4th and 5th connected before the apex; intervals rather sharply ridged and smooth; underside very coarsely and rather closely punctate, except the two apical segments of abdomen,

these more finely but definitely punctate, the anal segment of ♂ showing a strongly protruding forceps, hollowed on the inside. Legs long, simple; tibiae straight, tarsi bilamellate on the anterior four, unilamellate on the posterior tarsi, the latter with the basal joint as long as the rest combined.

Dimensions.—19 x 6 mm.

Habitat.—Cowra, Culcairn, Young, Forbes (New South Wales) (Dr. E. W. Ferguson and the author).

A common *Metistete*-like insect, from the western districts of New South Wales, but winged and more elongate than in *Metistete*, and may be recognised by its combination of convex rugose prothorax, wide sulci and large punctures of the elytra, these scarcely modified to extreme apex.

Types in the author's coll.

Hybrenia planata, n. sp.

Elongate, parallel, depressed, brownish-black, oral organs, antennae and legs red; upper surface (especially head and pronotum) with rather thick clothing of short, fine, upright red hair, legs and abdomen still more densely pilose. *Head* and pronotum coarsely punctate, the punctures round and large on the neck, base of head and pronotum, smaller on epistoma and apical part of pronotum, rather irregularly and not closely placed on the last. Eyes large and approximate (about $\frac{1}{2}$ mm. apart); labrum thickly fringed, antennae shorter and stouter than usual, joint 3 evidently longer than 4, 5-11 gradually shorter than preceding, and of nearly the same thickness. *Prothorax* considerably wider than long, convex and rounded in front, explanate behind, widest in front of middle, apex advanced in the middle, anterior angles rounded and deflexed, sides anteriorly well rounded, slightly sinuately converging behind to the well-defined subrectangular posterior angles (these appearing acute from above), base bisinuate, with large irregular depressions near base. *Scutellum* widely triangular, rounded behind, finely punctate. *Elytra* slightly wider than prothorax at base, and more than three times as long, sides parallel, surface rather flat, striate punctate, each with a short scutellary and nine other rows of large deep oval punctures, these larger towards sides and smaller towards apex (about 20 punctures in the sixth row), intervals a little raised and finely setose. Posternum rugose, metasternum coarsely, abdomen sparsely and more finely, punctate. Legs simple, tibiae straight.

Dimensions.—13-15 x 4-5 mm.

Habitat.—Dorrigo, New South Wales (R. J. Tillyard), Dividing Range, South Aus. (South Aus. Mus.).

Four specimens (unfortunately all ♀) examined are very distinct from all known species. The prothorax is somewhat as in *Allecula planicollis*, Macl., on a larger scale. The combination of depressed and parallel form, large seriate punctures and red appendages make it readily recognisable.

Type in the author's coll. ♂ wanting.

Hybrenia pallida, n. sp.

Elongate, elliptic, pale yellow, glabrous, prothorax, head and underside a darker shade of yellow. *Head* sparsely punctate, eyes very large and prominent, subapproximate (space between less than $\frac{1}{3}$ diameter of one), antennae long, joints 4-11 very gradually and successively shorter than preceding. *Prothorax* subquadrate, slightly wider than long, front angles widely rounded, posterior rectangular, disc irregularly dotted with large round punctures with a more or less laevigate medial line, and irregular laevigate intervals elsewhere; base slightly sinuate and impressed near middle. *Scutellum* triangular. *Elytra* not much wider than prothorax at base, and four times as long, striate punctate, with a short scutellary, and nine other rows of large, round, closely placed punctures, becoming smaller towards apex; intervals smooth, except for a few irregularly placed punctures of about the same size as those in striae; underside coarsely and sparsely punctate, except on apical segments of abdomen, fore tibiae swollen, posterior tibiae flattened and curved, posterior tarsi with basal joint as long as the rest combined.

Dimensions.—14-15 x 5 mm.

Habitat.—C. York, North Australia.

Two ♂ specimens examined, the type in the Brit. Mus. coll., and a less perfect specimen in the Macleay Mus., Sydney. It may be recognised by the colour, the somewhat vermiculate smooth spaces on the pronotum, and the regular close punctures of elytral series, with nitid but sparsely punctate intervals. *H. vittata*, Pasc., from the same region, differs in colour, in its pubescence, closely punctate pronotum, and elytral intervals, and smaller seriate punctures.

Hybrenia femorata, n. sp.

Elongate, ovate, nitid black, with sparse, short, brown pubescence, tarsi castaneous beneath, femora with apical two-thirds pale yellow.

Head coarsely punctate, eyes of ♂ almost contiguous, of ♀ nearly 1 mm. apart, antennae long, joint 3 much longer than 4, 4-11 gradually diminishing in length, 9-11 more attenuate than preceding. *Prothorax* subquadrate, convex, sides nearly parallel, anterior angles rather squarely rounded and depressed, posterior angles (from above), rectangular, base bisinuate and closely applied to the elytra, with basal border clearly raised, surface sparsely covered with irregularly placed large round punctures (larger and more thickly placed than in *H. sublaevis*, Macl.), with upright reddish hairs, medial depression distinct, though not uniform in extent or impression, two large basal depressions. *Scutellum* arcuate triangular, punctate. *Elytra* rather wider than prothorax at base, elongate, obovate, slightly widened beyond middle, finely striate, the striae showing some signs of seriate punctures only near base; the basal half showing an arrangement of series of large round punctures, arranged in rows of three, with smooth subreticulate intervals, towards the middle this reticulation becoming more transverse and irregular, on apical part the sculpture much finer, showing the simple striation more clearly. Sternum coarsely, abdomen more finely punctate, fore and mid tibiae with lines of castaneous tomentum on inside. Legs simple, tibiae straight, posterior tarsi with basal joint as long as the rest combined, tarsi with the usual lamellation.

Dimensions.—16 x 6 mm.

Habitat.—Cooktown, North Queensland (H. Hacker, C. French).

A common North Queensland species, which appears to have escaped notice, and found in most collections. Twelve specimens examined. An ally of *H. sublaevis*, Macl., but the sculpture is much coarser, and the leg coloration is constant. The sexual distinction seems confined to (a) distance between eyes, (2) apical segment of ♂ showing the usual forceps. Types in the author's coll.

Hybrenia nitidior, n. sp..

Elongate, parallel, nitid black, glabrous; palpi, antennae and tarsi piceous, labrum with red cilia. *Head*, epistoma, sparsely punctate, forehead impunctate, eyes large and prominent, in ♂ subcontiguous (separated only by a narrow carina), in ♀ more distant; antennae long, joint 3 longer than 4, 4-11 gradually diminishing in length, 9-11 more attenuate than the preceding. *Prothorax* convex, subquadrate (3 x 3.7 mm.), apex and base feebly bisinuate, widest before the middle, sides well rounded and feebly sinuately narrowed behind,

anterior angles widely obtuse and deflexed, posterior angles (seen from above) rectangular, margins raised throughout, the lateral margins not evident from above, disc *quite smooth and impunctate*, with distinct but shallow medial depression throughout its length, a transversal basal depression and two small foveae at base near the angles. *Scutellum* longitudinally oval, impunctate.

Elytra considerably wider than *prothorax* at base, and nearly four times as long, shoulders moderately pronounced, but rounded, sides parallel for the greater part in both sexes, striate punctate with a short scutellary row, and nine other rows of large, deep, oval punctures, larger towards sides (except extreme lateral row), smaller towards suture, and much smaller towards apex, striae deep, subsulcate, the 4th and 5th ending, but not connected, on apical declivity, intervals convex and impunctate; posternum coarsely punctate, episterna with a few very large punctures, metasternum with a few large punctures near base; abdomen scarcely punctate. Legs long, simple, tarsi with usual lamellation.

Dimensions.—17 x 5 mm.

Habitat.—Oxford, Gosford, Bulladelah (the author), Tambourine Mountain (A. M. Lea and the author).

A common species in New South Wales and South Queensland, showing relationship to *H. nitida*, Blackb., and *A. laticollis*, Macl., but distinguished from both by its impunctate pronotum. The seriate punctures are larger, and elytral striae deeper and wider than in *H. nitida*, though smaller and less pronounced than in *H. laticollis*.

Types in the author's coll.

Nypsius, Champ.

Nitid, metallic, flower haunting insects, with a short, wide prothorax, deeply canaliculate, and sometimes deeply foveated, described from Tasmania. Both species occur in Mr. Lea's fine coll. There are also two specimens which cannot be distinguished from *N. foveatus*, Champ., except that the foveae are wanting or sub-obsolete. The species varies in size from 6 to 9½ mm. long. I have taken *N. aeneo-piceus*, Champ., in the Australian Alps, Vic. (near St. Bernard's Hospice). The two sp. may be thus distinguished:—

- | | | |
|---|--|-----------------------------|
| 1 | Elytral intervals with a single row of widely separate punctures | <i>aeneo-piceus</i> , Champ |
| 2 | Elytral intervals thickly punctate | <i>foveatus</i> , Champ |

Ommatophorus, Macl.

Clearly separated from *Homotrysis* by the short transverse prothorax, the short, thick, serrated antennal joints, and the thick clothing of upright hair, as stated above, Blackburn's determination of *A. rugulosa*, Bois., proves to be *O. Mastersi*, Macl., but there is too much doubt about a Boisduvalian sp. to give it precedence. I have added a n. sp., which may be distinguished as follows:—

- | | | |
|---|---|--|
| 1 | Elytra with sides and apex black, antennae and legs red | <i>Mastersi</i> , Macl
(?) <i>A. rugulosa</i> , Boisd |
| 2 | Elytra concolorous red, antennae, tibiae and apex of femora black | <i>atripes</i> , n.sp. |

Ommatophorus atripes, n. sp.

Ovate, red, upper surface and legs sparsely clad with long, upright white hair, oral organs, antennae and legs black. *Head*, eyes large, occupying the greater part of upper surface in front, and approximate in ♂ more widely separate in ♀, antennae, very short, joints 3-10 subtriangular, 11th ovate, 3 longer than 4, 6-8 much widened, succeeding joints attenuated; forehead sparsely punctate. *Prothorax* short, transverse, sides straight behind, widely rounded and deflected anteriorly, apex truncate, base bisinuate, margined, with transverse depression near margin, posterior angles rectangular, disc with sparse round punctures, closer near sides, showing laevigate spaces near middle, medial basal fovea large, without medial line. *Scutellum* rounded behind. *Elytra* considerably wider than prothorax at base, shoulders rather tumid and rounded; ovate or obovate, slightly widened behind middle in ♀ punctate-striate, seriate punctures large, round and regular; intervals nearly flat, each with a single line of irregularly placed punctures, smaller than those in striae, each bearing a long white hair. Underside moderately punctate, legs simple, tibiae straight, enlarged at apex, tarsi lamellate as usual, and finely pectinate.

Dimensions.—♂ 6.2 x 2.5 mm., ♀ 8 x 3 mm.

Habitat.—Brisbane (H. Hacker), Muswellbrook, N.S.W. (Dr. E. W. Ferguson), Tamworth (A. M. Lea).

Six specimens examined, show the usual sex distinction in distance between the eyes. The short transverse prothorax, pilose surface, stouter legs and antennae show it as an ally of *Mastersi*, Macl. Type ♂ in the Queensland Mus., ♀ in the author's coll.

Nocar, Blackburn.

1	9	Elytra striate punctate	
2	8	Intervals flat, or nearly so	
3	5	Punctures in striae distinctly larger than those of intervals	
4		Bicolorous, elytra yellow or red with black margins	<i>australicus</i> , Blackb
5		Concolorous, elytra pale red or yellow	<i>securigerus</i> , W. S. Macl
6	8	Punctures in striae scarcely larger than those on intervals	
7		Size larger, shortly and sparsely pubescent, tibiae curved	<i>convexus</i> , Macl
8		Size smaller, strongly pubescent, tibiae straight	<i>depressiusculus</i> , Macl <i>ovatus</i> , Macl <i>debilis</i> , Blackb var. <i>latus</i> , Blackb
9		Intervals convex and rugose, colour black	<i>rugosus</i> , n.sp.
10		Elytra non-striate	<i>simplex</i> , Blackb

Cistela securigera, W. S. Macl. (type in the Macleay Mus.), is a Nocar, as is also *C. convexa*, Macl.

C. ovata, Macl.—The type, in the Aus. Mus., is in a bad condition, and appears to have fallen into a gum bottle. Where the sculpture can be seen it is almost certainly = *Nocar depressiusculus*, Macl.

C. polita, Macl., is a *Scaletomerus* and = *S. harpaloides*, Blackb.

The following synonymy is my conclusion after a close examination of co-types of Blackburn's species and Macleay's types:—

N. debilis, Blackb. = *N. latus*, Blackb., var. = *N. depressiusculus*, Macl. = *N. ovatus*, Macl.

N. latus, Blackb., is larger than *debilis*, but smaller specimens occur amongst them, with slight individual differences. I have been unable to find the constant difference of elytral sculpture noted by Blackburn (Trans. Roy. Soc., South Aus., 1891, p. 329). The following species is undescribed:—

Nocar rugosus, n. sp.

Oval, black, subnitid glabrous; labrum, tarsi and basal joints of antennae reddish. *Head* and *pronotum* densely punctate, eyes rather close, in ♂ wider apart than in *N. securigera*, W. S. Macl., antennae stout, joints subtriangular, widened and angled in front. *Prothorax* widest at base, arcuately covering to apex, there about as wide as head, more elongate, and narrowed anteriorly than usual, front angles obsolete, posterior acute, base bisinuate, with a small medial and two larger sublateral foveae. *Scutellum* triangular. *Elytra* as wide as prothorax at base, deeply striate punctate.

seriate punctures large, round and regular, intervals convex, finely and closely punctate, and rather coarsely transversely rugose. Underside with sternum coarsely, abdomen finely punctate.

Dimensions.—7.5 x 3 mm.

Habitat.—Queensland.

I find two specimens both ♂ in my collection, which differ markedly from the common *depressiusculus*, Macl., in the darker and stouter antennae, less convex and more elongate prothorax, the strongly rugose and convex elytral intervals, with much larger seriate punctures, and almost hairless surface. Type in the author's coll.

Scaletomerus, Blackb.

Otys, Champ.

- | | | | |
|---|---|---|---|
| 1 | 6 | Body glabrous, tibiae unarmed | |
| 2 | 5 | Upper surface more or less concolorous, antennae ferruginous | |
| 3 | ♂ | with ventral segment deeply foveate, fore and mid tibiae dilated, eyes pale | <i>harpaloides</i> , Blackb |
| 4 | ♂ | with ventral segment lightly impressed, tibiae not dilated, eyes black | <i>proximus</i> , Blackb
(<i>Otys</i>) <i>harpalinus</i> , Champ |
| 5 | | Elytra more deeply striate, intervals more clearly punctate than in 4 | ¹ <i>pallens</i> , Champ |
| 6 | | Head, prothorax and antennae black, elytra and legs testaceous | <i>bicolor</i> , n.sp. |
| 7 | | Body pilose, protibiae dentate, post tibiae dilated, sinuate and grooved | ¹ <i>armatus</i> , Champ |

The species of this genus are very closely allied. As stated above.

S. proximus, Blackb. = *S. (otys) harpalinus*, Champ. (fide H. K. Blair). Having examined co-types of *harpaloides* and *proximus* in the Blackburn collection, the only distinction I can make out clearly lies in the colour of the eyes, *black* in *proximus*, *pale* in *harpaloides*. There is also a slight enlargement of the pro and meta tibiae in the ♂ of *harpaloides*; but I am not sure of having seen both sexes of *proximus*, in which the tibiae of ♂ are simple, according to Blackburn, while Champion states of *O. harpalinus*, "anterior and intermediate tibiae sinuous within." *Otys pallens* was described from a single mutilated specimen. It is possible that the first four names in the above table are merely varietal forms of one widely distributed species. I have specimens of *proximus*, taken by myself near Sydney. A specimen taken also by me at Cottesloe (near Perth, W.A.) differs from all the above,

¹ Species tabulated from description only.

except *armatus*, in its strong pubescent clothing, but being much mutilated it is inadvisable to describe it. It differs, moreover, from *armatus* in its densely punctate upper surface.

Scaletomerus bicolor, n. sp.

Oblong, oval, convex, glabrous, nitid. Head, prothorax, antennae and tarsi black, elytra and legs testaceous, abdomen piceous. *Head* very finely and closely punctate, eyes moderately large, not prominent, widely separated, antennae short and stout, joints 4-11 successively shorter than preceding, and oval (submonite form). *Prothorax* widest at base, somewhat narrowed and deflected towards apex, rounded on sides, anterior angle rounded, posterior obtuse, disc minutely and closely punctate, with indications of a depressed medial line. *Scutellum* black, triangular. *Elytra* of same width as prothorax at base, ovally rounded behind, very finely striate punctate, intervals flat and minutely punctate. Underside densely and finely punctate. Legs simple.

Dimensions.—4 x 2 (vix) mm.

Habitat.—North-West Australia (Macleay Mus.).

Two specimens (types) in the Macleay Museum differ from the described species markedly in colour, the more narrowed prothorax, and the stouter antennae.

Simarus, Borch.

Ismarus, Haag., Rut.

- | | | | |
|---|---|---|---------------------------|
| 1 | 3 | Intervals of elytra regular and convex | |
| 2 | | Form rather widely ovate, pustules on surface small | <i>Goddeffroyi</i> , Haag |
| 3 | | Form elongate elliptic, pustules on surface coarse | <i>elongatus</i> , n. sp. |
| 4 | | Alternate intervals carinate, irregularly interrupted | <i>carinatus</i> , Haag |

This genus consists of *Otiorrhyncus*-like insects, with ovoid prothorax and elytra, the latter wider than the former. I have examined specimens of *S. Goddeffroyi*, Haag., from Peak Downs, Townsville, and other parts of Queensland, of *carinatus*, Haag., from Port Darwin.

Simarus elongatus, n. sp.

Elongate, elliptic, dark brown, thickly clad with short reddish bristles, oral organs and tarsi red, antennae fuscous. Head and prothorax closely granulose, the sculpture (of head especially) often concealed by the hairy clothing. Eyes large and widely separated,

clypeal depression arcuate; antennae joint 3 longer than 4, but less than 4-5 combined, 4-11 successively shorter than preceding, joints 3-7 narrowly obconic, 8-11 narrowly ovate, the three apical joints finer than the rest. *Prothorax* bulbous, about as long as wide, truncate at apex and base, sides well rounded, greatest width in front of middle, wider at base than at apex, margins and angles deflexed, all angles obtuse, the posterior the more widely so, surface evenly convex without depressions or medial line. *Scutellum* triangular, rounded behind. *Elytra* elongate and convex, two and a-quarter times as long as the prothorax, and of same width as prothorax at base, elliptically widening without humeral angles, widest behind the middle; striate punctate and pustulose, with eight wide and rather deep striae, containing series of large square punctures, the intervals wide, convex, and thickly studded with rather large pustules, each bearing a short, upright bristle; underside pustulose, with bristly clothing most evident on sternum and sides of abdomen. Legs moderately long, the femora finely pustulose, tibiae and tarsi with strong fringe of castaneous hair, posterior tarsi with basal joint as long as the rest together, the four anterior feet with two penultimate joints lamellate, the posterior with one lamella.

Dimensions.—11-12 x 4-4.5 mm.

Habitat.—Cue, West Australia (H. W. Brown), Nicol Bay (W. Duboulay), Roeburne (Mr. Lea's coll.)

Six specimens examined, show very slight sexual distinctions, and evidently differ from *S. Goddeffroyi*, Haag., in the more elongate form, much more convex (subcarinate) elytral intervals, coarser and more close pustulation of surface, with denser hairy clothing. From *S. carinatus*, Haag., it differs more widely in its much narrower form, as also in its uninterrupted intervals.

Types in the author's coll.

Metistete, Pasc.

Lisa, Haag.

- | | | | |
|---|---|---|--|
| 1 | 5 | Elytra obovate in ♀ more or less ovate in ♂ | |
| 2 | | Surface subdepressed, prothorax densely rugose punctate and subopaque | <i>gibbicollis</i> , Newm |
| 3 | 5 | Surface convex | |
| 4 | | Prothorax closely punctate (scarcely rugose) and nitid | <i>omophloides</i> , Hope
<i>pimeloides</i> , Blackb. (nec Hope)
<i>(Lisa) singularis</i> , Haag |
| 5 | | Prothorax with round irregularly and not closely placed punctures | <i>punctipennis</i> , MacL |

6	Prothorax impunctate	<i>ebeninus</i> , n.sp.
7 12	Elytra elongate ovate	
8 11	Elytral intervals little raised	
9	Prothorax densely rugose punctate, fore tibiae dentate	
		<i>armata</i> , n.sp.
10	Prothorax obsoletely, but frequently, punctate, tibiae unarmed	
		¹ <i>incognita</i> , Blackb
11	Prothorax sparsely and subobsoletely punctate	<i>Lindi</i> , Blackb
12	Elytral intervals costiform	<i>costatipennis</i> , Champ

(1) The species determined by Blackburn as *pimeloides*, Hope, and fully described by him (Proc. Linn. Soc., N.S. Wales, 1888, p. 1436) has been definitely determined by Mr. Blair as *M. (Allecula) omophloides*, Hope., while *M. gibbicollis*, Newm. (which Pascoe named as the type of the genus), is not synonymous with that species. *M. omophloides*, Hope, is common in South Aus., N.W. Victoria, western parts of N.S. Wales, and South Queensland, while the *gibbicollis*, Newm., is found near Sydney, the Blue Mountains, and other parts of New South Wales. From identified specimens in the British Museum, the elusive genus *Lisa* has been tracked down, as a synonym. Thus *M. (Allecula) omophloides*, Hope = *pimeloides*, Blackb. (nec Hope) = *Lisa singularis*, Haag.

Allecula punctipennis, Macl.—An examination of the type of this in the Aus. Mus. shows it to be clearly a *Metistete*, while there is little doubt but that *A. Cisteloides*, Newm., placed in this genus by Borchmann, is a *Homotrysis* = *H. fuscipennis*, Bless. = etc. (vide infra). The ♂ is winged.

A. pimeloides, Hope, is almost certainly the insect described by Blackburn as *Homotrysis princeps*, which is, in the author's opinion, a true *Hybrenia*, and has been dealt with above as *Hybrenia pimeloides*, Hope.

Metistete armata, n. sp.

Elongate, subparallel, nitid brownish-black, with moderate clothing of short, upright reddish hair, labrum, palpi and tarsi red, antennae and tibiae darker red. *Head* and *pronotum* closely rugose punctate, the head and anterior part of pronotum longitudinally rugose, the basal part of pronotum closely and rather coarsely punctate. Eyes large, prominent and separated by a distance equal to the diameter of one, antennae wanting beyond the fifth joint, joint 3 considerably longer than 4. *Prothorax* bulbous, with sides and angles deflexed, as long as wide, about as wide at base as at apex, widest in front of middle, anterior angles widely rounded, posterior

1 Species unknown to the author.

angles obtuse, sides well rounded, without any medial line or foveae. *Scutellum* widely triangular. *Elytra* wider than prothorax at base, subparallel and subcylindric on basal two-thirds; punctate striate with about ten rows, besides a short scutellary row of rather large, deep, rectangular punctures, separated by subcancellate ridges, the two lateral rows less distinct and not impressed in striae; intervals convex, with a single row of punctiform impressions on each. Prosternum with very coarse punctures, rest of undersurface rather strongly and sparsely punctate, anal forceps strongly protruding (evident from above), reddish in colour. Legs long, front and middle femora angulately swollen and tomentose within, front tibiae with large triangular tooth on the inside at the middle, hind tibiae flattened on the inside and very sinuous, posterior tarsi with basal joint as long as the rest combined. Tarsi bilamellate on the four anterior feet, unilamellate on the posterior.

Dimensions.—13.5 x 4 mm.

Habitat.—Cue, West Australia (H. W. Brown), Kalgoorlie (F. H. Duboulay).

Two male specimens in my coll. might possibly be the male of *M. incognita*, Blackb., but the words, "prothorace obsolete, crebre et subtilius punctatis," and of the elytra "puncturis in striis" (his leviter impressis), "interstitiis subplanis," are inconsistent with this view. The strong tibial and femoral characters (and certainly the anal forceps) are probably sexual. Type in the author's coll.

Metistete ebeninus, n. sp.

♂ ovate, ♀ obovate, very nitid ebony black, glabrous, palpi and antennae piceous red. *Head*, with fine, shallow punctures on epistoma and neck, generally smooth between eyes (in one ex., also punctate there), labrum showing yellow membrane at base and red cilia at apex, arcuate clypeal suture well marked; eyes large, equally distant in both sexes (about half diameter of one eye), antennae of moderate length, joint 1 very tumid, 3 longer than four, 4-11 of nearly equal length, 9-11 attenuated. *Prothorax* convex, and strongly transverse (about 2 x 3 mm.), apex and base of about equal width, slightly arcuate at apex, front angles wide, deflexed, and a little advanced, sides widely rounded, widest at middle, slightly sinuate before the subrectangular (subacute as seen from above), posterior angles, base bisinuate, with rather thick margin, lateral margins not evident from above, apical margin very fine, disc very convex, quite smooth and mirror-like, a shallow basal

medial and two transverse depressions near hind angles. *Scutellum* wide, rounded behind, smooth.

Elytra considerably wider than prothorax at base, and about four times as long (about 9 x 4.8), convex striate-punctate, with a short scutellary, and nine other rows of large oval punctures, rapidly becoming smaller on apical half, and almost concealed in striae on declivity; striae subsulcate on basal half, narrow on apical, epipleurae with a single row of large punctures. Prosteronum with large round punctures, apex of mesosternum, and the episterna coarsely punctate, abdomen finely striolate, submentum with large yellow patch at base, legs stout and moderately long, mid and hind tibiae curved, ♂ with short, thick anal forceps.

Dimensions.—11-13 x 4.5 mm.

Habitat.—Mt. Barker and Swan R. (A. M. Lea), Cleve, S.A. (S.A. Mus.), W.A. (H. Brown).

Four specimens, two of each sex, examined. The species is very distinct from the combination of very nitid impunctate prothorax and the very coarse and characteristic puncturation of the basal half of elytra, suggesting some of the species of *Hypaulax*.

Type ♂ in the author's coll., ♀ in Mr. A. M. Lea's coll.

Melaps, Cart.

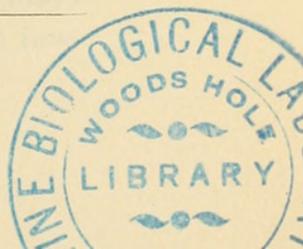
? *Oocistela*, Borch.

1	Elytra irregularly punctate	<i>cisteloides</i> , Cart
2	8 Elytra striate punctate	
3	7 Glabrous	
4	Intervals of elytra flat	<i>victoriae</i> , n.sp.
5	7 Intervals of elytra convex	
6	Seriate punctures coarse and distant	<i>punctatus</i> , n.sp.
7	Seriate punctures small and close	¹ <i>convexa</i> , Borch
8	Pilose	<i>pilosus</i> , n.sp.

Melaps victoriae, n. sp.

Ovate, convex, nitid black, glabrous, epistoma, oral organs, antennae and underside red. *Head* and *pronotum* with rather close, fine, shallow punctures, eyes (from above) round and widely separated, head rather short and wide, epistomal suture wide and nearly straight, antennae moderately long, joint 2 more than half as long as 1, 3 scarcely longer than 4, and rather wide, 4-10 subequal, slightly enlarged at apex, 11 as long as 10, ovate. *Prothorax* convex, longer than wide, subtruncate, and equally wide at apex

1 Species determined only by description.



and base, anterior angles deflexed and rounded, deflexed sides (seen from above), subparallel, with anterior slightly rounded (seen sideways), the sides appear well rounded in the middle, posterior angles (from above) sharply rectangular; disc evenly, closely, not deeply, punctate, a narrow basal margin perceptible, without medial line or basal depression, two small transverse foveae near hind angles. *Scutellum* transverse, oval.

Elytra convex, ovate, of same width as prothorax at base, and about three times as long, scarcely widened behind, sides deflexed and without clearly defined epipleurae; finely striate-punctate, the seriate punctures round and regular, in the sutural striae close, in others more distant; the striae only well marked near suture and sides; intervals flat, with a few sparse punctures of the same size as those in striae. Procoxae narrowly separated by raised part of prosternum; sternum coarsely, abdomen finely punctate striolate, posterior intercoxal process widely arcuate triangular, abdomen and legs thickly clothed with red hair, femora tumid, tibiae straight, slightly enlarged at apex, anal segment of abdomen showing short curved forceps. ♀ wanting.

Dimensions.—6 x 2 mm.

Habitat.—Victorian Alps (Blackburn coll., South Aus. Mus.).

A single ♂ specimen shows a close affinity to *M. cisteloides*, Cart., from Kosciusko, from which it is distinguished by its more narrow, cylindric form, and its definite but fine striations of the elytra.

Type in South Aus. Mus.

Melaps punctatus, n. sp.

Biovate (prothorax and elytra separately ovate), convex, glabrous, subnitid black, antennae and legs reddish, palpi and tarsi paler red. *Head* and pronotum finely and very densely punctate, epistomal suture straight, short and lightly impressed, eyes nearly round and widely separated, maxillary palpi, last joint triangular, labial with last joint spherical, mandibles bifid at apex, antennae moderately long, rather stout, 3-11 successively shorter and thicker, apical joints piriform, 11th oval. *Prothorax* longer than wide, base and apex of equal width, subtruncate at both, base evidently margined, lateral margins not evident from above, sides evenly rounded, anterior angles rounded and deflexed, posterior obtuse; base with small medial and two shallow lateral depressions; disc evenly, closely punctate without medial line. *Scutellum* transverse, oval and convex. *Elytra* of same width as prothorax at base, and

about twice as long, widest slightly behind middle, tapering at apex; punctate-striate, with a short scutellary row of about three punctures, and nine other rows of large, deep, oval punctures connected by (rather than lying in) striae, the two sutural striae subsulcate, intervals subconvex, quite smooth and impunctate, the punctures smaller, and striae more marked at apex. Tibiae, especially posterior, strongly curved, underside very coarsely punctate on sternum, finely striolate on abdomen, posterior tarsi, with basal joint as long as rest combined, with a single lamina on the penultimate joint, and two on each of the four anterior feet.

Dimensions.—6.8 x 2.25 mm.

Habitat.—Wolgon Valley, Blue Mountains, N.S.W. (the author and C. Deane).

Specimens taken on ground under stones, can be readily distinguished from allies by large, deep punctures of elytral series. Types in the author's coll.

Melaps pilosus, n. sp.

Shortly ovate, coppery or brownish-black, nitid, upper surface rather thickly covered with long, upright reddish hair, oral organs, antennae and legs red (in one ex. legs testaceous, with knees obfuscated), underside darker red. *Head* short and wide, rather closely and deeply punctate, epistomal suture straight and deep, eyes (from above) round, smaller than in *M. victoriae*, widely separated; antennae slender, joint 1 very short, 2 nearly as long as 1, 3 twice as long as 1, 3-11 subequal and lineate; maxillary palpi with last joint triangular, apical side longest. *Prothorax* convex, subquadrate, sides less deflexed than in the other species, wider than long, subtruncate and of equal width at apex and base, widest in front of middle, sides a little rounded, more strongly anteriorly, very gradually posteriorly, anterior angles deflexed, but evident and obtuse, posterior obtuse, disc rather coarsely and not very closely punctate, a long hair springing from each puncture, two small lateral basal foveae, narrow basal margin perceptible. *Scutellum* transverse, oval, raised. *Elytra* very slightly wider than prothorax at base, convex, oval, a little widened behind middle, strongly striate punctate, the striae deeply marked throughout, seriate punctures round, deep, regular and close, intervals nearly flat, each with a single line of punctures, smaller and more distant than those in striae; sternum coarsely, abdomen more finely punctate, a fine hair springing from each. Legs strongly pilose, tibiae straight, tarsi as in *M. victoriae*.

Dimensions.—7 x 3 mm.

Habitat.—Bridgetown, W.A. (the author), Champion Bay (Duboulay, Brit. Mus.), Port Augusta, S.A. (Brit. Mus.), Port Lincoln, S.A. (A. M. Lea), Ardrossan, S.A. (T. G. Tepper).

Five specimens examined. I have been unable to see any sexual distinctions, though I believe one specimen at least to be male. The species is clearly distinguished by its shorter, wider prothorax, and strongly pilose surface. Type in the author's coll.

Notocistela, n. gen.

Body ovate, elliptic, convex, prothorax cordate, elytra without well-defined epipleurae, apterous; mandibles bifid at apex, mentum very transverse, upper edge faintly three-sided, with slightly convex middle lines, maxillary palpi, with last joint widely triangular, with the apex as long as the other joints combined, labial palpi with last joint subclavate (subquadrate, with rounded angles), elytra with setiferous pustules on the intervals, fore and mid tibiae dentate in both sexes, posterior tibiae of ♂ enlarged, laminated and hollowed as in *Alcmeonis*; rest as in *melaps*.

Notocistela tibialis, n. sp.

Ovate, glabrous, head and prothorax subopaque black, elytra nitid metallic black, underside pitchy red, oral organs, antennae and legs red. *Head* moderately elongate, epistoma truncate in front with rectangular angles, closely and strongly punctate and limited behind by deep, straight suture, forehead densely subconfluently punctate and a little rugose, eyes (from above), round and widely separated, antennae rather long, setiferous, joint 2 half as long as 1, 3 considerably longer than 4, 4-11 successively and gradually diminishing in length, the apical three slightly attenuated. *Prothorax* subcordate and convex, widest in front of middle, apex truncate, and about as wide as the feebly arcuate base, very finely margined at apex, more widely so at base, side margins not evident from above, anterior angles defined and obtuse, sides rounded anteriorly, slightly sinuately narrowed before the (from above) subrectangular posterior angles, disc densely, subrugosely punctate as on forehead, with a few sparse short hairs, without medial line or distinct foveae. *Scutellum* transverse and convex. *Elytra* convex and narrowly ovate, of same width as prothorax at base, shoulders distinct, finely striate punctate, punctures in striae small, round and closely placed, intervals with general surface flat, the 3rd, 5th

and 7th, with rather large conical tubercles placed widely apart, each bearing a short, upright hair, a few irregular smaller tubercles at apex outside the 7th interval. Sternum finely punctate, abdomen almost smooth, or very finely striolate. Legs long, femora tumid, fore and mid tibiae with sharp tooth on the inside at middle, all tibiae curved and somewhat flattened, posterior tibiae of ♂ enlarged, flattened and hollowed (as in *Alcmeonis*, but more so). Tarsi bilamellate on four anterior, unilamellate on posterior feet.

Dimensions.—9 x 2.8 mm.

Habitat.—Perth (H. Giles and the author), Champion Bay (Duboulay, Brit. Mus. coll.).

Three specimens examined, all apparently ♂ of which one was taken by the author in a rotten "*Nuytsia*" trunk at South Perth. The British Museum specimen is apparently immature, and reddish-brown in colour, but being glued to a card I have not examined the last segment of abdomen, the other two show the distinct forcipital process. The special elongate elliptic form, sculpture and tibial characters seem sufficient to separate this and the succeeding species generally from *Melaps*. Type in the author's coll.

Notocistela pustulatus, n. sp.

Very similar to the preceding in form, but differing essentially in the following:—Elytra reddish-brown, upper surface and legs thickly clothed with long, upright red hairs. Elytra with *all* intervals more closely studded with smaller, less raised setiferous pustules, these more elevated towards apex. Tibial characters very much as in *N. tibialis*, but less accentuated, especially in the posterior tibial characters. Rest as in *N. tibialis*.

Dimensions.—7.5-9 x 2.5-2.8 mm.

Habitat.—Shark Bay (Blackburn coll., South Aus. Mus.), Roebuck Bay (Melbourne Mus.), Hermannsburg, Cent. Aus. (H. J. Hillier, Brit. Mus. coll.).

Three specimens examined, 2 ♂, the 3rd specimen (Brit. Mus. coll.), shows a small tooth on the fore and mid tibiae, but is without the enlargement of "hollowing out" of the posterior tibiae. The differences between this sp. and *N. tibialis* are constant, and too distinctive to allow it to be treated as a *var.* Type ♂ in South Aus. Mus., ♀ in Brit. Mus.

EXPLANATION OF PLATE.

- Fig. 1.—Forciculate anal appendage of *H. nitida*, Blackb. ♂ (dissected).
2.—Penis of *H. nitida*, Blackb. (dissected).
3.—5th abdominal segt., showing appendages, etc., of *H. cisteloides*,
Newm.
4.—5th abdominal segt., showing appendages, etc., of *H. rufipes*, F.
5.—5th abdominal segt., showing appendages, etc., of *Hybrenia H.*
rugicollis, n. sp.
6.—5th abdominal segt., showing appendages, etc., of *H. vittata*,
Pasc.
7.—5th abdominal segt., showing appendages, etc., of *H. femorata*,
n. sp.
8.—5th abdominal segt., showing appendages, etc., of *Metistete*,
omophloides, Hope.

Text-figure of *Notocistela tibialis*, n. gen. and sp.



Carter, H. J. 1915. "Revision of the Australian Cistelidae. Order Coleoptera." *Proceedings of the Royal Society of Victoria* 28, 52–104.

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