

## MEMOIRS of the

## QUEENSLAND

## MUSEUM

## VOL II.

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ISSUED DECEMBER 10, 1913.

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NATIGHAL MUSEUN ME TSLUHAE

A Room-case (25 ft. by 13 ft .), recently opened in the Queensland Museum, illustrating Australian


## MEMOIRS

OF THE

# QUEENSLAND MUSEUM 

VOL. II.

WITH PLATES AND FIGURE IN THE TEXT,

EDITED BY THE DIRECTOR
R. Hamlyn-Harris, D.Sc., F.L.S., F.R.M.S., F.Z.S., \&c.

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## EVOLUTION.

THE TRANSMUTATION OF SPECIES.

ORGANIC EVOLU TION is the science of the facts, processes and laws innolved in the changers of organisme. Wr traches thal atl living thinges planis antal anturals, have come trom eatier lomss. It is the study of the fore en which givern the defmutien of gifecies lron ancestral organisms Acondines to Exolution the ee es no trerak in the chain of lifre. Freveything has

 mato tering, In the Silurian, fothe mude thior appeatance, Amplations in the Carthentirious, Reptlles in Ithe P'irman, Birds on the - lirassic. Later came
 hiskery ol every form of materer and toree in the urnverne The Ierm Darwinism is sonn:unimes ussel as synonvmous with Evolution, because Charles Darmin did so much to replan the price es. The werd Evelution offeri suggesis philasoptical -isumplitions with which sternce lids mothurg to do The- Dactrine of Descent is thus a prolecable tena tor the general theory of Organie Evolution, whilst the word Buenomiss. (Bius, life: Aomos, order or custom), first suggested by Profl Parrick Ceddes, is alto coming into use

The doctine is illusth, sed ty a lirge number of facls, aken Itom everv Lunach of stience, amone whath may br summarised

ANATOMICAL DATA
The facts of classilicalion ithal sprecirs lades inlo suecies, that genus is linkid to cenous, that gencratogical treers are suggested. Remurhuble colmes thas hak sive "an imptession of athilation between gioups
A recognition ol homalogies inal is, of struclural and deveiopmental similallins. Thus the wing of a bird, the lore-leg of a horse the floper of a whale, the wing of a bat, the armi of a man, show firmalinges nol only as regards the bones, bul also as 10 museles, merves and blood vessefs.
Vestigial structures, In which the" Dactrine of Descent is the only key. Ther anatomist Wiedershem has recorded 180 of these structures in man, amming which may be mentioned the vermalam appendix and the muscles of the external ear The splint bone of tho fourse and the uselers vestiges of limbs in certain snakes are lanthat examples of funclionless structures in aninnals

## PALAEONTOLOGICAL DATA

The histomat evidence ol the linerage of the hombe linm ancestors with lour consa ke illusifated in this Merseum Anomer convincongly claiar ancesiral tree has been liaced of the elephant, wilts its long lusks, from lapir-like ancestors with ordinary incisor lueth
In the Triassie suclion of the Mesozone cases in the tossil Court of this. Mustum is shown a cast of the Archacopleryx, usually accepted is a link tretwewn Hir. Birds and Replifes

EMBRYOLOGICAL* DATA
 during its emborecons develupment, some of the stages of its ancestiy in pasi limis Thus there are w'sidues of gill-clefts in the dervelopment of every eeptile, bird and mamial, and eeth in the bislion whale wheh never cul the gum.

## BLOOD RELATIONSHIP

When the blone of of lures is Imastused into all ass, thial at a hare into a rabbil, or that of an arang into a getheon, or that of a man into a clingpameé, the e is a harmonous mingling of the two. But whers lomion lilood is Iransfused into an eel, pigeon, horse, dog, cat limur or mon-anelirmpod arie, there is no harmonious munglase. 'The human blond serum behaves in a hostili was tor iles ohere blood, causing a disturbince, marked, lor inslance, by the itestluclion of red loland corpuscles. The difference in the two sels of cases is thal in the first the orgatisms are clessely feluled; in ilue second they are not.

## EVOLUTION TO.DAY:

Fxolution is il actual prowess to day, js is shown by the development of culuwated ritunis, such as new cereals, piums, berries ese. Orejans anal organiams are sulf changing. Whith the separithor of individuals by barrexes of land and water and varying elimatn, ditinlits lines of descont atre brought inlo existener. Owing in a necessasily limoted purmod of observation the mapolly al ilissc' change's 'seapu' definte notice

## METHODS OF EVOLUTION

Their is no unammity of opinion among Butogists as to the Factors or Whethulhuf Evolumin Sume scientists betieve that tha productan of new forms is a lunction of variation, and that species do not atise sfowly, but by sudden
 clanges in ervelonment dinecly brine about changis in the hatils of animals. Ilie lerest hnown theory is thot ol Nallual Selection, which mav be suntunarised -1. loliows
natural selection:
Living crealutes are very prablic. Mone arganisms are born than can survive. Tle ixplorily die young.
Nolwo individuals of the same sorites ars exuctly ulike. Variations



 ther sumfulledies. Whant the envitomment chanses, living

# ETHNOGRAPHICAL NOTES OF TORRES STRAIT. 

Illustrated by Specimens in the Queensland Museum Collections.

By R. Hamlyn-Harris, D.Sc., Etc. (Director).

(Plate II and one text-figure.)

## THE LEGEND OF PATRAETER.

The Ethnologieal Collection from Torres Strait has reeently been enriehed by the addition, through purehase, of a very fine speeimen of a Darnley Island god made of lava, bearing the name of Patraéter, and fashioned in a truly realistic manner into a figure representing a man in a squatting position with its hands brought up to its ehin in a prayerful attitude.

There ean be no doubt that the contours of the original piece of lava wre particularly adapted for this seulpturing, but the figure, nevertheless, displays considerable ability on the part of the unknown artist. A great resemblanee in workmanship exists between this image and those of a similar nature described by ]rofessor Haddon in his " Myths and Folktales." "*

Tradition, dating back to proto-historic times, has it that this very god was found by the natives of Darnley Island (Erub), having been previously deposited there by the famons Soiida (or Sida), a mythical super-man eredited with creative faculties of no mean order. $\dagger$ The accomnts of Soiida's doings vary in a remarkable way with the different islands, and this may be best explained by the view that the legends have been handed down from generation to generation by word of mouth, giving ample seope for the imagination of the natives to run riot.

## SOIIDA AT MER.

Aceording to Mr. P. G. H. Guilletmot, from whom the specimen was obtained, and who has very kindly furnished me with the partieulars here published and whieh were verified by several of the oldest men in the island, Soiido (pronounced Soydo) originally eame from New Guinea and made his first halt on the island of Murray (" Mer "') for the purpose of making the hitherto barren island fruitful. After a very brief stay he was instrumental in eausing the abundant growth of bananas, coeoanuts, yams, ete.
FISH-TRAPS ON MER.
Fish-traps were also built by him round the island of Mer (see text figure). A. F. Hunt $\ddagger$ refers to a "big fish enelosure" (Sai), evidently the

[^0]same.* These fish-traps, which are still visible to-day, were made with lava arranged in a semicirenlar fashion, with curved walls to ensure a better capture of fish. The natives, when asked for a reason for this particular method, say "To make fish silly," and it requires very little imagination to monderstand how the fish would wander round and round such an enclosnre very much in the same fashon as a caged wild beast would parade the narrow limits of its prison home, ultimately becoming tired out and "silly" with its vain endeavours to gain the sea and liberty.

## S E A



Fig. 1 Fish Trap. Darnley Island.

## SOMDA AT ERUB.

Soiido's efforts at Mer laving thas been cromed with suecess, he next visited the isfand of Darnley (Erub), repeating his endearous to fertilize the island, and whilst there he was seen by natives who consulted him about the "evil spirits" believed to have existed in and around the island, with the result that he made this god, and loft immediately afterward.

## PATRAETER DEPOSITED ON ERUB.

The god was deposited in a certain place on the island, so that he might be available for purposes of ennsultation with regard to the removal of the evil spirits through the instrumentality of the heads of the clans or tribes. This god became very antagonistic torards the evil spirits and demanded their removal-each evil spirit being represented by definite stone figures. Obedient

[^1]

A Darnify Island God-I'atraeter.
Specimen No.: Q.M. E.13/212.

Face page 2..

TM FI: IJAL MUSF UV MELKGUUHIVE
to the wishes of Patraéter, they removed to a neighbouring sandbank and asked if they were far enough away, to which the god replied, "No; go further." This was repeated over and over again until the evil spirits had reached the blaek roeks known as Bramble Cay, in the Great North-Hast Passage, about 26 miles from Darnley, when the god professed himself satisfied.

Bramble Cay is still risible to-day to passers-by as a rock lepresenting a human figure (probably a iemale) holding an infant in its arms. In reality a considerable amount of imagination is required to confirm this.

Through the kindness of Dr. Tosh we have the following fiom an Erub native, Speah; this is not so reliable, Speah being from all accounts a mueh younger man with a more vivid imagination :-
" On Darnley were fom of these stone figures-the name of each being Patraéter ; ther seen to have been used as land marks or rather property marks in turtle-fishing, and to have possessed the powers of the nsmal mythical superman. A man named Py dug up or fashioned sinilar figures in the creek just south of his house. This seemed to tronble Patraéter, for he insisted that they be taken away. So Py packed the two figures (or more) on a canoe and set off. Some of the earth carried with them foll overboard a little to leeward of Darnley and there formed a sandbank-Diaul; then Py and his people shouted to Patraeter, to know if they slonld leave them there, but the "god' answered, 'Take im more far'. We sarry pole, we sarvy pole." Take em more.' This was repeated (including formation of sandbank) at Merádi, Tout, and Ker.
"At last Bramble Cay was reached, and Patraéter was satisfied that they be left there.
"Two figures are especially named Pr-wer and his picaninny Burwak. And ever after, when $P y$ and his people went turtle-fishing on Bramble Cay, there was mnch ceremony. First Py went ashore alone and all eanoes drew baek into deep water. Maving assured himself by private interview with Py-wer that all was well, he siguedt to his people to come ashore. There they fished for some days, and stm-dried much turtle meat, and laid in stock of fresh furtles for transport to Darnley. When all are ready to depart, Py takes some turtle grease and anoints the head of P-wer, besecehing him to send a favourable wind. Py is the last to leave."

SOIIDA AT OOGAR.
Soiido, after making the islands fertile in the preseribed way, proeceded to Stephens Island ("Ooger") and repeated his performances there. From Oogar he went to New Guinea, where he met a beantiful woman (as he had done on the other islands), who was so struck with his handsome demeanour that she fell in love with him straight away and asked him to elope. Soiilo, however,

[^2]denied her the request, and informed her that he eould never marry a mortal. This is indirestly opposed to the Kiwai version of Sida,* when Sida married Sagaru. He wandered to and fro from place to place, allowing her to accompany him witi! full moon came, when he took a certain seed from his dilly-bag and planted it in the ground. Assisted by eertain incantations and weird noises hecaused the seeds to germinate. The seed grew into a large tree, Soiido seating himself with the woman on different branches, and as the tree grew higher and higher they were earried up to the moon, where Soiido left her; but the woman's face is still visible in the moon until this day, going away on the wings of a clond.

## LEGEND OF THE DOIOM (ERUB).

Professor IIaddon has made lengthy references to the small "weathergods" of Tomes Strait known by the local name of "Doiom" (Doyom), $\dagger$ but one or two additional details in eomection with a specimen recently acquired by us are worth reeording. About three months previous to the North-West Season, when universal drought prevails, the rain-maker (or rain-man) envelopes the "Doyom" in so-ealled " bush medieine" consisting of herbs, etc., and lowers the weather-god by means of an attaehed string into a hole specially prepared to rceeive it. The cord is left only partially visible after the hole has been filled up. After the "Doyom" has been allowed to remain for at least three days and three nights undisturbed in the ground, the rain-maker visits the spot fully dressed in ceremonial finery, and approaehing from the weather side indulges in ineantations until, by the rehearsal of magie ritual only understood hy themselves, the weather-god is pulled out by the eord. It has been a belief amongst them that the fumes given off by the fermented lierbs reach the " medicine man " and affects the testes, which swell in consequence. Rain follows next day after severe winds.

## STORY OF BAEXIS (ERUB).

I am also indebted to Mr. Guilletmot, whose kind assistance in many ways I desire to gratefully acknowledge, for the following information:-There is a belief in "Erub" that there is in existence a so-ealled " dog" as large as a cow, which appears either on or before the death of men of importanee (only) "Big men"-called "Awle." The natives who have seen it say that it is blaek and white and abides at Stephens Island (" Oogar'). Additional eolour' has bcen lent to the belief hy some natives, who are still living, declaring that it was lepeatedly seen by them at Darnley during the epidemies of dysentery prevalent in 1912. when it caused great consternation amongst the inhabitants. The so-called "dog" is supposed to land on the north-west side of Darnley,

[^3]leaving its tracks on the shore to proceed along the public road wandering about, calling at the front doors of houses, and finally returning to the place from whence it came.

The apparition is said to have been seen by other native races of the South Seas, who also go so far as to say that it is "as true as god," but dare not molest it for fear of misfortune.

Dr. Tosh gives the following version obtained from Speah, the Erub native before mentioned:-
"Baexis is a beast like a dog, as big as a cow, spotted black and white, one side of face white, one side black: thought to be a devil or spirit that comes for the souls of the departed.
"The men who owned this dog were two brothers, Imai and Dowai, sons of Kanórr, who used to live at the village of Apro, or Gibbo, or Zighis on Stephen Istand. Baexis is invisible when not on duty, no one knowing where ho lives. Speal has seen him twice here (Darnley) ; once as he passed, and once on the occasion of the death of a native at Stephen Island. The woman died in the evening, and all through the night three men watched by the door of the grass house where she lay. One of these was Speal. At midnight the dogs barked as they became aware of the presence of Baexis. He came right up to the door where the men sat, then quickly turned his tail to the door and stood looking seawards. The men beheld him in fear and trembling. At last he departed along the sand-beach. When in the morning the people came out of their houses, the tracks of Baexis were visible on the sand."

## A SUPPOSED AEROLITE FROM SAIBAI.

Through the instrumentality of His Excellency the Governor of Queensland, Sir William MacGregor, a large stone weighing just upon 4 cwt. was sent to the Queensland Museum for examination and report. According to local tradition the stone was supposed to be an aerolite, which had fallen on the hard ground (formed of pisolite, iron, etc.), near the sea on the island of Saibai. Subsequently it was rolled away to assist in the reclamation of the swamp area, and when taken it was nearly eovered with soil. The presence of this stone was all the more noticeable owing to the fact that there is no stone of any kind on Saibai. It is common belief in the island amongst the oldest men that, in the days of their fathers, it fell from Heaven near a man sitting on the hard ground on which the village now stands; le rose and fled. It is said that a second one fell in Danan and killed a number of people there (Danan, I believe, is granitic). Mr. Charles Niebel, the Government Teacher on Saibai, sends me the following particulars relating to this supposed aerolite, and I here reproduce them for what they are worth :-
"Moigi, a man of about sixty years of age, says that when he was a boy his father Kubid told him the story, whieh he had heard from his father Ausi, that the stone in question had fallen from the sky, and did not belong to this
world. Ausi (the grandfather of Moigi) had not seen it fall-it did not fall during his lifetime, but he had the story as it had been handed down from father to son by his (Ausi's) forefathers. The story being already traditional during the childhood of the grandfather of one of our oldest men, points to the fact that the stone is more than a century old; perhaps considerably more. The stone was allowed to lie where it fell, and, during the childhood of those who are now old men, parents used to forbid their children from tonching it, for fear that if they touched it more stones would fall. When the first missionaries came they said their God was the only god and that the stone could not hurt them, and suggested burning it. Then five men-Gari, Dagi, Aina, Janaur, and Kinaur-put fire round the stone, and managed to chip off the outer shell for stone chos, but could make no impression on the inner portion. By this means they reduced the diancter of the stone by abont six or eight inches. After that the stone lost its sanctity and children used to play frcely round it and climb on to it."

Unfortunately, however, the composition of the stone is not that of a metcorite, so that it is very hard to bring facts already stated into line with what we now know of its nature. At my request Mr. J. B. Henderson, the Queensland Government Analyst, has very kindly supplied me with the analysis of a piece of this rock, which is as follows :-

| Moisture at $100^{\circ} \mathrm{C}$ |  |  |  |  | Per Cent $0 \cdot 3$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Loss on ignition |  |  |  |  | $0 \cdot 2$ |
| Silica ( $\mathrm{SiO} \mathrm{O}_{2}$ ) |  |  | - |  | 59.5 |
| Iron oxide ( $\mathrm{Fe}_{2} \mathrm{O}_{3}$ ) |  |  | . |  | $6 \cdot 8$ |
| Alunina ( $\mathrm{Al}_{2} \mathrm{O}_{3}$ ) | . |  | . |  | 18.4 |
| Oxide of manganese ( MnO ) | . |  | . | . | $0 \cdot 4$ |
| Oxide of titanium ( $\mathrm{TiO}_{2}$ ) | . | - | - | . | $0 \cdot 6$ |
| Lime ( CaO ) |  |  | - |  | $6 \cdot 5$ |
| Magnesia ( MgO ) |  |  |  |  | $1 \cdot 9$ |
| Alkalies ( $\mathrm{Na}_{2} \mathrm{OK}_{2} \mathrm{O}$ ) |  |  | - |  | $5 \cdot 4$ |
| Sulphur |  | . | - |  | Ni |
| Phosphoric acid.. | . | . | . | . | Nil |
|  |  |  |  |  | $99 \cdot 6$ |

It has been remarked that the words "fell from Ileaven" suggest Christian teaching rather than heathen superstition, so that Dr. Anderson's report (Australian Museun, Sydney) on the subject is all the more forcible:-
"Structurally and chemically the supposed aerolite has all the characteristies of an ordinary terrestrial rock, and none which are recognised as distinctive of meteoritic bodics. Unless its fall was actually observed by reliable witnesses, I am afraid that the meteoritic origin of this specimen would not be accepted on the evidence of legendary reports. It would be unsafe to say that a body with the characteristies of andesite might not reach the earth from space, but possibilities. are not probabilities, and such a substance would have to furnish unexceptional credentials before it would be admitted amongst meteorites."

Whatever view may be taken as to the character of the stone, the ethnological signifieance of the belief is still of interest.

# A PAPUAN MOSQUITO NET. 

By R. Hamlyn-Harris, D.Sc. (Director).

(Plate IIL.)
During his term of office as Administrator of British New Guinea, His Exeelleney the Governor of Queensland, Sir William MacGregor, whilst on a visit to the Mekeo Distriet, came across a native mosquito "net" erected in one of the houses, and was fortunate cnough to secure it for the famous MacGregor collection which he made and which is now housed in the Quecnsland Museum in Brisbane.

The " net " takes the form and shape of a bag, 15 ft . 5 in . long by 5 ft . 3 in. wide, and is suspended with cords from the rufters of the native houses somewhat in the fashion shown in the figure, Plate No. I[T. Long strips of coeoanut bark, that withered portion so common around the blossoms and the leaves, are sewn together, and closed on three sides, the fourth being available for entranee and exit. This "net," though suspended, rests in the main on the floor of the houses on native mats, the frayed edges of the entrance elosing automatieally and sufficiently to act as an effective bar to mosquitoes.

The heat and closeness of the interior must be intense, since practically no ventilation is possible, and the bag is used by the various members of the family who repose there for the night.

The writer is indebted to His Excellency for kindly drawing his attention to this rare and mnique specimen and for the assistance given in deeiding its identity, which had been lost many years ago. It is no wonder that such should have been the case, for one would never think of reeognising, in this cocoanut fibre bag, so uscful an article as a native mosquito " net." His Excellency does not recollect ever having seen another of its kind, and tells me that the particular part of Mekeo where the " net " was actually in use-one of the villages on the river-was so infested with mosquitoes that deviees had to be invented to prevent great suffering to the natives. He remembers that the boys who worked his boat up the river had to wrap up their limbs and take other precautions against the attacks of these pests; and so it is not to be wondered at that the Papuans of that part should construct such a serviecable proteetion for themselves whilst askep. In this eomnection it may not be out of place to recall
the case of the Nile fishermen who suceessfully kept off mosquitoes by hanging up their fishing-nets around their beds at night. Herodotus refers to them as follows :-
" Against the innumerable mosquito they have these deviees. Those that live above the marshes are proteeted by the towers into whieh they climb to sleep; for the mosquitos are unable to fly ligh from the ground in the breeze. But those who dwell about the lagoons have another device in place of the towers. Every man of them has a net in which he catches fish by day, and in the night uses it thus on his bed: He rigs up the net round his bed, gets in under it, and so goes to sleep. If he sleeps with his eloak or a sheet wrapped round him, the mosquitos bite elear through the covering; but they don't ever try to bite through the net."

If fishing-ncts were suceessful ageneies in securing to their owners nights free from the molestation of mosquitoes, we have no reason to doubt the thorough effectiveness of the Papuan mosquito "net" for the purpose for which it was intended.

[^4]Top.


Closed end.

Open end.

A Mosquito Net úsed by the Papuans of the Mereo District, Britisif New Guinea.
Hanging by cords, but base resting on floor.
Specimen No.: N.G.E. 13/315.
Face page 8.

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# SOME PAPUAN CEREMONIAL APPURTENANCES USED AT THE KAIVA KUKU* AND SEMESE DANCES. 

Illustrated from Specimens in the Queensland Museum Collections.

R. Hamlyn-Harris, D.Sc., Etc. (Director).<br>(Plates IV. to XI.)

[^5]Plíte IV.
A double-headed head-dress worn at Kaiva Kuku eeremonial danees at Orokolo, Gulf of Papua.

The figure supported on the lower mask is that of a eroeodile with a human head-seen sideways; total height $4 \mathrm{ft} .11 / 2 \mathrm{in}$., width $2 \mathrm{ft} .111 / 2 \mathrm{in}$, length 7 ft . The whole objeet is monnted on a cane framework, whieh is eovered with either coeoanut or sago palm fibre, and ornamented in red, white, and black. The frames are made of lawyer cane, previously dried in the sun and seraped and split into the various thicknesses required, many kinds of grasses being used for binding purposes. The sago-bark is well beaten out, cleaned and dried in the sun, and laid aside ready for use, but is again thoroughly washed in water when put on the frame, so that when finished a good tight surfaee is obtained. The colours used are generally white lime, obtained from crushed shells, charcoal, a yellow colour made from the leaves of a yellow eroton, and a red bark powder or lime stained. Strips of fibre and leaves with white feathers decorate the sides of the animal. The masks take usually from three to four months in the making. Specimen No.: Q.MI. E.13/215.


A Head-Dress worn at tme Kiva Kuku Ceremonies at Orokolo.
Specimen No.: Q.M. E.13/215.


## Plate V.

Fig. 1.-A double-faeed Papuan head-dress (same history). Total height 4 ft .8 in ., greatest width 4 ft . across. The materials used and the mode of manufaeture of this head-dress is the same as that adopted in all specimens of the same kind from this locality.

Fig. 2.-The same mask, tilted, to show the second human face underneath.
Speeimen No. : Q.M. E.13/245.

Ceremonial Head-Dress witir Two Faces, worn at the Kaifa Kuku Dancee at Orokolo.

## Plate VI.

Four Papnan ceremonial head-dresses (same history).
Fig. 1.-Height 2 ft. 7 in. Specimen No.: Q.M. E.13/231.
Fig. 2.-A mask supporting an imitation banana tree. The broad leaves are provided with streamers. The bunch of bananas, hanging about midway, is somewhat ohseured by drapings from above. Total height 4 ft .11 in . Specimen No.: Q.MI. E.13/239.

Fig. 3.-Mask with hair-pad. The human hair is matted together with burrs. Total height 2 ft .3 in . Specimen No.: Q.M. E.13/236.

Fig. 4.-The upper portions of this head-dress are decorated with native bark cloth, painted similarly to tappa choth, and dyed grass fringes; the whoie is finished off with a crest and slit forming an imitation of the cassowary's comb or hehnet. Unfortnnately this is not shown in the figure, the helmet-like crest only coming to light after the photograph had been taken. Specimen N००.: Q.M. E.13/241.


Cerfmonial Head-Dresses worn by the Kaiva Kuku at Orokolo.
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## Plate VII.

Five head-dresses of the Kaiva Kuku (same history).
Fig. 1.-A mask sligltly ineomplete. The uppermost portion should be provided with bunehes of rattling seed-pods. whieh keep up a continual noise whilst the performer's body is in motion. Height 3 ft .2 in . Speeimen No.: Q.MI. E.13/238.

Fig. 2.-Small head-dress, without a top. Dimensions, $71 / 2 \mathrm{in} . \times 71 / 2 \mathrm{in}$. Specimen No.: Q.1I. F.13/227.

Fig. 3.-A fish emblem, seen sideways, mounted on a mask. Total height $\pm \mathrm{ft} .7 \mathrm{in}$., length of fish 4 ft . 5 in . Speeimen No.: Q.II. E.13/216.

Fig. 4.-A simple mask made from a long strip of fibre bark and turned orer into two equal parts, the sides of which are then sewn together. Total height with fringe of leaves, $2 \mathrm{ft} .1 \mathrm{in} . \times 12 \mathrm{in}$. aeross. Speeimen No.: Q.MI. E.13/247.

Fig. 5.-A double-faeed head-dress, standing 4 ft .5 in. in height, the greatest width being 3 ft . 5 in . from wing to wing. Strips of bark-eloth hang down over framework. The upper and smaller head is provided with a supply of human hair, matted together with burrs, which are in reality fragments of the echinate eapsules of a Euphorbiaceous plant. Specimen No. : Q.M. E.13/240.


Ceremontal Head-Dresses wory at the Kaiva Kuku Dances at Orokolo.

Face page 16.

## Plite VIL.

Fig. i.-Cremonial head-dress with two wings mounted on a eane brim. Height $2 \mathrm{ft} .6 \mathrm{in} .$, width 2 ft. 3 in . Tsed at the Kaiva Kuku danees, Orokolo, B.N.G. Specimen No.: Q.M. E.13/233.

Fig. ..-Head-dress with a garfish-like mouth. Height 3 ft. 111⁄2 in.; 1 ft .11 in . in widest part. Worn at the "Semese" * dances at Waipua, Purari Delta. Britisl Nem Guinea. The "Semese" are not aurestral dances as the Kaiva Kuku appear to he, hut are more elaborate and exclusive, and undoubtedly war dances. These commence usually about 10 or 11 o'clock at uight. A party marches along the beach fully armed. With warlike anties and beating of drums, Wandering sumetimes for two or three miles from the Eravos before conmencing the adrance; a warlike party from another Fravo goes in an opposite direction, subsequently meeting them for the final onslaught. Specimen No. : Q.M. E.13/226.

Fig. 3.-Dancing object made in imitation of a shield; cane frame covered on one side only with eoeoanut fibre cloth and ornamented in red, black, and white. Dimensions, 2 ft .7 in. X 1 ft. $8 \mathrm{in}$. Used at the Kaiva Kuku dances. Orokolo. Specimen No.: Q.M. E.13/225.

Fig. 4.--Imitation of a bird, representing a booby or gaunet bird (Sula sp.). Used at the Kaiva Kuku ceremonials, Orokolo. Length $2 \mathrm{ft} .2 \mathrm{in} . \mathrm{X}$ $2 \mathrm{ft} .1 / 2$ in. across from wing to wing. Specimen No.: Q.M. E.13/234.

Fig. 5.-A double-headed eroeodile. Blaek with white spots ; 6 ft. long, girth of body 2 ft 101 2 in. (Same history.) Specimen No. : Q.M. E.13/214.

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## Plate IX.

Five head-dresses (same history).
Fig. 1.- With hair-pad; 1 ft .3 in . high and $1 \mathrm{ft} .11 / 2 \mathrm{in}$. across. Specimen. No.: Q.M. E.13/235.

Fig. 2.-A true mask. The back of this head-dress is provided with a piece of bark cloth, which hangs and covers the neck of the performer. Dimerısions, $1 \mathrm{ft} .101 / 2 \mathrm{in} . \times 1 \mathrm{ft} .4 \mathrm{in}$. Specimen No. : Q.MI. E. $13 / 228$.

Fig. 3.-With hair-pad. Dimensions, 1 ft. 5 in. $X 1 \mathrm{ft} .21 / 2 \mathrm{in}$. Specimen No.: Q.MI. E.13/242.

Fig. 4.-Mask with wings. Dimensions, $3 \mathrm{ft} .1 \mathrm{in} . \times 1 \mathrm{ft} .1 \mathrm{in}$. Specimen No.: Q.NL. E.13/232.

Fig. 5.-Mask with a few tufts of hair scattered here and there on surfaee, provided with hanging lcaves round edge. Dimensions, $1 \mathrm{ft} .1 \mathrm{in} . \times 10 \mathrm{in}$. Specimen No.: Q.MI. E.13/243.


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## Plate X.

Fig. 1.-Dancing head-dress, measuring $3 \mathrm{ft} .11 \mathrm{in} . \times 1 \mathrm{ft} .41 / 2 \mathrm{in}$. provided with a fish-tike mouth and two prominent round spaces for the eyes. The two sticks to which mask is attached at the baek are held in the hrand. Used at the "Semese" dances. Locality: Purari Delta, British New Guinea. Specimen No.: Q.MI. E.13/246.

Fig. 2.-Mead-dress with a representation of the hornbill on top, side view. Dimensions: Total height 4 ft .4 in., length of bird 3 ft .4 in ., from wing to wing 4 ft . $03 / 4 \mathrm{in}$. Worn at the Kaiva Kuku danees, Orokolo, B.N.G. Speeimen No.: Q.AI. E.13/217.

Fig. 3.-Head-dress with cap; 2 ft. 8 in. high, 9 in. aeross. Worn at the Kaiva Kuku ceremonies, Orokolo, B.N.G. Specimen No.: Q.II. E.13/229.

Notes.-Thesc appurtenances are held in great reverence; strangers are only allowed to inspect them under protest and disfavour, and they are kept in the Eravos which are religiously shut up.

The ceremonies are often kept up incessantly for days and nights together, and when the dances are over practically all the masks, \&ce., are gathered into a large heap, perhaps some 200 or 300 of them, and burnt. It is consequently with great difficulty that these objects can be oltained; the Papuans do not like parting with them at all, but will occasionally do so (of late years) after the ceremonial glamour has worn off.

Women and clitdren are never allowed under any circumstances to see the ceremonial appurtenances. Should they, however, do so, death is said to follow as a natural consequence-probably as the result of superstition and fear.

Mr. S. G. Macdoncll, of Orokolo, to whom I am indebted for this information, tells me that there is, however, a form of Kaiva Kuku dance in whieh women and children are allowed to participate, but only a small mask is used, the number of them bcing restrieted to two or three.


Face page 22.

Four ceremonial ". Iohaus"-carred shield-like tablets.
Used principally in the decoration of the "Eravos " (club-houses), and are supposed to keep away evil spirits. All are made of comparatively soft wood and are burned into shape with hot stones and trimmed with tomahawks. The surface of the under side is quite plain, and has no ornamentation of any kind. The carving is picked out in red, white, and black.

Fig. 1.-3 ft. $6 \frac{1}{\prime}, \mathrm{in}$. $\times 91 / 2 \mathrm{in}$. Specimen No.: Q.M. E.13/223.
Fig. 2.-2 ft. $5^{11} 2$ in. $\times 5^{3} / 4$ in. Specimen No.: Q.MI. E.13/224.
Fig. 3.-3 ft. $21 / 2$ in. $\times 93 / 4 \mathrm{in}$. Specimen No.: Q.NI. E. $13 / 221$.
Fig. 4.-Provided with nose-ring ; 2 ft. 11 in. $\times 8 \frac{1}{2}$ in. Specimen No.: Q.M. E. 13 /229.


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## SACRED STICKS OR BULL-ROARERS.

As exemplified by specimens in the Queensland Museum Collections.

By R. Hamlyn-Harris, D.Sc., \&c. (Director).

(Plates XII to XVIT.)
So much has been published about Bull-roarers that it is quite superflnors to reiterate all that has been written or even give a brief summary of their significance. My object here is rather to assist the student who may some day feel disposed to bring all our knowledge upon this subjeet up to date and incorporate it in a useful whole. I thus place on record illustrations of our principal bull-roarers, all, with the exception of two New Guinea specimens (the two last noted), coming from ( ${ }^{\text {tucensland, and bearing a very marked }}$ and general resemblance to whirlers from other parts of Australia.

The ethnological student is constantly made to realise that the various divisions of Australia into States are only arbitrary, and have nothing whatever to do with the distribution of tribes, clans, \&e., since the natives knew no bounds exeept the hounds produed by distance and by inability to cover the enormous distances on foot.

Even the most casual glance at the plates (Nos. XII to XVI) will convince the reader of this ; indeed, so remarkably similar are some of them (sce Plate XII, fig. 1) to the wooden Churingas deseribed by Spencer and Gillen,* that one might almost suppose the Queensland specimens to have come from the same localities.

Bull-rcarers are universal thronghout Queensland. The belief in them as sacred objects seems to have been comparatively simple, though as objects of tabu to women, children, and perhaps to the uninitiated they have ever been regarded as mysteries ealculated to give their owners, using them, inereased power and privilege.
$\dagger$ Dr. Roth, speaking of North-West-Central Queensland, tells us that the smaller whirring boards of about 4 inches in length and no gravings on then, sometimes red-oehred, are used as toys or playthings indiseriminately by either sex and at any age.

The graved and larger varieties of about 8 inches are used in the initiation ceremonies, and in the Yaroinga tribes of Queensland are put to the speeial use of love-eharms.

[^7]* In Bull. 11, North Queensland Ethnography, Dr. Roth also figures two whirlers from Butcher's Hill nsed in rendering a baby "tabu." The use of snch an implement for purposes of this kind is not nniversal.

With regard to the British New Gninea Bull-roarers I have little to say. Apparently social conditions and ceremonial life do not demand the use of such an implement, execpt rarely; as Mr. Douglas Rannie has pointed out to me, in those islands of the Pacific where most of the ceremonies take place in the "tabu" or "Gamal" honses no sacred implements such as the Bull-roarer are necessary, since no women or children wonld ever dream of going near such an abode of the mystic rites, and hence the sounding of the whirler wonld be superflnous. This is doubtless also the case among the Papuans of British New Guinea, except where ritual dances and observances are held ont of doors. when the Bull-roarer is swngg to render the ceremonial ground tabu to females.
$\dagger$ Scligman speaks of bull-roarers in use in Southerm Massim at the Wralaga Feast, but, since these are used on this occasion only and have no apparent utility, one is rather inclined to regard them as a dying relic of the past.

For the remainder the specimens will speak for themselves.

[^8]
## Plate XII.

BULL-ROARERS OR WOODEN CIIURINGAS OF THE QUEENSLAND ABORIGINES.
Figure 1.
Dimensions: $366 \mathrm{~mm} . \times 51 \mathrm{~mm}$.
The larger of the two, wrapped up and shown in Figure 2. Ornamented with mumerons circles, which are in their tum connected by lines to the larger central concentrio circles, and provided with a rough senicireular enve at each end. Reverse side similar (suggestive of a frog totem). Red ochre.

Locality: (ilenormiston, North-West-Central Queensland. Specimen No.: Q.E. 13/256.1.

## Figure 2.

Two (figures 1 and 3) wrapped in old piece of pituri cloth (old sacking) and tied with the human hair cord attached to the whirlers. As carried about from plaee to place.

Locality: Glenormiston, N. W. C. Queensland. Specimen No. : Q.E. 13/256.

## Figure 3.

Dimensions: $3 \overline{5} 6 \mathrm{~mm} . \times 49 \mathrm{~mm}$.
Lesser of the two shown in figure 2, wrapped up. Ornamented with down cemented with human blood (both sides). Red oehre.

Locality: Glenormiston, N. W.C. Queensland. Specimen No.: Q.E. 13/256.2.

## Figure 4.

Two bull-roarers in tea-tree bark sheath (dilapidated). Specimen visible has 110 markings on reverse side.

Locality : Glenormiston, N. W. C. Queensland. Specimen No. Q.E. 13/250. Figure 5.

Dimensions: $241 \mathrm{~mm} . \times 36 \mathrm{~mm}$.
One of the two shown in figure 4 enclosed in a tea-tree bark sheath, with three sinuous lines ruming down the centre, suggestive of a snake-totem. The semicircles are arranged facing one another, the significance of which must not be lost sight of. No reverse markings of any kind. Red ochre. Roughly figured in Edge-Partington, p. 118 (Australia). No. 8.*

Locality: Glenormiston, N. W.C. Queensland. Specimen No.: Q.E. 13/250.1.

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Plitte XIII.
BULL-ROARERS OR WOODEN CHURINGAS OF THE QUEENSLAND ABORIGTNES.
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Figure 1.
Dimensions: $290 \mathrm{~mm} . \times 52 \mathrm{~mm}$.
Native name " Wilmurra," Kalkadoon tribe. Roughly finished, concavoeonvex, crude ornamentation in form of badly ent lines (in threes) on one side of the whirler only. Wood (very dark), though hard, splits easily in direction of grain. Provided with hmman hair cord. which is attached to hole and eemented with gum cement. Roughly figured in Edge-Partington (Australia), p. 118, No, 10; erroneously called "TVihmua."

Locality: Leichhardt (Sehwn District). N. W. C. (Qucensland. Donated by Mr. A. Meston. Speeimen No.: Q.E. 13/237.

Figure 2.
Dimensions: $359 \mathrm{~mm} . \times 40 \mathrm{~mm}$.
With two star-shaped designs, two semicireles, and numerous transverse lines; reverse side similar. The human hair cord attached to this speeimen measures $5 \mathrm{ft} .61 / 2 \mathrm{in}$. in length.

Locality : Glenommiston, N. W. C. Queensland. Speeimen No. : Q.E. 13/239.
Figure 3.
Dimensions: 327 mm. $\times 47 \mathrm{~mm}$.
The outer portions smeared with blood, to which feather-down has been attached, a good deal of which has worn off in handling; human hair eord attached. The reverse side is ornamented with one large circle of concentric lines in the centre, and the remaining space is taken up by transverse lines of a very rough nature. Figured in Edge-Partington, p. 118, No. 5.

Locality : Glenormiston, N. W. C. Qucenstand. Specimen No.: Q.E. 13/240.
Figure 4.
Dimensions: $391 \mathrm{~mm} . \times 52 \mathrm{~mm}$.
The five eoneentric cireles are compassed on their sides by a series of five lines running snake-like nearly the whole length of the implement; four series of short lines oceupy some of the short intervening spaces. Reverse side very similar.

Loeality: Queensland (exact loeality monown). Specimen No.: Q.M. $13 / 254$.


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HATICHAL MUSE UM MELBGLIFNE

> Plate XIV.

BULL-ROARERS OR WOODEN CHURINGAS OF THE QUEENSLAND ABORIGINES.
Figure 1.
Dimensions : $385 \mathrm{~mm} . \times 38 \mathrm{~mm}$.
Five serics of semieireular lines placed baek to back, not faeing one another. The reverse side similar, the eirele being replaeed by transverse lines. Hard wood ; red ochre.

Loeality: Queensland (exaet loeality unknown). Q.M. Speeimen No.: Q.E. $13 / 241$.

Figure 2.
Dimensions: $325 \mathrm{~mm} . \times 37 \mathrm{~mm}$.
Flat piece of wood, rudely shaped, pointed at each end and eoloured with red ochre. One of the few Queensland churingas, ornamented with dots, so significantly introduced by the Central Australian tribes in their designs to represent the footprints of amimals or the tracks of the men. Roughly figured in Edge-Partington (Australia), p. 118, No. 6.

Loeality: Glenormiston, N. W. C. Queensland. Q.II. Specimen No.: Q.E. 13/242.

Figure 3.
Dimensions: $492 \mathrm{~mm} . \times 50 \mathrm{~mm}$.
Both the obverse and reverse sides ormamented with eireles, finished off with oeeasional shor't series of lines. Red ochre.

Locality: Glenormiston, N. W. C. Queensland. Q.M. Speeimen No.: Q.F. $13 / 243$.

Figure 4.
Dimensions : $340 \mathrm{~mm} . \times 39 \mathrm{~mm}$.
The reverse side of this roarer, which is suggestive of a snake totem, is figured in Edge-Partington, p. 118, No. 7. Hardwood; red ochre.

Loeality: Western Border of Queensland. Q.M. Specimen No.: Q.E. $13 / 24.4$.

## Figure 5.

Dimensions: $433 \mathrm{~mm} . \times 31 \mathrm{~mm}$.
Plain with the exception of a row of small white marks arranged around the edges, nearly worn off (invisible in figure). Red oehre.

Locality: Queensland (exact loeality mnknown). Q.IT. Speeimen No.: Q.E. $13 / 245$.


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## Plate XV.

BTLL-ROARERS OR WOOIEN CIUURINGAS OF THE QUEENSLAND ABORIGINES.
Figures 1 and 2.
Two bull-roarers both made of the same soft white gum, possibly toys. The larger of the two, Specimen No. Q.F. $13 / 246$, measures $161 \mathrm{~mm} . \times 23 \mathrm{~mm}$.; whereas the smaller specinen. No. Q.E. $13 / 247$, only measures $112 \mathrm{~mm} . \times 13 \mathrm{~mm}$. The reverse sides differ slightly in pattern, and are if anything more rudely graved.

Locality: Georgina River, N. W. C. Queensland. Donated by Mr. Glissan.

Figure 3.
Dimensions : $182 \mathrm{~mm} . \times 21 \mathrm{~mm}$.
Tery roughly fashioned, especially on the reverse side, where the lines run into one another unintelligibly; aeutely pointed at both ends. Probably a toy.

Locality : South-East Queensland. Q.M[. Speeimen No.: Q.E. 13/248.

## Figure 4.

Dimensions: $229 \mathrm{~mm} . \times 26 \mathrm{~mm}$.
A loughly made and rather modern-looking implement. Reverse side provided with three rery imperfect circles and a few rough lines top and bottom of the largest and uppermost one. Soft wood; red ochre. String instead of homan hair cord.

Loeality: Glenormiston: N. W. C. Queensland. Q.MI. Specimen No.: Q.E. $13 / 249$.

Figure 5.
Dimensions: $125 \mathrm{~mm} . \times 7 \mathrm{~mm}$.
A small implement made of serub timber; just split, the nature of the wood (interlocked) being responsible for the wary lines. No ormamentation of any kind visible. The homan hair cord was originally attached to a piece of catgut which was fastemed through the hole of the whirler.

Locality: West of Charleville, Queensland. Donated by Mr. A. Meston. Q.M. Speeimen No.: Q.E. 13/251.

Figure 6.
Dimensions: $180 \mathrm{~mm} . \times 42 \mathrm{~mm}$.
Obverse side almost identically the same as the reverse. Fignred in EdgePartington. p. 118, No. 9.

Locality: Glenormiston, N. W. C. Queensland. Q.ME. Speeimen No.: Q.E. 13/252.


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## Plate XVI.

## BULL-ROARERS OR WOODEN CHURINGAS.

Two bullroarers exposed to show emu feathers wrapped up with them in cloth (modern). The cord attached to churingas is of human hair. Wood stained with red ochre. A different though similar pattern is graved on each side, mainly circles.

Locality: Upper Mulligan River, N. W. C. Queensland. Specimen No.: Q.E. 13/236.


## Plate XVII.

Figure 1.
BULL-ROARER FROI OROKOLO, BRITISII NEW GUINEA.
$668 \mathrm{~mm} . \times 100 \mathrm{~mm}$.
Speeimen Reg. No. : Q.M. E.13/219.
The front is ornamented with the crude figure of a reptile, probably a eroeodile; the bar $k$ is quite plain. "Attached to a long string on the end of a stiek and swung round the head, giving forth a loud humming sound, sounded to warn the women and ehildren to "clear' before a dance." Used by the Papuans of the Gulf Division at the Kaiva Kuku Dances.

Figure 2.
BULL-ROARER FROII TIIE MEKEO DISTRICT, BRITISH NEW GUINEA.
$380 \mathrm{~mm} . \times 40 \mathrm{~mm} . \quad$ Specimen No.: N.G. 18639.
Front and baek quite plain, spatulate shape, in sheath of bark. This speeimen is figured in Edge-Partington * as a spatulate with no history, but thanks to His Exeelleney Sir William MacGregor, K.C.M.G., who collected it, we now know that it was used by masked men when proelaiming a "tabu" on eoeoanuts in their tribe. The sheath is rather signifieant, and reminds one of the Queensland speeimens.

[^10]

Bull-Roarers.

1. Q.M. Specimen No.: E. 13/219.
2. Specimen No.: N.G. 18639, with sheath of bark.

# HERPETOLOGICAL NOTES. 

## Part I.-SYSTEMATIC.

Including the Description of One New Species.

By H. A. Longman.

CARETTOCHELYS INSCULPTA, Ramsay.*
Thhmst working through a number of duplicate Chelonian specimens. a dusty earapace and phastron were diseovered in imner recesses of old shelves. On eleaning and examination these proved to be the rare Coreltochclys insculpta, Ramsay, first described from the Fly River, British New Guinea. For the reeeption of this monotypic tortoise, the family Carettochelyide was established by Boulenger. $\dagger$

Our earapaee is 49.5 eentimetres in lengtl, and is thus somewhat larger than the type. With the exeeption of the position of neural plates it agrees well with Ramsay's deseription. In our speeimen the first neural plate is separated from the seeond by a distance of 8 mm . Plates two, three, and four are joined, and the two former are apparently bisected by a transverse line, seareely so deep as an ordinary suture, which gives them a divided appearance. Thus it would be almost emrect to speak of cight neural plates and not six. Plate four just reaches number five by means of a lancenlate strip. A space of 8 mm . separates plates five and six. The plastron has been sawn :way from the earapaee and thus the sutures between them are somewhat disturbed, but althongh the right and left sides are not symmetrical there are no signs of intermarginals.

As the Museum was indebted to His Exeelleney the Governor of Queensland, Sir William DlacGregor, for a large proportion of speeimens reeeived from New Guinea, his attention was directed to this specimen. To our gratifieation Sir William at onee remembered it, eourteonsly giving the information that it had not been secured in the Fly River but in the Morehead River. Should eomplete specimens come to hand, it may be that the mion of the neural plates is aeeompanied by other distinet features, and this large Chelonian from the Morehead may thus be entitled to speeifie rank. Reg. No. Q.NI. J13/902.

[^11]ASPIDITES COLLARIS, new species.
From Mrr. E. A. Biguell, Avondale Station, viâ Cunnamulla, the Queensland Museum received in March, 1913, a speeimen which differs so markedly from all described Australian Boidx that new specifie rank has been given to it under the above name.

Rostral slightly broader than deep, the portion visible from above about one-third as long as its distanee from the frontal; internasals one-third longer than broad, shorter than the anterior prafirontals which wre as long as the loreal region. Posterior pridfontals broader than long, separated from each other by a small azygous shield. Frontal as long as broad, somewhat narrower posteriorly, almost pentagonal, hroader than the supraoculars. Parictal region broken up into small shields, of which two are as large as the internasals. Two subequal loreals. Three praomlars, the lowest of which is exceedingly small, and three or four postoculars. Thiteen upper labials, seventh entering the eye, third largest; nineteen or twenty lower labials, the nine anterior being longer and narrower. Nental shield small; a deep mental groove. Seales on middle of body 64 ; near vent 40 ; the two series on eaele side nearest the ventrals are cularged. Ventrals 303 ; anal entire; subeandals 5 2, of which the first and two of the last are divided.

Colomation: Light hrown above, darker in the vertebral region, with irregular hair-brown bands, often anastomosing on the sides. Ventrals and spaces between bands on sides dirty white; anterior ventrals dark-elouded. A wide white band extends over the oceiput, and the whole of the under surface of the head is pure white. The suproculars, the adjoining postocular, and two small parictal seales are glossy hack, as is also the rostral shield, but the area between these is again white, thongh not so markedly so as the upper and lower labials, the under surface of the head, and the oecipital region. The frontal is also dark-clouded on its posterior surface.

Total length 620 millim.; tail 58. Reg. No. Q.M. J13/944.
The question arises whether the white markings on the head do not represent a variation to be found in juvenile forms of Aspidites ramsayi, Macleay, but the writer has no knowledge of sneh marked divergence from adult colouration in any of the Anstralian Boida. In the IIorn Expedition report* there is noted an Aspidites molanoceplulus, the head of whieh was uniform pale brown. Apart from this striking colorration, the struetural differences separating our suake from A. ramsayi, as redescribed by $\mathrm{E}, \mathrm{K}$. Waite, $t$ are but slight.

[^12]HERBERTOPHIS PLUIMBEUS, Macleay.
During the Queensland Government's Expedition to Bellenden-Ker Range in 1889, four speeimens of this snake were seeured for the Museum. In the offieial report the species was referred to, under Macleay's name, as "A noeturnal snake peculiar to the Merberton district, in whieh it is common." As there seems to be an element of doubt as to whether this snake should be included as a Stegonotus, a careful examination has been made of the speeimens. There are 13 or 14 maxillary teeth which exlibit the eharacteristie dentition of Stegonotus modestus. as figured by Boulenger in the B.M.C. i., p. 36t. The front teeth are the smallest. An inclease in size may be noted towards the middle; then is apparent a break which would easually be looked upon as a diastema, but elose examination reveals the presence of two very much smaller teeth. The penultimate and two preceding teeth are the largest in the series, the final tooth being again smaller. In lis description of Lielaphis (Stegonotus) modestus, Günther remarlis: "It is not rarely doubtful whether the dentition of a speeimen should be considered diacranterian or synsmaterian; but it is never lycodont." The same remarks apply in general to the specimens under eonsideration. Stegonotus muelleri, the type specimen of Duméril and Bibron, was deseribed by them as diaeranterian. Thus the question arises as to whether the genus Lielaphis, instituted by Giinther,* should not more rightly be considered the eorrect appelation. But in the earlier of the two artieles quoted Giinther refers to the teeth as "subequal, in small number." The later deseription of Lielaphis modestus indicates the variation in size of maxillary teeth whieh is charaeteristie of our speeimens, and whieh is appropriated and figured for the genus Stegonotus by Bonlenger. As a normally syneranterian dentition may very readily appear to be diaeranterian, some eonsiderable latitude must be allowed on Duméril and Bibron's description. Thus it seems eorrect to the writer to substantiate Boulenger's query and definitely place Macleay's speeies as Stegonotus plumbeus.

A few other remarks may be made on our speeimens. Only the fourth and fifthr labials enter the eye, and the angle of the third fails to reaeh so far. The number of ventral scales varies from 210 to 218 , and the subeaudals, whieh are in pairs, from 78 to 85 , though one. whieh is obvionsly damaged, has but 61 . In colouration and otherwise in lepidosis. our speeimens agree with Maeleay's deseription.

## STEGONOTUS MODESTUS, Schleg.

In the Queensland Museum there is a speeimen, bearing this name, reeeived from Torres Strait. The dentition and eolouration are apparently

[^13]characteristic, but the body scales are arranged in 15 instead of 17 series. In other respects the lepidosis is as described.

## PSEUDECHIS WILESMITHII, De Vis.*

Amended description and note on affinity with $P$. scutellatus, Peters.The type specimen named as above is one of the longest Australian venomous snakes yet received by the Quecmsland Museum. Its length (body removed from skin) is no less than $2,215 \mathrm{~mm}$., of which the tail is 340 mm . Owing to extraetion of the venom glands, the head is in a somewhat damaged eondition. The rostral was originally described as being one-fourth longer than broad, whereas the breadth is slightly in excess of the length. On one side only are there two prooculars, and there are but six upper labials. On the left side the lower anterior temporal is wedged in between the fifth and sixth labials forming the seventh shield noted by De Vis. The lower angle of this shield fails to reaeh the gape on the right-hand side. There are three lower labials in eontact with the anterior chin-shields. The diameter of the eye slightly exceeds the distance from the mouth, but owing to the state of the head the proportion cannot be obtained with accuracy. With these necessary emendations, the speeimen demonstrates so close an alliance with $P$. scutcllatus, Peters, that the writer doubts the wisdom of separating them. It may be noted, however, that the frontal is slightly wider than either of the supraoculars, and is but one and a-half times as long as broad. On each side the posterior nasal is separated from the preocular ly a space of 2 mm . In a specimen of $P$. scutclatus, received from Mrr. W. H. Edwards, Colosseum, North Coast line, Queensland, the frontal is also slightly wider than either of the supranculars, but its length is almost twice the breadth. In eolouration both examples are brown, one being darker than the other. The lighter colour on the snout and sides of the head is notieeable in eaeh.

[^14]
## Part II.-ETHOLOGICAL.

By H. A. Longman.

Although the scientific worker is hopelessly handicapped by the vividly imaginative journalist whell snake storics are told, yet occasionally there are noticed incidents startling enough in their way. During the cooler months a young and lithe Diemenia psammophis, Sehleg., popularly known as a whipsnake, usually retired under a piece of bark placed in its case, and it was only to be tempted out on warm and smmy days. On one such occasion a small skink lizard was introduced, and the snake eommenced a lively chase. The lizard ran muder the bark and on reaching the other side scampered back over the top, closely pursmed by the snake. Again the lizard entered the bark tumel, through which the tail of the snake was rapidly disappearing, making a spurt to keep up with the main body. The snake darted for the lizard, missed it, and then seized its own retreating tail abont two inches from the tip. With characteristic pertinacity it held on, and apparently the elassic episode of a suake swallowing itself was to be attempted. It was not mutil the snake was taken out of its case and forcibly handled that it let go, there being apparently no distinction to the ophidian pralate hetween its own flesh and that of its favourite lizard.

The introduction of a Frilled Lizard, Chlamydosaurus lingii, Gray, to a vivarium containing three Green Tree Snakes, Dendrophis punctulatus, Gray, resulted in a pretty display of reptilian characteristics. The former was previonsly inert and slow of movement. One of the snakes raised its head and neck in order to examine the neweomer. Then the lizard suddenly rushed across the vivarium and stood facing the snake, its frill expanded to the maximum and its moutl widely open. In its eyes was the light of battle, and its head moved slowly from side to side as if working up a violent rage. In this position it remained for over three minutes. The snake, too, did its utmost to make itself look formidable. Its seales were distended and the underlying pattern of peacockblne was visible throughout the body. Both ereatures were transformed. Two quick rushes were made by the lizard, but the marvollous agility of the snake and the old wood and debris around cuabled it to cscape. Not until some time after the suake had securely hidden itself did the lizard resume its usual peaceful appearance.

The under colouring of peacock-bluc is very noticeable in Grecn Tree Snakes when they take an unusually large meal. Although unaided by venom or constricting power, these snakes succeed in overcoming and cating skink lizards of a diamcter excceding themselves. Swift and agile in the chase, they are very tenacious of their prey, and when once a grip is taken it is seldom that they leave go, notwithstanding severe bites from a lizard. Should a skink be
seized in the middle of the body, the snake's jaws gradually work along until the head is reaehed. These snakes are also fond of frogs and small birds. Our specimens thrive well in captivity.

Remarkable changes of colour are sometimes exhibited by the common Jew or Bearded Jizard, Amphibolurus barbatus, Gray. Specimens which are normally brownish grey and in which the characteristic colour uarkings are not very conspicuous are quite transfigured when angry. The whole of the head and gular tissues capable of distension (the "bearded" portion) become quite black. This chameleon-like change extends even to the ends of the prickles. With the yellow mouth wide agape and the surrounding black, the little reptile looks quite dangerous as it faces its supposed foes. When the excitement has subsided it regains its ordinary colouring in a short time, and the black complexion of anger is a thing of the past. Older specimens, especially males, are permanently darker, and the series of five or six pairs of lighter spots on each side of the vertebral line are by no means so noticeable as in the young.

In captivity the Bearded and Frilled Lizards feed frecly on grasshoppers, beetles, cockroaches, and similar insects. Moths and butterflies are also taken, and a big spider is not always disdained. A glass jar containing cockroaches was often placed inside the case, and the lizards tried to bite through the glass, and seemed never to learn the lesson of its transparent impregnability. In their native element these lizards must destroy large quantities of grasshopers and other pests, and it is unfortunate that so few farmers are aware of this. At present they are considered fair prey for the dogs or are ruthlessly killed with a stick. The Frilled Lizard is a bizarre and harmless mimal possessing several umique characteristies which have been described at great length, and it is now by no means common. Efforts are being made to encourage its protection in Southern Queensland.

The Australian Black Snake, Pseudechis porphyriacus, Shaw, must be included with those venomous reptiles which enjoy an oceasional cannibalistic meal. In order to provide temporary accommodation, a large specimen of Dicmenia psammophis, Schleg., was placed in a small vivarium with a Black Snake nearly twice as large. For two days the two lived amicably together, but on the following day the Diemenia disappeared into the interior of its comrade.
R. L. Ditmars. who has placed on record many valuable observations on the feeding habits of snakes, states that members of the Australian genera Pseudcchis, Diemenia, and Brachyaspis prefer small mammals and birds to other food, adding: "None could be coaxed to take batrachians, which appeared
quite foreign to their diet."'* So far as the eommon Black Snake is concerned our experience is at variance with Ditmars' notes, for this species prefers frogs to any other food. In captivity it feeds regularly on the commoner species of batraehiaus, and these constitute the food whieh is most abundant in the swampy localities where this snake is generally found. Possibly Australian snakes have a prejudice against Ameriean frogs.

The writer has some doubt as to the truth of the popular notion that a snake is easily killed. When a reptile sueceeds in crawling away after having received a smart blow on the back, the would-be slayer almost invariably assumes that it has "erawled away to die." But in many cases, unless wounded in the cardiae region, it is more likely that it recovers. Several remarkable instances have come to our personal knowledge in whieh snakes have subsequently recovered although they had received so severe a blow that the posterior half of the body seemed limp and lifeless. In one ease a Carpet Snake, Python varicyatus, Gray, was encountered at night in a fowthouse after it had devoured a small fowl. It was stunned by a hard blow; its ventral surfaee was cut open and the fowl extracted, and the snake was then left for dead. Next morning it was not to be seen, and three days later it was found, still alive, under a heap of wood a hondred yards away, and was finally despatehed. Those who have had oecasion to obtain specimens of the larger venomous snakes in Australia (partieularly Pseudechis porplyriacus) will readily realise that country residents prefer to kill a snake "two or three times nver," and thus preclude all possibility of a resurrection. Among our own experiences the case of a small Diemenia psammophis may be given as an instance of tenacity. When placing this specinen over six months ago in a sinall vivarium, it sprung upwards before the lid could be properly closed, with the result that the cover fell on its back about one-third from the head. For some weeks after this the whole of its body posterior to the injured part was incapable of motion. During two periods of eedysis the snake was mable to free itself behind this part, and the epidermis had to be removed by the writer. The disruption of the vertebre was so marked as to be conspienous on the dorsal surface. Notwithstanding this, the snake gradually recovered the use of its posterior part. It is now lively and healthy. and will often take three or four small lizards in sueeession and eat them with surprising speed.

* Zoologica, Now York Zool. Soc., vol. i, No. 2, p. 226.


# A RE-EXAMINATION OF MACLEAY'S NEW GUINEA AND QUEENSLAND FROG TYPES. 

By Dene B. Fry,<br>Australian Museum, Sydney.

The present short paper is primarily the result of an incquiry from the Queensland Dlusem as to the frog described by Maeleay as Hylophorbus rufcsecns. It deals briefly with the status of the five frogs taken by the "Chevert "expedition in 1375, four of which were colleeted in British New Guinea and one at Cape York. These were charaeterised and named by Sir Willian Macleay in the Proceedings of the Linnean Society of New South Wales for the year 1878. So short and inadequate were his descriptions that, in the absence of any subsequent examination of the types, the true systematic position of his species has been up till the present one of surmise. They have thens remained a stumblingblock to systematists, and, as a direct result, have either dropped ont of recent literature er remain shrouded with doubt, to be referred to only in footnotes and appendiees.

One of Macleay's speeies, IIylarana ncbulosa, was recognised by Dr. Bonlenger as a synonym of Rana papua, Lesson. Another, eonstituting a new genns and species, namely, Ranaster convexiusculus, was placed donbtfully in the family Pelobatidt, where it has remamed, its trme position never having even been suggested. The other three-a new genns and species, Hylophorbus rufceens, and two new tree-frogs, Jitoria guttata and L. dorsalis-are not mentioned in recent literature on P'apuan Batrachia. Two of these species are synonymous with previonsly deseribed forms, and two antedate more recently characterised frogs, while $L$. dorsalis is unidentifiable. Briefly, this may be stated as follows:-

Ranaster convexiusculus, Macleay, antedates Phancrotis nova-guinca, van Kampen.

Hylophorbus rufescens, Macleay, antedates Mantophryno latcralis, Boulenger.

Ifylarana nebulosa, Maeleay, is symonymons with Rana parma, Lesson.
Litoria gullata, Macleay, is synonymons with IHyla infrafrenata, Günther.
Litoria dorsalis, Macleay, is obviously not a Litoria, but eannot be identified as the type is lost.

Nothing would be gained by figuring the more or less dilapidated type specimens, for those whieh will stand as valid species have sinee been well figured
under later names. The same may be said of a detailed redeseription of the types which, as they have deteriorated eonsiderably, might easily be inisleading. The main points of accord then, and especially any in whieh there occurs a divergence from their well-deseribed symonyms, have alone been mentioned.

The five species are dealt with separately as below.

## 1. RANASTER CONVEXIUSCULUS, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 135. Typo locality : Katow, British Now Guinea.
Boulenger, Brit. Mus. Cat. Batr., 1882, p. 444.
van Kampen, Nova Guinea, ix., 1909, p. 36, pl.ii., fig. 4 (Phanerotis nove-guineoe). Type locality : Morauke, Dutch Now Guinea.

The type sperimen of this frog is in very fair condition, and shows that the speeies is identical with Dr. P. N. van Kanpen's later deseribed species, Phancrotis nova-guinca. Macleay placed his gemus in the family Diseoglossidx as defined by Dr. Günther.* This has probably been the real (eanse to which the obscurity of the froc's identity is dae, for all authons have followed him. In reducing the many families of Batrachia Salientia antmitted in the first edition of the British Museum Catalogne, lBoulenger transfered a seetion of Dr. Gïnther's Lamily Discoglossida! to the Pelobatidu, and with it went, not without doubt, Romastor comexinsculus. In the absence of any further material of which the identity was recognised, subseguent authors have coneurred with him, and Ramaster has come to be regarded as rightly belonging to that family. In descrihing Phanrvotis nolcc-sumince, however, van Kampen records it as the first Cystignathid frog from New Guinea. Dr. Bonlenger fomnded the genus Phanerotist for an undoubted Cystignathid frog from New Sonth Wales, but considerable doubt exists as to whether $I^{\prime}$. nora-guinco is really congeneric. However, this hardly affeets the present question, for although Dr. van Kampen does not deseribe the stemal apparatus and sacral vertebre of his species, he has presmably examined the intermal elatraters in coming to his conclusion as to its family relationships. and, as it is identical with Macleay's speeies, we must apparently aeecpt Ranastor convesiusculus as a member of the family Cystignathide. I cannot dissect Macleay's type, but from an examination of the externals I feel convineed that this course will nltimately prove correet.

It seems hest to regard the fow external differences which oceur between $P$. fletcheri and $P$. nova-gnince as of generic vaho. These are the ranoid habit and the distinct tympanum of the former. If we do not aceept this separation we must admit a remarkable instanen of discontinnous distribution, or eonvergence. The almost total absence of Cystignathida in New Guinea is a matter of surprise, for we must aceoment for their presence in Australia as we do the Hylida, which family has freely entered Papnasia and found it favourable to

[^15]specialisation, but I think it is a significant thing that some of the Papuan frogs now regarded as belonging to the family Pelobatidæ differ from some Cystignathids in characters which are a matter of "degree" only. Thins Lechriodus melanopyga, Doria, " can hardly be distingnished from Phanerotis fletcheri on externals alone, a faet which also scrves to show how slender and unstable is the boundary between the Australian members of the family Cystignathida with slightly dilated sacral vertelræ, and some of the Pelobatidæ in which they are a little more so.

The type of Ranastor convexiusculus agrees almost exactly with Dr. van Kampen's splendid description and figure of $P$. novc--guinere. It differs only in the distribution of the warts on the back, which are not so well developed and eonfined more to the sides. Dr. van Kampen makes no mention of the large, rather spaced maxillary teeth, which certain!y obtrude themselves upon one's notice. The vomerine teeth are exactly as they are figured by Dr. van Kampen but differ from the condition found in $P$. fletcheri, in which they are weaker and do not extend out beyond the level of the choane. Nacleay describes the tongue as "largely notehed behind," but I find it to be quite small as stated by van liampen. The same may be said of Macleay's "rather large" ehoanr. which cn the eontrary are rather small and alnost exactly as figured by the Dutch author. The fingers and toes of the trpe specimen are considerably shrunken, whieh would aceount for Macleay's misleading statement that they are webbed. The colour marking of the type agrees in detail with Dr. van Kampen's illustration.

## 2. HYLOPHORBUS RUFESCENS, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 136. Type locality: Katow, British New Guinea.
Boulenger, Ann. Mag. Nat. Hist. (6), xix., 1897, p. 12, pl. ii., fig. 3 (Mantophyrne lateralis). Typ locality : Mount Victoria, British New Guinea.
Mehélÿ, Termész. Füzetek., xxiv., 150], p. 220, pl. iv. and pl. v., and pl. x., fig. 4 (M. lateralis, Blagr).

The type speeimen of this frog is in poor condition. The extremities have contracted ronsiderably and the colour is quite bleached. Nevertheless it is sufficiently perfect to identify it with Mantopheryo lateralis, Boulenger. It agrees in every detail except that the form is slightly more slender, while the two warts on the chin of Boulenger's specimen are not disecrnible. The lower jaw of the type has been crudely broken, showing the two dermal esophageal ridges quite distinetly. The tympanum is now perfectly distinet. The eharaeteristie tongue is exactly as deseribed by Boulenger. The very fine, almost invisible vertebral fold is also present in Macleay's specimen. The eolour is now quite bleached, but Macleay's original description agrees in all essentials with Boulenger's fine figure. Thercfore, Mantophryne lateralis, Boulenger, becomes replaced by the carlier name Hylophorbus rufescens, Macleay. Manto-

[^16]phryme microtis, Werner,* and M. nouhaussi, Vogt, $\dagger$ must also change their gencric denomination accordingly, unless these species really belong to the genus Gnathophryne, Mehélÿ,t founded on M. robusta, Boulenger.§

## 3. HYLARANA NEBULOSA, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 137. Type locality: Cape York, North Australia.

Boulenger, Cat. Batr. Brit. Mus., 1882, 2nd ed., p. 64 (= Rana papua, Less.).
The identity of this form did not escape the acumen of Dr. Boulenger, who recognised it as synonymous with Rana papua, Lesson. Nothing remains to be said about it, as the type is in bad condition and is obviously the young of that species.

## 4. Litoria guttata, Macloay.

Macleay, Proc. Linn. Soc. N. S. Walcs, ii., 187S, p. 137. Type locality : Katow, British New Guinea.

Boulenger, Cat. Batr. Brit. Mus., 1882, 2nd ed., p. 337 (footnote).
The type specimen of this frog is in a bad state, and is obviously very young. It differs from the young of IIyla infrafrenata, Giinther (II. dolichopsis auct) only in the back being faintly granulated, recalling the condition of $H$. gracilcnia, Ptrs. From the latter, however, it is separated by the condition of the webbing of the fingers, which does not extend to the dises on the sceond and fourth. There are about a dozen small round white spots on the back like those which spasmodically oceur in $\Pi$. carulca and $\Pi$. infrafrenata. I have no doubt that Macleay's specimen is simply an extremely young example of the latter species.

## 5. LITORIA DORSALIS, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 138. Typo locality: Katow, British New Guinca.
Boulenger, Cat. Batr. Brit. Mus., 1882, 2nd ed., p. 337 (footnote).
The type of this species is apparently not extant. With the Acting Curator's kind permission I was allowed to personally search the Mackeay Muscum, in which are contained the majority of Macleay's type specimens, but was unable to locate it.

Macleay's description is unintelligible. From the fact that the toes are webbed only at the base it is obviously not a Hyla. The "mouth opening beneath" and the presence of dises to the fingers suggest that it belongs to some

[^17]disked Engystomatid grmus, while the latter character, compled with a basal web to the toes. points 10 Cormufer affinities. I can find no dessription which could reasonably be said to tally with Macleay's generalised chararters. 'Taking these facts into account, the most satisfactory procedure will be to totally ignore the name Litoria dorsalis, Macleay, and to exclude it from future literature.

To Mr. John Shewan, Acting Curator of the Macleay Museum, I must express my deepest thanks for the many courtesies shown me on my not infrequent visits to the collections under his charge.

# THE SCALES OF SOME QUEENSLAND FISHES. 

By T. D. A. Cockerell, University of Colorado.

I Am greatly indebted to Dr. R. Mamlyn-Tarris for a very interesting serics of scales of the fishes of Queensland. They not only belong to species, the scales of which have not been studied aecording to the methods of modern lepidology, but they are of interest as enabling us to see whether the fishes of the Southerm Iemisphere differ markedly in scale characters from their allies in the North.

## OSTEOGIOSSID.

Scleropages leichardti Günther. The large scales are retieulated and have beaded circuli, in the typieal Osteoglossid mamer. The structure of the scale is quite the same in S. leichardti from Queensland, S. formosus from Borneo, and Ostroglossum bicirrosum from Blazil, notwithstanding the wide goographical scparation of these fishes. (See also Science, May 26, 1911, p. 831.)

## IIEMIIRIAMPIIID A.

The scales in this family are mueh broader than long; nucleus central or nearly; apical margin simple; basal margin frequently lobulate; apical field covered with very fine and dense transverse circuli ; basal half of seale with much more widely spaced circuli, which bend upwards laterally, and meet the cireuli of the series above the nucleus, forming angles (often rery acute angles) with them. Two or three basal radii are nearly always developed.

The Queensland species may be separated thus:-
Scales (which have a transverse diameter of 12 mm , or over)
with very prominent basal lobes .. .. .. Hemirhamphus far Forskal.
Scales without such basal lobes .. .. .. .. 1.

1. Scales with the eirenli of tho upper and lower halves
regularly meeting at sides, forming acute angles .. Hemirhamphus quoyi Cuv. \& Val.
Scales with tho circuli of the upper and lower halves not recularly meeting, usually separated at sides hy a
space frec from circuli .. .. .. .. .. Hemirhamphus regularis Günther.
One of the $I I$. quoyi seales, apparently from the lateral line, has a large obtuse apical lobe. The species are not separated by very marked characters, and probably intermediate seales will be found. Indeed, the constancy of the type is shown by the fact that Hyporhamphus unifasciatus, from Woods Mole, Mass.
(U.S. Bureau of Fisheries), and Balboa, Panama Canal Zonc (Mreek and Hildebrand, U.S.N.M.), has scales which differ very little from those of Hemiramphus quoyi, though occasionally nearly as well lobed basally as $I I$. far. Young scales of II. unifascialus (and donbtless also of the species of IIcmirhamphus) show the apical area without circuli, and the dense transverse eirculi begin to form close to the line where the lower ones end.

It remains to be noted that, in addition to the features described, there is a minute sculpture which seems to he due to the eracking of the surface of the scale. In II. unijascialus it takes the form of series of very fine lines which are usually more or less curved, and form semispiral systems which often cross, giving rise to a minute retieulation. In Hemarhomphus quoyi these lines are less frequent, and cross the fine circuli at right angles. In $H$. regularis there is produced a fine irregular reticulation between the circuli. In $H$. far there is often a much coarser and extremely irregular reticulation cxtending across the middle of the scale.

Oypsilurus scales (six species examined) are of the same general type as those of the Hemirhamphide, but less extreme, with the circuli usually vertical at the sides, and those of the upper and lower halves of the scale not widely different.

## ATHERINIDA.

Scales of Atherina are longer than broad, with very prominent laterobasal angles and more or less straight sides. The apical margin is thin and without tecth; the basal margin is more or less prominently lohulate. There are no basal radii, but ray-like grooves or ehannels often extend upwards, gradually fading, from between the basal lobules. The basal half of the scale las fine transverse circuli, much as in Hemirhanphide, but the apical half is wholly without circuli, thus recalling the young of Hyporhamphus unifasciatus. There are very fine irregular lines due to cracking, as in the Hemirhamphidie.

I have not seen enough material to be sure of the specific eharacters of the Queensiand species, but they are apparently separable thus:-
Scales comparatively large, much broador than long, with about three very abrupt and prominent lobes close together at the middle of the straight basal side .. .. .. .. .. .. Atherina pinguis Lacép. Scales smaller, not so broad, not trilobed in middle of baso .. .. 1 . I. Median basal lobe very prominent .. .. .. .. .. Atherina lacunosa Forster. Median basal lobo low and broad, not prominent .. .. .. Atherina honorioe Ogilby.

Atherina slipes Müller and Trosehel, from Toro Point, Panana Canal Zone (Mcek and IIldebrand, U.S.N.M.), has entirely the same gencric eharacters in the scale. It is practically as in $A$. pinguis, the base trilobed, varying to two or one lobed. Oceasional seales of both species are more or less clearly multilobed; this is especially to be noted in A. pinguis. One scale of $A$. honorice shows
a strongly lobulate or scalloped apical margin, whieh is a regular character of Kirtlantia laciniata and Chirostoma crystallinum.

Atherina scales differ from those of the other Atherinidæ studiednamely, Atherinops, Kirllandia, Chirostoma, and Menidia-in the absence of circuli in the apieal field, and of basal radii.

## MUGILID.E.

Scales of Mugil are semicircular, or rather represent somewhat more than a half-circle, with a straight or nearly straight base. The genus Liza, which I had not hefore seen, differs at onee by the quadrate seales, with straight sides, althongh the apical margin is rounded as in Mugil. The Liza scales before me are light green, perhaps owing to some peeuliar eondition of preservation.

Comparing the scales of Mugil goorgii Ogilby, from Qucensland, with thes. of the American M. curema C.\&V., I find some marked differences, as follows:-
Ctenoid aroa largely developed, interrupting the circuli apicad of the nucleus; basal radii close together, subparallel or converging toward the marg n .. ..
Ctenoid ara prorly developed, at least in some seales, so that many circuli may cross the apical field; basal radii (:even or fewer) diverg ng from the nuclear reg.on, arranged in a fan-like manner .. .. .. .. .. .. M. georgii.
The matter of the ctenoid area is not to be taken very seriously, as M. georgii scales differ greatly: but the difference in the radii appears to be important, and indicates that $M$. goorgii has the more prinitive type of scale.

Mugil trichodon Poey, from IIonduras (C. H. Townsend, U.S.N.AI.), has seales very like those of $\boldsymbol{M}$. ciorema, but with distinct laterolasal angles (these are obtusely lounded in curcma) and the basal radii (except the middle ones) more spreading, hut very irregular and untike those of M. georgii. The laterobasal angles of $M$. georgii are as in M. Irichodom. The M. trichodon seales differ from both the others in having a straiglit median groove running from base to apex, thongh not entering the broad papery apical margin, which is in a sense distinct from the scale proper.

The Lian scales are large, with extremely fine cireuli, and radiating basal radii (5 or 6 ) like those of M. georgii. In the apical field the circuli are broken up into very fine irregular tubercles; in L, splendrns de Vis (at least in the two suales before me) there is no etenoid area at all; but in $L$. waigiensis Quoy and Gaimard the tubereles are seen to directly pass into dentiform ctenoid struchures close to the margin, the teeth so formed being triangular, with a strong modian ridgo representing the original tubercle.

In L. splendens there is a thin papery apical fringe, as in Mugil, but it is crenate-margined, and divided by radial lines, which slightly enter the
substance of the seales. In both speeies there may be a rather irregular transverse radial line, erossing the middle of the seales but not reaehing the extreme sicies. In both, the laterobasal angles are practieally right angles. The dimensions are-L. splendons, length 13 , breadth $111 / 2 \mathrm{~mm}$; L. waigiensis, length 11, breadth 10 mm .

## HOLOCENTRID A.

Holocentrus angustifrons Ogilby, from Queensland, has scales about $51 / 2 \mathrm{~mm}$. long and 8 broad, the apical margin with strong straight teeth; the sides sloping to the very broad base, the laterobasal angles therefore extremely prominent; the straight base with about four lobules, the ends of longitudinal ribs, near the middle. Cireuli very fine, failing apieally; region below the nueleus more or less pustulose. Exeept that the laterobasal eorners project more, these seales agree with those of $H$. diadoma Lacép., from Hawain. The seales of the species of Holocentrus are on the whole very uniform.

## PEMPHERID .

Pempheris multiradiatus Klunzinger. Scales of three sorts; it is noted on the label, "breast scales ctenoid." Seales broader than long, with a diameter of 3 to 4 mm . Normal cycloid scales broadly rounded apieally, with a nearly central nucleus from whieh proeed, in a radiating manner, about five very distinet basal radii; basal margin deeply sealloped; laterobasal angles obtuse; basal half of seale with fine cireuli, but these are absent from the apieal field, which exhibits only growth lines. Lateral line scales are broader, and are without the basal radii and basal scallops; the basal margin is convex in the middle and concave sublaterally. The lateral line eanal has a very broad bilobed appendage. The clenoid breast scalcs are very different from the others, quadrate, with straight sides, but broader than long, the apieal margin with numerous strong straight teeth. The basal radii and seallops are as in the first type of seale described. There is no etenoid pateh; the marginal teeth are exartly like those of Holocentrus.

I have scales of Pempheris (? otaitensis) from the Red Sea, whieh resemble the normal eyeloid type described above, but are considerably broader, with the circuli continuous across the apieal field.

Neopempheris ramsayi Nacleay. Seales apparently all ctenoid, with a very well developed ctenoid pateh. Seales about 3 mm . diameter, somewhat broader than long, subquadiate, nueleus a little above the middle; four or five very strong basal radii or folds, and basal margin very strongly sealloped; eircuii rery fine; etenoid structure consisting of rows of elongate teeth. The apical teeth are much as in Mullus, but their bases are broadened, and the whole ctencid area is eonfused, not beautifully distinet in all its details as in Mullidæ.

There is nothing in the seales of Pempheride to suggest assoeation with the genus Beryx. Pompheris, however, strongly suggests Holocentrus. Pempheris is so different from Noopemphoris as to suggest two distinct subfamilies, Pempherine for the first and Neopempherine for the second. Bathyclupea is separated by Jordan as a family Bathyclupeidx.

## CHEILODACTYLID $工$

Cheilodactylus nigricans Riehardson. Scales subquadrate, broader than long, about 5 mm . long and $51 / 2$ broad; basal radii numerous (about 16 ) ; laterobasal eorners very obtuse; nuclens a little above middle; circuli very fine and dense; a few cireuli crossing above the nucleus, but most of the lateral eireuli eome to an end above, first curving slightly outuards. The scales are not at all etenoid, and the apical field (covered with dark skin) has a pustnlar or perforate strueture, somewhat suggestive of Beryx. C. variogatus, from Pern (P. O. Simons, U.S.N.M.), has similar scales, but larger, with the pustules larger in proportion, and not circular. It is elearly seen, in this species, that they represent broken-np apieal circuli.

## SERRANID 厌.

Epinephelus estuarius Macleay, or E. megachir Rieh. (the first name is on the list sent, but the second on the label of the specimens) has greatly elongatec, parallel-sided seales, about 8 num. long and 4 broad, with only a small apieal portion covered by the black skin. The nuclear area is greatly elongated, extending down the middle of the seale, and consequently the strong basal radii, arranged fanwise, $S$ or 9 in number, begin below the middle of the scale, often far below. The basal margin is erenate. The ctenoid patch is very well developed, and the marginal tecth are broadened at the end, and truneate. These scales differ from those of $\mathcal{F}$. niveatus (Cuv. \& Val.) by the proportionately smaller and truneate teeth, and especially by the elongated nuclear area; but my examples of E. niveatus are probably young. The scales of Epinepheluts elosely resemble those of Paralabrax, but those of the latter are less elongatcd. The scales of Centropristes, Moronc, Roccus, Pcrcichthys, and Plesiops are not clongated.

## LUTIANIDAE.

Lutianus sebæ Bloch. Scales subquadrate, about 12 mm . long and broad; laterobasal comers rounded; abont 20 strong basal rardii ctenoid pateh very distinct, apical tecth pointed, sometimes slightly bifid at end; submarginal elements like short phalanges.

Lutianus jolnii Ploch. Scales ibbout $51 \% \mathrm{~mm}$. long and broad; basal radii 9 or less; ctenoid struetures as in $L$. scbec. These scales are perhaps immature. In general, the two species agree very closely in their scales, and also agree nearly with Neomenis griseus (L.) from Tampa, Florida. The Neomenis,
however, has more, than twice as many basal radii as $L$. johnii, in seales of about the same size. The Ncomanis has minutely beaded basal circuli, and both the species of Lutianus show exactly the same feature.

The soale of Kuhlia rupestris C. \& V. (Kuhhidre), from Mauritius, is extremely like that of Lutianus, except that it has more prominent laterobasal angles, and the submarginal elements of the ctenoid patch are somewhat longer. They are distinguishable, but from the scales alone I should have supposed them to be closely allied members of one family.

## SPARID E.

Pagrosomus auratus Forster. Scales about 19 mm . long and 21 broad; suinquadrate, with convex (bulging) sides, and crenate lower margin; nucleus above the middle; about ! distinct basal rarlii, arzanged fanwise; basal circuli minutely beaded; etenoid pateh large, but the elements mostly ill-defined, those near the margin distinct, and very short, some broader than long; marginal teeth sharply pointed. Sparsely seattered over the ctenoid patch are black dots or minute streaks, which appear under the compound microscope to be little canals with round openings. This last feature strongly suggests the perforations of the same region in Beryx.

Sparus sarba Forskal. Scales reddish, very broad, about $71 / 2 \mathrm{~mm}$. long and $101 / 2$ broad; hasal radii about 14 , widely spreading. Structure as in Pagrosomizs, but shapre different.

Lethrinus harak Forskal. Seales abont $61 / 2 \mathrm{~mm}$. long and broad, thas differing from Pagrosomus in the opposite direction from Sparus. Basal radii about 15. Strueture as in the other genera, with the same scattered perforations in the ctenoid area; but the subapical ctenoid elements are quite different, being elengated, consisting of a stick-like central rib, with a margin of nearly equal width on each side of it.

I find that the seales of Dentex vulgaris, from England, show seattered perforations in the etenoid area, just as in the Australian Sparidx. The ctenoid patch of Dentex has a lioneycomb-like pattern.

## THERAPONIDA.

Therapon jarbua Forskal. Boulenger lists Therapon as a genus of Lutianine. The scales are subquadrate, longer than hroad; length about $27,2 \mathrm{~mm}$. . breadth about 2 ; sides parallel; laterobasal corners rectangular; nucleus above middle; about 9 strong basal radii; lower margin sealloped; basal circuli minutely beaded; lateral circuli rather coarse; ctenoid patch well developed; apical teeth sharp; subapical clements of etenoid patch short; the ridge or keel rumning down the teeth is eontinued on to the elements below, so that the ctenoid area presents a series of radiating ridges.

These scales do not closely resemble those of Lutianus. They are also unlike the scales of the Sparidæ. They do, however, quite closely resemble the scales of Paralabrax.

## KYPHOSIDE.

Kyphosus cinerascens Forskal. Seales subquadrate, broader than long, a large ene about $81 / 2 \mathrm{~mm}$. long and a little over 10 broad; 7 to 9 strong basal radii; hasal uargin scalloped: basal circuli finely beaded; etenoid patch well developed; marginal teeth sharp; submarginal elements of etenoid patch longer than broad. broadened at base. The lowermost part of the skin-covered area shows coarse irregular dendritie markings, consisting of ridges which are directly connected with those of the etenoid patch, leading to the marginal teeth. The scales of Kyphosus sectatrix (L.), from Massachusetts (Menemsha Bight), are sonewhat modified from this type, but the essential generic claracters are quite the same. The thickened perforated band which crosses the middle of the seale of $K$. sectatrix is rather indistinctly indicated in $K$. cinerascons, representing in fast the denser basal part of the dendritic area.

## SILLAGINTDA.

Sillago maculata Quoy and Gaimard. Scales subquadrate, broader than long, about 3 mm . long and 31/2 broad: nucleus subapical; seven or eight very distinct basal radii, spreading fanwise; basal margin searcely at all scalloped; laterobasal eomers rectangular; only about every third of the basal circuli contimed to the sides, the lateral circuli consequently widely spaced; marginal teet $l_{1}$ very sharp; ctenoid patcl a mere narrow band, with only about two distinct clements below the teeth (at the sides one or none), these very short and broad.

These seales suggest those of the Gobiids, which are, however, of a more extreme type. [n Ctenogobius virgatulus (Jordan \& Snyder), from Japan, I find the basal exeuli, many of them, stopping short at the begimning of the lateral field. There is a close resemblance between the seales of Sillago and those of some Scirmida, in which the muclens is far toward the apex. A very good example is found in Henlicirhus saxatilis Bl. \& Schn., from Woods Hole, Massachusetts. Boulenger remarks that the Sillaginidx connect the Serranidæ with the Scixnide. The scales suggest that the affinity is closest with the Sciænidr.

## POMACENTRID E.

Glyphisodon palmeri Ogilby. Seales subquadrate, broader than long, a large one about 8 mm . long and $81 / 2$ broad; about 8 or 9 strong basal radii; basal margin sealloped; circuli extremely fine; ctenoid area well developed;
marginal tecth sharp; below the ctenoid area is a broad region covered with reticulations and dendriform markings, obviously consisting of modified cireuli, and connecting at sides with the lateral circuli. The canal of the lateral line scales has some irregular branches at its apieal end. The submarginal elements of the etenoid patch are much longer than broad.

This scale is in all respects very similar to that of Abudefduf saxatilis (L.), from Sorocco Island, but the Glyphisodon seales can be distinguished by the conspicuously developed reticulated or dendriform area, the marking of this region in the Abudefduf being minute and labyrinthiform. Abudefduf has also broader scales than Glyphisodon, while those of Eupomacentrus leucostictus (Müll. \& Trosch.) are much broader than those of Abudefduf.

## LABRIDAE.

Choerodon venustus de Vis. Scales subquadrate, about 17 mm . long and 15 broad; basal radii very numerous, about 36 , many ending on the lateral margins; basal margin hardly at all scalloped; circuli (lateral and basal) extremely fine : apical margin thin, not ctenoid, with numerous fine longitusinal radij.

Pseudolabrus gymnogenis Günther. Scales similar in form to those of the last, about 16 mm . long and 14 broad; structure also as in the Chorodon, except that the broad nuelear region is covered with irregular reticulations, which are onl. v weakly developed in the Chacrodon.

In Charodon, the very numerous apical radii have the appearance of widely spaced circuli, and with a lens appear to be actually continuous at the sides with the lateral circnli. The compound microseope shows that this is not really the case; and in Pscudolabrus the apical lines are directly continuous into the reticulated patch, which on the other side is continnous with the basal radii. The whole, thercfore, belongs to the radial system.

Eupetrichthys angustipes Ogilby. Scales parallel-sided, longer than broad, but not greatly so; length about 6 mm . ; basal margin convex, not sealloped; basal radii abont 25 , of which about four on each side and on the lateral margin; apical radii well developed, no closer than the basal, and hence very different from those of the other two genera deseribed above. No reticulated discal area. Lateral line canal with numerous stout branches at the apical end, each ending in a perforation of the minutcly spotted skin, and having one or more smaller round perforations in its course. (Compare Günther's figure of the seale of Labrichthys.)

All these seales have the form and structure characteristic of the Labridx. Those of Chrerodon and Pseudolabrus are in general much like those of Iridio bivittatus Bloch, from Key West. Florida, and Tautogolabrus adspersus (Walb.) ;
but Irillo has the apical radii more widely spaced, while Tautogolabrus has them almost entirely obsolete.

The scales of Eupetrichlhys are very like those of Emmeekia venusta (Jenkins \& Evermann), from the Gulf of California.

## GOBIID A.

Hypseleotris compressus Krefft. Scales about $2 \frac{1}{2} \mathrm{~mm}$. long and $3 \frac{1}{3}$ broad, of perfectly typical Gobiid type, with the nucleus subapical, the apical margin (exerpt in latinucleate seales) raised and ronf-like in outline, \&e. The structure is as in the Japanese Ctenogobius virgatulus, but the middle of the apical margin is less clevated. Gobiid scales, wherever they come from, are very characteristic, and very much alike.

## NOTOTHENIID E.

Parapercis cylindrica Bloch. Boulenger places this in the Leptoscopidx; I follow the labelling of the Quecusland Muserm. Scales subquadrate, a little broadened basally; length and breadth about 2 mm .; nucleus not far from apex; basa! radii about ten, strong, spreading; hasal margin weakly scalloped; basal circuli very dense; lateral circuli moch fewer and coarser; apical teeth large and sharp; subapical etenoid clements well defined, broader than long, about feur rows distinct.

It is a singular thing, that the etcnoid features of this scale, including the submarginal clements, exactly agree with those of certain Percidæ, as for example Itudiopterus peltatus, fiom North Carolina. The whole seale is, in fact, very like that of Percidx. On the other hand, the seales of Parapercis are not very unlike those of the Scorpenid genus Sebastodes, from California.

It will be seen from all of the above, that the scales of Southern fishes closely rescmble those of their Northern relatives. On the whole, the present paper serves strongly to confirm the validity of scale characters, showing that family and generie characters hold good over the world.

# EDIBLE FISHES OF QUEENSLAND. 

## Part I.-Family PEMPHERIDe.

By J. Douglas Ogilby (Ichthyologist).

Les Pemphérides Cuvier \& Valenciennes, Mist. Nat. Poiss., vii, 18:1, p. 296. Kurtina part., Günther, Brit. Mus. Catal. Fish., ii, 1860, p. 508.
Kurtidœe part., Günther, Zool. Rec., vii, 1870, p. 91 (name only)* ; Day, Fish. India, pi. 2, 1876, p. 174.

Pempheridoidei Bleeker, Atlas Ichth., ix, 1877, p. 5.
Pempheridse Jordan \& Evermann, Fish. North \& Mid. Amer., pt. 1, 1896, p. 977.

## THE BULLSEYES.

Body strongly compressed, covered with moderate or small scales. Lateral line extending on the caudal fin to the tips of the middle rays, the tubes simple and straight, not extending to the border of the scale. Head almost wholly scaly, with short snout and narrow preorbital, the mucous system well developed. Mouth terminal and little protractile, with wide, very oblique cleft, the premaxillaries forming the entire dentigerons border of the upper jaw ; no supramaxillary. Dentition weak; small tecth always present on the jaws, vomer, and palatincs. Nostrils double, supcrolatcral, contiguous, open, nearer to cye than to tip of snout. Eyes lateral. Bones of head fecbly armed. Dorsal fin single, short, falciform, the spines slender and graduatcd, adnate to one another and to the first and longest ray ; no procumbent spine in front of the dorsal. Caudal morc or less emarginate, with pointed lobes and sealy base. Anal much longer than the dorsal, the spines short, stout, and separate. Pectorals asymmetrical, inserted below the middle of the body. Ventrals thoracic, approximate, pointed, with i 5 rays, inserted below the pectorals. Gill-openings wide, gill-membranes separate, free from the isthmus; pscudobranchiæ present ; gills four, a slit behind the fourth ; gill-rakers spinulose ; pharyngeal boncs separate. Stomach crecal; intestinal canal convoluted. Premaxillary processes short; supraoccipital crest high and delicate ; coracoids much dilated; scapula with a small foramen. Vertebre $24(10+14)$; the caudal rather elongate ; ribs normal, narrow and compressed; the anterior sessile, the last five inserted on woll developed parapophyses. ( $\pi \epsilon \mu \phi \eta{ }^{\prime}$; ; a small fish, now unidentifiable, quoted by Athenæus from Numenius.)

[^18]
## Distribution:-

Small aberrant percomorphous fishes from the tropical and temperate zones of the Indian, Pacific, and West Atlantic Oceans, but not so far reported from the Mediterranean or West African Seas. While mostly inhabitants of the inshore waters, some species descend to a modcrate depth, the greatest yet rccorded being between 40 and 52 fathoms, at which depth specimens of Liopempheris multiradiata were trawled by the Endeavour off Bellinger Head, New South Wales.* This should, therefore, be taken as the limit of the ascertained bathymetrical range of the Pempheridce up to the present time. $\dagger$

The Indo-Pacific branch of the fanily appears to have originated in the Austro-Malayan subregion, whence it has spread northward to China, Japan, and the Caroline Islands; westward through the seas of India to the Red Sea, the East Coast of Africa (Zanzibar), and Mauritius; eastward through the Pacific Islands (Tahiti, Kingsmill, Samca) to the West Coast of Mexico (Acapulco) ; and southward to south-eastern, southern, and south-western Australia, Tasmania, and even New Zealand. Between this southern colony and the Moluceas there is, however, a nominal break of some 3,000 miles, including necessarily the entire coast-line of Queensland, from which, up to the present, no pempherin has been recorded. That this break, which is partly bridged over by the occurrence of an outlying species at Lord Howe Island, is rightly called "nominal" is certain, since two of the Moluccan species-Pempheris oualensis and $P$. vanicolensis-extend their range to the South Sea Islands, and are, therefore, probably found along the seaboard of intertropical. Australia. The third Molucean species- $P$. macrolepidota (Schneider)-also belongs to the typical genus. But, as might be conjectured, the further we get away from the metropolis of the group, the more liable we are to find characters, inconsistent with its original purity, developing in the species. It is not, therefore, astonishing that, of the four species, which inhabit the south-eastern corner of Australia, one only - $P$. compressa (Shaw) $\ddagger$ - retains the typieal characters ; two others $P$. multiradiata Klunzinger and $P$. affinis McCulloch-have developed in themselves distinct characters, on which I propose to establish the genus Liopempheris; the fourth-P. elongatus MeCulloch-belongs to Steindaehner's genus Parapriacanthus.

[^19]The distribution of this genus is most remarkable, as it may be said to have developed ontogenetically along the outposts of the group; first noticed from Japancse seas in 1870, it reappeared during the following year in the Red Sea under the new generic name Pempherichthys; next, after an interval of eighteen years, a third species was described from Lord Howe Island ; and finally, after a further interval of thirteen years, South-Eastern Australia has yielded us yet a fourth species,

The Atlantic group has followed a somewhat similar but much more restricted pine of development. Only three, possibly two, specics are recognised, namelyP. schomburgki Mïller \& Troschel, P. mulleri Poey, and P. poeyi Bean; all are natives of Cuba, which should, therefore, be aceepted as the centre of Atlantie development, from which $P^{P}$, schomburgki has sent out a branch to Barbados, and $P$. mulleri (which is possibly inseprable from the preceding species) another as far as the Coast of Braril. A reference to the key given below will show that the third Atlantie species, $P_{\text {. }}$ pocyi, is excluded from the genera therein recognised by reason of its shortened anal fin, and is apparently developing along the same line as Parapriacanthus; menfortunately neither Bean nor Jordan \& Evermann make any specific mention of the lepidosis of the anal fin, the inference being that it is scaly. If by chance Fowler's Priacanthopsis, which I have been unable to refer to, be founded on this species, I should be inclined to raise it to full generic rank.

The famity, as here constituted, consists of four (or five) genera and twentyone (or twenty-two) species.

Key to the Subfamilies and Genera.
Pempherines:-Lateral line tubes short and wide ; eye large, without adiposo lid; proorbital entire; maxillary greatly hlated distally; pterygoidz and tongue smooth; dor-al premedian : anal low, originating below or behind doreal; branchiostegals seven; gill-rakers numorous and long; air-bladder large, constricted anteriorly ; pylorice ceca well developed; vertebre increasing in length poster orly.
$a^{1}$. Body ovate; preopercle with one to three strong spines at the ande : teeth in the jaws pluriserial ; anal scaly, with more them 30 soft rays. $b^{1}$. Body ecales cysloid and caducous; dorsal rays v 10 to $13 \ldots$ $\imath^{2}$. All tho scales etenoid and persistent; dorsal rays (v or) vi 9 or 10 . . . . . . . . . .
$a^{2}$. Body subovato; proporcle entire; teeth in tho jaws uniserial ; anal naked, with lose than 30 rays ..
Lempobramine:-Lateral line thbes long and maryow; eye small, with woll developod adipost lid; proorbital sorvalate; maxillary spatulate. foebly dilating from the front: pterygode and tongue toothod; doran! postmodian; anal falciform, orignating well in advaneo of the doren ; branchiostegals six; gill-waes:s few and short ; no air-bladder nor pyloric cxca; vertobre of similar longth througlout.
$c^{1}$. Body clliptical ; scales small and ciliated ; lower limb of preoperele irrirulate .. .. .. .. .. .. .. 4. Leptobrama.*

## LEPTOBRAMA Steindachner. $\dagger$

Leptobrama Stsindachner, Sitz. Akad. Wien, Ixxviii, i, 1878, p. 388 (mülleri).
Neopempheris Macleay, Pros. Linn. Soc. N. S. Wales, v, 1880, p. 517 (ramsayi $=$ mülleri).

- Body elliptical. Soales small, persistent, ciliated, rery finely aud concentrically striated, with a brod roughened inframarginal band, arranged in regular series, those of the head, nape, and breast much smaller than the body-seales. Lateral line with a distinct curve anteriorly. Head small and conical, the snout qbtusely pointed, naked; cleft of mouth curved; maxillary slender. Jaws with several series of small reflexed cardiform teeth, which increase in size from without, the inner mandibular series largest; a diamond-shaped patch of small sharp teeth on the head of the vomer; palatines with a band of similar teeth; ectopterygoids, entopterygoids, and tongue, cach with a large ovate patch of still smaller villiform teeth. Eyes anterior. Lower limb of preopercle scrrulato, the angle, produced in a broad membranaceous flap, but without armature ; no opercular spine. Dorsal fin with iv 16 to 18 rays, anal with iii 26 to 30 ; caudal decply emarginate; pectoral short and obtusely pointed, with 17 rays, the second simple, strongly compressed, and laterally expanded : ventrals rather small. Branchiostegals six, three on cach epihyal and ceratohyal+; gill-rakers rather stout; pharyngeal bones armed with strong recurved teeth, except the outcr upper pharyngeal, which is mostly naked, while the teeth of the middle bone are exceptionally strong. ( $\lambda \in \pi \tau$ ús, slender; Brama.)

[^20]$\ddagger$ In Pempheris compressa there are two on the cpihyal and five on the ceratohyal

Small fishes from the seas of Australia and Southern New Guinea, occurring sporadically. Nothing is known as to the habits, breeding, food, and bathymetric distribution of this remarkable fish, whieh, so far as our present knowledge goes, appears to visit our shores only at long and irregular intervals. From its form, dentition, the normal size of the cyes, cte., coupled with the faet that, though captured near the shore, none of the specimens which have fallen into expert hands exhibit any signs of breeding, one might incline to the opinion that these fishes are pelagic, habitually inhabiting the open sca near the surface. The capture, however, by the Bevan expedition of a specimen well up the waterway of the Aird River, British New Guinea, apparently demolishes the pelagic theory, while supporting that of the surface-swimming, since the example in question jumped into the boat of its own accord.

Two species have been described as belonging to the genus Leptobrama, but a more extended aequaintance with these fishes shows that the differences are either individual or sexual, probably the latter.

LEPTOBRAMA MÜLLERI Steindachner.
Leptobrama mülleri Steindachner, Sitzb. Akad. Wien, lxxviii, i, 1878, p. 388 : Coast of Queens. land-id., Denks. Akad. Wien, xli, i, 1879, pl. iii, figs. 1 to lc-Klunzinger, Sitzb. Akad. Wien, lxxx, i, 1879, p. 381.

Ncopemphems Ramsayi Macleay, Proc. Linn. Soc. N. S. Wales, v, 1881, p. 517, pl. xiv: Rockingham Bay, Q.
Neopempheris pectoralis Ramsay \& Ogilby, Proc. Linn. Soc. N. S. Wales, xii, 1887, p. 563 : Aird River, B.N.G.
(Plates XVIII, XIX.)
Depth of body $2 \cdot 85$ to $3 \cdot 3$, length of head $4 \cdot 33$ to $4 \cdot 5$, of caudal fin $3 \cdot 8$ to $4 \cdot 15$, of peetoral 4.95 to $5 \cdot 45$, of ventral $8 \cdot 15$ to $8 \cdot 6$ in length of body. Length of snout 4.5 to $5 \cdot 15$, diameter of eye $3 \cdot 7$ to $4 \cdot 25$, width of interorbit $3 \cdot 75$ to $4 \cdot 55$, length of maxillary 1.5 to 1.7 , longest dorsal ray 1.2 to 1.33 , longest anal 1.25 to 1.35 in length of head.

Ventral contour of body somewhat less to somewhat more arched than the dorsal, which is gently rounded or linear and feebly acclivous between the forehead and the dorsal fin; width of borly 2.95 to 3.6 in its depth, which is greatest immediately in front of the anal fin and $\cdot 33$ to 5 more than the length of the hoad : caudal peduncle $\cdot 3$ to $\cdot 45$ longer than deep, its least depth $3 \cdot 1$ to $: 3 \cdot 25$ in the depth of the body. Width of head 1.85 to 2.05 , depth of head 1.15 to 1.25 in its length. Snout with rounded profile, its length $1 \cdot 1$ to 1.4 in the eye-diameter, the two combined $1 \cdot 15$ to 1.45 in the postorbital portion of the head; interorbital region strongly convex, its width from one tenth more to ore fifth less than the eye-diameter; adipose lid catending well on the snout and the postorbital regicn, but not quite reaching the


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A. R. MeCullsch, del. Leptobrama mülleri Steindachner; す. $\frac{2}{3}$ Nat. Size.
pupil before or behind; anterior nostril ovate, posterior arcuate and much wider. Jaws equal ; maxillary extending far bcyond the eye, the width of its rounded distal extremity $7 \cdot 4$ to 7.75 in its length.

Scalcs 10 to $12 / 75$ to $77 / 12$ or 13 . Axillary scales of pectoral and ventral subcqual, as long as or longer than the snont. Lateral line varying from a rather long and shallow curve, which extends far beyond the tip of the pectoral, to a much shorter and deeper one, which just reaches that point.
D. iv 16 to 18 ; A. iii 26 to 30 . Origin of dorsal fin -15 to $\cdot 25$ nearer to the root of the caudal than to the tip of the snont; spines rather strong and pungent, the last 1.3 to 1.4 in the first ray. Middle caudal rays 1.55 to 1.75 in the upper and slightly longer lobe. Anal fin as high as or slightly lower than and from $\cdot 5$ to $\cdot 66$ longer than the dorsal, originating in advance of the middle of the body. Pectoral with 17 rays, as long as or longer than the head without the snout, the fourth ray longest. Ventral spine long, but weak and flexible, the outer ray longest, 1.85 to 2 in the length of the head and 1.9 to 2.15 in its distance from the anal, which is 1.05 to 1.25 in that from the tip of the mandible.

Gill-rakers 3 or $4+6$ or 7 , with one or two rudiments on cach branch, the longest 1.9 to 2.3 in the eye-diameter and 1.33 to 1.6 in the longest fringes.

Silvery, with the back steel-blue, the line of demarcation woll defined. Fins dusky, the produced portion of the dorsal lobe with or without a black or dark chestnut brown blotch. (Named after Baron Ferdinand von Müller, a celebrated Australian botanist.)

Variation:-So far as our limited series of specimens goes the two forms of this fish, which may be distinguished by the spotted or uniform dorsal fin, vary constantly in the following characters, which will, I bcheve, eventually prove to be sexual. In the spotted form, which I take to be the male, the body is noticeably more slender, the pectoral shorter, the forehcad wider, the lateral line longer and less arched, etc.

Total length : -300 millim.
Range :-Coasts of Australia and Southern Now Guinea, occurring sporadically ${ }^{*}$ The localities from which specimens have been recorded are-Coast of Qucensland (Steindachner) ; Rockingham Bay, Q. (Macleay); Morcton and Kieppel Bays, Q.; Fremantle, W.A. (McCulloch) ; and Aird River, B.N.G., 30 miles above its mouth (Ramsay and Ogilby, fide Bevan).

Described from four specimens (Keppel Bay, onc male, 270 millim., presented by Mr. W. N. Jaggard, and Moreton Bay, three females, 206 to 266 millim., of which no data arc obtainable) in the collcetion of the Qucensland Museum. I had previously examined Macleay's type, and of course that of Neopempheris pectoralis.

Note.-In a letter just received by Dr. Hamlyn-Harris Prof. T. D. A. Cockerell, of the University of Colorado. suggests the advisability of scparating Leptobrama as a subfamily from the other Pempherido. This conclusion was arrived at from an examination of the scalcs of Liopempheris mulitradialus and Leptobrama mülleri. This unexpected confirmation of my previous action is highly gratifying. (See Cuckerell, p 55.)

## LIST OF THE AUSTRALASIAN PEMPHERIDA.*

i. Liopempheris Ogillyy, ut supra, p. 62 (multiradiata).

1. multiradiata Klunzinger, Sitz. Akad. Wien, Ixxx, i, 1879 (1880), p. 381 :

King George's Sound $=$ macrolepis Macleay $1881=$ lineatus Ogilby 1886. Fig.-Waite, Thetis, pl. x. South-Eastern Australia from Bellingen Heads, N. S. Wales, to off Kingston, S.A. $\dagger$
2. Affinis McCulloch, Zool. Res. Endeavour, pt. 1, 1911, p. 45, pl. vii, fig. 1 : Port Jackson to Newcastle.
ii. Pentrieris Cuvier \& Valenciennes, Hist. Nat. Poiss., vii, 1831, p. 296 (oualensis) = Priacanthopsis Fowler, 1906 (?) = Catalufa Snyder 1911.
3. compressa Shaw, in White, Voy. N. S. Wales, 1790 , p. 267, pl.- fig. Port Jackson. Metropolitan District of New South Wales. $\dagger$
4. klunzingert McCulloch, ibid., p. 47 : King George's Sound $=$ mülleri Klunzinger (not Poey 1860).
5. macrolepidota Schueider, in Bloch, Syst. Ichth., 1801, p. 164. (\%)= mangula Cuvier \& Valenciennes $1831=$ moluca idd. $=$ malabarica idd. Fig.-Bleeker, Atlas Ichth., pl. ccclxxxiii, fig. 2. Moluccas to India, China, and Japan; Red Sea and Zanzibar. $\ddagger$
6. oualensis Cuvier \& Valenciennes, ibid., p. 299 : Ualan $=$ otaitensis idd. $=$ adusta Bleeker $=$ mangula Günther 1874 (not Cuvicr \& Valenciennes). Fig.Bleeker, ibid., figs. 1, 4, \& 5; Günther, Godeffroy Mus., pl. lix, fig. B. Moluccas to Malaysia, Carolines, New Guinea, and the South Sca Islands (Tahiti, Samoa, Kingsmill, etc.).
7. vanicolensis Cuvier \& Valenciennes, ibid., p. 305 : Vanicolo $=$ nesogallica idd. Fig.-Bleeker, ibid., fig. 6. Moluccas to Vanicolo, Samoa, and Mauritius.

[^21]8. analis Waite, Trans. N. Z. Inst., xlii, 1910, p. 375: Kermadec Islands.
iii. Parapriacanthus Steindachner, Sitz. Akad. Wien, xli, 1870, p. 623 (ransonneti $)=$ Pempherichthys Klunzinger 1871.
9. unwini Ogilby, Mem. Austr. Mus., ii, 1889, p. 60, pl. iii, fig. 1 : Lord Howe Island.
10. elongatus McCulloch, ibid., p. 47, pl. iv, fig. 1 : Flinders' Island, Bass Strait, to Wilson's Promontory, Vic.
iv. Leptobrama Steindachner, ibid., lxxviii, i, 1878, p. 388 (mulleri) $=$ Neopempheris Macleay 1881.
11. müllert Steindachner, ibid., pl. iii, fig. $1:=$ ramsayi Macleay $1881:=$ pectoralis

Ramsay and Ogilby 1887. Coasts of Australia.
Note.-In my article on Polynemus specularis de Vis* I wrote re Polynemus multiradiatus Günther-"I do not know what Klunzinger's fish of the same name may be." I am quite satisfied now that this sentence was penned through my mentally confusing Günther's species with Pempheris multiradiata Klunzinger.

## Part II.-THE GADOPSEIFORM PERCOIDS.

(Plate XX.)
In Mr. Tate Regan's masterly paper on the "Classification of the Percoid Fishes, " $\dagger$ he diagnoses the gadopseiform percoids as follows:-

## DIvision GADOPSEIFORMES.

"Gadopsis scarcely differs from the Perciformes in osteology, but there is no mesopterygoid and there are 2 radials on the hypercoracoid and 2 on the hypocoracoid. The pelvic fins are jugular, each reduced to a small spine and a bifid ray. Against Blennioid relationships are the intervention of the prootic between the parasplenoid and the alisphenoid, the 3 anal spines, the dorsal and anal rays more numerous than the corresponding myotomes. Vertebræ $21+26$; ribs, except the first 2 or 3 , on strong parapophyses."

The position here allotted to Gadopsis is much more satisfactory than that assigned to it by previous authors.

## Family GADOPSEID再.

Blenniiclo part. Richardson, Zool. Erebus \& Terror, ii, 1848, Ichth., p. 122.
Gadopsidce Günther, Brit. Mus. Catal. Fish., iv, 1862, p. 318.
Body elongate-elliptical to elongate, more or less compressed, covered with minute, adherent, concentrically striated, cycloid scales. Lateral line continuous,

[^22]not extending on the caudal fin, the tubes long and simple. Head almost whollys sealy, with rather long, obtusely pointed snout, the mucous system well developed. Month terminal, with moderate oblique eluft, the upper jaw projecting; premaxillaries forming the entire dentigerous border of the upper jaw, the maxillaries. exposed and dilated distally. Jaws with a pluriserial band of small eardiform teeth, the onter series much enlarged, widely set, and conical; a pateh of small teeth on the head of the vomer, and a band of even smaller ones on the palatines; pterygoids and tongue smooth. Two moderate, widely separated nostrils on each side, the anterior tubular. Eyes small, anteromedian, lateral. Opercle with a small, flat spine. Vertieal fins naked, with the posterior rays increasingly crowded. One long dorsal fin, with viii to xiii 28 to 25 rays, the spinons portion much shorter than the soft, the spines short and weak, graduated. Caudal free and roonded. Anal similar to the dorsal, with iii 17 to 19 rays. Pectoral small, symmetrical, with 16 or 17 rays, the middle longest, inserted below the middle of the body. Ventral jugular, composed of a small spine and a single bifid ray. Gill-openings wide; gill-membranes separate, free from the istlmus; branehiostegals six; pseudobranchiae present, glandular; gills four, a narrow slit behind the fourth; gill-rakers in small number, short, stout, and spinulose; pharyngeal bones separate, armed with well developed eardiform teeth; air-bladder present, simple. Stomach caecal ; pyloric appendages in moderate number ; intestinal canal straight. Premaxillary processes short; supraoceipital erest vestigial; eoraeoid dilated; seapula without foramen; pectoral areh attached to the skull by a simple posttemporal.

An aberrant monotypic family of pereoid fishes, holding an isolated position, and inhabiting the fresh waters of Northern Tasmania and SonthEastern Anstralia; it has not as yet been reeorded west of the Torrens River, South Australia. but is ineluded by Zietz* among the edible fishes of the Lower Murray, up whieh and its tributaries it ascends, even to its remote head waters in the Queensland Ranges, where it is now firmly established; here its general appearance and slippery nature have given rise to the persistent belief in the presence of an eel in our transmontane waters.

GADOPSIS Riehardson.
Gadopsis Richardson, Zool. Erehus \& Terror, ii, 1848, Ichth., p. 122; no description (marmorala) ; Günther, Brit, Mus. Catal. Fish., if, 1562, p. 318; MeCoy, Prodr. Zool. Vic., dec. iii, 1879, p. 39; Ogilby, Fidib. Fish. \& Crust. N. S. Wales, 1893, p. 149
 from a superficial likeness to that fish.)

The gemus farlopsis has had a somewhat varied experience as to its position in the system. Its original author eonsidered it "to belong to the Blennioid family." From thence it was removed by Günther, who placed it at the head of

[^23]his "Anacanturi Gadoidef," defining its positiou in the following words"Before entering into an account of the truc Gadoid fishes, we must intercalate the type of a separate family, which, although having every charaeter of a Gadoid, has true spines in the dorsal and anal fins, thus forming a eonneeting link between the Acanthopterygians and the Malacopterygians. The structure of the dorsal fin, the presence of pylorie appendages, ete., prevent its being placed among the Blennoids." Four years later Steindaehncr* reasserted its affinity with the blennies, and was subsequently supported by Gill, whot placed the family Gadopsida between the Ccpolide and Clinida. Günther, however, adhered to his original opinion, since we find him in 1880* retaining Gadopsis among the Anacanthini. Coming to more recent times Boulenger§ and Goodrich\| both refer it to the Blenniidce, not even allowing it family rank. The latest announcement on the subjeet by Regan I have already reproduced.

## GADOPSIS MARMORATA Richardson.

Gadopsis marmoratus Richardson, Zool. Erebus \& Terror, ii, 1848, Tchth., 1. 122, pl. 1ix, figs. 6 to 11: Rivers in the sonthern parts of Australia f-Günther, Brit. Nus. Catal. Fish., iv, 1862, p. 318-Stcindachner, Sitzb. Akad. Wien, liii, i, 18G6, p. 457 -Klunzinger, Arch. f. Nat., 1872, i, p. 38-Castelnau, Proc. Zool. \& Acel. Soc. Vic., i, 1872, p. 160-id., Essay Edib. Fish. Vic., 1873, p. 14-Klunzinger, Sitzb. Akad. Wien, lxxx, i, 1879, p. 393Rep. Roy. Comm. Fisher. N. S. Wales, 1880, p. 89-Macleay, Proc. Linu. Soc. N. S. Wales, vi, 1881, p. 112-Johnston, Proc. Roy. Soe Tas., 1881 (1882), pp. 60 \& 124-Woods, Fish \& Fisher, N. S. Wales, 1892, p. 105-Ogillyy, Catal. Fish. N. S. Wales, 1886, p. $37-$ Lucas, Proc. Roy. Soc. Vic. (n.s.) ii, 1890, p. 33 -Johnston, ibid., 1890 (1891), pp. 26 \& 3.5 Ogilby, Edib. Fish. \& Crust. N. S. Wales, 1893, p. 149 -Kent, Naturalist in Anstr., 1897, p. 156-Zietz, Trans. Roy. Soc. S. Austr., xxvi, 1902, p. 267-Taite, Synops. Fish. N. S. Wales, 1904, p. 53-Stead, Fish. Austr., 1906, p. 210, text-fig. 74-id., Edib. Fish. N. S. Wales, 1908, p. 116, pl. lxxx-McCulloch, Proc. Linn. Soc. N. S. Wales, xxxvi, 1911, p. 82.

Gadopsis gracilis McCoy, Prodr. Zool. Vic., dec. iii, 1879, p. 39, pl. xxvii, fig. 2: Yarra River, Vic.
Gadopsis gibbosus McCoy, ibid., p. 41.
Gadopsis fuscus Steindachver, Sitzb. Akad. Wien, Ixxxviii, i, 1884, p. 1105, pl. i, fig. 2: Fresh-waters of South Australia.
Gadopsis sp. Macleay, Proc. Linn. Soc. N. S. Wales, x, 1885, p. 267: Little River at Xass, N.S. W.

[^24]
## THE SLIPPERY.

Blackfish; Fresil-water Blackfish; River Blackfish; Talor or Taller (at Guntawang, N.S.W.) ; Marbled River Cod.

> (Plate XX.)

Depth of body $4 \cdot 5$ to $5 \cdot 4$, length of head $3 \cdot 6$ to $4 \cdot 1$, of caudal fin $4 \cdot 8$ to $5 \cdot 9$, of pectoral $5 \cdot 85$ to $7 \cdot 55$, of ventral $6 \cdot 25$ to 7.8 in length of body. Length of snout $3 \cdot 1$ to $3 \cdot 6$, diameter of eye $4 \cdot 8$ to $6 \cdot 55$, width of interorbit $3 \cdot 9$ to 5 , length of maxillary 2.15 to $2 \cdot 6$, of mandible 1.75 to $2 \cdot 15$, height of soft dorsal 1.75 to $2 \cdot 35$, of anal 2 to $2 \cdot 65$ in length of head.

Body tapering gracefully from the shoulders baekward, its width 1.4 to 1.6 in its depth, which is 1.15 to 1.45 in the length of the head: caudal peduncle slender, its least depth, whieh is immediately behind the dorsal fin, 1.35 to 1.6 in its length and 2.45 to 2.9 in the depth of the body. Head deeper than wide, its upper profile more or less gibbous behind the frontal region, its width at the eheeks, which are somewhat swollen, 1.7 to 2 in its length, which is 1 to 1.3 in that of the trunk. Anterior profile of snont strongly convex, the upper linear or feebly convex and continuous with the froutal region. Diameter of eye 1.5 to 1.9 in the length of the snout, 1.1 to 1.4 in that of the convex interorbital width, and $2 \cdot 6$ to $3 \cdot 3$ in the postorbital length of the head. Maxillary extending to below or a little behind the pupil, the width of its distal expansion 1.4 to 1.8 in the tye-diameter.

Lateral line following the contour of the back, and consisting of from 45 to 50 tubes, eaeh of which corresponds to from 2 to 3 series of body-scales. Mincous system of head reaehing the surface by means of large open pores, of which there are two principal series; an inner from the snout along the edges of the preorbital and suborbital bones, finally eurving upwards behind the eye; and an onter along the mandibles and the border of the preoperele; in addition to these there are a conspicuous pair arranged transversely between each pair of nostrils, and a third pair arranged longitudinally along the middle of the interorbital region.
D. viii to $\times 28$ to 26 ; A. iii 17 to 19 ; P. 17. Dorsal fin originating above the middle of the appressed pectoral, the last spine longest, $1 \cdot 1$ to $1 \cdot 45$ in the length of the snout and 1.6 to $2 \cdot 35$ in the longest ray, which is near the end of the fin and does not reach to the caudal when depressed." Anal originating below the fifth or sixth dorsal ray, and not extending so far back as that fin; spines graduated like those of the dorsal, but much stronger and pungent, the last as long as or a little longer than that of the dorsal and 1.5 to 2 in

[^25]

NATICHALMUSEUM MELBOLFAE
the longest ray. Length of pectoral 1.55 to 1.9 in that of the head. Inner branch of ventral ray the longer, $2 \cdot 3$ to $3 \cdot 1$ in the space between its origin and the vent.

Gill-rakers 2 or $3+5$, the longest 2.5 to 2.7 in the eye-diameter. Vent postmedian, its distance from the root of the caudal 1.15 to 1.4 in that to the tip of the snout.

Pale olive-green, the back and sides more or less conspicuously marbled with dark olive- or chocolate-brown, the marking often taking the form of more or less regular vertieal bars between the dorsal fin and the lateral line; abdominal region light yellowish green finely powdered with darker. Upper surface of liead beyond the occiput dull blue, the chceks similarly but more lightly tinted. Basal half of vertical fins greenish yellow, shading to a dull blue-gray on the outer moiety; dorsal fin with a basal series of brown blotehes, which are much more pronounced on the soft rays, where also there is sometimes an inconspicuous series of median blotelies: candal uniform in the adult, but with a broad terminal and median darker transverse band in the young, the pectorals and ventrals immaculate, the latter yellowish (marmoratus, marbled).

Described from 10 examples, measuring from 110 to 235 millim., in the Statc Museum ; four of these belong to the old collection and are in fair condition; they were, I believe, obtained in the Condamine at Killarney by Mr. J. Lamb. The remaining 6 are in perfect condition, and were forwarded lately from the same loeality by Mr. J. H. Stevens, Chief Inspector of Fisheries.

Vornacular Names:-Considering its present wide distribution the species is not over-burdened with local names. In the Southern States (Tasmania and the coastal belt of Vietoria) it is commonly known as the "Blackfish," a name which is inadmissible as it more properly belongs to the kyphosid genus Girella. To obviate this Stead proposed the addition of the word "River," and describes and figures it as the "River Blackfish." This, though an improvement, is too pronounced a misnomer to ever become popular. Similarly the title, proposed by me in 1893, of "Marbled Cod" must be discarded, since the fish has nothing to do with the gadoid anacanthines. Speaking of New South Wales Stead (in lit.) says:-"This speeies is known under a variety of names in different portions of its New Soutl Wales habitat. Rarely is it called 'River Blackfisl.' The name of 'Slippery' is applied to it commonly in the vicinity of Orange and thereabouts, and occasionally in other parts, including the Upper Snowy River. That of 'Tailer' is very widely used, more than any other name, for the speeies, though why, I never could ascertain. In the Maequarie and its feeders-especially the Cudgegong-where I have found Gadopsis marmoratus to be especially abundant, the name of 'Tailer' is very firmly established. I have found the name of 'Gudgeon' applied to the fish in some places; and on some of the Upper Murrumbidgee feeders it has been described as a 'Cod." " In Queensland, according to

Messrs. Stevens and Colclough it goes by the name of "Nikkie Long Cod," usually abbreviated to "Nikkie," in the Warwick District. I luave been unable to ascertain any aboriginal name for the fish. From these I have selceted "Slippery" as the most suitable and certainly the most expressive title, for the fish is very difficult to handle, being covered with a thick slime, whieh, according: to Mr. Stcvens, is very difficult to remove from the hands, and has a peculiar and disagreeable odor.

Wariation:- With regard to the comparative length of the head and body, on which McCoy overlooking the faet that Richardson's description was drawn up from a dried skin and is, for that reason, liable to inaccuracy-lays so much stress, a comparison of my specimens with the tables given by McCoy and Johnston (1) shows that both the Victorian and Tasmanian examples, referred to therein, overlap those of Qucensland at each cad, as may be scen by the following:-


If there be anyone who still lolds the opinion that more than one species of $\tilde{G} a d o p s i s$ exists, the above table should, I think, convince him to the contrary. The other character, on which MeCoy places some reliance, namcly, the number of dorsal spines, is, when examined, found to be equally fallible. Richardson computed them at 10, Guinther at 10 or 11, Castchau at 12, MeCoy at 10 to 12 (gibbosus and gracilis), Stemdachncr at 10 (fuscus), Ogilby (2) at 10 to 13. Qucensland specimens, therefore, show the minimum variation as yet ascertained, i.e., 8 (2) 9 (1) 10 ( $\overline{1}$ ). The western form of Gadopsis las apparently a more slender body and fewer dorsal spines than its south-easteru prototype, but there is no difference between it and specimens obtained in the lotrer reaches of the Murray. Nor must we forget that the fishes, which have been recorded from the Murrumbidgee (Macleay), Bell (Ogilby), Macquarie and Namoi (McCulloch), Tumut, Grrydir, and other watersheds (Stead), and now from the Condamine, are primarily deseended from the Snowy River stock by way of the Upper Murmmbidgee. These colonists have ever instinctively chosen those affuents which have their source in the higher table-lands, and which, owing to the different conditions of life, of food, and of enviromment, have increasingly altered in external appearance the further they lave drawn away from their parent base. After taking into consideration all the varying conditions under which they live, and analyzing all the available literature on the subject, I cannot see any reason to altcr my opinion, expressed twenty years ago, that-" This
species is so variable, not only in its coloration, but also in its comparative measurements and the number of spines and rays in the dorsal fin, that we eonsider the differenees between the typieal form and the two speeies deseribed by MeCoy, great as they may appear individually, to be only such as might be expected to oecur in a fresh-water speeies of wide range, and which exists under such varying eonditions of life and diversities of chimate." These differences are aecentuated by the diseovery of the Quepmsland form, but the main issne is in no ways affeeted thereby. Years ago Johnston came to the same conclusions as are here set out from a "elose study of the variability of the Tasmanian $G$. marmoratus." He coneludes his remarks with the following pertinent sentenee, with which I eordially agree-"It is very hazardous in this genus to ereate a new species based upon the examination of only two or three individuals." So far as fresh-water fishes at least are concerned he might well have omitted "in this genus." In reference to this subjeet Mr. David G. Stead, Superintendent of Fishery Investigation, New South Wales, kindly forwards the following note:"I find a very great amount of variation in both form and color in this speeies. As in a number of our other fluviatile fishes, the form is generally more elongate in those examples taken from the more rapid streams, than in those from sluggish ones; and particularly is the differenee to be noted between the Gadopsis of a still lagoon and that of a neighboring stream-the former being eomparatively stout and short. The difference is so marked at times, that the specialist might well be pardoned for eonsidering such fishes as specifically distinet, if they were just plared upon his table withont any information as to the places whenee they eame. In eolor the variation usually ranges from a light brown to a dark greenish brown-with the nsual marblings. (The latter may be of a large, or yet quite a small, pattern.) Where the fish is taken from very dark muddy bottoms or very turbid streams it is usually of a dirty blaekish color with but little traee of the marmorations."

Historical:-Described originally by Richardson from an modetermined river in Southern Australia, Günther next enlarged its range by the inclusion of Tasmania, while Steindaclmer, four years later, by obtaining examples from the Murray River, definitely established an Austratian locality for the spepies. The first writer in Australia to publish an aceount of this fish was Castelnau, who in 1872 recorded it as being "found in almost all the streams of South-Eastern Australia." Under the names gibbosus and gracitis MeCoy, some years later, strove to detach from the parent speeies two Vietorian forms, the latter a slender and generally handsome fish from the Yarra, the former stouter, shorter, and duller in color from the Bunyip River, Gippsland. Recent writers, however, consider that the eharacters on which these speeies are based are of too trivial a nature to admit of their speeifie separation. Mapleay (1881) adds nothing to our knowledge of the species, but Johnston in the suceceding year makes some interesting remarks on the subjeet of its distribution in Tasmania, which are
worth requoting here. He writes:--" It is most singular that this species,* with the Blackfish (Gadopsis marmoratus) should be identieal with species found abundantly in Vietorian Rivers, and wholly absent in all the southerm waters of Tasmania. The Lnio (U.moretonicus), and the Freshwater Lobster (Astacopsis F'ranlilinii), are also restrieted to the rivers which discharge their waters into Bass's Straits. The peculiar inhabitants of northern rivers, therefore, are more Yictorian than South Tasmanian in character, whieh is remarkable when we consider the present insubar character of Tasmania." $\dagger$ And again-" The Blacktish, whose singular distribution has been eommented upon, is found in nearly all the rivers of Tasmania which flow into Bass's straits. Their original absence in some northern streams, suth as the South Esk, is somewhat puzzling, but the total absenee from all the other rivers and streams of Tasmania where the eonditions are identical can only be explained on the principles of geographieal distribution as illustrated by Darwin and Wallace." In 1893 the author took exeeption to the last sentence in the following words, with whieh he sees no reason now to differ:- "With the latter part of this quotation we ean not agree, and we think the solution of the 'puzzle' will be found in the different charaeter of the geological formations through which the streams flow, or the different eomposition of the water constituting sueh streams." As somewhat confirming this view Johnston's l'emark, that in the North Esk they fail to attain to the size found eommonly in the other streams of Northern Tasmania, tells against him, for it seems probable that the conditions of life in that stream had a deleterious effect on the fish, whieh in its sonthern namesake had beeome so aeeentuated as to preelude its very existence in a natural state. Tenison Woods is, I believe, the earliest writer to extend its range to the western waters of New South Wales, alluding to it as "a very common fish in some of our rivers both of eastern and western waters'" ; but this is merely a general assertion, no loeality being mentioned. and must, therefore, be taken for what it is worth.t. Maeleay, however, in 1885 definitely fixed a western habitat by placing on reeord his aequisition of a speeimen from the Little River, a tributary of the Murrumbidgee near Yass. In the previons year Steindaehner made another attempt to differentiate from G. marmoratus the dull-eolored form, peeuliar to lagunes and bayous,

[^26]as $G$. fuscus, but the effort was as futile as those previously made by McCoy. In 1893 , the writer reviewed all that was then known of the habits and distribution of the fish, extending among other things its northerly range in transmontane New South Wales to the Bell River at Wellington. No further addition to our knowledge transpired until Zietz reeorded its presence in the Onkaparinga and Torrens Rivers, South Australia, thus inereasing its range to some distanee west of the Murray. Stead (1908) gives its New South Wales distribution as "the upland streams of the southern tableland," while the Australian Museum, as reeorded by McCulloch, has received examples "from Manilla on the Namoi River, and Rylestone on a tributary of the Macquarie." At my request Stead has furnished me with the following more detailed information as to its distribution in the western waters of the "Mother Colony":-" Gadopsis marmoratus appears to be distributed over the greater portion of the Murray Drainage area. My personal expericnee in the Highlands of New South Wales shows that it oeeurs in the Yarrangobilly River, Jounama Creek, Goobarragandra River, Adjungbilly Creek, and other feeders of the Tumut River, the Tumut itself, the Uppor Murrumbidgee, the Upper Snowy and its feeders (said to have been introduced to the Craigie River from Victoria in 1883, and sent in to me for identifieation as a speeies of Trout in 1908) ; Fish River, Bell River. Cudgegong River, and other feeders of the Maequarie, as well as the upper waters of the Maequarie itself, and the Rocky River (a tributary of the Gwydir) at Uralla. In the plain eountry my experience of this fish shows it to be common in many places, partienlarly where the streams are sluggish, and in billabong or 'Warrumbool' country, including the middle Murray, the Kyalite or Edward's River, the Murrumbidgee as far as May, Yanco Creek, the Laehlan,* the Macquaric, the Namoi, and the Barwon. It seems to be more abundant in the Maequaric River and its feeders than anywhere else in its New South Wales habitat." The first announcement of its occurrenee in Qucensland waters was made by xne in the Brisbane "Observer" of June 26, 1909. There I recorded that "Mr. Mat. Colclough, who has always shown a keen interest in piscatorial matters, has reeently forwarded to me two fishes eaught in the Condamine River in the vicinity of Warwick." Of these I reported to Mr. Colelough that one was a young example of the common Golden Perch (Plectroplites ambiguus), while "the other is a much more interesting fish, being a unique and geographieally most important addition to the fauna of Queensland, namely the Fresliwater Blaekfish (Gadopsis marmoratus)." After giving some account of its distribution and uses I wrote - "Previous to this record I never heard of its existence north of Deniliquin, so that you have a right to plume yourself on having added so many hundreds of miles to the geographical distribution of this extraordinary fish, whieh stands absolutely alone in the scheme of Nature, forming a monotypic family, without a near relative either in recent or palæozoic times."

[^27]Reproduction:- The breeding habits of this enrious fish have not been studied with the attention which they deserve; nevertheless, our present knowledge is greatly in adyance of that when Johnston, who first alludes to the subject, wrote that, though he and others had opened hundreds of specimens, he was unable to distinguish the male from the female, and so suggests that the fishes are bisexmal. The earliest precise information, which we possess, is contained in the following short paragraph, taken from my work above mentioned:"Specimens from the Bell River, Wellington, were shedding their spawn when obtained during the month of October. The ripe ova are few in number, of large size. and orange colored." Up to now that was the extent of our published information on this most important subject, but Messrs. Stead and Colclough both contribute useful additions to our knowledge. The former states (iu lit.) : "Spawning takes place usually about Oetober and November, thongh oceasional females may be taken with ripe eggs throughout the whole of the warmer weather. The eggs are demersal and adhesive. The ripe ova vary in colour from a light grey to a golden tint, but are usually of a pale straw-color." The latter writes me:-"In respect of its spawning; towards the end of the winter a peculiar grass appears in the bed of the stream, which grass is mueh frequented by the fish at this time when it is full of spawn. I believe that the roe is denosited for protection among this weed, but whether the ova adhere, either singly or in masses, to the grass, or to stones, or whether the fish makes a nest of some sort among the grasses, I lave so far failed to satisfy myself. I am, however, fully satisfied that the worst enemy, against which hoth the ova and fry have to contend, is the fresll-water shrimp," which at this season feeds largely upon them." With the additional information imparted to us above by Stead, we may safely conchide that the ova adhere to the stems of the grass referred to by Mr. Colclough.

Mabits:-As with the Trout the most fruitful cause of variation in the Slippery is its catholicity of habitat, for it is not only a denizen of still lagunes and slnggish streans. but ean also hold its own in the more rapid flowing ereeks and rivulets, thongh it is in the former that they attain their greatest development. Regarding their mode of life the elder Anstralian authors have given us but seanty information. The Report of the Royal Commission on the Fisheries of New South Wales (1880, p. 89) tells us that "it is a mud-fish, and is seldom caught except by the emptying or drying-up of a waterhole." This statement, which is but partially true, has mfortunatcly been copied over and over again, and gives a very restricted view of the habits of the fish and its adaptability to incongruous conditions and varying environment. Johnston remarks that it is "usually taken in considerable numbers by rod and line all the year round, the liook baited often with the large white grub" of a species of moth obtained from

[^28]the wattle (Acacia dcalbata) and honcysuckle (Bankisia marginata). Stead, who has made better use of his opportunities than others who were in a better iosition for observing these fishes, writes-"Gadopsis marmoratus is a bottom. fish, lurking usually iu quiet snaggy pouls-particularly in phaces where there is an eddy-or in backwaters and billabongs. Here it finds worms and aquatie insects prineipally. Nothing, however, of an animal nature comes amiss (as the stomach contents reveal), from small fishes-incheding their own kind-down to 'still life' like the river Mollusca. In the momntainons parts of its habitat, it is found commonly in the pools and but rarely in the rapid ruming portions of the streams. The most seductive bait, used by anglers in pursuit of this speeies, is the eommon earthworm. This is attanhed alive to a small hook. The best anglers use a light line and light jointed rod. Under such eiremmstances a little sport may be got out of the capture of the fish; but usually 'any old line' and 'any old rod' is used-the latter is firequently a bamboo, but is often made from a light thin sapling-'light' as a sapling, be it said, but hardly as a fishing-rod." We have also received a most interesting letter, eoneeming its Tasmanian habits, uses, and distribution, from Mr. C. II. Marrison, IIon. Sec. Northern Tasmanian Fisheries Association, whieh we have much pleasure in quoting in cxtenso. In answer to questions as to its value as a game and food fish, its size, and its relations with the introdued Trout, he writes as follows:-"The Blackfish is a good food fish, but its game or sporting qualities are practieally nil. It feeds mostly at night, and so is not much eaught during the day. The hour about dusk is very farorable for taking it. The method is to hait with worm, or better still white grab obtained from trees, notably the wattle, and fish with a float. Yon give the fish time to get well hold, and then yank it straight out; that is, miless it is of large size, when a landing net is best employed. It attains a considerable size; in this country specimens up to 7 lb . have been farly plentiful in years gone by, while speeimens of 12 lb . have been taken. Even with the large fishes no fight has been put up, but some fine eatehes have been made. I nay meution three rods taking $2 t$ dozen in a night, and another three rods taking 63 , weighing from $11 / 2$ to 6 lb . apicee, the smaller ones having been all returned. A curious thing was that the 24 dozen just mentioned were all full of roe, not one earrying milt. The Blackfish spawns in the spring or early summer, but their exact breeding habits have not, to my knowledge, been investigated here. The species originates in this State only in the rivers flowing direetly into Bass Strait. It has, however, been transplanted into other streams and has done well. About fifteen years ago a mortality broke out amongst them, and they appeared to die almost out in some rivers, but a revival has taken place and they are again increasinc rapidly. Tany years amo about 500 were taken south and trimed into the Derwent, about the best-stocked tront stream in the Island at the time. Everyone loughed and said they would only make food for the Trout. In a few years. however. they began to show up in the tributary streams, and have sine incerased to such an extent that they are now plentiful.
and trout-fishers using a grasshopper in the ripples of a summer's night have caught a trout at one cast and a blackfish at the next. In point of fact our Commissioners of Fisheries at one time received a complaint that Blackfish were so plentiful in the Derwent that they interfered with the trout fishing. Of course trout prey on them to a eertain extent, but the Blackfish appears to liave evolved a fresh sense, and now takes pretty good eare of itself. On the other hand I have known a large Blaekfish caught with a trout in its inside, so that the dietary question is not all one-sided." Referring to Queensland Mr. J. Hirst Stevens, State Inspector of Fisheries, while recently up country as a member of a Royal Commission engaged in reporting upon the condition of our fishery industries, interested himself in making inquiries abont this species, and has supplied me with the following note:- 'T These little fishes frequent especially the smaller waterholes and pools along the banks of the Condamine, where they find eomparative safety from the voracity of the Cod (Oligorus macquarionsis). As they usually go in small selools of from two to five dozen and take a bait greedily, the angler, provided with light tackle and a box of earthworms or small grubs, would usually have no difficulty in eatching as many as lie desires of from 5 to 8 inches in length." Nr. Colclonglı tells me that-" it is eommon everywhere about the Warwick District, but rarely attains a weight of over four ounces; it is not, therefore, serionsly regarded as a food or game fish, except by youthful anglers, to whom it appeals by reason of its abundanee. and the faeility with whieh it may be captured by almost any lure, for it is a bold and voracions feeder. The most satisfactory baits in use here are the white grubs which are obtainable from the willow tree and the moth into which it eventually turns; the latter when hooked and allowed to flap about on the surfaee of the water is an almost irresistible attraction. Mole-crickets (Curtilla spp.), small grasshoppers, cicadas (Psaltoda harrisi**), beetles and other insects, with the ubiquitous worm, may also be successfully employed."

Uses:-The consensus of opinion as to the economic ralne of the Slippery varies, but is generally favonrable from the epieure's and damnatory from the angler's viewpoint. Speaking of Victoria Castelnat calls it "a good edible fish" and MeCoy "an excellent fish for the table." Johnston bears testimony to the value of the Tasmanian fish as follors:-" It is much esteemed as food, and is a welcome fare to the bushmen and settlers who are far removed from the eentres of population." Stead writes-"In country parts (of New South Wales) this species is looked upon as being of eonsiderable value as an edible fislı; and as a sporting fish, it is of no mean order, taking the bait readily and showing fight." This is satisfactory, in that presumably the mainland fish is not so arrant a cur as Mr. Harrison's letter makes out his island cousin to be.

[^29]Range:-Fresh waters of Tasmania and Victoria, indigene only to those streams which flow into Bass Strait; it has, however, been successfully introduced in several other Tasmanian rivers, where it is now firmly established. From Eastern Vietoria it has spread westward to the Hurray and, possibly in more recent times, to the Onkaparinga and Torrens Rivers, the latter being, so far as is known, its present westerly limit. Its colonization of the castern watersheds of the Murray and Darling drainage areas has been eomplete and suceessfui, since Stead's graphie description of its distribution iu the Nother State leaves no romen for doubt that it has established itself in all the rivers fowing westward, being, as he puts it, "equally common in lagunes at such widely separated places as the vieinity of Albury on the Murray River and Walgett, at the junction of the Namoi and Barwon Rivers." Beyond this it has pressed ever onward so as to include all that portion of Queensland drained by the Condamine, laving made its way up that river to its head-waters in the Ranges about Warwiek and Killarney. That it has failed to obtain a foothold in any of the New South Wales rivers east of the Dividing lange proves that, though sometimes taken in the braekish water of tidal rivers, it is incapable of existence in pure sea water. This brings to the front the faseinating question as to how far eastrard the Bassian Isthmus of Early Pliocene times achially extended. IIedley, 告 in a valuable paper on "The Effect of the Bassian Isthmus upon the existing marine Fauna," fixes the eastern border of the isthmus at or near Cape Ilowe. If this be eorrect we would expect to find Gadopsis still in existence in the Brodribb, Genoa, and other streans flowing southward into Binss Strait between the estuary of the Snowy and Cape Howe. But this, so far as we know, is not the ease. There seems, therefore, to be some ground for query as to whether it might not be safer to place the houndary of the lost isthmus somewhere in the neighbourhood of Cape Conran than further east. Next comes the question of the peopling of the western waters. The means whereby this was effected is possihly to be found in the one-time eapture of the head water's of the Snowy River by the Murrumbidgee, and the eonsequent transference of an castern fama into a western river, whence it has spread in all directions. Intike the Hhuray Cod (Otigorus macquariensis). Golden Perch (Plectroplites ambiguns), or Snubnose Perch (Macquaria australasica), all three of which have erossed the Range at one or more points, the Slippery has not snceeeded in so doing, and is, therefore, in these systems antithetical to the Eel (Anguilla reinhardiii), which as persistently refuses to eross to the western slopes, notwithstanding its known ability to travel long distances at night through damp grass. This is the more astonishing as the western-flowing Cudgegong and the eastern-flowing Goulburn (?) praetically arise from the same source, but while in the eelless Cudgegong the Slippery is so eommon as to have gaiued the distinctive local appellation of "tailor," it

[^30]yet never crosses to the eastern watershed; and the converse proposition applies to the Eel.

Dimensions:-In Northern Tasmania Johnston, on hearsay evidence, writes of a $10-\mathrm{lb}$. specimen, but contimues that 3 or 4 lb . is a more usual size; Harrison, however, has known of a patriareh that turned the scale at 12 lb ., and states that some years ago a $7-1 \mathrm{l}$. fish was not uncommon. While even now a 6 -pounder does not provoke sarcastic comment. In the coastal rivers of Eastern Victoria they grow to a weight of about 4 lh.. but are much smaller in the Upper Snowy and the Murray and Darting Watersheds. On this point let Stead speak for himself :- "Though I have seen some very large examples from Southern Victorian and Tasmanian rivers, my experience of the species in New South Wales waters is that it is uniformly small-comparatively speaking. A fish of 15 inches in length is a very large one, though I have heard on good authority of examples up to 18 inches long being taken in the Macquarie. The usnal 'large' ones, taken by anglers in the Cudgegong at Rhylstone, Cndgegong. or Mudgee, do not exceed 12 inches in length, and the average.barcly exceeds the present lawfial length, 9 incles. In lowlands proper the fish appears to be wery small." All this fits in thoroughly with our experience in Queensland, where Colclough gives its maximum weight at 4 oz . and Stevens its length to 8 in.; the largest which I have seen measured just over 10 inches. There is no publistred record of the dimensions to which it attains in South Australia.

Conclusion:-Nothing further now remains to write than the pleasing dnty of acknowledging our indehtedness and conveying our thanks to those gentlemen-Dr. Li. C. Stirling, Messrs. J. Hirst Stevens, Matthew T. Colclongh, Mlan R. MeCulloch. Charles Medley, C. IL. Harrison. and David G. Stead for their kindly and helpful interest in this attempt to bring our knowledge of this most interesting and curious fish up to date.

# ON SIX NEW OR RARE QUEENSLAND FISHES. 

By J. Douglas Ocilby.<br>(Plates XXI to XXIII.)<br>\section*{POLYNEMIDE.} POLYDACTYLUS MULIIRADIATUS (Günther).

Polynemus multiradiatus Günther, Brit. Mus. Catal. Fish., ii, 1860, p. 324.
(Plato XXI.)
Depth of body 2.75 to 2.94 , length of head $3 \cdot 3$ to $3 \cdot 45$, of caudal fin $2 \cdot 6$ to $2 \cdot 87$, of pectoral $3 \cdot 3$ to $3 \cdot 46$, of upper free ray $2 \cdot 81$ to $3 \cdot 03$, of ventral $5 \cdot 75$ to $6 \cdot 1$ in length of body. Length of snout 3.95 to $4 \cdot 35$, diameter of eye $3 \cdot 3$ to $3 \cdot 5$, width of interorbit $4 \cdot 1$ to $4 \cdot 4$, length of maxillary $4 \cdot 15$ to $4 \cdot 25$, longest dorsal spine $1 \cdot 5$ to $1 \cdot 56$ in length of head.

Dorsal contour of body much more elevated than the ventral, its width 2.75 to 2.82 in its depth, which is greatest immediately in front of the anal fin and is one fifth more than the length of the head; caudal peduncle two fifths longer than deep, its least depth 2.33 to 2.44 in the depth of the body. Head moderate, with convex occipital profile, its width 2 to $2 \cdot 1$, its depth 1.33 to 1.4 in its length. Snout with linear or slightly convex upper profile, its anterior border lincar and strongly declivous, 1.3 to 1.33 in the cye-diametcr ; interorbital region fcebly convex, its width 1.2 to 1.4 in the samc. Premaxillaries fecbly emarginate; maxillary extending to a pupildiameter belind the eye, the widlh of its distal extremity 3.43 to 3.56 in its length and much more than the dcpth of the prcorbital, tip of mandible vertically below the anterior border of the eye. Vertical limb of preopercle evenly and finely denticulate, the lowermost tooth much stronger but scarcely longer than the others.

Scales in $7 / 59 / 12$ scries. Soft dorsal and anal fins with a wide basal scaly sheath; a pointed scale in the axils of the pectorals and ventrals, that of the latter the longer and narrowly lanceolate, about as long as the cye-diameter. Lateral line forked on the caudal fin, a branch extending on each lobe.
D. viii, i 14 or 15 ; A. iii 17 or 18 ; P. $15+$ vii. Length of spinous dorsal 1.65 to 1.8 in the soft and 1.5 to 1.7 in the third spine, which is 1.2 to 1.3 in the height of the soft dorsal, the outer border of which is deeply emarginate, the last ray being
much longer than those preceding it. Caudal fin deeply forked with subequal pointed lobes, the middle rays 2.5 to 2.6 in the upper lobe. Anal originating slightly in advance of and one fifth to one third longer than the soft dorsal, the last spine 1.85 to 1.92 in the first ray ; outer border obliquely truncated, the last ray but slightly produced. Pectoral as long as the head, the fourth ray longcst, reaching to midway betwcen the vent and the anal fin: upper free ray longest, reaching to the anal. Ventral 1.67 to 1.85 in the length of the head, reaching to beyond the vent.

Gill-ralicrs $13+18$, the longest $1 \cdot 56$ in the eye-diameter.
Back and sides above the lateral line pale greemsh yellow, sides and lower surface silvery. Snout golden brown ; a well marked black supraciliary band; opercles irideseent bluish silvery. Fins pale brown, the first dorsal densely, the others more sparscly powdered with black.

Total length to 200 millim.
Range :-From the coast of China to Torres Strait (Thursday Island). Notwithstanding the fact that the species has not boen recognised from any part of the Malay States or Archipelago, nor indeed been recorded from the Chinese Seas or elscwhere since Günther first described it more than half a century ago, I have no doubt as to the correctness of the identification, so far at least as Günther's meagre description (due as he himself tells us to "the specimen not being in very good. eondition, some parts being deformed by stuffing ${ }^{32}$ ) goes.* The fishes recorded by de Vis as follows "Polynemus multiradiatus, Gth., ascends the Brisbane River "appertains to Polydactylus specularis de Vis, that gentleman laving been probably misled by the increased number of dorsal and anal rays common to the two species.

Described from two examples, measuring respectively 108 and 136 millim., collected at Thursday Island by Capt. Donald McDonald. Reg. No. in the Queensland Museum I. 13/1034.

The following key to the genera of the Polynemida may be usefully inserted here :-
$a_{0}{ }^{1}$ Preoperele entire; anal fin of about 30 rays, mueh longer than the seeond dorsal .. .. .. .. .. .. .. i. Polynemus.
$a .^{2}$ Preopercle sorrated; anal fin of 11 to 17 rays, about as long as the second dorsal.
$b .^{1}$ Voiner toothed.
c. ${ }^{1}$ Scales moderate; free peetoral rays 3 to 9.
d. 1 Outer border of jaws rough ; peetoral rays simple; no air-bladder .. .. .. .. .. .. ii. Eleutheronema. d. ${ }^{2}$ Outer border of jaws smooth ; pectoral rays divided; an air-bladder .. .. .. .. .. iii. Polydactylus.
c. ${ }^{2}$ Scales minute ; free peetoral rays 14 . . . . . . . Polistonemus. b. ${ }^{2}$ Vomer toothless . . . . . . . . . . v. Galeoides.

* See Note on p. 91.


HATHIHGMUSEUM MEIBULRINE

## BOTHID.A.

## PLATOPERYS PENNATA sp. nov.

Depth of body 1.88, length of head $3 \cdot 66$, of eaudal fin $4 \cdot 48$ in length of body. Depth of pedunele $2 \cdot 71$, length of snout $4 \cdot 22$, diameter of eye $3 \cdot 8$, width of interorbit $11 \cdot 87$, length of maxillary 2.71 , of mandible 2.37 , height of dorsal 2.24 , of anal 2.53 , length of left pectoral $1 \cdot 36$, of left rentral $2 \cdot 53$ in length of head.

Body deeply ovate, the profile of the head from before the interorbital region evenly and strongly eonvex, as also is the snout in front of the rostrofrontal noteh, whieh is deep. Mouth moderately arched, the jaws equal; mental knob little developed; maxillary exteuding to lelow the anterior borler of the eye, the width of its truncate distal extremity 2.7 in its length. Lower eye about one third of its diameter in advanee of the upper and a little longer than the snout; interorbital region reduced to a narrow mostly naked furrow, its width $3 \cdot 12$ in the eye-diameter.

Scales of colored side ciliated, arranged in 80 transrerse series above the lateral line, and in 20 horizontal series between the dorsal fin and the summit of the areh; seales of blind side eycloid ; snout and mandibles naked ; a few seales superiorly on the maxillary. Depth of lateral line areh 2.4 in its length ; no subsidiary nuehal braneh.
D. 91 ; A. 73 ; C. 17 ; P. 14/11; V. 6. Dorsal fin originating on the blind sido of the snout in front of the rostrofrontal noteh, the third ray expanded and pinniform, much longer than the seeond or fourth, slightly longer than the postmedian rays, and $2 \cdot 1$ in the length of the head. Caudal cuneate. Left peetoral with the base oblique, the upper rays longest, reaching well beyoud the lateral line arch ; length of right peetoral 1.93 in that of the left, the middle rays longest. Ventrals long, that of the eyed side inserted on the abdoninal ridge, its base longer than and originating well in adrance of that of the right fin; left ventral subcontinuous with the anal, the middle rays longest, reaching the third anal ray.

Gill-rakers rather short, stout, and aeute, smooth, 10 on the lower braneh of the anterior areh, the upper braneh entire, the longest one fifth of the eye-diameter and one half of the longest gill-fringes.

Light brown with three large blaekish spots forming a triangle, one above and one below the middle of the appressed peetoral, the third on the lateral line about midway between the tip of the peetoral and the root of the caudal; body with several series of smaller and fainter spots, arranged in a more or less regular transverse patterm. Vertical fins with a somewhat obseure series of dusky blotehes; peetoral with broad darker and lighter eross-bands.

Deseribed from a single speeimen, 170 millim. long, in the eolleetion of the Amateur Fishermen's Assoeiation of Queensland.

## PLESIOPIDÆ.

## PHAROPTERYX MELAS (Bleeker)

Plesiops melas Bleeker, Verh. Batav. Gen., xxii, 1849, Bali, p. 9.
Plesiops nigricans var. apoda Kner, Sitzb. Akad. Wien, 1868, p. 54. Based on a specimen which had lost its ventral fins.

Pharopteryx melas Jordan and Seale, Bull, U. S. Bar. Fisher., xxv, 1906, p. 261, pl. xxxviii, fig. 3.

Depth of body $3 \cdot 1$ to $3 \cdot 4$, length of head 2.75 to 3 , of caudal fin 3.5 to 4 , of pectoral 3.9 to 4 , of ventral 2.8 to 2.85 in length of body. Depth of peduncle 2.1 to $2 \cdot 2$, length of snout $4 \cdot 5$ to $\pm \cdot 8$, diameter of eye $3 \cdot 5$ to 4 , width of interorbit 7 to $7 \cdot 33$, length of maxillary 1.9 to 2 , of mandible $1 \cdot 66$ to $1 \cdot 85$, last dorsal spine $2 \cdot 2$ to $2 \cdot 4$, last anal $2 \cdot 33$ to $2 \cdot 6$ in length of head.

Dorsal and ventral contou zabout equally convex ; width of body 1.95 to $2 \cdot 1$ in its depth, which is 1.05 to 1.2 in the length of the head : caudal pedunele deeper than long, its least depth 1.8 to 2 in the depth of the body. Width of head a little less than its depth and $1 \cdot 5$ to $1 \cdot 66$ in its length, its upper profile from the forchead to the origin of the dorsal fin linear and but little acelivous. Snout short and blunt, its upper profile linear and rather strongly acclivous, forming an obtusely rounded angle with the frontal profile, its length 1.25 to $1 \cdot 3$, that of the flat interorbital width 1.8 to 2 in the eye-diameter; preorbital very narrow. Maxillary extending to below the hinder border of the eye, the width of its distal extremity 1.35 to 1.5 in the eye-diameter. Vertical limb of preoperele convex, the angle broadly rounded and feebly corrugated; opercular flap pointed.

Seales in 25 transverse series between the angle of the opercle and the root of the caudal, in 11 series in an oblique row from the vent forward to the dorsal ridge, 2 of which are above the lateral line. Lateral line tubes 19 or 20 in the upper line, 10 to 12 in the lower. Cheek-seales in 3 series.
D. $x^{*}$ or xi 7 ; A. iii $8 ;$ P. 20 or 21. Dorsal fin originating above the base of the peetoral ; first spine short, 2.65 in the last, which is 1.4 to 1.5 in the fifill and longest ray; rayed fin reaching beyond the base of the caudal. Anal originating below the se venth or eighth dorsal spine, its first spine 2.1 to 2.2 in the last, which is 1.66 to 1.85 in the fifth ray; soft portion similar to but higher than the dorsal rays, and just reaching to the caudal. Pectoral 1.3 to 1.4 in the length of the head, scarcely extending to above the vent. Ventral as long as or a little longer than the head, reaching to the second anal spine.

Gill-rakers $3+10$, the longest 2.7 in the eye-diameter and as long as the gill-fringes.

Purplish brown, some of the scales oceasionally gray usually with a dark eentral spot; sides and lower surface of head (except the anterior branchiostegals

[^31]which are blackish), throat and abdomen smoke-brown. Vertical fins purple, the dorsal cdged with whitc, the width of the band diminishing from the front ; pectorals uniform ; outer soft ray of ventral dull bluc, the others brown transversely barred with whitish undulæ.

Described from two specimens, 78 millim. long, collected at Masthead Island by Mr. H. A. Longman.

# CHELLODTPTERTD天. 

## AMIA NEMATACANTHA sp. nov.

(Plate XXII, fig. 1.)
Depth of body $2 \cdot 38$, length of head $2 \cdot 86$, height of spinous dorsal $2 \cdot 28$, length of caudal 2.82 , of pectoral 3.48 , of ventral 4.83 in length of body. Length of snout $3 \cdot 93$, diameter of eye $2 \cdot 36$, width of interorbit $3 \cdot 96$, length of maxillary $2 \cdot 04$, height of soft dorsal 1-13, of anal 1.42 in length of head.

Body ovate and strongly compressed, the dorsal and ventral contours about equally rouncled: caudal peduncle stout, its least depth 2.37 in the depth of the body. Upper profile of head undulous, the nape without median ridge. Snout with convex profile, its length $1 \cdot 66$, that of the convex interorbital width 1.7 in the eye-diameter ; maxillary notched postcriorly, extending to below the middle of the eye. Inner limb of preopercle entire, outer serrulate at the angle and below.
D. vi.i 8. No procumbent dorsal spine ; the four middle dorsal spines filamentous ; the second longest reaching when laid back to beyond the base of the soft dorsal ; spine of soft dorsal much stronger than those of the spinous dorsal, its length 1.55 in the first ray, which, with those that immediately succeed it, are also more or less filamentous. A. ii 9 . Sccond anal spine, $1 \cdot 34$ in that of the soft dorsal and 1.66 in its first ray. Caudal fin deeply emarginate. Pectoral long, extending to beyond the vertical from the anal spines. Ventral long, 1.3 in the pectoral, not quite reaching to the anal.

Palc yellow ; the head and anterior part of the body dotted with black


Total length of type 45 millim.
Six specimens of a small cheilodipterid, collected by Dr. J. R. Tosh at Darnley Island, were received, but unfortunately with two exceptions they were in bad condition. The best example has been chosen as the type, and is here described and figured. Reg. No. I. 13/1273. Queensland Museum Collection.

# Family LEIOGNATHIDA. 

XYSTEIMA DARNLEYENSE sp. nov.
(Plate XXXIII.)
Depth of body $2 \cdot 4$ to $2 \cdot 65$, length of head $2 \cdot 9$ to $3 \cdot 2$, longest dorsal spine 5 to $5 \cdot 3$, length of caudal $2 \cdot 65$ to $2 \cdot 8$, of pectoral $2 \cdot 8$ to $2 \cdot 95$, of ventral 4.95 to $5 \cdot 4$ in length of body. Length of snout 3 to $3 \cdot 2$, diameter of eye 3 to $3 \cdot 15$, width of interorbit $3 \cdot 25$ to $3 \cdot 5$, length of maxillary 2.8 to $3 \cdot 25$, of mandible 1.9 to $2 \cdot 1$, longest anal spine $2 \cdot 5$ to 2.75 in length of head.

Body subovate, the dorsal contour rather more arehed than the ventral, which is somewhat flattened behind the ventral fins; width of body 2.35 to 2.4 in its depth, which is $\cdot 15$ to 3 more than the length of the head : caudal peduncle about one third longer than deep, its least depth $3 \cdot 5$ to $3 \cdot 8$ in the depth of the body and $2 \cdot 8$ to $3 \cdot 2$ in the length of the head. Head $\cdot 15$ to $\cdot 25$ longer than deep, its upper profile from the snout to the dorsal fin linear in small examples, beeoming slightly convex on the nuchal region in the larger; lower profile eoncave and more dechivous than the upper. Snout obtusely rounded, as long as the eye-diameter, which is $\cdot 05$ to $\cdot 25$ more than the convex interorbital width. Jaws equal; maxillary extending to below or a little beyond the anterior border of the eye, the width of its clistal extremity 2.75 to $3 \cdot 1$ in its length. Preopercle entire.

Seales $6 / 47$ to $50 / 13$. Cheek-seales in three series ; scales on the upper surface of the head extending forward laterally nearly to the nostrils, mesially to above the anterior border of the pupil, the premaxillary groove broad and naked, rounded behind; mandible naked. Accessory scale of rentral long and lanceolate, longer than the eye-diametor.
D. ix 10 ; A. iii 7. Dorsal originating above the insertion of the ventral ; spines weak and flexible, the second longest, as long as or a little longer than the snout and eye, and 1.9 to 2.2 in the depth of the body below it ; anterior soft ray equal to or a trifle longer than the fifth spine. Caudal deeply forked, the middle rays $3 \cdot 4$ to $4 \cdot 4$ in the upper lobe. Anal originating below fourth dorsal ray, the sceond spine some what stronger and a little longer than the third, whiel is subequal to the first ray. Pcetoral pointerl, reaching to or slightly beyond the origin of the anal, the seventh ray longest. Ventral insorted behind the base of the pectoral, the outer ray longest, reaehing midway between its origin and the anterior anal lays; origin of ventral nearer to that of anal than to tip of mandible.

Gill-rakers short and stout, 7 on the lower braneh of the anterior arch, the anterior the longest, 3.9 in the eye-diameter and 1.4 in the longest gill-fringes.

Silvery, the upper parts tinged with yellow; each scale above the lateral bine with an obscure darker central spot, forming longitudinal bars, which follow the contour of the baek; below the lateral line are five series of much larger oblong briekred spots. Naked parts of head pale olive or grayish green. Posterior dorsal spines and all the rays exeept the last with a narrow oblique blaekish basal spot ; eaudal


MATICIME MUSEUY MELBQUFINE
edged and tipped with dusky; a blaekish spot in the axil of the peetoral. (darnleyense, belonging to Darnley Island.)

Described from four specimens, measuring from 145 to 222 millim., collected at Darnley Island by Dr. J. R. Tosh. Reg. No. of type in Queensland Museum, 1.13/1074.

## POMACENTRIDE.

## GLYPHISODON Lacépède 1802.*

## GLYPHISODON PALMERI sp. nov.

(Plate XXII, fig. 2.)
Depth of body $1 \cdot 66$ to $1 \cdot 7$, length of head $3 \cdot 4$, of longest dorsal ray 3 to $3 \cdot 15$, of longest anal $3 \cdot 15$ to $3 \cdot 25$, length of eaudal $2 \cdot 7$, of peetoral $2 \cdot 7$ to $2 \cdot 75$, of ventral $2 \cdot 55$ to $2 \cdot 8$ in length of body. Depth of peduncle 1.65 to $1 \cdot 7$, length of snout 3 to $3 \cdot 2$, diameter of eye 3.2 to $3 \cdot 25$, width of interorbit $2 \cdot 8$ to $2 \cdot 9$, longest dorsal spine 1.55 , longest anal 1.55 , middle eaudal rays $1 \cdot 45$, lougth of ventral spine 1.66 in length of head.

Body elevated, the dorsal contour evenly arehed from the nape to the middle of the soft dorsal, beyond which it deseends somewhat abruptly to the pedunele; ventral contour as evenly but more deeply arehed from the isthmus almost to the pedunele, the depth of whieh is 3.4 in that of the body. Head one fourth deeper than long, its upper profile linear and strongly acelirous, forming an obtusely rounded angle with that of the nape. Snout short, mueh broader than long, rounded anteriorlv, its length one tenth more than the eye and a trifle less than the strongly eonvex inte. cbital width. Cleft of mouth small and oblique, the maxillary extending to slightly beyond the rertieal from the nostril, whieh is on a level with the middle of the eye and nearer to it than to the tip of the snout. Teetli in a single series, broad. sompressed, and ineisor-like, with the cutting edge emarginate; free tip of tongt rounderl. Infraorbital ring narrow, its depth below the middle of the eye 4, the of the preorbital $2 \cdot 7$ in the eyc-diameter, which is $1 \cdot 15$ in that of the inferiorly rounde ' eheek.
ales in 28 transverse scries between the angle of the operele and the root of the es ll, in 18 horizontal series between the base of the dorsal and the rent, 5 of whie ${ }^{1}$.re above the lateral line; eheek-seales in 4 series; infraorbital ring sealy thror sout its entire length; scales of upper surfaee of head extending forward to between the nostrils, leaving the rest of the snout and the lower jaw naked. Lateral line with 20 or 21 tubular seales, ceasing below the middle of the soft dorsal, the

[^32]tubes profusely branched, and, except a few posteriorly, not extending to the border of the seale ; acecssory scale of ventral long and lanccolate, longer than the eyediameter.
D. xiii 14 ; A. ii 14 ; P. 19. Last clorsal spine longest, $1 \cdot 66$ in the fifth and longest soft ray; length of soft portion of fin 2.05 in that of the spinous, its outer border acutely pointed, extending to above the middle of the eaudal fin. Caudal forked, with broadly rounded lobes, the middle rays 1.85 in the upper and longer lobe. Anal fin conterminous with the dorsal, the sccond spine as long as or longer than the last dorsal spine and $1 \cdot 66$ in the sixth and longest ray, which, though as high or nearly as high as the soft dorsal, does not reach so far back. Pectoral fin one fourth longer than the head, the fourth ray longest, reaching to the tenth or eleventh body-scale. Ventral nearly as long as to a little longer than the pectoral, the outer ray prorluced, extending nearly to to slightly beyond the origin of the anal, and twice as long as the spine.

Gill-rakers $5+12$, rather short and stout, the inner margin spinulose, the longest 3.5 in the eye-diameter and 2.2 im the longest frimges.

Upper surface of body plumbcous or greenish gray, shading gradually on the sides into the silver-gray of the belly, many of the scales above the lateral line with a more or less conspicuous silvery spot or vertical bar ; body with seven black crossbands, the first from the nape to the axil of the pectoral ; the second from the bases of the first and second dorsal spines, behind the base of the pectoral, to the abdomen ; the third from the fifth and sixth spines beneath the third quarter of the appressed pectoral; neither of these two cross the ventral surface ; the fourth from the ninth and tenth spines below the tip of the peetoral to the vent, these three encroaching on the dorsal fin; the fifth between the last dorsal spines and the anterior anal rays; the sixth between the last dorsal and anal rays, on both of which it extends ; and the last and least conspicuous, which forms a complete ring round the peduncle immediately in front of the caudal fin, and is ehiefly noticeable as two black precaudal spots, the one on the upper the other on the lower edge of the perluncle. Head and throat like the back, with scattered silvery spots and bars, which sometimes, espeeially below, almost obliterate the ground color. Iris dark blue. Dorsal, anal, and ventral fins black, with the base and, in the ease of the two former, the produeed rays lilaceous gray, as also are the caudal and pectoral fins. (Named for my friend Mr. Tames Palmer, chief of the telegraph station at Buhwer, M.B.,* and one of my best and most entlusiastic collectors.)

Total length to 170 millimeters.
Range (as at present determined) :-Moreton Bay and its immediate neighbourhood.

[^33]

Fig. 1.-Ama nematacantha Ogilby. Drawn from Type: $2 \frac{1}{2}$ Nat. Size.

## D. B. Fry, del.

Reg. No. in Q.M.: 1. 13/1273.


Fig. 2.-Glyphisodon palmeri Ogilhy. Drawn from Type: $\frac{2}{3}$ Nat. Size.

MAtICliAa MUStur: MEMWLANE

Described from tro specimens, 160 and 170 millim. in respective length, taken at Bulwer, Moreton Bay, by Mr. James Palmer. The larger, which I have selected as the type, is in the collcetion of the Queensland Museum, Reg. No. I. $13 / 1059$; the smaller, a topotype, in that of the A.F.A.Q.

The only other specimen of which I have any definite knowledge is in the Australian Muscum, Syduey, and of this McCulloch, in answer to a letter in which I forwarded a copy of the above description, writes-" The third is 50 millim. long from Caloundra. It is certainly your fish, and Waite also called it G. bengalensis?". In an carlier part of the same letter he says, of three specimens in that collection" The largest, about 130 millim. long, is named G. affinis Günther, and is from Batavia. It is part of the Day collection and was originally labeled $G$. sordidus, which it is not ; I do not know who determined it as affinis, but it agrees with the deseription of that species. It is woll represented by Bleeker's figure, which he calls $G$. bengalensis, but is quite different from Day's figure of this last species. The second is 65 millim. long, and is from Swecr's Island, Gulf of Carpentaria. I have little doubt that it is the young of the other though the positions of the fifth and sixth bands are a trifle different, being more like your sketch. Waito determined it as $G$. bengalensis?"

From all this it is clear that there was considerable doubt in Waite's mind as to the identity of the threc Australian Museum specimens, at which perhaps little wonder need be expressed, considering the confusion which evidently exists between the identifications of Giunther, Bleeker, and Day.

It is plain that the Moreton Bay fish needs only to be compared with three species-Glyphisodon septemfasciatus Cuvicr \& Valenciennes,* G. bengalensis Bloch, $\dagger$ and G.afinis Günther, $\ddagger$ the type localities of which are respectively " l'Tsle de France," "East Indies," and "China." Leaving aside the difference in the pattern of coloration, which applies equally to all three species, the first may be at once dismissed because of its much shallower body, larger head ( 4 to 4.25 in total length, fide Bleeker and Day, as against $4 \cdot 6$ in my type), the much larger naked area on the upper surface of the head, as described by Giunther but not as figured by Blecker, which more closely approaches to that described above, the pointed caudal lobes, etc., ete.

From the $G$. bengalensis and $G$. affinis of Günther's Catalogue our species differs among other characters in the much narrower infraorbital ring and the larger number of scales in a transverso series. In the former character it is nore in agreement with Day's figurc of G. colestinus and Bleeker's of G.bengalensis. As a matter of fact these three authors have between them so inextricably confused the transversely banded glyphisodonts that a critical examination of numerous specimens from various localitics has becomo urgently necessary.

[^34]
# ICHTHYOLOGICAL NOTES. 

By J. Douglas Ogilby.

During the past year a number of fishes have been forwarded from Darnley Island by Dr. J. R. Tosh, among which are the six following additions to the Australian fauna :-

1. Nebrius concolor Rüppell. This is useful as a confirmation of Macleay's record of its occurrence at Port Moresby, N.G. (v. Proc. Linn. Soc. N. S. Wales, vii, p. 597).
2. Platophrys pantherinus (Rüppell). It is strange that no record of the presence of this fish in Australian or Papuan waters has hitherto beer made, since it is apparently common at Darnley Island, whence we lave received six examples.
3. Anphiprion bifasolatus (Bloch). One specimen.
4. Eleria tala (Cuvier \& Valenciennes). Two young fishes.
5. Salarias alboapicalis Ogilby. Two beautiful examples, one adult (75 millim.), the other half-grown.
6. Lethrinus harak (Forskil). The only previous Australian record is the curt "Aus Sydney " in the Reise Novara, Fische, p. 81 ; as it has been shown that a number of species in that work were wrongly attributed to that locality, this record should be viewed with distrust.

For the following six Darnley Island is a new record :-

1. Carithroichthys intestinalis (Rainsay). Previously recorded as C. waitei from Cairns Reef, Cooktown, N.Q., by McCulloch (v. Proc. Linn. Soc. N. S. Wales, xxxv, p. 307).
2. Cromileftes altivelis (Cuvier \& Valenciennes). Previously collected by McCulloch at Cairns Reef.
3. Kyphosus cinerascens (Forskal). Recorded from Torres Strait as Pachymetopon squamosum by Macleay (Ibid., v, p. 407).
4. Dedapterus russellii (Rüppell). A fine specimen gave me the chance of comparing the Moreton Bay fish, previously recorded as "Decapterus? leptosomus Ogilby (List Edib. Fish. Moreton Bay, p. 2) ; and I am now convinced that, while differing from the latter, both specimens are identical with the former, and probably with Caranx ecclipsifer de Vis. (Proc. Linn. Soc. N. S. Walcs, ix, p. 541).
5. Amblygobius phalena (Cuvier). Recorded from Murray Island by McCulloeh (Ibid., xxxvi, p. 347).
6. Valienciennea longipinnis (Bennett). Previously rccorded and figured by Waitc from specimens collected by Hedley at Green Island, Cairns. (Rec. Austr. Mus., iv, p. 271, pl. xliii).

A small but highly interesting collection was also received from Capt. McDonald, who had collected them at Thursday Island. The following speeies are worthy of inclusion here :-

1. Tylosurus caudimaculatus (Cuvier). Not hitherto recorded from Queensland, the only other Australian record being "Port Darwin" by Macleay (Ibid., ii, p. 363).
2. Polydactylus moltreadiatus (Günther). Two small polynemids differing from all the other Australian members of the family in the forward position of the anal fin, which originates in advance of the soft dorsal. As they agree fairly well with Günther's description of the above species, I wrote to Mr. Tate Regan asking him to examine the type, a badly mounted specimen, as to this character. This he very kindly and promptly did, with the result that he wrote me that, so far as it was possible to judge from the state of the specimen, this was the case. We may, therefore, eongratulate ourselves on the rediseovery of this Chincse species, of which so little was previously known.
3. Prioprs marlavus (Günther). Two speeimens; thus extending its range so far north from the Mary River.
4. Trichiurus haumela (Forskal). A beautiful specimen, which enables me to add this fish to the Australian fauna with certainty, previous records being open to doubt.

Note on the Ausiralian Trichiuri.-The first record of the oceurrenee of a Trichiurus in Australian waters was made by Maclcay in 1878 (Ibid., p. 354), when he notiees a specimen of $T$. savala eolleeted by Spalding at Port Darwin; three years later he adds $T$. haumela from "Port Jaekson and Newcastle (Ibid., v, p. 524). This identifieation, however, is ineorreet, Macleay being unaware of the prescnee of a third species on the coast of New South Wales. This fish, which is most erratie in its appearances, was subsequently cleseribed as $T$. coxii by Ramsay \& Ogillby (Proc. Linn. Soe. N. S. Wales, xii, p. 562), and to it Maelcay's T. haumela record properly applies. No further reference to these fishes is made in any Australian work until 1893, when Kent (Great Barrier Reef, p. 288) referred to specimens of both $T$. savala and $T$. haumela as having "been eontributed to the Queensland Museum." What is probably the former of these speeimens is now on exhibition there and was obtained in Moreton Bay, but the speeimen of $I$. haumela ean not be found.

The following eight species also claim recognition for one reason or other :-

1. Anchovia setirostris (Broussonet). A specimen is in the Queensland Museum collected at Cooktown by the late Mr. Kcndal Broadbent.
2. Zenarchopterus dispar (Cuvicr \& Valenciennes). Three specimens, labeled " Torres Strait," are in the same collcetion.
3. Sphyrfna nove-hollandie Günther. One specimen from Moreton Bay.
4. Trachichthys australis (Shaw). One from Pimpama Island, M.B.
5. Mionurus gillis Steindachner. This species may be added to the already long list of cheilodipterids which carry their eggs in the mouth; two examples thus engaged were sent from Eidsvold by Dr. T. Bancroft.
6. Acanthoclinus littoreus (Forster). The State Museum is indebted to Mr. J. L. Bond for a specimen collected in Moreton Bay. It had been previously o btained at Masthead Island by both McCulloch and Longman.
7. Cefio oemrulaureus (Lacépède). Not uncommon on the Snapper Grounds. off Moreton Bay, where it is known as the "Fusilier."
8. Rupellia echinocephala (Rüppell). Originally described from the Red Sea, this curious little fish was next recorded from the "Clnina Seas" by Dr. Günther (Brit. Mus. Catal. Fish., iii, p. 35), and subsequently from Bowen (Fische d. Sudsee, p. 174, pl. cviii, fig. D). The writer collected a specimen on Nor-West Islet in 1910, and Longman obtained some fine specimens on Masthead Island two years later.
9. Lactophrys reipublicie. This name is proposed for the Australian three-angled ostracionid. Ostracion concatenatus Bloch is a synonym of the East Atlantic O. triqueter Linnæus, described originally from one of Plumier's drawings, its habitat being "Lcs Antilles," as we are told by Bonnaterre.

The following Devisian species have come into notice during the year :-

1. Sphyrdena strenda (Proc. Linn. Soc. N. S. Wales, viii, 1883, p. 287) is S. obtusata Cuvier \& Valencicnnes, as also I think is S. lineata Stead (Edib. Fish. N. S. Wales, p. 47, pl. xv).
2. Dactylophora semimaculata (Ibid., p. 284) is Cheilodactylus nigricans Richardson (Proc. Zool. Soc., 1850, p. 63) and C. nebulosus Klunzinger (Arch. f. Nat., xxxviii, i, 1872, p. 24). It is also identical with Psilocranium coxii Macleay (Ibid., viii, p. 440). De Vis' genus, however, stands as it predates Macleay's by a few months. The correct name is, therefore, Dactylophora nigricans (Richardson).
3. Cherofs perpulcher (Ibid., ix, 1884, p. 877) is C. cephalotes Castelnau (Res. Fish. Austr., 1875, p. 39), as also is C. hodgkinsoni Kent (Great Barrier Reef, p. 296, pl. xv, fig. 2-much too highly colored). Correct name Choerodon cephalotes (Castelnau).
4. Chgrops olivaceus (Ibid., p. 876) is C. concolor (Ibid.) and C. unimaculatus (Ibid., p. 877), not of Cartier 1873. Correct name Chocrodon olivaceus (de Vis).
5. Chgerops graphicus (Ibid., p. 878) is Sparus anchorago Bloch (Ausl. Fisch., , p. 108, pl. celxxvi). Correct name Choerodon anchorago (Bloch).
6. Cherops venustus (Proc. Roy. Soc. Queensland, i, 1885, p. 147) is a valid species. This is the fish described by me as Chœorops ommopterus Richardson (Proc. Zool. Soc., 1889, p. 158 \& Edib. Fish. N. S. Wales, p. 130). Correct name Choerodon venustus (de Vis).
7. Cherops albigena (Proc. Linn. Soc. N. S. Wales, ix, 1885, p. 876). This may be a good species, butit approaches very closely to Labrus macrodontus Lacépède (Poiss., iii, 1802, pp. $451 \& 522$ ), from which it differs only in the absence of a posterior canine and the coloration as given by Macleay. Correct name Chorodon albigena (de Vis).
8. Tetraroge bellona (Ibid., p. 460) is Cottus australis Shaw (in White, Voy. N. S. Walcs, 1790 , p. 266). Correct name Centropogon australis (Shaw).

## NOTE ON PORTHEUS AUSTRALIS, A. S. Woodward.*

By h. A. Longman.

In response to a series of letters sent out by the Director, the Queensland Museum has recently received several new collections of fossils. Two of these are of exeeptional interest, as they represent 'Teleostean fishes of whieh, so far, only very fragmentary or distorted remains lave been found. These specimens have been kindly forwirded by Mr. S. Dumn from Lower Cretaceous beds near Hughenden in the vieinity of Flinders River.

The larger specimen was forwarded with one lateral surface almost completely covered with a matrix of fine hard limestone, in whieh were lying several Inoceramus shells, whilst on the reverse side was exposed a large eonical tooth. Fortunately we were able to eut away the matrix to a great extent, and the maxillæ and dentaries were exposed. As a result we have no hesitation in identifying our speeimen with Porthous australis, A. S. Woodward, the type of whieh eame from the same distriet, and whieh, through the eourtesy of Mr. B. Dunstan, Queensland Government Geologist, we have had an opportunity of examining.

Mr. R. Etheridge, junr., has described under the name of Ichthyodectes marathonensis $\dagger$ another speeimen from an adjoining loeality, whieh he says " bears a very suspieious resemblanee" to Porlhous australis. But Mr. Etheridge's speeies was deseribed from a skull "erushed from above downward," in whieh the premaxillæ and anterior teeth are missing. He expressed the opinion that Porthous anstralis possibly conld be referred to the allied genus Ichthyodectes, in whiel the anterior teeth are not enlarged. Our example is of some interest because it contains remains of hoth upper and lower anterior teetl, which are relatively very large. The maxillæ exposed in this speeimen are barely $51 / 2$ inches in length. The right side exhibits remains and alveoli representing about twenty-fou teeth, a part being still obseured by the hard matrix. Owing to the abrasions of the upper surface of the right maxilla and the eonsequent partial exposure of the alveoli, it would be diffieult to estimate the real length of the teeth above the orioinal margin. In their present state the larger teeth in the middle of the maxilla are 15 mm . in length, whereas the exposed part of the lower anterior tooth is mueh more robust and is 20 mm .

[^35]Remains of two upper teeth are slown in the matrix in the region of the premaxille. One of these is rery stout, the oval seetion being 7 mm . in diameter. Our speeimen thus confirms the original generic classification of the type. The Family Saurodontidce having been restricted by Crook to the genera Saurocephalus, Harlan, and Saurodon, Hays, these speeimens shoukd be placed in the Family Ichthrodectide, Crook.*

Our specimens show several of the bones of the head in fair eondition, the longitudinal crest being well marked. In the posterior upper portion of the fossil remains of several vertebræ may be distinguished. Comment on these and other featares must be left for more expert hands. In the seeond speeimen reeeived from Mr. Dunn, the jaws are more fragmentary, and the dentition does not contain the anterior teeth. It is hoped that further examples from the same district will be shortly available, in order that duplieates of these interesting fishes may be seeured for other institutions.

[^36]
# SOME FIELD NOTES ON QUEENSLAND INSECTS. 

By Henry Hacker, F.E.S.

## Order Hymenoptera, Family Sphecid e.

Sphex (Isodontia) nigellus, Smith.*-The reeorded habits of members of the genus Sphex show much similarity. They have generally been found to make underground burrows terminating in a chamber, in which they store different kinds of inseets as food for their young. This season I had an opportunity of observing something of the economy of Sphex nigellus, and ean reeord a remarkable differenee from the usual habits of wasps belonging to the genus.

This species ntilises for nests old beetle burrows in posts and dead trees, whieh it closes by stopping tightly with grass-seeds. On sevcral oecasions while examining posts full of old disused tunnels, which had evidently been made by some beetle, I had noticed that a number of the holes had been recently used by some other inseet whieh had stopped them up with grass-seeds, leaving tufts protruding about a quarter of an inch. I did not conneet this fact with the wasp until some time later, when Professor Skertchly brought to the Museum part of a large $\log$ similarly affected. This block was cut in two, one pieee being left intaet with the intention of breeding out the insects. The other piece was chopped up, thus exposing the tunnels. The section of a tunnel when exposed gave one a good insight into the methods of this wasp. In nearly every instanee the tunncls were found to curve downwards from the entrance for about half their length, the rest of the distance being nearly horizontal; the average length was from three to four inches. The egg was evidently laid at the extreme end of the tunnel, a space large enough for the metamorphoses of the insect being left there. In this space also was stored the provisions (consisting of spiders) for the larva. The remainder of the tunnel was packed with grass-seceds, which were looscly packed at first, but got tighter as the entranee of the tumnel was reached. The grass-seed used ly this wasp for the purpose of plugging the entrance to the tunnel is Andropogon pertusus, Willd. (Queensland Flora, vol. 6, p. 1863), whieh it skiffully manages to plaee with all the axillary ends directed inward, leaving the plumose ends protruding like a brush. Taking into consideration the shape of the seeds, and the faet that the wasp had to push them in from the outside, this was the only method by which it eould plug the hole tightly. This arrangement made the tunnel quite

[^37]impregnable against the attacks of enemies from the outside, whilst it enabled the mature wasp inside to push its way out without much difficulty.

Most of the tunnels exposed by splitting the $\log$ contained either a larva or a pupa. In two instanees tunnels eontained a fully developed wasp ready to emerge. In some of the tunnels, however, the matured insect had already emerged. In these cases a small quantity of loose grass-secd remained in the part where it had been paeked loosely, while the entranec was quite open. From this I concluded that the inseet, in order to eseape, had forced its way past the lonsely paeked seeds and pushed out bodily the tightly packed plug at the entranee.
R. E. Tumer states*-_"This speeies seems to occur throughout Southern Asia and also in West Australia." It would be interesting to know if this insect has a similar ceonomy in Asia, or whether it has acquired the above habits only in Australia.

The Direetor of the Queensland Museum is indebted to Professor Skertchly for drawing his attention to these insects in the first place.

## Superfamily VESPOTDEA. <br> Family POMPILIDA.

Pseudagenia camilla, Turner.-A number of the elay eclls of this speeies were obtained in Victoria Park, Brisbane, on May 24th. They were all attached a few inches above the ground to the sides of large stones where the slope was suffieient to give them shade and shelter. Most of the cells were placed singly. In some cases there were two and three together, fastencel side by side, but never more than threc. They were oval in shape, 14 mm . long and 7 mm . broad, being very neatly and symmetrieally made with small pellets, which gave them a gramulated appearance. On opening one of the eells it was found to eontain a pupa enelosed in a thin transparent skin. The wasps emerged between the 6 th and 12 th of June. They eat a small circular hole in the end of the cell just large enough to enable them to escape. After emerging, they rest for a few minutes on the outside of the cell, but soon become very aetive, running and flying about the jar in which they were confined.

This wasp is easily identified by the shape of the elypeus, which is produeed at the apex into a long blunt tooth. This character at onee separates it from the other speeies of the genus.

## FAmily TIIYNNTDA.

During last season I paid special attention to the wasps belonging to the above family, the total number colleeted in the Brisbane district being seventyfive speeies. Out of forty species whieh have heen examined by R. E. Turner,

[^38]twelve species, or 30 per cent. of them, were new to science. The remainder have not yet been identified. The majority were taken on various flowering shrubs, the most attractive Howers being Leptospormum flavcscens, Leptospermum scoparium, Bacliea viryata, and Lomatia silaifolia.

One species of Thynnid, Ariphron petiolatus, Sim., according to my experience, seems to be exceptional in that it does not frequent flowers to the same extent as the other species. Out of twelve specimens taken during the season, one male was eaught on the wing, one male and female were caught in copulation on the wing, four pairs were taken in copulation on the trunk of a standing dead tree, and one malc only was taken on flowers.

An interesting fact which I lave observed regarding the history of these wasps is that a number of the small and medium-sized species are double-brooded, and the point may assist in throwing some light on the carlier stages of these insects. Thymoturneria cerccroides, Sm., Rhagigaster unicolor, Guér., Thynnoidcs fulvipcs, Guér., Lestricalhynnus sp. new, and three undetermined species were taken on Leptospermum flowers in Scptember, and greatly to my surpise the same seven species were again captured at the end of April, a number of them being in copulation on flowers of Baclica virgata, which, owing to the unusually wet summer, was then flowering for the second or third time. The fact that a number of this late brood were taken in copulation shows that they were newly emerged and not stragglers from the spring brood, and I am further of the opinion that this proves that the hosts are double-brooded also.

## Superfamily ICHNEUMONOIDEA, Fımif EVANIDA.

Megalyra fasciipennis, Westwood.-This usnally rare insect was eaptured around Brisbane in four different localities during last season. At Tambourine Mountain, on October $23 \mathrm{r} d$, several females were taken flying round the trunk of a standing dead tree in a newly burnt "clearing." Another female was taken on October 28th (on a fallen tree) at Morningside, near Brisbane. On the occasion of a fortnight's collecting trip on Stradbroke Island during December, both sexes were caught on some grey gums felled the previous year. At Kelvin Grove during the first week in January, a capture of both males and females was made on trees cut down four montlis previonsly.

During the Stradbroke trip, being desirous of obtaining a good series of this curious inseet, I visited the same logs every day for eight days, but did not see any females althongh the males were plentiful. On the ninth day, however, the females appeared, and afterwards were as mumerons as the males. One female was observed with her ovipositor wedged so tightly in a crevice in the bark that there was no diffeculty in catching her without the aid of a net.

On chopping into the log several larvæ and pupæ of a Longicorn Bcetle were found, which were ascertained by breeding out to be Phoracantha recurva, Pascoc. It is fairly certain that the female Megalyra was ovipositing in one of the beetle larve when eaptured.

## Superfamily PROCTOTRYPOIDEA.

Aphanomerus rufescens, Perkins."-This wasp is parasitic in the eggs of the Homopterous insect Colgar peracuta, Walker, belonging to the family Fulgoridæ. The host is a eommon insect in our fields and gardens, and lives upon a number of different trees and shrubs. Its cegg capsules are disc-shaped, pale green in colour, and are firmly glued to the underside of the leaves; the side nearest the leaf being flat, while the outer side is eonrex. There are usually between forty and fifty eggs in caeh eapsule. The eggs are ovate-oblong, with a carina at each end extending longitudinally for about onc-third of the length. These carinæ split when the eggs hatch, making elongate openings through which the young nymphs escape. The parasite, however, does not emerge through the longitudinal carina as does the rightful occupant, but eats a small hole in the side of the eggshell.

There appear to be several broods of Colgar peracuta in the course of a year, but, judging from the few seattered observations whieh were made, I am inclined to think that the parasite only attacks egrs belonging to the winter brood.

Last June and during the early part of July the parasites were observed in numbers on the underside of Canna leaves. A few were seen walking about the leaves, but the majority were in groups, quite stationary, in the immediate vicinity of small clusters of the Fulgorid nymphs. These nymphs were seen at the same time on the underside of the leares. Towards the middle of July the nymphs had beeome adults, and the parasites lad entirely disappeared. No more parasites were seen until June of the following year, when they again occurred in numbers under similar eonditions.

We are indebted to Mr. A. A. Girault for his kindness in the identifieation of the parasite.

Order COLEOPTERA, Famly TENEBRIONID开.
Byrsax macleayi, Pascoc.-In November, 1912, while collecting insects on Tambourine Mountain, I came across some large dead fungi of the genus Polyporus attached to a fallen tree. On breaking a piece it was found to contain several beetle larva. These were not minutely examined at the time, but it was noted that they were white, shining, semi-transparent, short, stout, and about the size of a pea. They were scattered through the fungus, each larva

[^39]being isolated in its own chamber or eavity. A tin was filled with pieces of the fungus, and was examined at intervals on subsequent oceasions. On February 3rd, 1913, one of the bectles emerged, and it was found to be a peculiar fungus-beetle, Byrsax macleayi. The rest of the fungus was then broken up and several specimens of the same speeies were obtained. They were all fully developed, althongh each individual was confined to its own cavity. A few, however, wele rather soft and of a reddish brown eolour, evidently only just having ehanged from the pupal state, but no pupe wera seen. There was a quantity of excrement in the form of fine dust in each cavity eontaining a bectle.

While extracting the beetles a fully devcloped speeimen of a beetle (near, if not a Pylus) of the Cleride was obtained in one of the Byrsax eavities. As the fungus had been kept in a tin with a tightly fitting lid since it was obtained, it seems probable that the Clerid was predaceous upon the Byrsax larve. And as the majority of speeies of the Cleridæ are known to be predaccous upon other inseets, finding this spceimen actually in the eavity formed by a Byrsax makes it almost eertain that it does feed upon that speeies.

## Order NEUROPTERA, Fammy ASCAPITALIDA.

Stilbopteryx costalis, Newman.-This remarkable inseet, which is the largest representative of the family, oceurs on Stradbroke Island, and may be eaptured in nmmbers in December, when one is aequainted with its habits. They appear on the wing at sunset and ean be seen until it beeomes too dark to distinguish anything. They fly strongly about fifteen to twenty feet from the ground, just clearing the tops of the bushes and stunted trees, evidently catching other insects on the wing in the same manner as do the Odonata. This Ascaphalid, however, differs eonsidcrably in its method of flight from that of a Dragonfly. It does not attempt to swerve, or ehange its course suddenly, but continues very swiftly in a straight line. The best method to effect eapture is to attach the net to a long stick, and when one is seen approaehing to suddenly raise the net, holding it up in its line of flight. If the distance has been judged eorrectly, the inseet will fly straight in, as it seems incapable of making a sudden swerve.
R. J. Tillyard (to whom we are indehted for the identification of the above inseet) informs me that it is widely distributed from Cape York to the Blne Mountains, and also in South-western Anstralia, and that it is very variable. ITe also says: "This inseet, together with a Brazilian species, form together the subfamily Protascalaphinx, distinguished by their large size and short antennæ. Some authors still regard them as Myrmelionidæ, but the truth is that they are an arehaic group standing near the base of the phylogenetie stem out of which both Ascalaphids and Myrmelionids arose."

# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA-I. 

SUPPLEMENT.*

By A. A. Girault.

The following additions have been made.

## Family TRICHOGRAMMATIDE.

CHAETOSTRICHINI.

## Genus NEOBRACHISTA Girault.

## 1. NEOBRACHISTA NOVIFASCIATA Girault. Female.

Differs from the type species in being more robust and the abdomen has but three transverse black stripes, the second of which is interrupted at the meson. Also, the thorax has a distinct median sulcus. In fasciata, there is a median groove on the scutcllum only.

Habitat: Nelson (Cairns), Quecnsland. Forest, 1,500 feet.
Type: No. Hy 1597, Queensland Museum.
2. NEOBRACHISTA FASCIATA Girault.
A. NEOBRACHISTA FASCIATA NIGRIVENTRIS now varioty.

Frmale:-Like the typical forms but the abdomen wholly black, accented into three or four broad black stripes evenly distributed over the surface, that is, equally distant from cach other. The difference is a striking one when viewed with a lens but structurally the two agree as far as I could make out and I hesitate to pronounce the difference as one of specific value.

Described from one freshly mounted female captured by sweeping forest on the foothills of the coast range of mountains, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queenstand.
Type: No. Hy 1598, Queensland Musenm, the above specimen on a slide.

## Genus UFENSTA Girault.

Differs from Ufens in having the abdomen conic-ovate, the ovipositor inserted at its base and very distinctly exserted for a third of the abdomen's lerigth. The twisted funicle separates the genus from Japania. The type is the following specics.

[^40]1. UFENSIA PRETIOSA Girault. Female. Genotype.

Black. Head and base of abdomen centrally, orange yellow; oeeiput blaek. Leegs black, the knees, tips of tibia and tarsi white; hind tibie nearly all white. Wings hyaline. Hind wings with three long rows of diseal cilia. Marginal eilia of fore wing very short. Habitus of Ufens.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1173, Queensland Museum.
Genus UFENS Girault.
Subgenus PARUFENS Girault.
The antennæ bear two (apparent) ring-joints; the funicle 1 -jointed, mueh wider than long.

Type: The following species.

1. PARUFENS ARGENTIPES Girault. Female. Genotype.

Blaek; knees, most of front tibiæ, tips of other tibiæ and first two tarsal joints silvery white. Wings hyaline. Vertex orange yellow. Hind wings with three lines of diseal eilia, the eaudal one faint.

Habitat: Capeville (Pentland), Queensland. Forest.
Type: No. $І$ 1 1599, Queensland Museum.
The genus Ufens has but one ring-joint, the funicle 2-jointed and longer than the pedieel.

Genus Japania Girault.
This genus has but one ring-joint.
Genus ABBELLA Girault.
Synonyms: Brachistella Girault; Jassidopthora Perkins.
The genus bears two ring-joints.

## 1. ABBELLA MIRA Girault. Female.

Differs from subflava in bearing a larger substigmal spot, a short oblique line of diseal eilia from the stigmal vein and the fore wing is nearly completely erossed by the substigmal spot.

Habitat: Townsville, Ayr, Nelson and Stewart's Creek, Queensland. Forest.

Type: No. Hy 1272, Queensland Museum.
The speeimen of sublara formerly recorded from Townsville was this speeies. A female was taken at Nelson, N.Q., August 31, 1913, in forest.
2. ABBELLA XANTHOGASTER Girault.

Proserpine and Ayr, Queensland.
3. ABBELLA SUBFLAVA Girault.

Halifax (Ingham), Queensland, February, 1913 by sweeping margins of roadway adjoining cane.
4. ABBELLA IMMACULATA new species.*

Female:-Length, 0.70 mm .
Like mira but the abdomen without markings (in mira the abdomen has three distinct. blaek spots down each side, larger candad; these were mentioned in the original description of that speeies and are very distinet, the last two forming cross-stripes) ; also the substigmal spot does not cross the wing and there are four irregular setæ in the short oblique line of cilia from the stigmal knob. Antennal club dusky.

Male:-Not known.
Described from a single female captured by sweeping low vegetation in the forest, on the side of Mount Pyramid (about 500 feet), November 21, 1911.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1600. Queensland Museum, the above speeimen on a slide (mounted with a female of Trichogramma australicum).

## Genus OLIGOSITA Haliday.

## 1. OLIGOSITA PULCHRA Girault.

In grass, Cromarty; on window, Ayr, Queensland.
2. OLIGOSITA GROTIUSI now species. Female.

Oligosita hilaris Perkins, in Part I., p. 82.
The specimen upon whieh this speeies is based differs too much from the original description of hilaris to be that species and it is quite distinct if Perkins's deseription is correet: The species lacks the terminal seta of the antenna as in fuscipennis.

Habitat: Torres Strait. Forest.
Type: No. Hy 1601, Queensland Museum.
3. OLIGOSITA POINCAREI new species.

Female:-Length, 0.62 mm . Usual in size for the genus. Golden yellow marked with sooty; substigmal spot present, distinct; abdomen yellow except at distal third beneath, above at distal third or more with about three dusky

[^41]transverse stripes more or less eonfluent; wings subhyaline; longest marginal cilia of fore wing a little over half those wings' greatest width; antenna ending in the usual large seta; funiele joint slightly shorter than the pedieel; diseal eiliation of fore wing distinet, about eleven lines, mostly regular. Substigmal spot short. Funicle joint longer than proximal elub joint.

Head, meso- and metapleura, coxpe and distal half or more of hind femora sooty or dusky. Legs otherwise tawny. Antenme dusky. Cephalie part of scutum dusky. Allied with aurea but the fore wings are broader, less densely eiliated, the cilia shorter, all the eoxe blaek; the fore wing is really obscurely, slightly infumated, somewhat distinetly so under the submarginal vein proximad of the bend from which there projects a short blaekish dot; no distinet stripes.

Male:-Not known.
Deseribed from one female captured by sweeping in the forest along the foothills of the eoast range, July 9, 1913 (A. P. Dodd). Dedieated to Jules Henri Poinearé.

Habitat: Nelson (Cairns), Queensland.
Type: No. $H$ y 160. , Qucensland Muscum, the above specimen on a slide (with the type of Encarsia justitia Girault).

## PSEUDOLIGOSITA new genus.

Female:-Like Oligosita Haliday but the fore wings broader, their marginal cilia short and the pedieel and funiele joint of the antenne are elongate, the funiele joint twiee or more longer than wide.

Male:-Not known.
Type: The following species.

1. PSEUDOLIGOSITA ARNOLDI new species. Genotype.

Female:--Length, 1.00 mm . Robust for the family.
Orange yellow, the wings lyyaline; pedicel and funiele subequal; fore wings with about fifteen lines of diseal eilia, the lines more or less irregular; longest marginal cilia of fore wing less than a sixth the wing's greatest width. Hind wings with one long midlongitudinal line of diseal eilia and a seeond half to three quarters complete one at the eephalic margin. Abdomen with about six black cross-stripes. Legs and antenne eoneolorous.

Deseribed from one female on a slide in the colleetions of the Queensland Museum, labelled " Sweeping undergrowth, mostly euealyptus, April 16, 1913. H. Hacker."

Habitat: Prisbane, Queensland.

Type: No. Hy 1603, Queensland Museum, the foregoing specimen.
The species is dedicated to Mattlow Arnold.
The characteristic of the genus is really the short marginal eiliation of the fore wing which so far is not known to intergrade; that is to say, species of Oligosita heretofore known have never failed to have the ciliation long and here its shortness is correlated with antennal peculiarities. I must, therefore, consider the genus distinct until it is known to the contrary.

## Genus CENTROBIELLA Girault.

## 1. CENTROBIELLA MAGNA new species.

Male:-Length, 1.05 mm . Large and robust for the family. Deep golden yellow, the wings hyaline, the sides of thorax and five eonspicuous stripes across the abdomen from base to tip, jet black, the first three stripes of the abdomen fused in the dorsal aspect centrally. Marginal and stigmal veins conspicuously blackened, the stigmal knob enlarged and round, somewhat as in the Megastigmine but more rounded. Genitalia conspicuously exserted. Tibial spur of intermediate legs long, straight and slender, as long as the proximal tarsal joint of these legs which is moderatcly long. Differs from female mulierum in its much larger size, the blackened marginal and stigmal veins, the erilarged stigmal knob, the greater development of the intermediate tibial spur and in bearing five abdominal stripes, the fifth one in mulierum being obseure, represented by a spot at extreme apex; from the male of the same species in the samo characters and also in having the conspicuously banded abdomen imerely darkened toward tip in male mulierum). Funicle joint longer than wide. stout. Cephalic tibial spur very short and straight. Fore wings not very distinctly infumated proximad.

Female:-Not known.
Described from one male captured by sweeping grass and foliage in forest, August 5, 1913.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1601, Queensland Museum, the above specimen on a slide.

## OPIIIONEURINI.

Genus LATHROMEROIDES Girault.
Differs from Tumidiclava Girault in having the abdomen very long and tubular, the elub not nuch swollen and not terminating in a seta, the thorax
witle a median sulcus, the discal eiliation of the fore wing normal, dense. Hind wings with five lines of diseal eilia. Two ring-joints. Ovipositor exserted for about a seventh the length of the long abdomen.

I'ype: The first species following.

1. LATHROMEROIDES LONGICORPUS Girault. Female. Genotype.

Bright golden yellow; a blaek dot under stigmal vein. Legs pallid yellow, antennæ somewhat dusky.

Habitat: Proserpine, Queensland. Forest.
Type: No. Hy 12\%1, Queensland Museum.
2. LATHROMEROIDES FASCIATIVENTRIS Girault. Female.

Differs from the preceding in having four or five black stripes across the abdomen. Antennæ with two ring-joints. Also the body is stouter, the wings broader and the general coloration somewhat lighter, pale lemon yellow.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1605, Queensland Museum.
There are certainly two ring-joints in fasciativentris while only one is recorded for the type species. A careful re-examination of the latter will be necessary to decide how many there are in the genus. The types of the two species should be carefully compared. Later, through the kindness of Dr. R. Hamlyn-IIarris, I was enabled to do this; there are two ring-joints in both specics.

Genus APHELiNOIDEA Girault.

1. APHELINOIDEA HOWARDII Girault.

Ayr, Queensland.
Genus TUMIDICLAVA Girault.

1. IUMIDICLAVA ciliata Girault.

Proserpine, Queensland, sweeping grass in an open jungle porket, November.

## Genus Lathronieroidea Girault.

I captured a female of the type species by sweeping in the forest at Nelson, Junc 8, 1912. The antennæ bear two rather large ring-joints, the first of the five club joints shortest.

The Australian members of the family appear to inhabit the forested country, rather than that of the jungle.

# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA-II. 

## SUPPLEMENT.*

By A. A. Giraulit.

The fellowing additions eoncerning the Australian fauna have been made.

## Family MYMARIDe. <br> OOCTONINI.

Genus ooctonus Haliday.

1. OOCTONUS SAINTPIERREI Girault. Female.

Differs from australionsis Perkins in bearing a long abdominal petiole. Congeneric with Cosmocomoidea morrilli Howard. Black, the wings without pattern; legs deep orange yellow, also scape; first coxæ black. Longest marginal eilia of fore wing a little less than a third of the greatest width. Funicle joints longer than wide, not very unequal, joints 2,3 , and 5 subequal and longest; joint 1 shortest but longer than the pedicel.

Habilat: Kuranda, Qucensland. Jungle.
Type: No. Hy 1562, Queensland Museum.
Genus Camptoptera Foerster.

1. CAMPTOPTERA GREGI Girault. Female.

Differs from the single North American and European species in having the first funiele joint abruptly shorter than the second, not long and nearly subequal to the second as in those two species but less than half its length and distinetly shorter than the pedicel. The abdomen is paler.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. IIy 1313, Queensland Museum.

## GONATOCERINT.

Genus COSMOCOMOIDEA Howard.
This genus has 5 -jointed tarsi and agrees with Ooctonus Haliday but the long marginal vein is not mentioned as a characteristic of the latter genus. Besides, the males of Cosmocomoidea lave 11-jointed antennæ.

[^42]
## 1. COSMOCOMOIDEA RENANI Girault. Maie and female.

Differs from the type of the genus, the North American morrilli Howard, in being black, the flagellum uniformly blaek, the wings more eonspicuonsly and differently fumated, larger size, in having joints 4 and 5 of the funiele longest and in lacking a distinet abdominal petiole, the abdomen merely tapering at base. The male has 13-jointed antenna and resembles the female in coloration. A large mesoprrescutum is not present.

Mabitat: Nelson (Cairns), Queensland. Forest.
Type: No. IFy 1563, Queensland Museum.
Differs in the female from Cosmocomoidca Howard in bearing a subsessile abdomen and in the male by bearing 13 -jointed antennæ. The longer marginal vein differentiates it from Gonatocorus Nees and the sessile abdomen from Ooctonus Haliday and also probably the long marginal vein. The scutum has a median groove.

## 2. COSMOCOMOIDEA GROTIUSI (new species).*

Female:-Length, 2.00 mm .
Similar to renani but the oripositor is slightly exserted and the fore wings differ in pattern; thus the first band under the marginal vein is distinct, the seeond band is also more distinct, black and midway between apex of venation and apex of blade; the third is absent, thats the distal part of the blade is elear; the wings are also smaller and less densely ciliate. The scape has a broad yellow band aeross it, the first three funicle joints are silvery white on one distal corner, the three shortest and not mueh unequal.

Male:-Not known.
Dedicated to Hugo Grotius.
Described from one female captured July 4, 1913, by swceping in forest (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. IFy 1567, Queensland Museum, the above specimen on a slide.
This species doubtfully belongs here but unfortunately I neglected to examine the thorax before mounting it in balsam. Gonalocerus saintpierrei, spinozai, bicolor and mirissimus also doubtfully belong here, especially the first and last. A mesopreseutum was thought to be present. All are Gonatocerus.

[^43]Genus ALAPTUS Haliday.
Synonym: Parvulinus Mercet.

1. ALAPTUS ANIMUS Girault. Female.

Closest to mewtoni Girault from which it may be distinguished by the longer antennal elnh whieh is subequal to the funiele in length and the darker body eoloration, the pale funiele eontrasting with the dark elub.

Mabitat : Nelson (Caims), Queensland. Forest.
Type: No. H!/ 1289, Queensland Museum.
2. ALAPTUS MACCABEI Girault. Female. Alaptus immaturus Perkins, partim, in Girault, ante, 1912.
Like immaturus Perkins but the body mueh darker and the line of eiliation on the dise of the fore wing is much longer, extending from apex proximad to venation. It may be merely a variety of immaturus.

Habitat: Nelson and IIerberton, Queensland. Forest.
Type: No. Hy 1:900, Qucensland Museum.
Genus AGONATOCERUS Girault.
Differs from Gonatocorus Nees in being very small and in bearing 13 -jointed antennæ, the funiele 10 -jointed. The seutum has a median grooved line. Female. Type, the following speeies.

1. AGONATOCERUS HUMBOLDTI Giranlt. Female. Genotype.

Dusky brown, the base of abdomen golden yellow, the wings hyaline; antennæ and legs somewhat darker, the basal half of scape pallid. No diseal eilia under venation of fore wing.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1565, Queensland Museum.

## Genus GONATOCEROIDES Girault.

Published as a subgenus of Gonatocorus Nees, but now considered as a genus. Differs from Gonatocerus in bearing 10-jointed antennæ. Type, the following speeies.

1. GONATOCEROIDES AUSTRALICA Girault. Female. Genotype.

Dusky brown, knees, basal three joints of tarsi, first femora and tibiæ pale yellowish. Wings hyaline. Fore wings broad, bearing about thirty-three lines of fine diseal eilia. Fourth funiele joint longest, the third joint decidedly longer than either joints 1 or 2, nearly as long as the pedieel. First femora dusky beneath proximad.

Mabitat: Ayr, Queensland. Forest.
Type: No. IIy 1273, Queensland Museum.

## Genus GONATOCERUS Nces.*

## 1. GONATOCERUS COMPTEI Girault.

Fresh specimens of this species show a Jarge arrow-shaped fuscous spot in the lateral aspect of the abdomen at distal half. The dark markings are variable.

Proserpine, Qucensland, November, 1912, by sweeping grass in forest. Males. Also at Quingilli in September, same conditions.
2. GONATOczRUS SPINOZAI Girault. Male.

Similar to the female but the abdomen transversely striped dorsad with six black stripes, the propodeum purplish black. Fumicle joints $2-4$ and $9-10$ subcqual, longest, eacl about thrice longer than wide, joint 8 bcing shortest. Antennæ 13-jointed.

Mabilat: Nelson (Cairns), Queensland. Forest.

## 3. GONATOCERUS AUSTRALIENSIS (Perkins). Male and female.

 Ooctonus australiensis Perkins, 1905, pp. 191, 193, 191, 195, pl. xiii, fig. 2 (lowest two figs.). Gonatocerus australiensis (Perkins), 1912, p. 20.Differs from all the species known to me from Australia, all of the species so far described, in having varicoloured antenuæ in the female, joints $\bar{J}-7$ being white; the first funicle joint is longer than the pediccl; black. The thorax of this species should be carefully cxamined since the species has the facies somewhat of Cosmocomoidea.

## 4. GONATOCERUS AYRENSIS Girault. Female.

Golden yellow, head dusky, tip of abdomen, and a narrow transverse band before it, black. Funicle and club black, all fumicle joints long except the first and last, the first two-thirds the length of the slender second joint. Close to baconi Girault but the proximal tarsal joints are longer, the thorax is all yellow and the first two pairs of legs are lighter.

Habitat: Ayr, Queensland. Forest.
Type: No. IIy 1275, Queensland Museum.

## 5. GONATOCERUS NOX Girault. Female.

Similar to cingulatus Perkins hat the whole body miformly sooty brownish, nearly black, coloured like most species of Anaphoidifa. Also the fourth funicle joint is distinctly longer than the third.

Mabitat: Ayr, Quecnsland. Forest.
Type: No. Hy 12\%6, Queensland Muscum.

[^44]
## 6. GONATOCERUS FULGOR Girault. Male.

Like brunoi but the fore wings somewhat broader, not so regularly rounded at apex, the discal eiliation noticeably denser (finer and shorter) and there are about thirty-three lines; the funiele joints are shorter, the proximal ones barely twice longer than wide; the legs are darker.

Habitat: Ayr, Quecusland. Forest.
Type: No. IIy 19r7, Queensland Museum.

## 7. GONATOTERUS BICOLOR Girault.

lhlack, the abdonen orange reddish; scape and pedieel lemon yellow, also all of legs exeept the fuscous tibia. First funiele joint longer than the pedieel or joint 2 of the funicle, suberual to joint 3. With the facies of Cosmocomoidea and thus the thorax should be examined for a mesoproseatum.

Habital: Nelson (Cairns), Queensland.
Type: No. Hy 1293, Queensland Museum.
8. GONATOSERUS FASCIATYENTRIS Girault. Male.

Differs from gocthei Girault in eoloration and in bearing broader fore wings. Yellow, the abdomen with six biack stripes across dorsum. Fore wings of the broader type. Fumicle joints only about one and a half times longer than wide.

Habilat: Nelson (Cairns), Queensland.
Type: No. Hy 1294, Queeusland Museum.
9. GONATOCERUS BRUNOI LYELLI Girault. Male.

Like the typieal forms but the abdomen above at distal third distinetly banded witli narrow golden yellow stripes, the wings very dark.

IIabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1295, Queensland Museum.
10. GONATOCERUS DIES Girault. Female.

Jet black. Face, paris of seutum and the knees obseure golden yellow. Wings hyaline, broad. Base of abdomen more or less obseurely yellow. Like helmholtzii but the fore wings are notieeably less densely eiliate, the eiliation eoarser and the ovipositor is plainly exserted for a length equal to a fourth that of the abdomen.

Mabilat: Capeville (Pentland), Queensland. Forest.
Type: No. Hy 1566, Queensland Museum.

## 11. GONATOCERUS SAINTPIERREI Girault. Malc.

Very large and with the facies of Cosmocomoidea. Jet black. Fore wings with a midlongitudinal, subcylindrieal fuscous stripe from near apex proximad a little more than half way to the marginal vein. Fore wings broad.

Habitat: Kuranda, Queensland. Jungle.
Type: No. IIy 1.J6\%, Queenstand Museum.
12. GONATOCERUS LOMONOSOFFI Girault. Female.

Jet black and like nox but smaller, the fore wings of the broader type yet not wide, the antenne with the first three funicle joints short and subequal, the fourth only a little longer while the fifth is plainly twice longer than the third. Discal cilia absent under the marginal vein or nearly.

Habilat: Kuranda, Queensland.
Type: No. Iy 1568, Queensland Museum.
13. GONATOCERUS MIRISSIMUS new species.

Female:-Length, 2.25 mm . Very large for the family. Black, the abdomen red and thus coloured like bicolor from which it differs in bearing a conspicuous black, uniform, longitudinal stripe down the middle of the wing from apex a little more than half way to apex of the venation. Thus also allied with saintpicreci Girault but the stripe on the fore wing of the latter very much fainter and narrower, its outlines obscure. Structurally very similar to bicolor. Like saintpicirei in wings and legs (structure). Legs rich brown, the cephatic coxe black.

Male:-Not known.
From one fenale eaptured by sweeping in jungle, June 14. 1913 (A. P. Dodd). Several days later, June 16, another female was captured in the same place; in this specimen the dorsum of the abdomen and its tip were black.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1569, Queensland Museum, the above specimen on a slide with the type of Gonatocorus saintpierrei Girault.
14. GONATOCERUS TRICOLOR new species.

Male:-Length, about 1.50 mm . Large for the family. Black, the abdomen and scape orange yellow and thus like bicolor but the fore wings are distinctly broader, equal to those of suintpiorei; besides the orange abdomen this species differs from suintpierrei in having the fumation of the wings spread all over the blade distad of the venation execpting the candal and cephalic margins which are clear two thirds the way to apex from the distal end of the marginal vein. Parapsidal furrows complete; mesoprcscutum apparently absent; scutellım long as the scutum, flattened. Joints of antennal funicle at least twice longer than wide.

Described from one male speeimen eaptured by sweeping along a damp creek, grass, in forest, July 8, 1913 (A. P. Dodd). Respeetfully dedieated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 15\%0, Queensland Museum, a fore wing on a slide with the type of Gonatoeerus bicolor.

The single speeimen of this species, unfortunately, was lost, only a wing being saved.

## 15. GONATOCERUS POINCAREI new specics.

Female:-Length, 2.00 mm .
Like mirissimus Girault but seape, pediecl and legs (excepting front eoxæ), yellow, the abdomen wholly black, the distinet, wide midlongitndinal blaek stripe of distal fore wing sloorter, that is not proeeeding to apex but fading distinctly some distanee before; also in the middle of the blade farther proximad there is a more or less distinet fuseous spot only narrowly connected with the blaek stripe (in mirissimus broadly eomected and not forming a more or less distinct spot) ; also the funicle joints are distinetly longer, the distal joint longer than wide, joints 2 and 3 longest and distinctly over twice longer than wide (in mirissimus the distal joint is quadrate while joints 2 and 3 are distinetly not twies longer than wide). The yellow parts ehange to orange in balsam.

Male:-Not knorn.
Described from one female captured by sweeping in jungle, July 13, 1913. Respect fully dedicated to Jules Henri Poincaré.

Habitat: Harvey:s Creek (Cairns Distriet), Queensland.
Type: No. Hy 1571, Queensland Muscum, the above speeimen on a slide with the type of Gonatocerus Tomonosoff Girault.
16. GONATOCERUS MERCES new specios.

Female:-LJength, 0.80 mm .
Golden yellow marked with jet black as follows: A flat, hemispherical marking at caudal margin of pronotum aeross middle, all of seutum execpt lateral and caudal margins, a large diamond-shaped area on the parapside (nearly joining the next), a smaller triangular area in the vieinity of the axillee (laterad of the cephalic scutellum), the propodeum, a line from one lateral oecllus to the: other, three areas on the occiput, ceplatic aspect of the head and distal half of abdomen above and hind tibiar. Legs pale yellow. A pattern of blaek spots on cephalie vertex. Distal two tarsal joints black. Antenne missing. Fore wing; hyaline, moderate in width, with about 17 lines of cilia. Marginal cilia about a fourth the greatest wing width.

Deseribed from one female eaptured by sweeping in jungle poeket, July 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 15\%2, Qucensland Museum, the above female on a slide with the type of Gonatocerus melschenito offi.

1\%. GONATOCERUS MAZZINTM new species.
Female:-Length, 1.50 mm .
Blaek, densely reticnlated, the wings hyaline; mesopræseutum absent; parapsidal furrows and thorax normal; belongs to the spinozai group and is characterised by the coloration and the antennal structure, the funicle joints being more or less snbquadrate but the first like a large ring-joint, distinctly smaller than any of the others, joints 4 and 5 longest, eaeln a little longer than wide, the others subquadrate and more or less subequal to the pedieel; scape compressed, dilated ventrad, golden yellow along the middle of eaelr side. Wings like those of bicolor. Legs pale lemon yellow exeept the more or less eoloured eoxæ and the embrowned seeond and third tibiæ; abdomen above at base with slight yellowish, with a distinct but short petiole as in saintpiervei; ovipositor not exserted. Club orer half the length of the funiele.

Malc:-Not known.
Described firom one female eaptured Deeember 24, 1911, by sweeping floor of forest, top of eoast range of mountains opposite Double Island (about 1,000 feet).

Habitat: Caims (Donble Island, mainland), Queensland.
Typc: No. \#y 15\%3, Queensland Ninseun, the above specimen on a slide.
Respectiully dedicated to Giuseppe Mazzini for his essays, more espeeially for his "The Duties of Man."
18. GONATOCERUS CARLYLEI new speeies.

Female:-Length, 1.25 mm .
About the same as dics but larger, the median line of scutum and the lateral margins of same narrowly and lateral margins of scutellum, golden yellow; otherwise as in dies except the hind femur is pallid, the hind tibio with a pallid band around them just proximad of middle. Ovipositor plainly exserted for a length equal to a third that of the abdomen (or somewhat less). Proximal third of abdomen plainly yellow.

Male:-Not known.
Deseribed from one female eaptured by sweeping in the forest, August 23, 1913 (1. P. Dodd). Dedicated to Thomas Carlyle.

Trabitat: Nelson (Cairns), Queensland.
Type: No. Ify 15\% 亿, Qneensland Museum, the above specimen on a slide.

## ANAPHINI. <br> Genus ANAGRUS Haliday.

## 1. ANAGRUS ARMATUS AUSTRALIENSIS Girault.

Proserpine, Queensland, November 4, 1912, a female from a window.

## Genus STETHYNIUM Enoek.

## 1. STETHYNIUM LATIPENNE Girault. Male.

Robust for the genus. Differs from all the Australian speeies in bearing very broad wings, which bear at their widest part about thirty lines of fine discal eilia. From peregrinium it djffers in general coloration and in bearing a thoraeie median suleus. Lemon yellowish marked with deep black. Hind wings with about six lines of discal cilia at apex, the longest marginal eilia of fore wing somewhat over half the greatest width of those wings.

Habitat: Proserpine, Queensland.
Type: No. Hy 19\%. I , Queensland Museum.

## Genus PARANAPIIOIDEA Girault.

Like Anaphoidca Girault but the ovipositor plainly exserted for half the length of the abdomen. Hind wings broad, bearing about seven lines of diseal eiliation. Mesopostscutellum as long as the seutum. Venation as in Stethynium. Cephalie tibial spur not forming a strigil. Type, the following speeies.

## 1. PARANAPHOIDEA EGREGIA Girault. Femalo. Genotype.

Black, with a golden yellow pattern; mesopostscutellum golden yellow excepting a prominent, elliptical hlack marking on eaeh side of the merlian line and an oblique dash laterad; sentum at caudal margin golden yellow and mesad with a U-shaped golden yellow marking; face yellow; a slender golden yellow line on the vertex runs aeross the eephalie ocellus from eye to eye, laterad widening caudad and cephalad, leaving in the centre of the vertex two subreetangular areas, before and behind the eephalie ocellus; margin of axilla yellow and lateral portions of each parapside, irregularly. Distal club joint muel longer than proximal.

Habitat: Nelson (Cairns), Queensland.
Type: No. Пy 1291, Queensland Musenm.

## 2. PARANAPHOIDEA PONDEROSA new species.

Female:-Length, $1 \cdot 30 \mathrm{~mm}$., excluding the ovipositor which is exserted for half the lengtl of the abdomen or more.

It onee distinguished from the type species in being twiee larger, in having the eephalic tibial spur forming a strigil, the first funiele joint distinetly longer
than the pedicel and the different coloration, only the laterocaudal angle of pronotum, the lateral and eaudal margins of the scutum and the median line of the latter being bright lemon yellow. Hind femora swollen, the front ones less so, the legs pale yellow. Fumicle joints all eylindrical, $2-4$ longest but not much longer than any of the others.

Male:-Not known.
Described from one female captured by sweeping in forest, August 12, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 1575, Queensland Museum, the above specimen on a slide.

## Genus POLYNEMOIDEA Girault.

Habitus of Polynoma; venation and wings of Cosmocomoidea but the marginal fringes are long; antenna: of Polynema but the elub is indistinetly 3 -jointed; tarsi 4-jointed; abrlomen subsessile, no distinct petiole. no phragma, the ovipositor very long, slender, exserted for a lengith equal to mope than that of the abdomen. Parapsidal furrows complete; scutellum rectangular. mesopostscutellum larger than it. Propodeum still longer. Anteme 11-jointed, the scape serrate beneath. Strigils present. Type, the following species.

## 1. POLYNEMOIDEA VARICORNIS Girault. Female. Genotype.

Blaek, the first four funiele joints of antenne white, the legs yellowish brown. A stain along the anterior margin of fore wing around the apex and broadly across from the marginal and stigmal veins. First funicle joint much smaller than the perlicel, the next two joints very long, joint 2 a little shorter than 3 and suberual to the chbl in length. Sculpture fine.

Mabitat: Mobart, Tasmania.
Type: No. I. 122s, South Australian Minseum, Adelaide.

## 2. POLYNEMOIDEA LINCOLNI new species.

Fremale:-Length, 1.15 mm . Ovipositor not exserted.
Pale bromish yellow, the head, cephalic third of thorax (along pro- and mesonotum) and distal eight antemnal segments, black. Fore wings dasky out as far as the apex of the renation and distad more or lews obscurely along each margin. Abdomen dusky yellowish. Second funicle joint longest, more or less equal to the pedieel. Alesopostscutellum with a sclerite back of it much like the postscutellum of a normal scutellum. Otherwise about as in varicornis but the marginal fringes of the fore wing are much shorter. Mandibles bidentate.

Male:-Not known.

Deseribed from one female specimen captured by sweeping in jungle, July 10, 1913 (A. I. Dodd).

Hubital: Nelson (Cairns), Queensland.
Type: No. Hy 15~6, Qucensland Museum, the above specimen on a slide with the type of Anaphes saint pierri.

Dedieated to the life of Abraham Lineoln.
Genus ANAPHES Haliday.

1. ANAPHES SAINTPIERREI now species.

Female:-Length, $0 \cdot 60 \mathrm{~mm}$.
Jet haek, the antenne and legs sooty, the wings greyish blaek throughout. Fore wings very narrow, eurved and acute at apex, bearing only about six lines of diseal eilia, the very long marginal eilia over twice the greatest wing width. First two pairs of legs suffused with yellowish. Parapsidal furrows eomplete, the seutellum very large, oceupying over half of the thoras. Seulpture fine. Hind wings without midlongitudinal eilia. Strigils present. Funicle joints 3-6 subequal and longest, eaeh nearly twiee longer than 2 , joint 1 very short. A clear spot in middle of fore wing a little distad of venation. Mandibles aeutely bidentate.

Like the North Ameriean sinipennis Girault with whieh I have eompared it but the fore wings still distinetly narrower and in sinipennis the second funiele joint is a little the longest. Charaeterised by the fore wings.
.11ale:-Čnknown.
Deseribed from a single female eaptured from the panes of a window in a hotel, July 13, 1913.

Habitat: Harvey's Creek (Cairns), Queensland.
Type: No. Hy 15\%7, Queensland Museum, the above specimen on a slide with the type female of Polymemoidca lincolni.

Respeetfully dedicated to L'Abbé Saintpierre.
2. ANAPHES SPINOZAI new specios.

Male:-Length, $1 \cdot 00 \mathrm{~mm}$. Slender.
Black, the abdomen yellowish at proximal third, the legs, seape and pedieet pale yellow, the funicle and elub greyish blaek. At once charaeterised by the ciliation of the fore wing whieh is nearly all gathered on the eephalo-distal eorner of the blade where it is rather densely arranged in about from seven to eight lines; on the opposite side near the candal margin is a straggling line; elsewhere the blade is praetically naked exeepting at extreme apex, sinee the eephalo-distal pateh of ciliation extends a short way around the distal margin; fore wing aniformly slightly infumated (cloudy greyish) but distinctly sooty along the
distal or apical margin. Longest marginal eilia of fore wing not quite as long as the greatest width of the blade. Joints of fanicle about thrice longer than wide, joint 1 paler; 12 antennal joints but one other certainly missing in the specimen (one antenna half missing, the other with 12 joints present and at least one other missing). Genitalia exserted. Strigil present.

Female:-Not known.
Described from one male specimen captured by sweeping miscellaneous vegetation in the town and adjoining country, February 26, 1913.

Mabitat: IIalifax, Quecnsland.
Type: No. $\Pi$ y 1578, Queensland Museum, the above specimen on a slide.

## MYMARINI.

Genus MIMIAR Haliday.

1. MYMAR TYNDALLI Girault.

A female at Proserpine, Queensland, November, 1912, sweeping near a small pond in semi-cultivated field.

Male:-The same as the fcmale. Antenna slender, the funicle joints all elongate and subequal but the first joint and the club slightly shortcr, each of the funicle joints about two and three quarter times the length of the pedicel.

Described from one specimen captured by sweeping in forest Angust 7, 1913 (A. P. Dodd), at Nelson, Queensland.

## Genus POLYNEMEA Haliday.

## 1. POLYNEMA DEVRIESI Girault. Male.

Similar to druperi and romanesi but differing from both in bearing much coarser discal cilia on the fore wing and in being ferrugineous, the distal third of the abdomen black.

Habitat: Nclson (Cairns), Qucensland.
Type: No. Hy 1296, Queensland Museum.

## 2. POLYNEMA MENDELI Girauit. Male, female.

Like devricsi but the discal ciliation of the fore wing finer, the marginal cilia shortcr, not quite as long as the greatest width of the blade. Ferrugineous, the abdomen black. First funicle joint much shortor than the second. The female has a very long, exserted ovipositor and two grooves on the scutcllum.

Mabitat: Nelson (Cairns), Queensland.
Type: No. IIy 1297, Queensland Museum. Male.
3. POLYNEMA NORDAUI Girault. Female.

Blaek; first three antennal joints, abdominal petiole, legs exeept distal half of hind femur and distal tarsal joints, orange yellow. Like longipes but the antenna different. joints 2 and 3 of funicle heing long and subequal. Nearly like draperi in wings but the legs are orange, brighter. Possibly the female of draperi but most probably quite distinet.

Habilat: Nelson and Mecrawa (Cairns), Queensland.
Type: No. Пy 1298, Queensland Museum.
A female of this species was eaptured by sweeping in jungle at Meerawa, Queensland, Tuly 26, 1913 and another in a similar habitat at Nelson, July 30 following.

## 4. POLYNEMA AUSTRALIENGE Girault. Female.

Like spencori but the funiele joints are longer; joint 1 of funiele is distinetly shorter than 3 while joint 2 is six or more times longer than wide; joint 4 is distinctly longer than cither 5 or 6 .

Habilat: Capeville (Pentland), Queensland.
Type: No. Hy 1579, Queensland Museum.

## 5. POLYNEMA PAX Girault. Female.

Like spenceri but the seeond joint of funiele plainly over twiec the length of the pedieel and the diseal eiliation of the fore wing does not disappear proximad. Legs and petiole dusky brown ; joints 2-4 of funiele dusky yellow. A female of this species was captured at Nelson, Junc 9, 1913, walking over the foliage of Tristania (A. P. Dodd).

Mabitat: Kuranda (type) and Nelson, Queensland.
Type: No. Hy 1580, Queensland Museum.

## 6. POLYNEMA POINCAREI Girault. Female.

Dark brown, the abdomen and scape black, also the two distal joints of antenna. Fore wings with two jet-blaek bands aeross them, the distal one eovering the distal fifth of the wing. First funiele joint longer than the seape, the sceond joint extraordinarily lengthened, subequal to the third which is abont twiee the length of the first.

Mabital: Nelson (Cairns), Queensland.
Typo: No. Hy 1581, Queensland Museum.
On July 30, Mr. A. P. Dodd eaught a third female of this extraordinary speeies by sweeping in a jungle poeket near Nelson.
r. POLYNEMA ROUSSEAUI Girault. Female.

Like sicboldi Girault hut the third funiele joint is subequal to the second and the hind femue is black at distal half, the second tibia with a dusky ring just before tip. Also the large spot on the fore wing is blacker and somewhat farther distad. The second funicle joint is black, the distal three joints of the funicle deciderly shorter, each shorter than joint 1. Also, the fore wings bear a disto-cephalic inarginal spot.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 158:, Qucensland Museum.
8. POLYNEMA FRANKLINI Girault. Female.

Tike sicboldi but the spot on the fore wing darker, the coxa and petiole orange yellow like rest of the legs; also the distal three funiele joints are as in roussaui from which this species differs in the coloration of the legs.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1583, Queensland Muserm.

## 9. POLYNEMA ZOLAI Girault. Male.

Jet black, the wings lyaline. Characterised by the broad fore wings, the longest marginal fringes of which are only about a sixth the greatest wing width. There are only about twelve lines of discal eilia, these latter sparse and practically absent over the proximal half of the blade which is about two and a quarter times longer than broad. A very minute ring-joint is present.

Habitat: Kurauda, Quecnsland.
Type: No. Hy 1584, Qucensland Musemm.
10. POLYNEMA SPECIOSISSIMUM Girault. Female.

Blaek, the head, pronotum and mesonotum reddish brown; petiole, coxæ, trochanters, first femora and basal half of all tibix, silvery white; tarsi, seape and pedicel reddish brown, joints 4 and 5 of funicle white. Fore wings marked somewhat as in fronklini, but the cross band is very intense jet black and mueh longer. Joint 1 of funicle two-thirds the length of the seeond, which is subequal to the third, all three elongate.

Habitat: Nelson (Cairns), Qucensland.
Type: No. Hy 1585, Queensland Musemm.
11. POLYNEMA SAPPHO new species.

Female:-Length, 1.00 mm .
Blaek, the pedieel, first funicle joint (more or less), tibiæ (except distal two thirds of hind tibix), petiole, tarsi except distal joint, coxæ cxeept eephalie ones and troehantcrs yellowish. Differing from ncarly all Australian speeies
of the genus so far known by bearing, besides a transverse blackish stripe across somewhat distad of the middle (mucls over its own length from the venation, the stripe subquadrate and faded along the cephalic margin, brown not jet black), on the fore wing an orate dusky spot distad in the cephalo-distal corner of the blade. Discal cilia rather sparsc, absent under the venation and for some distance distad from it (out as far as the cross band) ; longest marginal cilia equal to two thirds the greatest wing width. First funicle joint a little longer than the pedicel, a little over half the length of the second which is longest, the third a fourth shorter than the second, the sixth shortest, ovate, the fourth a little shorter than the first, a little longer than the fifth. Scape simple.

Malc:- Not known.
Described from one female captured by sweeping jungle growths along a forest streamlet, June 18, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1586, Qucensland Muscum, the above specimen on a slide with the type of Polynema speciosissimum Girault.

This species is closcly allitd with rousseani Girault which also has the distocephalic spot on the fore wing; however; in that species the second and third funicle joints are of equal length, the fore wings wider (about sixteen lines of cilia, only about eleven here) and the first funicle joint is longer in rousseaui. Also, in the latter, the scape, pedicel and first funicle joint are all uniform in color.

## 12. POLYNEMA NOTABIKISSIMUM new species.

Femalc:-Length, 1.50 mm . Large and striking.
Like poincarci, that is the wings with two jet-black bands, but differing as follows: Firstly, it is jet black, only the pedicel and first two funicle joints of the antenna and the legs (except coxe and distal tarsal joints) are orange yellow. Secondly, the appendages are less slender; iu the antenne the first three funicle joints are not so long and the third is longest, distinctly longer than the sccond, which, however, is long; the club is normal, that is large and ovate, the distal funicle joint not apparently a part of it and much narrower than it; also the distal threc funicle joints are much shorter, the distal joint shortest, subequal to the pediccl. The extraordinarily lengthened proximal tarsal joints in poincarei are replaced here by still long ones but not half as long as those of the species named. In the fore wings the pattern differs in that the clear band between the two black bands is not subequal to the length of the distal band as in poincarei but narrow and only about a third the length of that band and distinetly less than the length of the proximal band (distiuctly longer than it is in poincarei). Abdominal petiole pale yellowish. The species less robust than poincarci, the wings shorter and not so broad. Third and fourth funicle joints only dusky, the other joints distad black.

Male:-Not known.
Described from one female captured by sweeping in jungle, June 10, 1913 (A. P. Dodd).

Habitat: Little Mulgrave River near Nelson (Cairns), Queensland.
Type: No. Hy 1.5s\%, Queensland Musemm, the above specimen on a slide with Polynema poincarci Girault.

## 13. POLYNEMA GROTIUSI new spocies.

Fromalc:-Length, 2.90 mm ., exclusive of ovipositor which is exserted for a length equal to nearly half that of the abdomen.

Polished black, the line of foves near apex of scutellum present; pronotum as long as the seutum whieh bears complete parapsidal furrows. Over distal half of petiole silvery white. Scape, pedicel, joints 1,1 , and 5 of funicle, mmeh of first femora, knees and the tarsi yellowish or reddish brown. Clab about twiee the length of the distal joint of the funicle, the joints of the latter elongate, 2 and 3 suberual, longest, each somewhat over twice the leugth of joint 6 ; joint 1 a little longer than joint 4 which is slighty shorter than the club, a third shorter than 3. Fore wings very broad, with abont thirty-four lines of discal cilia, their marginal cilia short, the longest only about an eighth of the greatest wing width. Fore wings darkened distad of the venation.

Mate:--Not known.
Described from one female captured by sweeping the foliage along a jungle path, July 13, 1913.

Habitat: Harvey's Creek, Cairns District, Queensland.
Type: No. Hy 1588, Queensland Museum, the above specimen on a slide.
14. POLYNEMA DARWINI new speoies.

Frmale:-Length, 1.20 mm .
At onee distingnished by the fore wings which are hyaline but with a distinct disto-eephalic spot; this spot is larger and more distinet than the one in rousscaui or sappho and round. Black, polished, the foveate line across the long seutellum obseure, made of fine, seattered pimetures. Legs blaek, knees, front tibise and all tarsi whitish. Scape, pedicel (except above) and first funicle joint pallid, the following one or two joints dusley pallid, the club and last two fumicle joints black; funcle 4 distinctly longer than 5 or 6 , slightly shorter than 1 ; joints 2 and : of finnicle nearly equal, long, 2 a little the longer, about a third longer than 1 whieh exceeds the length of the pedieel. Fore wings with about from 12-14 lines of diseal cilia, their longest marginal cilia somewhat over two thirds the greatest wing width. Scape simple.

Male:-Not known.

Described from a single female captured by sweeping forest growths, November 3. 1912.

IIabitat: Proserpine, Queonsland.
Type: No. Hy 1589, Queensland Museum, the above speeimen on a slide with the type female of $P$. grotiusi Girault.

Dedieated to Charles Darwin.

## 15. POLYNEMA HAECKELI new species.

Male:-Length, 1.50 mm .
Like franklini and sioboldi but diftering in that the stripe aeross the fore wing is deeper than in the former and the hind femora and tibise blaek, the intermediate tibia dusky. Legs otherwise orange yellow. Seape and perdieel dusky pallid, the rest of the antenna black. Funiele joints over thrice the length of the pedieel, thus longer than with the specinen deseribed as the male of sicuoldi (whieh has the lind femur blackish at tip).

Female:-Not known.
Deseribed from one male eaptured by sweeping jungle in a gorge, July 26, 1913.

Dedicated to Erust Macekel.
Mabitat: Mcerawa (Cairns), Queensland.
Type: No. Hy 1590, Queenstand Museum, the above specimen on a slide with the type of lodgei, deseribed next.

## 16. POLYNEMA LODGEI new species.

Fernale:--Length, 2.00 mm .
Black. the legs brown, hack at tip of lind tibiar; pedicel and joints 1, 4 and 5 of funicle yellowish, the scape darker, joints 2 and 3 of funiele brownish blaek, joint 6 and the elub jet black. Of the build of grotiusi but at onee distinguished from all the species of the genus in bearing fore wings like those of Gonatocerus mivissimus Giranlt but the broad, longitudinal black stripe does not extend lalf way to the venation. Diseal eiliation arranged in about from $28-30$ lines, disappearing some distanee ont from the venation, the longest marginal cilia slor't, only about a fifth or sixtl the greatest wing width. Seeond funiele joint longest, a fourth or more longer (that is distinctly longer) than the third, the first distinctly longer than any of the three distal funiele joints, longer than the pedicel, a little over half the length of the seond joint.

## Male:-Not known.

Deseribed from one female captured by sweeping in jungle bordering a stream in forest country gradually verging to jungle, July 26, 1913.

Mabitat: Meerawa (Cairns), Queensland.
Type: No. Hy 1591, Quecusland Museum, the above speeimen on a slide with the type of haeckeli.

This truly remarkable speeies, a striking example of the development of a similar wing pattern in umrelated genera, is respeetfully dedieated to Sir Oliver W. Lodge for his part in the development of a diffieult part of human psyehology, namely, that relating to telepathy and prevision.

## 17. POLYNEMA FRATER new species.

Male:-Liength, 0.60 mm .
Exaetly like draperi Girault but the fore wings like those of nordaui; also on the seutellum there is a pair of setigerous spols at proximal third or so whieh are eloser together than are the straight parapsidal furrows at apex; in draperi, a similar pair is as far apart as the eurved furrows are at apex (eaudal margin of scutum) ; in nordaui, the hind femur is black distad but more than this nordaui seems to differ in that there is a pair of minute setigerous dots at eephalie margin of seutcllum at the meson which nearly toueh eaeh other. (Antennat missing.)

Deseribed from one male taken by sweeping grass and sedges in a boggy meadow inhabited by l'andanus, July 17, 1912.

Female:-The same. Second funiele joint mueh the longest, a third longer than joint 3 , while 4 is very short, subequal to 1 , distinetly shorter than 5 or 6 which are distinctly shorter than 3 and the pedieel.

From one speeimen eaptured in the forest at Nelson, August 12, 1913 (A. P. Dodd).

Mabitat: Ingham and Nelson, Queensland.
Type: No. Hy 1592, Qucensland Museum, the above specimen on a slide with a female of $P$. pax Girault; a female with the type of zolai.
18. POLYNEMA MENDELEEFI new species.

Male:-Length, 1.40 mm .
Exactly similar to zolai but somewhat more robust and differing in the structure of the fore wings. Thus in this species these organs are more densely eiliate bearing about 20-22 lines of diseal cilia, the latter are distinet (indistinet in zolai) and normal and extend plainly farther proximad, in fact three fourths the way from apex to venation (only about half way in zolai); also the marginal eilia of the fore wing are longer, somewhat more (the longest) than a fifth the greatest wing width. Cephalie tibiæ yellow.

Female:-Not known.

Deseribed from a single male speeimen captured by sweeping foliage in a jungle pocket, July 30, 1913 (A. P. Dodd).

Respectfully dedieated to the Russian chemist who propounded the periodie law in chemistry.

## Mabitat: Nelson (Cairns), Queensland.

Type: No. Iy 1593, Queensland Museum, the above specimen on a slidewith two other species of the same genus.

## 19. POLYNEMA ZANGWILLI new species.

Male:-Length, 1.30 mm .
Like zolai but the seape and pedieel ycllowish, the legs orange yellow, exeept hind legs which are brownish; also the fore wings bear longer marginal cilia, the longest of which are plainly half the greatest widtl of the blade while the latter bears at least twonty lines of diseal cilia, the latter tolerably dense and uniform. The line of fovex across scutellum absent.
l'emale:-Not known.
Described from one male eaptured by sweeping in forest, December 2, 1912.

Hubitat: Nelsen (Cairns), Queensland.
Type: No. Hy 1591, Queensland Museum, the above specimen on a slide.

## DIAGNOSTIC ARRANGEMENT OF THE AUSTRALIAN SPECIES OF' POLYNEMA Haliday.

Males and Females.
I. Fore wings hyaline but more or less patterned, either with an extraordinarily conspicuous black or brown cross stripe, or two such striues, or else with a dnsky cross stripe, or a cross stripe and a sjot or simply a disto-cephalic spot; or else there is a broad black longitudinal stripe from the apex.

1. Fore wings extraordinarily striped with broad fuscous or jet black; large, appendages elongate.
Fore wing with only one conspicuous broad black stripe across it; anteuna ringed with white.
Black; head, pro- and mesonotum reddish brown; petiole, coxæ, trochanters, front femora, proximal half of all tibid, silyery white; tarsi, scape and pedicel reddish brown; joints 4 and 5 of funicle white. Joint 1 of funicle two thirds the length of joint 2 , which is subequal to 3 , all three elongate speciosissimum Giranlt. Fore wing with two conspicuous broad black stripes across it; antennæ not ringed with white.

Reddish brown, the scape, two distal anteual joints and abdomen black; joiut 1 of funicle louger than the scape, joint 2 extraordinarily lengthened, twice the length of 1 , subequal to 3 . Distal funicle foint as wide as the club and two thirds its leugth; space hetween wing stripes distinctly longer than the proximal stripe .. .. .. .. poincarei Girault
Black; pedicel and first two funicle joints and the legs orange yellow; joint 3 of funicle longer than joint 2 ; distal funicle joint not as wide as the club, not apparently a part of it; space between wing stripes nariow, distinctly shorter than the proximal stripe
. . notabilissimum Girault
2. Fore wings lyaline bat with an iuconspicuous dusky stripe or a stripe and a spot; usual in size, the appendages more normal.
Fore wings with but a single large dusky spot or stripe, extending across the wing or nearly, somewhat distad of the venation. Species black, the legs mostly yellowish.
Legs all yellow.
Distal three funicle joints as long or longer than joint $I$; dusky stripe of fore wing less conspicuous; petiole and coxæ pallid .. .. .. .. .. .. .. sieboldi Girault*
Distal three funicle joints all somewhat shorter than joint 1 of funicle; stripe of fore wing darker; cosæ and petiole oramge yellow
frankilini Girault
Hind femora and tibio black.
Dusky stripe of fore ming still darker (male).. .. .. haeckeli Girault
Fore wings the same but the stripe darker and there is a distocephalic marginal spot. Species black, the legs yellow or blackish.

Legs orange yellow, the hind femora and tibice black (the latter along distal haif) ; funicle joints 2 and 3 subequal; fore wings with about 16 lines of discal cilia ..
rousseaui Girault
Legs marked with dusky blackish excepting front tibio and all tarsi; funicle joiut 3 a fourth shorter than 2 ; fore wings with ouly about 11 lines of discal cilia .. .. .. sappho Girault
3. Fore wings hyaline bnt there is a distiuct disto-eephalic fuscous spot. Legs somewhat as in sappho; joints 1 and 4 subequal or nearly, 5 and 6 distinctly shorter; joints 2 and 3 subeqnal
darwini Girault
4. Fore wiug with a conspicuous broad black longitudinal stripe from apex along distal third.
Black, the legs brown, the antennw more or less varicolored, the second fuuicle joint distinctly longer than the third, the first distinctly louger than 4,5 or 6 , the latter not as wide as the clob aud much shorter than it; marginal tringes short

## lodgei Girault

II. Fore wings withont a pattern, at most irregularly, uniformly or obscurely dusky, no distinct stripe or spot upon them, usually hyaline.

[^45]1. Body wholly black (excluding appendages).

Fore wings narrower, their longest marginal cilia plainly as long as their greatest width or at least over half their groatest width.
Fore wings with only about 11-12 lines of discal cilia; marginal cilia as long as the greatest width of the wing.
Legs uniformly pale yellow; parapsidal furrows eurved; cephalic pair of setigerous spots on scutellum as far apart as the furrows at apex
The same, but wings less uniformly ciliate and as in nordaui; cephalic pair of setigerous spots of scutcllume closer together than the parapsidal furrows at apex . . . . . .
Legs orange yellow, the distal half of hind femur black .. nordaui Girault
Fore wings with abont sixteen lines of diseal cilia; margiual cilia from a half to three fourths the greatest width of fore wing.
Legs orange yellow and the scape and pedicel. Fore wings moder'ately slender (urale) .. .. .. .. ..
Coxw and femora concolorous, rest of legs pallid yellow except dusky on the tibiar; ciliation of fore wing disappearing proximad; distal three joints of funiele subequal, joint 2 only about four times longer than wide. Fore wings moderately broad
The same but joint 4 of funicle distinctly longer than joints 5 or 6 ; joint 2 about six times longer than wide . .
australiense Girault
All legs, except tarsi, dusky brown; ciliation of fore wing not disappearing proximad; joints $2-4$ of funicle dusky yellowish. Fore wings moderately broad .. .. ..
Foro wings with about trenty lines of discal cilia, broad, the
marginal cilia not more than half the greatest midth. Scape not asperate.
Hiud legs brownish, others orange yellow; foveate line across scutellum absent; like zolai in habitus (male) .. ..
zangwilli Girault
Fore wings with about twenty-four lines of very dense and fine
discal cilia; scapo asperate beneath, sculptured.
Legs intense orange yellow; first funicle joiut in female elongate
Fore wings broader, broad or very broad, their longest marginal
cilia short, not exceeding a fifth of the greatest wing width.
Fore wiugs broad, their marginal cilia a fifth or sixth of the greatest width.
Fore wings with only about twolve lines of discal cilia which are abseut half way out from veuation and scattered and indistiuct distad; legs black oxcept tarsi, knces and first tibio (male) .. .. .. .. .. .. zolai Girault
Fore wings with about 20-22 lines of discal cilia which are absent only a fourth the may to apex from venation, distinct and normal (male) .. .. .. .. .. mendeleefi Girault

Fore wings very large and broad, their longest marginal cilia only an eighth of the greatest width.
Fore wings with about $3 t$ liues of discal cilia which are dense; legs black, tarsi brown; antennæ varicoloured, the funicle joints elongate; wings uniformly sooty distad of renation. Species enormous, the largest member of the family

The species grotiusi is obvionsly related to the first group of species.
2. Body wholly ferrugineons or yellow or partly one or the other (appendages exclnded). Fore wings slender.
Thorax golden yellow, the head and abdomen black. Marginal cilia a little shorter than the greatest width of the Dlade.

Second funicle joint in male nearly twice the length of the first; in female, ovipositor much exserted, as long as the abromen $\qquad$ mendeli Giranlt
Whole body ferrugineous to golden yellow; marginal cilia somewhat longor than the greatest width of the blade.

First fnuicle joint in male ouly slightly shorter than the second, both long, as are also the next three or four joints; female not known
devriesi Girault

## Gentus Eustochus Foerster.

## 1. EUSTOCHUS DUBIUS new species.

Male:-Length, 1.20 mm .
Jet black, the legs brown, the eoxx and antemæ concolorous (except hind eoxæ). Fore wings sooty, the fumation deepened under the marginal vein in the form of a rather broad fuscous stripe; diseal eiliation absent under venation and for some distance distad, thus giving the appearanee of a rather broad whitish stripe aeross the fore wing just distad of venation. since the latirless area distad of the brownish stripe is lighter than the ciliated area beyond; the same effect also proximad of the brownish stripe. Blade of hind wing uniformly elouded. Discal cilia of fore wing rather dense, the fore wing shaped as in speeics of Gonatocerus of the graceful type.

With the following remarkable structural characters:- Parapsidal furrows complete: scutellum larger than the scutum, divided across the middle by a distinct suture, the postscuicllum deeply divided from seutellum at apex but eontinuing its ontlines and apporing as if the sentellum bore a deep transverse suture before apex; metathorax long; second abdominal secment oreupying half of the surfaec, segment 3 only a third shorter than it, the abdomen ovate, its petiole very short, wider than long and guarded by a spine-like prolongation on eaeh side from the second segment of the abdomen; thorax rough, propodeum
rugose; axillæ normal, not advanced, widely separated; venation much as in Signiphora; hind wing petiolate, the blade long, somewhat curved and very broad for a mymarid, at apex obtuscly rounded and resembling the blade of an ordinary table knife; antenne filiform, 13-jointed, the pedicel shorter than any of the following joints which are about twice longer than it; marginal fringes of fore wing short, shorter than those of the hind wing which are distinetly shorter than the greatest width of the blade of those wings; tarsi 4-jointed ; mandibles delicate, slender, distinclly bidentate, the outer tooth long. Scutellum longitudinally striate. Hind wings with abont eight lines of diseal cilia; a short row of about seven slender seta under end of veration. Strigil strong. Soveral very long setæ from the venation.

Female:-Not known.
Described from two specimens captured by sweeping in forest, July 9, 1913 (A. P. Dodd) and by miscellaneous sweeping at Kuranda (F. P. Dodd) in June, 1913. The gencric position of this species is of course not certain. It should be compared with Anaphes and allies.

Habitat: Nelson and Kuranda (Cairns), Queensland.
Types: No. $H_{y} 1595$, Queensland Museum, the above specimen on a slide.

## LITERATURE REFERRED TO.

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1906. Girault, A. A. Antea, p. 122.
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# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA-III. 

 SUPPLEMENT.*Ry A. A. Girault.

The following additions to the Elasmide have been made during the past year.

Genus ELASMIUS Westwood.

1. ELASMUS FLAVIPOSTSCUTELIUMI Girault.

One pair, Proserpine, Queensland, November, 1912, sweeping grass in forest.
2. ELASMUS PROSERPINENSIS Girault. Female.

Jike fatipostsoutclum hut the ahdonen wholly shining blaek and the legs distinetly more eoloured; also the proximal funiele joint is distinetly longer than the pedieel. Mandibles with seven teeth.

Habital: Proserpine, Qucensland. Forest.
Type: No. IIy 1278, Queensland Museum.
3. ELASMUS CYANEILLA Girault. Male.

Like cyanous but the postseutellum has a transverse yellowish stripe aeross it, the cephalie femora as dark as the others. Fourth funiele joint about twice the length of the club. Mandibles 5-dentate.

Habitat: Proserpine, Queensland. Forest.
Type: No. IIy 1279, Queensland Museum.

## 4. ELASMUS MINNEHAHA Girault. Male.

Like impudens but differing in the coloration of the legs and abourncu, the band of the latter much broader. Caudal femur black at distal half.

Habitat: Proserpine, Quecnsland. Forest.
Type: NTo. IIy 1280, Queensland Museum.

[^46]5. ELASMUS CAIRNSENSIS Girault. Female.

Like flaviposiscutellum but the orange portion of the abdomen much Inger, decidedly twiee the length of the distal black portion.

Habitat: Cairns District, Quecnsland.
Typc: No. I. 1ヵ89, South Australian Museum, Adelaide.

## 6. ELASMUS DODDI Girault. Female.

Like formosus but the scutellum wholly blaek (except narrowly at middle of side), the vertce wholly yellow, the tip of postscutellum black.

Habital: Nelson (Cairns), Queensland.
Type: No. Hy 1606, Queensland Museum.

## \%. ELASMUS PALLIDICORNIS Girault. Female.

Like cyancus Girault but entirely dark metallie purplish green, only the tip of the seape and pedieel and remainder of antennæ being yellow brown. Mandibles 5 -dentate.

Habitat: Mughenden, Queensland.
Type: No. Hy 160\%', Queensland Museum.

## 8. ELASMUS KURANDAENSIS Girault. Female

Like speciosissimus but lemou yellow, the abdomen deep orange; scutellum wholly greenish; metallie coloration of the seutum is eontinued eaudad along the meson to the seutellum.

Habitat: Kuranda, Queensland.
Type: No. Hy 1608, Queensland Museum.

## 9. ELASMUS QUEENSLANDICUS Girault. Female.

Like formosus but the base of the abdomen with a distinet, moderately broad black stripe aeross it.

Habital: Kuranda, Queensland.
Type: No. Hy 1609, Queensland Museum.
10. ELASMUS LIVIDUS Girault. Female.

Like proscrpinensis Girault but metallie blue-grcen, the abdonnen dark red ventrad excent at each end, the coxa black (hind coxa white at tip), also the femora (hind femur white at base, others toward tip) ; knees and tibise white; tegulæ concolorous. Mandibles with seven teeth.

Ilabitat: Nelson (Cairns), Queenslaud.
Type: No. IIy 1610, Queensland Museum.

## 11. ELASMUS ORIENTALIS Girault. Female.

Like pallidicornis but the antemæ eoncolorous with the body, the seape pale brown and the cephalie tibia and all knees white; the funicle joints are subequal, all distinetly longer than wide.

Habitat: Knranda, Queensland.
Type: No. Hy 1611, Queensland Museum.

## 12. ELASMUS MARGISCUTELLUM Girault. Female.

Dark metallic green, the distal margins of seutellum and postseutellum margined with lemon yellow; intermediate orange yellow portion of abdomen with a longitudinal row of from 3 to 4 black spots on each side. Mandibles with cleven teeth.

Habilat: Nolson (Cairns). Qucensland.
Type: No. Hy 1612, Queensland Musenm.
13. ELASMUS IGNORABILIS new species.*

Female:-Length, 1.75 mm .
At once distinguished by the colour of the abdomen which firom above has two rather narrow transverse orange yellow stripes across it at about proximal third and proximal two thirds, otherwise (dorsad) shining blaek (metallie green proximad of the first transverse stripe). Dark metallie purplish, the abdomen beneatli and the legs pale yellow, also the scape; flagellum and hind coxa above concolorous or blackish. Mesopostscutellum obseurely lemon yellow. Tarsi blaekish. Talres of ovipositor blaek. T'egnla pale yellow. First two funiele joints subequal, each a little longer than the third whieh is longer than wide, all longer than the pedicel.

Male:-Not known.
Deseribed from one female eaptured by sweeping along a jungle path, July 13, 1913.

Habitat: Harvey's Creek (Cairns), Queensland.
Type: No. Ify 1613, Queenstand Museum, the above speeimen on a tag.
14. ELASMUS SPLENDIDUS Girault.

A female by sweeping forest, July, 26, 1913, at Meerawa (Cairns), Quernsland.

* Magnification of this and following species as previously.

15. ELASMUS MACULATIPENNIS now species.

Female:-Length, $3 \cdot 15 \mathrm{~mm}$. Robust.
Agreeing in all details with the original deseription of splendidus Girault excepting that the face is lemon yellow below the antennæ only, the abdomen is orange yellow and with four blaek spots between base and tip, the first two joined, forming a cross-stripe, the seeond two nearly so; also at tip a rather broad black (metallie) stripe preeedes the blaek at tip; the seutcllum is wholly concolorous and all of proximal fourth of hind coxa exeept a small spot at base of upper margin ; the yellow on the pronotum is eaudad and just above front eoxa: the antennæ the same. Mandibles with five teeth. Charaeterized prineipally, however, in bearing on the fore wing a distinct sooty spot distad on the blade which forms a more or less distinet oblique stripe aeross the blade from beneath the postmarginal and distal half or less of marginal veins.

Male:-Not known.
Described from a female eaptured by sweeping in forest, August 2, 1913.
Hlahitat: Nelson (Cairns), Queensland.
Type: No. Hy 1614, Qucensland Museum, the above speeimen on a tag (with the type of the variety deseribed next), the head on a slide (with the type head of the variety).

Later a second female was found, eaptured in July.

## ELASMUS MACULATIPENNIS BIGUTTATUS new variety.

Female:-The same as maculalipennis but the abdomen bears only the two proximal black spots which in this ease are small and perfeetly round dots. Also the hind eoxa is as deseribed for splendidus.

Deseribed from a female eaptured with the typieal form. Type, see preceding. Subsequently, another female of this variety was found, eaptured in December, 1912, by sweeping grass along a forest streamlet.

## 16. ELASMUS SIELLATUS new species.

Female:-Length, I. 80 mm .
Tike nigriscutellum but the seutellum margined all round with lemon yellow: the dorsal half of oeeiput not blaek but with only a blaek loop aseending to meson of oecipital margin, the central spot of vertex not conneeting laterad with the eyes; there is a black spot on each side of axilla confluent with the latter's blackness. First ring-joint large, triangular. Nandibles 5-dentate. On the mesoseutum there is a black dot at eaeh side near edge about centrally; extreme cephalie end of pronotum black; at base of abdomen, the three spots are
wedge-shaped, longer than wide. Wings hyaline. At distal third of abdomen, centrally, dorsal aspect, there is a wedge-shaped black dot. Extreme tip of abdomen black.

Male:-Not known.
Described from a female captured by sweeping in forest, August 3, 1913.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1615, Queensland Museum, the above specimen on a tag, the head on a slide with the type head of Elasmus maculatipennis Girault.

## 1\%. ELASMUS DIVINUS new species.

Fcmale:-Length, 2.75 mm . Slender.
Differing from maculatipennis in bearing no ycllow on the head, only the postscutellum and a spot in front of the tegule (crossing the lateral margin of seutum, directly cephalad of the axilla) being lemon yellow; the whole dorsum of the abdomen is concolorous and the distal fourth beneath. Fore wings characterized by bearing a distinct clavate sooty marking which leaves the distal end of the venation and curves directly caudad along the longitudinal axis of the blade to about the midpoint toward base. This marking appears to be the proximal accented boundary of the slight but distinct and uniform fumation of the blade distad of it. Dark metallic blue; trochanters, tibie, proximal half of hind cosx and femora, distal part of first cosa, white; scape white, the funicle joints equal (each a little longer than first club joint), all much longer than the pedicel; two ring-joints. Scape blotched with dusky along the sides. Mandibles 7-dentate.

Described from one female, August 13, 1913. Sweeping grass along a streamlet in forest.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1616, Queensland Museum, the above specimen on a tag, the head on a slide with the type head of E. uniguttata Girault.

## 18. ELASMUS UNIGUTTATA new spocies.

Female:-Length, $2 \cdot 00 \mathrm{~mm}$.
Characterized by bearing on the abdomen a moderately large, black, round spot dorso-mesad a little before tip; otherwise coloured like serenus but the flagellum is black; black area on vertex wide, leaving the space between it and the eyes a narrow line of yellow; abdomen suffused with reddish; the very short klackish line across base of abdomen accented laterally a short distance down
each edge toward tip; tip of abdomen concolorous, of the ovipositor valves black. Propodcum black mesially, also the occiput dorsad (mesially). Wings hyaline. Mandibles 5-dentate.

Male:-Unknown.
Described from one female eaptured August 5, 1913, by sweeping in forest.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1617, Queensland Museum, the above speeimen on a tag, the head on a slide.
19. ELASMUS MANDIBULARIS new species.

Female:-Length, about 1.85 mm . Stout.
Like cyancilla Girault but the mandibles about 12 -dentate and long, the cephalic tibie pale brown. Wings hyaline. Funiele joints shortening in succession, the first a little longer than the seeond, the third longer than the short pedicel and also than the first elub joint, somewhat longer than wide. Seape mostly concolorous. Scutellum reticulated scaly, with only several large setæ.

Mate:-Not known.
Deseribed from one female eaptured by sweeping in forest, August 5, 1913 (A. P. Dodd).

Hahitat: Nelson (Cairns), Queensland.
Type: No. Hy 1618, Queensland Museum, the above speeimen on a tag, the head on a slide.

Later another female was found in the same collection; its body was decidedly greenish rather than bluish as with the type specimen. However, I could not distinguish between them otherwise.

## Genus Euryischia Howard.

The eneyrtid genus mentioned previously (I., p. 176) as bearing elasmid coxæ and wings was this genus whose position is undoubtedly eorreet. I have sinee described the following species. The tarsi are 5-jointed. The antennæ need careful examination, since 1 believe two ring-joints are present and onee suspeeted three; for several of the Australian species only one is reeorded and, I believe, none were found in sumneri.

## 1. EURYISCHIA SUMNERI Girault. Female.

Blaek-blue with the distal third or more of fore wing embrowned; seutellum fincly alutaceous, the scutum the same but elothed with dense, stiff, blaek bristles. Bristles on proximal part of fore wing as in inopinata Masi. Mandibles tridentate, the inner tooth shorter, broad and truneate. First funiele joint subquadrate.

Habitat: Capeville (Pentland), Queensland. Forest.
Type: No. Hy 1619, Queensland Museum.
The sides of the propodenm in the following speeies and sumneri (dorsad) are finely retieulated, glabrous mesially; the large bristles in the wings of sumneri as in inopinata.

## 2. EURYISCHIA NIGRA new species.

Female:-Length, 1.35 mm .
Like the following speeies (nigrella) but the head differently seulptured being very finely circularly striate, in the next speeies finely sealy; the mandibles are 3 -dentate but the two inner teeth are formed by the eoneaved apieal margin of a seeond, broad tooth (same in nigrella). Propodeum glabrous, without a carina. Seutellum hairy but not so densely as the seutum (only two or four long seter in the next species). Antenne missing. Like sumnori but differing apparently in the dentation of the mandibles, the more hairy scutellnm. Also differing from the next species in bearing but two large equal seta in a longitudinal line centrally in the blade under the submarginal vein (as in inopinata; in the next species there are two parallel rows, eaeh row with 5 or 6 sete, decreasing notably in size proxinuad). Diseal ciliation from about proximal third of marginal vein, the fore wing uniformly, slightly embrowned throughout, the lind wing hyaline. A little staining around the stigmal vein.

Male:-Not known.
From one specimen captured by sweeping grass in forest, April 18, 1912.
Habitat: Nelson (Cairus), Queensland.
Type: No. IIy 16?0, Queensland Museum, the above specimen on a tag, head and wings on a slide (witlı type of nigrella).
3. EURYISCHIA NIGRELLA now species.

Female:-Length, 1 mm .
Like the preeeding speeies (nigra) but smaller and differing as noted above. Differs from sumneri in mandibular strueture, the shorter first funiele joint which is plainly wider than long and in the wings and much smaller size. A single ring-joint is present.

Male:-Not known.
From one specimen eaptured with sumneri.
Habitat: Capeville (Pentland), Queensland.
Type: No. $\Pi_{y}$ 1621, Quensland Museum, the above specimen on a slide.

## 4. EURYISCHIA SHAKESPEAREI new species.

Female:-Length, $1 \cdot 10 \mathrm{~mm}$.
At once difiering from the preceding species in having a distinet fumated area on the fore wing somewhat as in inopinata Masi but differing in its shape; fore wing otherwise as figured for that species. Antenne with one (possibly two) ring-joints and at least three fumiele joints, the rest missing. The marking on the fore wing is a conspieuous globular sooty brown area appended from the stigmal vein and distal half or more of the marginal, extendiug nearly across to the caudal margin but fading somewhat before reaehing it; its proximal margin is $V$ - or inverted caret-shaped and the discal ciliation proximad is coterminous with that margin; the wing distad of the marking is fumated as usual (as in the preceding species) but just distad of the distal margin of the more deeply infuscated marking there is a more or less subliyaline path across the wing. At the base of the marginal vein, there are one or two very large cilia or bristles in an oblique caudo-proximal line; elose against the venation, the diseal eiliation extends proximad same distance nearly to the middle of the subinarginal vein and less densely nearly to the base. Pedicel rather long. longer than the three furiele joints which are subquadrate. Mandibles hidentate, the seeoud tooth large, broadly truncate at apex. Costal cell with discal ciliation.

## Male:-Not known.

Deseribed from a female captured by sweeping in forest, May 26, 1912.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1622, Queensland Museum, the above specimen on a tag, the head on a slide.

## 5. EURYISCHIA LESTOPHONI Howard.

This species has been recorded from Sydncy, New South Wales, as a parasitc of Icerya rose on the plant Grevillea.

## 6. EURYISCHIA MELANCHOLICA new species.

Female:-Length, 1.50 mm .
Like nigra but the seutellum as in nigrella. Distal third or more of fore wing embrowned, darker about the stigmal vein, there the proximal margin of the fumatior accented to form a rather narrow cross-stripe from the stigmal vein. Scape and pedicel dusky, rest of antenna yellowish; one ring-joint.

Male:-Not known.

Described from one female eaptured by sweeping in forest, August 4, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 1623, Queensland Museum, the above specimen on a tag, the head on a slide with the type appendages of shakespearei.

## \%. EURYISCHIA UNMACULATIPENNIS new species.

Female:-Length, 2 mm .
Characterized by bearing on the fore wing a rounded fuscous spot under the stigmal vein; wholly black, the anteme black; otherwise as in impminata except that all of the funicle joints are subequal and wider than long. From lestophoni, the spot on the fore wings differs in being up against the base of the stigmal vein instead of being appended from the tip of that vein or nearly (jikiging from the figure of lestophoni given by Koebele, 1890). Distal third of fore wing slightly infumated.

Male:-Unknown.
Described from one female captured among herbage, April 6, 1913 (II. Hacker).

Habitat: Brisbane, Queensland.
Type: No. Hy 162í, Quecusland Museum, the above specimen on a slide.

TABLE TO THE AUSTRALTAN SPECTES OF EURYISCHIA HOWARD.
Fore wings with a large distinct romd spot near the stigmal vein.
The round spot farther distad, appended from the stigmal knob; two discal bristles .. .. .. .. .. lestophoni Howard.
The round spot farther proximad, touching the base of the stignal rein; two discal bristles .. .. .. unmaculatipennis Girault.
Fore wings with a straight rather narrow stripe across them from the stigmal vein, from thence more lightly embrowned.

Like nigra but the scutellum as in sumneri .. .. .. melancholica Girault.
Fore wings with a distinct broad fnmated area across them near end of venation followed by a subhyaline path.

Like inopinata Masi; fumated area globular, appended from the stigmal vein and distal half or more of marginal, its froximal margin inverted caret-shaped; mandibles bidentate; two discal bristles .. .. .. .. shakespearei Girault.

Fore wings uniformly embrowned at distal third or more.
Fore wing with two rows of bristles under the submargiual vein ( 10 or more bristles).

Scutellum with only four seta; fore wiug slightly embrowned throughout; head finely scaly .. nigrella Girault.

Fore wing with but one row of large bristles under the submarginal vein (two bristles).

Mandibles tridentate, the inner tooth broad; scutellum with about four seto; fore wiugs embrowned uniformly from proximal two thirds to apex .. sumneri Girault.

Mandibles bidentate, the inner tooth broad; head finely circularly striate; scutellum with many setæ but not as hairy as the scutum; fore wing slightly embrotrned throughout .. .. .. .. nigra Girault.

## LITERATURE REFERRED TO

1890. Koebele, Albert. Bull. No. 21, revised edition, Division of Entomology, U. S. Department of Agriculture, Washington, D.C., U.S.A., pp. 17, 18, fig. 8.

# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA-IV.* 

The Family Eulophidae with Descriptions of New Genera and Species.

By A. A. Girault.

## INTRODUCTION.

Or all tho families of what is unloubtedly tho largest group numerically of the great order Hymenoptera, this, the bulophidar, semas to be the representative one in the Australian fauma, the number of geneta and seres excoding thase of any other family of the great complex. This paper records but few of the specics hut porlmps mort of the genera existing to-duy ou the Australian continent. The groups or tribes established ly Ashmead (1904) hase been adhrod to becanse they scem to be natural but a large mumbr of new genera have been estahlished more especially in the Tetrastichina. These genera I believe to he natural gronps but for the present they are established especially because it seems recessary to do so in order to aroid that greutest of diffeulties with there mimute insects, mamely, identification - of specific forms. It has been truc in the fant that identifuation was thouglit to be insured by a general description of the species, ontithg the generie characters since there were understood as lemg present. Put this practice has failed signally in establishing identity of species, for the reasuns that some species are carelessly or otherwise referred wrongfully to genera, others difis somewhat from the geleric description and thesp liffernces are not pointed ont while still others differ in smaller characters, those not ineluded within the description of the old genera and not leing l rought to the attention of the student are, at the time, overlooked. The need and the of revisions show how common and ordinary are the great number of omissions made in descriptions of species and how helpless the student becomes when attempting identification upon these incomplete diagnoses. All of there serious difficulties will he olviated by this what is called (wrongfully, I think and hope) splitting. The student is forced to lie careful, the generic diagnosis is as coucise as uature allows, specific characters are readily grasped and any rariations from the genotype easily and quickly noted. These are the convenionces afforded by the establishment of these genera. Identification is the hasis of nomenclature.

On the other hand, nomenclature is tho tool or convenience of classifieation which is concerned with heredity. 'Ihe ribes of the Eulophidw scem natural but it is diffieult to define natural genera; yet going ifion the primeipte that genera are to species as species are to varicties and en on (that is gencra are groups comprised of clusters of species, groups within a group) we may say that a gemus is natural amd valid or good when all of its species or groups of species are mutnally inclusive and do not vary enongh from each other to intergrade with the spocies of other mutually inclusive groups (or other valid genera). Thus, Telrastichus Maliday and Aprostocetus Westrood aro held to be valid genera differing in but one particular, the number of the ring-joints of the antenno. lat if there shond be found a species of either group in which the number of ring-joints was incoustant, intergrading is estallished and the two gemera must be considered as one, since their irberited structure is the same. This is the principle upom which I have based these genera. In other languge they are based upon the constancy (or supposed constancy) of a character or of characters which in turn are

[^47]an index of blood relationship. I believe that I have thas insured identification of species. As to the genera time and increased knowledge will decide their fate at the which I am not and need not, for the present, be greatly concerned. I am not proud of them, since they are not mine but rather nature's.

In work of this kind to escape error is impossible but the cuormous nmmber of errors so far made are due largely to one fact, nankely, to what may lee ealled piece-work in taxonomy. A systematist scatters his energy and attention over a large field with the idea, thongh why so I know not, that in so doing he is shoming greater ability, sagseity and broadness; he describes a few species here one time, a few there another with the result that, not hange an intimate knowledge of genera, these species often become misplaced, the descriptions are illy made and unbatancel aml in the end there comes as a conseguence that fecling of helplessness in regard to specifie identities. In dealing with large complexes and in the relationships of orders and higher gromp extensive and hroad stady is necessary hut in describiug species intensive study is as equally meeessary and if variety is nocded or desired a gronl should be taken by itsclf, studied intensively, adrancod as much as possible aud when completed left; any other gronly may then he studied in the same manner as the first. Jn this way, specific identities will be insured. Some years ago it was the common practice for many systematists simultanconsly to deseribe species in several orders of insects but if these men faterl to insure identity, how can a modern systematist hope to do so? Of those men, none are more notable for failue in this respect than Frameis Walker. Was ho broadening his knowledge by incorrectly describing species or was be pampering his vanity? He was ecrtainly mistaken and unquestionably wasted a large amount of chorgy atud "ansed an enormous amonnt of delay; his efforts resulted in impediments. If the idea in desseribing species is to make them known, intensive stady seems necessary; if, howerer, the motive is othervise. no study at all is needed, since in the end the purposes are served by merely phblishong the new name and designating a type. The descriptions are made for others and the future.

The principles nuderlying taxonomy are the same for all groups. He who knows them for one group knows them for all hut is necessarily unacquaiuted with the kind and scope of variation peculiar to every group of animals and beeanse of the enormous number is incompetent to judge of species within them without that insight and knowledge gained from comparative and intensive study. A sincere desire to advance our knowledge of specific forms requires intensive study. A desire merely to deseribe as many forms as possible, whatever the motive, reqnires none at all.

Systematists seem to fail in another respect, a fruitinl cause of trouble to the future: too often they are not selfecritical. If errors are inevitahle, which they seem at present, many conld be corrected by their agents. This does not seem the usual practice. An individual may. see at least somo of his own mistakes much more clearly than others, more especially if he, is constantly on the alert for them and constantly revising and criticising his own work. An error uncorrected by its author may canse maless trouble in the future. l'runkuess and more explanation in regard to changes made, it feeling of greater responsibility to the future. greater sincerity, less egotism and ranity and much more thought for clear, intelligible and accurate work, these in themselves, will produce tremendons advances in our knowledge of specific forms. Systematic work is fundamental; the descriptive part of it by no means comprises its seope.

## ACKNOWLEDGMENT.

In the preparation of this paper I lave been greatly aided by my wife who has, in the absence of unobtainable clerical assistance, copied ont nearly the entire mannscript.

Subramily ENTEDONINA.*
Tribe ENTEDONINL.
Genus ENTEDON Dalman.

1. ENTEDON DIOCLES Walker. Female.

Entedon (Omphale, Haliday) Diocles, Walker, 1839, p. 40.
Habitat: Sydney, New South Wales.
2. ENTEDON HESTIA Walker. Female. Eulophus Hestia Walker, 1839, p. 46. Entedon ILestia Walkex, 1846, p. 66-de Dalla Torre, 1898, p. 38. Hubitat: Hobart, Tasmania.
3. ENTEDON PRONAPIS Walker. Male.

Entedon Pronapis Walker, 1839, p. 40.
Habitat: Sydney, New Sonth Wales.

## 4. ENTEDON PODAGRIONIDIS (Girault).

Mestocharis podagrionidis Girault.
Like Mestocharoideus cyanous but smaller and the antennæ with only one ring-joint, the funicle joints shorter, the distal one usnally wider than long and shorter than either the pedicel or the first clnb joint. Otherwise the same but the mandibles are tridentate, a third tooth being represented inwardy, though much shorter than the two outer acute ones. Type re-examined.

Mabilat: Nelson (Cairns), Queensland. Associated with the eggs of mantids.
Type: No. Hy 1633, in the Queensland Museum.

MESTOCII.IRODDEUS new genns.
Female:-Like Mestocharis Foerster but the antennæ with two ring-joints, the mandibles bidentate. Trne lateral carina absent. Median carina paired.

Type: Mestocharis cyanca Girault.

1. (MESTOCHARIS) MESTOCHAROIDEUS CYANEUS (Girault). Female. Genotype.

Deep metallio blne, the tarsi white; antenno concolorous. Reticnlated. Fnnicle 1 longest.

Mabitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1631, Queensland Museum.

Genus MESTOCHARIS Foerster.

1. MESTOCHARIS LIVIDUS new species.

Female:-Length, 1.25 mm .

* For a table ot subfamilies. see pp. $294-295$.

Like Eutedon fodagrionidis (Giranlt) Lut the distal functe joint is somewhat longer than wide; the lateral carinat of the propodem are not at the lateral margin but not rery far laterad from the pair of median carina, the lateral margin of propodem also carinate as well as fore and hind margins. Intermediate tibial spurs only slightly smaller than those uf the hind legs. Median carine diverging, distad at apex with a very short carina ketween them. Antenna 8 -jointed, one ring-joint, the clnb 2 -jointed. Hind coxæ polished, the tibim netallie green. Space between median carinx rather broad, smooth. Thorax (excepting propodemn) ronghly scaly. Mandibles with two equal teeth. Hind tibial spurs long and stout. Second segment of abdomen occupring about half the surface.

Male:-The same but a third smaller, the abdomen much shorter, at apex broadly truncate. Antennw apparently with two ring-joints.

Deseribed from three males, saren females labelled "No. 14. From Epilache 28punctata. Darwin, Northern Tervitory, 19 May, 1913 (G. F. Hill)." Later, six females labelled " No. 6. Bachelor, N.T., Jan. 23, 1913 (G. F. Hill)."

Mabitat: Port Darwin and Bachelor, Northern Tervitory.
Type: No. My 1635, Queensland Museum, one female on a tag, two males, six females on a slide (plus 3 female heads).

## 2. MESTOCHARIS SILVENSIS new species.

Female:-Length, 1.16 mm .
The stme as the preceding species but the teeth of the mandibles longer and strong, the inner margin of the second tooth serrate below tip; also the pedicel is distinctly longer than the globular distal funicle joint but not much longer. In lividus the first funicle joint is distinctly longer than the pedicel, the latter subequal to the distal funicle joint. Parapsidal furrows caudad lroadened from narow sutures to shallow depressions. Hind and intermediate tibial spurs small and normal. Otherwise as in lividus.

Male:-Not known.
Described from one female captured August 31, 1913, by sweeping in a jungle pocket.
Mabilat: Nelson (Cairns), Queensland.
Type: No. Hy 1636, Queensland Museum, the above specimen on a tag, the head on a slide.

## 3. MESTOCHARIS VETERNOSUS new species.

Female:-Length, 0.70 mm .
Diffens from lividus in having the tibial spurs somewlat enlarged only and in having the candal margin of the second sagment of abdomen decply ent into at the meson or incised. the third segment longer than usual, nuch longer than the next two which are transrerse linear. Postmarginal vein longer than stigmal. Funicle joints subglobular, the first a little longer. Mandibles bidentate.

From a female captured by sweeping in a strip of jungle bordering a streamlet, November 4, 1912.

## Mabitat: Proserpine, Queensland.

Type: No. Hy 163\%, Queensland Museum, the abore specimen on a tag.

## Gexus Horismenus Walker.

1. HORISMENUS ANTIOPA new species.

Female:-Length, 1.30 mm .
Metallic aeneous green, the mings hyaline, the legs straw yellow except the coxæ; ciun 2 -jointed, funcle 3 -jointed. Thorax coarsely reticulated, the propodeum nearly smooth, with a pair of diverging median carins, the lateral carine absent. Paripsidal furows repesented by a conspicmons Jongitudinal forea on each side candarl. Mandibles bidentate. Second segment of abdomen ocerpying two thinds of the surface. Postmargmal vein absent. Median sulcus of scutellum short, only along proximal fourth. Candal and lateral margins of propodeum strongly carinate. Axillac subglabrous; scutelhn less conse than scutum and parapsides. Pedicel shorter than funicle 1. Terminal spur ot' cub curved. 'Type re-examined.

Mabilat: Nelson (Cairns), Queensland. Jungle.
Type: No. II y 1638, Queensland Museum, the abore specimen on a tag, the head or a slide.

CHRYSOATOMOIDES new genus.
Female:-Like Chrysoatomus Ashmead but the antenne filiform, the funicle joints long. and slender; propodeum with a median carina.

Mate:-Not known.
Type: The following species.

## 1. CHRYSOATOMOIDES LATIPENNIS (Girault).

Chrysoatomus latipenmis Girault.
Dark metallic blue, the legs yellow except the coxæ; scaje yellowish, the flagellum dark; wings lightly stained; funicle joints subequal, tapering distad. Polygonally reticnlated.

IIalitat: Babinda, Queensland. Jungle.
Type: No. Hy 1639, Queensland Museum.

## Genus NEODEROSTENUS Girault.

Differs from Derostenus Westwood in having the propodeum wholly without carino; funicle 3 -jointed, club 2 -jointed.

1. NEODEROSTENUS AUSTRALIENSIS Girault. Female. Genotype.

Metallic green, the legs wholly white, also the scape; petiole yellowish brown; fore wings with a distinct sooty spot under the end of the marginal vein. Head and thorax scaly. Club joints about equal.

Habitat: Nelson (Cairus), Queensland.
Type: No. Hy 1640, Qneensland Musenm.

## Genus APLEUROTROPIS Girault.

Differing from Pleurotropis in bearing two ring-joints and lateral carine on the propodeum together with a median sulcus; scutum with a median groove along distal third. At least three funicle joints. Postmarginal and stigmal veins short.

## 1. APLEUROTROPIS VIRIDIS Giranlt. Female. Genotype.

Brilliant metallic green, the wing hyaline, the legs white except the coxæ; scape white with a dusky dot at tip above, the rest of the antennæ dark metallie; first funicle joint longest, about thrice the length of pedicel.

Habitat: Townsville, Queensland.
Type: No. Ity 1641, Queensland Museum.

PLEUROTROPOMYIA new genus.
Female:-Head slightly wider than long (cephalic aspect), the antennæ inserted somewhat belor the middle of the face, 10 -jointed with threo ring-joints, the club 2 -jointed. Postmarginal vein elangate, over twice the length of the stigmal, the marginal very long, over twice the longth of the submarginal. Scutun with a median groove at distal third. Scutellum simple, the propodeum with a pair of median carina, the lateral caring long and complete, forked cephalad, the lateral fork short, curving caudo-laterad partly around (but mesad of) the minute spiracle. Parapsilal furroms complete, distinct, shortly curved off. Mandibles 4 -dentate, the two inner teeth much shorter and miunte. Petiole of abdomen somewhat longer than wide, the second segment largest, occnpying somewhat over a fourth of the surface. A complete sulens just laterad of propodeal spiracle. Eyes hairy.

Male:-Not known.
Type: The following species.

## 1. PLEUROTROPOMYIA GROTIUSI new speeies.

Female:-Length, 1.50 mm .
Brilliant metallic green, the wings hyaline, the legs white except coxə. Scape white, rest of antennæ black; distal half of abdonien bluish purple; pedicel shorter than any of the funicle joints of which the first is longest, a little longer than the club (excluding the terminal spur), the third funicle joint longer than the first club joint which is subequal to the pedicel and longer than the body of the second club joint. Thorax with coarse scaly reticulation (not raised), propodeum glabrons.

Described from one female captured August 31, 1913, by sweeping in jungle. Respectfully dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1619, Queensland Museum, the abore specimen on a tag, the head on a slide.

A second female May 6, 1913, by sweeping jungle growth along a forest streamlet.
2. PLEUROTROPOMYIA SPENCERI new species.

Female:-Length, 0.80 min .
Like grotiusi but much smaller, the funicle joints all shorter, the first only one and a-half times longer than wide (the same in the type species but wider) and not distinctly longer than the third, the club slightly longer than it (excluding terminal spine). Median carinæ. in both species diverged at base. (Spiracular sulcus not seen.)

Described from one female captured by sweeping in forest, April 20, 1913. Dedicater to Herbert Spencer.

Hubitut: Nelson (Cairns), Queensland.
Type: No. Hy 1613, Queensland Museum, the above specimen on a tag, the head and a fore wing on a slide.

## 3. PLEUROTROPOMYIA SEDITIOSUS new species

Female:--Length, 1.40 mm .
Like grotirsi nearly but not quite as robust and the sulcus on the scutum is a half shorter, not more than a sixth the length of the scutum; moreorer, the reticulation just cephalad of it forms larger areas than in grotiusi (i.e., is coarser). In grotiusi the triangular inner (meso-candal) picce of each parapside is smooth and shining, bearing ouly a single forea cephalad of the centre; in this species the same but the piece is narrower and the fovea at the apex; also their mesal ends are farther away from the median sulcus at its apex (tonching or hearly in grotiusi). Otherwise the same or nearly.

Male:-Not known.
Described from one female captured by swecping in forest, August 2, 1913.
Habilat: Nelsou (Cairns), Queensland.
Type: No. Hy 164\%, Quecnsland Museum, the above specimen on a tag, the head on a slide.

A second female was eaptured in forest at Nelson, September 6, 1913.

## APLEUROTROPOPSEUS new geuus.

Female:-Like Pleurotropopseus Girault but the lateral carins straight and paired, the antennæ without ring-joints, 7 -joisted (the (lub - -jointed), the median sulcus of scutum someWhat longer and the postuarginal vein very long, two and a-half or more times longer than the stigmal. Marginal rein muels over twice the length of the subnarginal. Second abdominal segment about a third of the surface.

Male:-Not known.
Type: The following species.

## 1. APLEUROTROPOPSEUS ALBIPES ncw species.

Female:-Tengtin, 1.50 mm .
Metallic blue-green, the wings hyaline, the scape white except at tip, the rest of the antenne black, the coxa concolorous, the rest of the legs white. Thorax reticulated. First funicle joint longest, the third oral, longer than the short pedicel.

Described frow a female taken by sweeping Leptospermum, April 16, 1913 (H. Hacker) and another taken April 20, 1913, by sweeping eucalypts.

Mabilat: Brisbane, Queensland.
Type: No. Hy 1615, Queensland Museum, the abore specimens each on a slide.

## AMESTOCHARIS uew genus.

Female:-Antenner 9 -jointed with two ring.joints, the club 3-jointed. Parapsidal furmows represented by a groove on each side at candal half; scutclum simple; propodenm with s pair of median carmee which diverge from base, each one connected at apex along caudal margin with the lateral carina which forks at apex; surface polished. Petiole longer than
wide, the second segment occupying from half to three fourths of the surface. Mandibles bidentate. Postmarginal vein slightly longer than the stigmal, both short. Cephalic margin of propodeum carinate.

Male:-Not known.
Type: The following species.

## 1. AMESTOCHARIS GOONDIENSIS new speeies.

Female:-Leugth, 1.25 mm .
Motallic acheous green tinged with bluish, the wings clear, the coxa concolorous, the legs white; thoras reticulated, the lines miscd and course. Scape and ring-joints yellowish white, rest of autems concolorous with body; pedicel shorter than any of the followiag joints, the first fuuicle joint longest, over oue and a half times the length of the pedicel, the next joints cach shortening slightly in succession; third club joint ending in a strut; somewhat curved seta (iu reality two setio, the curved one the lomger); both funicle joints narrowing distad.

Deseribed from a single female captured by sweeping in jungle, July 23, 1912.
Mabitat: Goondi and Nelson, Queensland.
Type: No. Hy 1616, Queensland Museum, the above specimen on a tag, the head on a slide.

A second female was captured ly sweeping in jungle at Nelson, N.Q., June, 1913 and a third in July. There is a fovea at base of scutellum at the meson.

## 2. AMESTOCHARIS CONCOLORIPES new species.

Female:-Length, 1.30 mm .
Metatlic green, the abdomeu darker, the wings hyaliue, the legs concolorons with thorax, the three proxinal tarsal joints white; base of abdomen green; prowotum bluish, glabrous; thorax coarsely reticulate scaly, the distal third of scutellum glabrous, also the propodeum; spiracle minute, round; petiole shagreened, the abdomen finely scaly except most of the long sacond segment. Antenure wholly concolorons, the first funicle joint wuch the longest of the flagellum, of whose joints all are longer than wide; first and second club joints about equal. Mandibles tridentate.

Mrale:--Not known.
Described from three females captured by sweeping in forest and jungle, August 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), queensland.
Type: No. Hy 1647, Queensland Muscum, one of the above specimens on a tag, the head on a slide with the head of fulvipes.

## 3. AMESTOCHARIS FULVIPES new speeies.

Female:-Length, 1.00 mm .
Like goondiensis but the legs brown, the parapsidal furrows barely indicated caudad by an obtuse depression; second abdominal segment only about half of the abdomen, the latter
pointed conical, not long; second funicle joint slightly shorter than the first which is barely longer than the pedicel, usually subequal to it; club joints more or less subequal to the funicle joints.

Described from one female captured by sweeping miscellaneous regetation, August 30 , 1913 (1. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1648 , Qucenslaud Museum, the above specimen on a tag, the head on a slide with the lead of concoloripes.

## 4. AMESTOCHARIS NYMPHA new species.

Female:-Length, 1.20 mm .
Very much like concoloripes Gixault but nearly black with a purplish tinge and the proximal two thirds or more of scutelium is longitudinally reticulated the polygonal scaliness of the scutum becomiug ehanged into long figures bounded by parallel, raised lines and leaving just before tip a rounded smooth area which is not glabrous. Only the propodeum metallic shining green. Also the three teeth of the mandibles are longer and the second funicle joint barely longer than the third and not tapering at apex so much.

Male:-Not kuown.
Described from one female captured from a window, May, 1912.
Habilat: Nelson (Cairns), Queensland.
Type: No. Hy 1649, Queensland Museum, the above specimen on a tag, the head on a slide.

## PELOROTELOPSELLA new genus.

Female:-Like Pseudtarias Giranlt but the propodeal meson hears a median carina bounded on each side by a deep sulens, the lateral carina present,* the propodenm tricarinate. Seutellum wholly sculptured, the parapsidal furrows complete. Second tooth of mandible serrate. Thorax umbilicately punctate, the propodeum polished on each side of meson, the pronotum reticulated, sinoother along the median line. Propodeal spiracle minute, round. Antenno the same but the definite number of ring-joints is 2 , the anteunæ 9 -jointed.

Male:-Unknown.
Type: The following species.

## 1. PELOROTELOPSELLA GENU new species.

Female:-Length, 1.75 mm .
Black-blue, opaque, the ablomen and propodeum dark metallic blue-green, the wings hyaline, the legs dark metallic blue, except the contrasting silvery white knees, distal thirds of tibia and tarsi. Antennw dark metallic blue but the seape white except at distal end, first funicle joint longest, somewhat longer than the pedicel, the distal joint spherical, the distal club joint slorter than the proximal one, its nipple distinct but not long.

Described from oue female captured by sweeping jungle growth along a forest streamlet, August 1, 1913.

Mabitat: Nelson (Cairus), Queensland.
Type: No. Hy 1.650, Queensland Museum, the above specimen on a tag, the head ou a slide.

[^48]
## PLEUROTROPPOPSIS new genus.

Female:-Body stout, agrecing with Pleurotropis and the antenuæ 10 -jointed but with three distinct ring-joints, the club only 2 -jointed, the second joint terminating in a prominent setiform process. Eyes very hairy. Propodeum polished, strougly tricarinate. Stigmal vein very short, the postmarginal rather long, about twico the length of the stigmal. Parapsidal furrows represented by it long wedge-shaped sulens rnnniug halfway up from candal margin then narrowing from apex of the wedge and emving off, ending in the dorso-lateral aspect a little before cephalic margin in a fovea. Another larger and deep forea at cephalic margin of scutum jnst meso-cephalad of the fovea and of the furrow. Petiole short; second abdominal segment occupying only a fourth of the surface. Scutellum simple. Mandibles with only two distinct tecth. Submarginal vein hardly broken, shorter than the marginal.

## Male:-Not known.

Type: The following species.

## 1. PLEUROTROPPOPSIS MACULATIPENNIS new speeies.

Female:-Length, 2:10 mm.
Metallic blue-green, the legs concolorous except tips of tibio and tarsi which are white; venation sooty, the fore wiug with a large dusky rounded blotch nndcr the apex of the margiual and the stigmal reins, Pronotum subfoveate, the mesonotum scaly reticulated and sort of transversely lineolated. F'irst ring-joint and proximal part of scape whitish, rest of antenna concolorous; funicle joints long, one side convex, the first longest, the third shortest, subequal to the rather long pedicel, both club joints shorter than the latter (exclnding the terminal seta).

Described from one female captnred by sweeping in a jungle pocket, July 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1651, Queensland Nnseum, the abore specimen on a tag, the head on a slide with type head of 1 chrysocharella aurea Giranlt.

## PLEUROTROPOPSEUS new genus.

Female:-Like Apleurotropis Ciranlt but the propodenu with a median carina instead of a sulcus, the lateral caring $V$-shuped, the arms of the $V$ oblifue, pointing more or less cephalo-laterad. Also the median groove of scutnm is confined to distal fourth. Parapsidal furrows mere sutures, complete but curved off rather shortly laterad. Maudibles tridentate. Stigmal vein very short bnt longer thau the postmargiual. Wings hyaliue.

Male:-Unknown.
Type: The following species.

1. PLEUROTROPOPSEUS PURPUREA new speeies.

Female:-Length, 1.75 mm .
Dark metallic purple, polished, the abdomen at base blue, tarsi yellowish. Antennæ concolorous, the first two funicle joints subeqnal, as long as the club, the third fnnicle joint a third shorter, longer than the pedicel. Thorax reticulated.

Described from one female captnred by sweeping in the jungle, July 26, 1913.

Habitat: Meerawa (Cairns district), Queensland.
Type: No. Hy 1652 , Queenslaud Musenm, the ahove specimen on a tag, the head on a slide with the type head of Opheliminus longfellowi Girault.

## Genus PSEUDACRIAS Girault.

Female:-Characterised by bearing a bi- or tricarinate propodeal meson, the propodeum usually with five distinct curine, including the two lateral carinx; propodemm polished, its caudal margin also strongly carinate. Scutellun more or less polished. Second abdominal segment much the longest, oceupying from a third to over a half of the surface, the petioleshor't and stout, slightly wider than long. Parapsidal furrows usually conplete, very narrow or like sutures and terminating in a shallow depression caudad. Stigmal and postmarginal veins short, the former a little the longer. Mandibles bidentate, the inner tooth usually with several minute simses just proximad of apex, mesad. Thorax reticulated, the lines raised, the pronotum folished but longitudinally wrinkled along cophalic margiu, transverse. Funicle 3 -jointed, the club ${ }_{-2}$-jointed, the scond joint terminating in a prominent seta; three ringjoints. Hind tibiul spur stout, half the length of the hind tarsi. Genus recovered from the Pediobiini (type re-examined).

Malc:-Not known.
Type: Pseudacrias micans Girault.

## 1. PSEUDACRIAS MICANS Girault. Female. Genotype.

Shining bluish black, the propodeum with a straight median carina on each side of the meson, the middle of the threo absent; tarsi white, excent distal joint; wings hyaline; first funicle joint slightly the longest, the second clul joint short, the first longer, longer than wide, suberpal to the first funicle joint. Pronotum and distal half of scutellum shining but the latter with faint polygonal reticulation, the basal half of scutellum longitudinally striate. Parapsidal furoms represented by a fovea eaudud and slightly indicuted cephalad.

Habitat: Nelson (Cairns), Qneensland. Jungle.
Type: No. Hy 1653, Queensland Musenm.

## 2. PSEUDACRIAS CHALYBS new speeies.

Female:-Length, 1.80 mm .
Metallic cyaneus, the wings hyaline; proximal tarsal joints pallid; proximal club joint much longer than the distal yet not long, the funicle joints not long, the pedicel much smaller than them. Parapsidal furrows complete, the meson of propodenm tricarinate.

Described from a single female eaptured by sweening grass along a forest streamlet, Angnst 13, 1913 (A. P. Dodd).

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 165., Qneensland Mnseum, the above specimen on a tag, the head on a slide.

## 3. PSEUDACRIAS AENEUS new species.

E emale:-Length, 1.65 mm .
Dark aeneous green, the abdomen darker; the same otherwise as the second species excepting that the second abdominal segment is longer yet not occnpying quite half of the
surface (as in the type species), the thorax is reticulated, the lines not raised and forming diamonds, the smooth path down meson of scutellum is rather obscure and the pronotum is finely reticulated. Antennæ with three ring-joints, the distal two short; pedicel longer, not much shorter than the first funicle joint. Inner or second tooth of mandible simple.

Male:-Not known.
Described from one female captured by streeping foliage in a jungle pocket, June 5 , 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1655, Queensland Museum, the above specimen on a tag, the head on a slide.

## 4. PSEUDACRIAS QUADRICARINATUS new species.

Female:-Length, 1.60 mn .
Differing fron the precediug two species in lacking the median of the three carinæ at the mesou but a space is left for it; it is slightly indicated in fact, the median carina diverging. Brilliant metallic greeu, the abdomen dark; like acneus but the thorax with sealy network but not raised as in acnous and there is a large distinct glabrous area at base of seutellum; proximal threo fourths of second segment of abdomen and propodeum polished (the latter not so distad and laterad), the rest of abdomen densely scaly. Iateral carino forked distad. Petiole finely longitudinally lined; basal three fourths of abdominal segment 2 green. Pronotum glabrous. Antennæ coucolorous; first funicle joint longest, 3 globular ; club 1 much longer than 2. Mandibles 2-dentate, the second tooth as in aeneus. Second riug-joint very short.

Male:-Not known.
Described from oue female captured by miscellaneous sweeping, August 13, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1656, Queensland Museum, the above specimen on a tag, the head on a slide.

## Genus METACRIAS Girault.

Differs from Entedon Dalman in having the median cariua of the propodeum bounded on each side by a deep sulcus whose lateral margins are acute, the propodeal spiracle round and moderately small and the hind ibial si the clancate. The parapsidal furrows are about complete from cephalic margin but difficult to see, beiug shallow. The genus was first placed with the Pediobiini. (Type re-examined.)

## 1. METACRIAS AUSTRALIENSIS Girault. Female. Genotype.

Dark metallic bluish, the mings hyaline; legs concolorous, the knees, tips of tibiæ and tarsi white. Antenne concolorous, the first funicle joint nearly as long as the club, the distal one subequal to the pedicel. Head and thorax coarsely reticulately punctate.

Habitat: Brisbane, Queensland.
Type: No. Hy 1192, Queensland Museum.

## 2. METACRIAS SECUNDUS new speeies.

Female:-Length, 2.00 mm .
Very sinilar to australiensis but the postmarginal vein absent, the thorax more aeneous and more deeply punctate, umbilicately punctate, the scape is metallic only at the middle portions, the ends white and the grooves on each side of the median earina of propodeum are shallower. Mandibles strongly bidentate. Both species have a more or less complete foveate curved sulcus in the stead of a lateral carina. Compared with types of australionsis. Ringjoint large. The sentellum in australiensis is raised reticulate not punctate, the arcas dceper on the sentum.

Malc:-Not known.
From one female captured in September, 1913 (A. P. Dodd).
Habitat: Kuranda, Queensland.
Type: No. Hy 1657, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

In this species the parapsidal furrows are complete, not very distinct but more so than in the genotype.

## DIAGNOSTIC ARRANGEMENT OF TIIE ENTEDONINE EULOPHIDA. Females. AUSTRALIA.

The abdomen is usually distinctly petiolate, the parapsidal furrows variable, complete or incomplete, but always plainly indicated cephalad or candad; stigmal vein usually subsessile or very short, the marginal loug. Forms always metallic blue, green or purple or else black, soldom with yellow on the body, the latter short and stout, the mandibles usually bi- or tridentate, the funicle never more than 4 fointed; with a scaly senlpture. Propodenm long and usually with carine. Second abdominal segment frequently elongate, the abdomen nptinned.
T. Antennæ without ring-joints; scutellum simple.

Antenna 7 -jointed, the club - -jointed; scutum with a median snlcus at distal half; postmarginal rein over twice the length of the stigmal, the marginal over twice the length of the submarginal; propodeum tricarnate.

Apleurotropopseus Giranlt (Type: A. albipes Girault)
II. Antenna with one or more ring-joints; scutellum with or withont a groove.

1. Scntellum rith a median longitudinal grooved line only. Antennæ 8-jointed, the club 2-jointed, one ring-joint, the funicle 3 -jointed.

Horismenus Walker (Type : H. cleodora Walker).
2. Seutellum simple, without longitudinal groores.
(1) Antennæ with one ring-joint, the funicle 3-jointed.

Propodeum without true lateral carinæ but with a median carina.
Antenna S-jointed, the club 2 -jointed, the icrminal joint as usual with a stont spine; head very wide, the oceiput coneave, the propodeal spiracles large, oval, in depressions; sentellum sculptured; median carina of propodeum comnected at apex with the carimated candal margin.

Entedon Dalman (Type: E. cyancllus Dalman).
The same; propodeal spiracle round, small, the nedian earina bounded by a deep sulcus on each side. Hind tibial spur elongate. Lateral earinæ represented by snlei.

Metacrias Girault (Type: M. australionsis Giranlt).

Propodenm wholly without carinæ, finely scaly. Antennæ 8 -jointed, the club 2 -jointed and with the usual terminal spine; postmarginal vein as long as the stigmal.

Neodorostenus Girault (Type: N. australiensis Giranlt).
Propodenm plainly tricarinate, mith true lateral carinæ. Antennæ 8-jointed, the clnb 2-jointed.

Mestocharis Foerster (Type: M. cyclops Foerster).
(2) Antennæ with one ring-joint, the funicle 2 -jointed. Clnb 3 -jointed, the antemm 8-jointed, the funicle joints long; propodeun with a median carina only.

Chrysoatomoides Girault (Type: Chrysoatomus latipennis Giranlt).
(3) Antennæ with two ring-joints, the funicle 3 -jointed, the ovipositor not exserted. Autemnal club 2-jointed.
Propodeum without true lateral carinæ. Median carina of propodeum paired; postmarginal vein alsent; second abdominal segment occupying a third of the surface; hind tibial spur large, the mandibles bidentate.

Mestocharoideus Giranlt (Type: Mestocharis cyanca Girault).
Propodeum with true lateral carine.
Propodeum with a median groove or snleus with carinated margins.
Scutum with a median groove at distal third; postmarginal and stigmal veins short; second abdominal segment short, shorter thau segment 7.

Apleurotropis Girault (Type: A. viridis Girault).
Propodeum with a median carina.
Scutnm simple; median carina of propodeum lounded by sulci along each side; mandilles bidentate; second abdomiual segment occnpying over a third of the surface; postmarginal and stigmal rejns short.

Pelorotelopsslla Girault (Type: $P$. yenu Giranlt).
Sentum with a median groove at about distal fonvth; median carina of proporleum simple, the lateral carinat, however, $V$-shaped, the arms prointing cel halo-laterad; madibles tridentate; second aldominal segment only about a sixth of the surface of the abdomen; postmarginal and stigmal veins short.

Pleurotropopseus Girault (Type: $P$. purpurea Girault).
(4) Antenna with two ring-joints, the funicle e-jointed, the club 3 -jointed.

Median carina of proporem paired, diverging at apex, there each one connected along candal margin with the lateral cariaa which forks at apex; second abdominal seguent oceryying from a half to three fourths of the surface of the abdomen; mandibles bidentate; postmarginal vein slightly louger than the stigmal, both short.

Amestocharis Girault (Type: A. goondiensis Girault).*

[^49](5) Antenno with three ring-joints, the funicle 3-, the club 2-jointed.

Scutum without a median groove.*
Meson of propodeumi bi- or tricarinate, the propodeum usually 5 -carinate, its candal margin carinate and true lateral carinn present; seconü abdominal segment oectpying a third of the surface; stigmal and postmarginal veius short, the former a little the longer. Hind tibial spur long and stout.

Pseudacrias (Girault Typo: P. micans Girault).
Meson of propodeum $\pi$ ith one carina, the propodeum strongly tricarinate; second abdominal segment occupying a fourth of the surface; postmarginal rein about twice the length of the stigmal; eyes very hairy. Ring-joints large, distinet.

Pleurotropponsis Girault ('Type: P. maculipennis Girault). Scutum with a median groove at distal third or more.

Mesou nf propodeum hicurinate, the lateral catina also present, long and complete; marginal and postmarginal reins elongate.

Pleurotropomyia Girault (Type: P. grotiusi Girault).
Nole: Compare Cluthaira Cameron in the Elachertini.

## Tribe PEDIOBItNT.

## Gents EldCRIAS Girault.

Differing from Paracrias Aslmead in that the antenmæ bear two ring-joints, the clnb 3-jointed, the fuuicle 2-jointed. Propodeum tricarinate.

1. EPACRIAS NIGRIVIRIDIS Girault. Female. Genotype.

Blackish metallic green, rather coarsely rugulose. I.egs and antenne concolorous, the proximal three tarsal joiuts whitish. Wings hyaline, the postmarginal vein much shorter than the very short stigmal. First funicle joint longest. Petiole stout, distinctly longer than wide.

Habitat: Quingilli, Queensland. Forest.
Type: No. $\# y$ 1658, Queensland Musemm.

## GENTS ERTGLIPTOIDEUS Girault.

Like Betacrias Girault but the funicle joints long and slender and the postmarginal and stigmal veius long and subequal. Antemna 9 -jointed with one ring-joint, the club 2 -jointed, the funicle 4 -jointed. Propodeum without carinæ. Petiole short and stout.

## 1. ERIGLYPTOIDEUS VARICORNIS Girault. Female. Genotype.

Dark metallic green, the scutellum and propodeun aeneous, the face blne, sunken. Legs: concolorous, the trochanters, tibie and tarsi yellowish; scape pallid at each end, the distal club joint yellowish white.

Habitat: Murray Bridge, South Australia.
Type: No.I. 1236, South Australian Museum.
PEDIOBOMELA new genus.
Female:-Antenno 7 -jointed with one ring-joint, the club solid and ending in a spur. Scutellum simple, scutum without a trace of parapsidal furrors; postmarginal and stigmal

[^50]veins very short; second segment of abdomen occupying lalf of the surface, the eighth a third of its length and next longest, couical, the petiole stout, distinct, broad and wider than long. Propodeum with a pair of median carina which gradually diverge distad, the lateral carina also presont, long aut complete, the spiracle minute, round. Petiole with a sulcus on each side of meson. Propodeum with a short neek.

Male:-Not known.
Type: The following species.

## 1. PEDIOBOMYIA DARWINI new speeies.

## Female:-Length, 1.65 mm .

Black with a purplish tinge the wings hyaline; legs reddish brown, the coxa concolorous with hody, also the ceplalic femur; scape yellowish brown, rest of antenna concolorous, the first funicle joint subelongate, as long as the club, bevelled off at tip, the other two a little shorter than the pedicel. Thorax with raised polygonal reticulation except the smooth propodeuu. Abdomen densely scaly.

From one female captured by sweeping in a jungle pocket, August 31, 1913. Dedicated to Charles Darwin.

II abitat: Nelson (Cairns), Queensland.
Type: No. My 1650, Queensland Museum, the above specimen on a tag, the head on a slide.

## PEDIOBOPSIS new geuns.

Female:-Like Eriglyptus Cranford but the ring-joint is present, the club 3-jointed, the funicle 2-jointed, the form like the Omphalini, the propodeum short, noncarinate. Parapsidal furrows eutirely wanting, no trace of them. Abdomen sessile, stout, broad, a little longer than the thorax, the segments not very unequal, rather short. Scutellum simple. Stigmal vein moderate, not short nor sessile, longer than the short postmarginal. Reticulately punctate. Antennæ inserted a little below the middle of the face.

Male:-Not known.
Type: The following species.

## 1. PEDIOBOPSIS SPENCERI new speeies.

Female:-Length, 1.30 mm .
Dark purplish, opaque, the abdomen shining aeneous purplish, the wings hyaline; legs and scape reddish brown but the coxa concolorons; rest of antenna subfuscous, both funicle joints subequal, distinctly longer than wide, slightly shorter thau the pedicel; club joints longer than wide, the middle one longest, the third conical and terminating in a stout short spine. Scutellum large, with a finer sculpture than the scutum. Tarsi pale.

Described from one female captured by sweeping in jungle, July 26, 1913. Dedicated to Herbert Spencer.

## Habitat: Meerawa (Cairns), Queensland.

Type: No. Hy 1660, Queensland Museum, the above specimen on a tag, an antenna on a slide.

URACRIAS new geuus.
Female:-Antenno 10 -jointed with three ring-joints, the club 2 -jointed; scutum and seutelium simple; postmarginal vein absent, the stigmal vein very short; propoderm at the meson with a median carina which forks at base aud which is bonnded on each side by a sulcus whose lateral margin is acute, forming earine, the propoteum thus tricarinate at the meson. Truo lateral carina absent but in the vicinity of the spiracle, the propodeum with a jeng snlcus originating at ryical meson, rumning aloug the candal margin of the segment, then across the proporkmon to euphate margin like a lateral carima then curving of laterad. A short, oblique carina at cephalic margiu of propodenm a little laterad of the lateral carina at the meson. Propodeum glabrous, tho thorax otherwise with coarse polygonal roticulation, the lines raised. Second abdominal segment longest, occupying about a fourth of the surface. Petiole moderate in length. Mandibles strongly bideutate.

Male:-Not known.
Type: The following species.

1. URACRIAS EXCELSUS new species.

Ficmale:-Length, 1.20 mm .
Dark blue, the propodeum and abdomen dark metallic green, the mings hyaline, the legs dark blue except the knees, tips of tilion and the three proximal tarsal joints. Scape whitish along proximal half, the antenno otherwise dark blue. Pedicel longer than any of the funicle joints of which 1 is a little the longest, distinctly longer than wide, 3 uot much shorter but wider. Club conical, with a terminal nipple, the first joint largest.

Described from one female captured by sweeping in the forest, August 14, 1913.
Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1661, Qneensland Museuu, the above specimen on a tag, the head and a fore leg on a slide.

## TABLE TO THE PEDIOBIINE GENERA OF EULOPHTDE.

Australia. Females.
The mesoscutm is entire, the parapsidal furrows wholly absent or represented by mere traces of depressions caudad, not by elongate sulci nor distinct depressions caudad nor by grooves from either end. The abdomen is sessile or petiolate. The form is like that of the Entedonini. Rarely or never marked other than with metallic color.

Scutellinm simple.
I. Antennal club solid.

Antennæ 7-jointed with one ring-joint; postmarginal and stigmal veins very short; second segment of abdomen occupying half of the surface, the petiole wider than long; scutellum simple, the propodeum with a pair of diverging median carius and two lateral carime.

Pediobomyia Girault (Type: $P$. darwint Girault).
II. Antennal club 2-jointed.

Antenns 9 -jointed with one ring-joint, the funicle 4 -jointed; postmargiual and stigmal veins long and slender; propodeum without carinæ; petiole short and stout.

Eriglyptoideus Girault (Type : E. varicornis Girault).

Antenna 10-jointed with three ring-joints, the funicle 3-jointed; postmarginal vein absent, the stigmal very short; propodeum with the median carina bounded by sulei whose lateral margins are carinated; a lateral sulcus on propodeum, true lateral carinæ absent.

Uracrias Girault (Type: U. excelsus Girault).
III. Antennal club 3-jointed.

Antenna 8-jointed with one ring-joint; stigmal rein not sessile, longer than the short postmarginal; segments of abdomen rather short, not much unequal, the abdomen sessile; propodeum short, noncarinate.

Pediobopsis Girault (Type: P. spenceri Girault).
Antenna: 9-jointed mith two ring-joiuts; postmarginal and stigmal veins very short; petiole of abdomen longer than wide; propodeum tricarinate (median and lateral carino).

Epacrias Girault (Type: E. nigriviridus Girault).

## Tribe omphatint.

Genus Elderdus Haliday.

## 1. EUDERUS MESTOR Walker.

Eulophus mestor Walker, 1839, p. 42.
Eulophus capio Wralker, 1839, j. 44.
Euterus mestor Walker, 1846, p. 67.
Euderus mestor Walker, De Dalla Torre, 1898, p. 6.
Habitat: King George's Sound.

## GEnts CLOSt'EBOCERUS Westwood.

## 1. CLOSTEROCERUS SAINTPIERREI Girault. Female.

Brilliant metallic blue-green; legs and antemm black except the dusky pale tibiæ and tarsi. Fore wings bifasciate, the first fascia leaving the apex of the marginal vein, the second around the apex of the wing and rather narrow; first fascia somewhat $V$-shaped, the apex of the $V$ distad and central. In the middle of the blade a blotch which projects into the angle formed by the two areas of the first fascia.

Habitat: Nelson (Cairms), Queensland. Jungle.
Type: No. Hy 1660, Queensland Museum.

## 2. CLOSTEROCERUS MIRUS new species.

Frmale:-Length, 1.50 mm .
Agreeing with saintpierrei Girault but the tibio and tarsi more yellowish, the first band' of the fore wing bow-shaped or slightly conrex while there is a round spot in the blade a little cephalad of the middle and heneath the middle (or nearly) of the marginal vein; this is isolated. Morcover, the second or apical band disappears at caudal third or more. Antennæ 7-jointed, without a ring-joint. Whole body densely scaly. Abdomen concolorous with the thorax.

Male:-Not known.
Described from one female captured by sweeping grass and foliage in a forest ( 300 feet), January 23, 1913.

Halitat: Townsville, Queensland.
Type: No. Hy 1663, Queensland Museum, the above specimen on a slide.

## 3. CLOSTEROCERUS ZANGWILLI new species.

Female:-The usual length.
Metallie green, the abdomen metallie blue; legs and antenna concolorous or black excepting tarsi and posterior tibiz which are yellowish white. Characterized by the usual bifasciate fore wirgs which form an II, the faseia being joined along the midlongitudinal line; the band around the margin is nearly complete, the first strije accented under the stigmal vein conspicuously, the stripe broad and nearly straight; no bloteh in middle of the wing under renation. Antenuæ compressed fusiform and usual, 8 -jointed, the minute ring-joint being present. Propodeum without a median carina. The wing pattern is more sooty than usual. Mandibles tridentate.

Male:-Not known.
Described from one female captured by sweeping grass along a damp stream, July 7, 1913 (A. P. Dodd). Dedicated to Israel Zangwill for his tragedy The War God.

Mabitat: Nelson (Cairns), Queensland.
Type: No. $\Pi y$ 1664, Queensland Museum, the abore specimen on a slide (with the type of C. mivus Girault).

In C. mirus, the minute ring-joint is also present and so with all of the species but as it. hits into a cavity at the base of the first funicle joint it usually is not visible.

## DIAGNOSIS OF THE AUSTRALIAN SPECIES OF CLOSTEROCERTS WESTWOOD.

1. Fore wings with two isolated fasciar and a blotel.

First. band of fore wing $>$-shaped, a central blotch projecting distad into the spacu between the troo arms of the band.
lirilliant metallic blue-green; legs concolorous except the dusky pale tibirs and tarsi. saint pierrei Girault.

First band of fore wing bow-shaped or only siightly convexed, the blotch proximad of it isolated.
Irilliant metallic blue-green, the tikise and tarsi yellow. mirus Girault.
II. Fore wings with two fasciar which are joined along the middle of the blade, forming an II ; no blotch.

Metallic green, the abdomen blue; tarsi and hind tibire yellowish white; proximal fascia of fore wing accented under the stigmal rein, broad, nearly straight.
zangwilli Girault

## Genus Zaommomyla Ashmead.*

## 1. ZAOMMOMYIA OCULATA Girault. Female.

Dark metallic blue-green, the propodeum and part of axillo reddish yellow, also the abdomen exeept basal fourth; venter of body yellowish brown, also the legs, which are, however, paler distad of the femora. An obscure stained area under the distal half of marginal vein ou the fore wing. Antenno 8-jointed, the clnb 3 -jointed, the third joint terminating in a long spinelike projection. Second funicle joint longer than the first.

Habitat: Nelson (Cairns), Queensland. Jungle.
Type: No. Hy 1664, Qureensland Museum.
A second female was captured in a jungle pocket July 10, 1913.

## 2. ZAOMMOMYIELLA SAINTPIERREI new species.

Female:-Length, 1.35 mm .
Orange yellow, the head deep metallic blue, the base of abdomen rather narrowly, exeept at meson, metallic purplish, the abdomen more yellowish, less reddish than the thorax. Wings hyaline. Seape yellow, rest of antenna blaek, the pedieel elongate, about twice the length of the first funiele joint, nuch longer than the second whieh is longer than the first yet only about a lalf longer than wide. Mandibles tridentate. Club acnminate, the terminal seta of the third joint long. Scatum punctate.

Male:-Not known.
Deseribed from one female captured by swreeping in a jungle poeket, July 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1665, Queensland Musenm, the above speeimen on a tag, the head on a slide with the type appendages of Cirrospilomella fasciatus.

## 3. ZAOMIMOMYIELLA ABNORMIS new species.

Fcmale:-Length, 1.35 mm . Abdomen slender, conical, longer than the thorax.
Brilliant metallic blue, the slender abdomen coppery, blue at bass, the propodeum, all of legs and a short abdominal Iectiole reddish brown, the tibie and tarsi white. Antenne black. Fore wings with a large lorownith botch appended from the stigmat rein, filling the blade nearly to eaeh margin and muth of it under the distal third of marginal rein. Propodeum with some irregular depressions, washed with blue mesad. Thorax polygonally sealy. Parapsidal furrows completp. Mundibles tridentate. Oral area narrowiy yellow. Antenna inserted not far from the elypens; distal elub joint with a long, stout seta, nearly as long as itself, the first joint longest; funicle 1 globnlar, distinctly shorter than 2 which is distinctly longer than wide, subegnal to elnb joint 1. Postmarginal rein longer than the stignal.

Male:-Not known.
Described from one female captured by sweeping edge of jungle (A. P. Dodd), September 10, 1913.

Habitat: Kuranda, Queensland.
Type: No. My 1666, Qneensland Mnseum, the above specimen on a tag.

[^51]
## SECODES new gemus.

## 1. SECODES CAPENSIS Girault. Female. Genotype.

Dark metallic green, the wings hyaline; kuees and tibie Thitish; thorax scaly; ovipositor exserted for half the length of the abdomer, the latter brownish, the ovipositor valves black; eephalic and causlal margins of propodenm cariated and meeting at the short meson. Club with a small nipple, the pedicel scaly, longer than the funicle joints; antenna black. Mandibles tridentate.

A second speeimen has been seen.
IIaluitat: Capeville (Pentland), Queensland.
Type: No. $\neq 1$ 1667, Qucensland Museun.

## 2. SECODES SUMNERI Girault. Female.

The stune as the preceding but the ovipositor not exserted, the propodeum with a short median carina, the legs and antenna concolorous (excepting two proximal tarsal joints); abdomen loug, conie ovate and roncolorons.

Habitat: Lawson, New South Wales. Forest.
Type: No. I. 1835, South Australian Musemm, Adelaide.

## GENUS OMPITALOMORPILA Girault.

This genus differs from Hubbardiella Ashmead in having the parapsidal furrows complete, the postmarginal rein well developed, longer than the stigmal, the funicle joints wider than long, the antenna 11 -jointed with two ring-joints, the elub 3 -jointed.

## 1. OMPHALOMORPHA VIRIDIS Girault. Female.

Dark metallic green; sides of cephalic tibia, knees and tarsi pale yellow; wings hyaline, nearly naked; antennw black, pedicel longer than any of the funiele joints, the first of the latter shortest.

Habilat: Nelson (Cairns), Queensland. Forest?
Type: No. Hy 166S, Queensland Museum.
2. OMPHALOMORPHA REPERCUSSA new speeies.

Female:-Length, 1.25 nim.
Dark blne, the tarsi white expent distal joint; wings sublyaline; first funicle joint longest, distinctly longer thau wide, joint 4 slortest, a little wider than long; club ovate, with a distinct terminal spine; pedicel a little shorter than funicle 1; mandibles tridentate; postmarginal vein a little longer than the stigmal. Hind tibial spur single, not small. Propodeum with a short modian carina and no others, the spiracle small, oval. Thorax (except the more finely sculptured propodeum) densely, finely, reticulately, punctate. Antennæ blue.

Mate:-Not known.
Described from two females captured by sweeping in forest, November 6, 1912.
Habitat: Ayr, Queensland.
Type: No. IIy 1669, Queensland Museum, one of the above specimens on a tag, the head and a hind leg on a slide.

## Genus RlILCNOPL゙LTEHLA. Gitault.

Antenne capitate, 11 -jninted, three ring-, funicle- and club-joints, the club much wider than the funicle, the joints of the latter transverse. Postmarginal vein shorter than the stigmal,* the inarginal not half the length of the submarginal. Parapsidal furrows complete, the scuteltum simple. Ahdomen rounled oval, depressed, not as long as the thorax but wider. Male about tho same.

## 1. RHICNOPELTELLA IMMACULATIPENNIS Girault. Female. Genotype.

Dark metallie aeneous green; club, tarsi, knees, most of cephalic tibio, tips of other tibia, brown. Distal club joint shortest of the chob, shorter than the distal funicle joint which is somewhat over half the length of the pedicel.

Ilabitat: Brisbane, Queenslaul. Forest.
Type: No. Ify 1202, Queensland Museum.
2. RHICNOPELTELLA SPLENDORIFERELLA Girault. Female, male.

Brilliant metallic green; distal half or more of hind tibise white; fore wing with a stained rounded areat under the apex of stigmal vein and beneath most of the marginal. The male is more brassy, the vertex metallic rosaceous.

Habital: Brishane, Quceuslaud. Forest.
Types: No. Hy 1203, Queensland Museum.
3. RHICNOPELTELLA VIRIDIS Girault. Female, male.

Brilliant metallic green tinged with bluish, the legs except coxæ, deep lemon yellow; wings hyaline; a peltate yellowish spot in centre of abdomen at base. Male about the same.

Habitat: Brisinane, Queensland. Forest.
Type: No. Hy 16\%0. Queensland Museum.
4. RHICNOPELTELLA CONSOBRINUS Girault. Female.

Like immaculatipennis but smaller and the thorax bright metallic green; distal funicle joint only about a fourth the length of the pedicel.

Habitat: Nelson, Queensland. Forest.
Type: No. $\Pi$ y 16\%1, Queeusland Museum.

## 5. RHICNOPELTELLA RETICULATA Girault. Female, male.

Like immaculatipennis but the two distal funicle joints of the antenna are large and subquadrate, each as long as the pedicel, the last funicle joint more than twice the size of the last club joint. Outer half of eephalic tibia yellowish. Male the same but the antennæ with four ring-joints, the two funicle joints transverse.

> Mabitat: Murray Bridge, South Australia.

Type: No.I.1237, South Australian Mnseum, Adelaide.

[^52]
## 6. RHICNOPELTELEA FILIA Girault. Female.

Clusest to splcndoriferella but dark blue-green, the wings hyaline, the antennæ concolorous. Distal funicle joint not more than half the length of the pedicel.

Mulitat: New Soutli Wales (Mt. Koseinsko).
Type: No. 1.1311, South Australian Museum, Adelaide.

## 7. RHICNOPELTELLA PURPUREA new species

Female:-Length, 1.10 mm .
Metalle: purpe but otherwise like the other species; knees, cephalie thbio and all tarsi lale yellowish: antenna wholly black escept the club, the three ring-and funicle joints which are greyish; distal two funcle joints ablie, the first joint of the funicle much like the ringjoints; distal funicle joint distinctly shorter than the distal club joint. Pedicel as long as the funicle, the scape black. Distal funicle joint not more than a fith the length of the large pedicel. Handibles bidentate.

Male:- N ot known.
Described from une female captured by sweeping in the forest along the banks of Cape River, December 27, 1912.

Malitut: Caperille (Ientland), Qucensland.
Type: No. Hy 1672, Queensland Museum, the above specimen on a tag, the head on a slide.

## 8. RHICNOPELTELLA FLAVIPES new species.

I'cmule:-Length, 1.70 mm .
Characterised by leing dark acneots green, the abdomen dark, the legs (except coxr) lemon yellow; scape all concolorous; tegula lemon yellow; three ring-joints lut the first funicle joint ring-like but wider than the ring-joints, the pedicel rather distinctly longer than the distal funcle joint which is planly wider than long. Mandibles bidentate.

Male:-Not known.
Described from one female eaptured by sweeping in forest, August 30, 1913.
Mabitat: Nelson, Queensland.
Type: No. Hy 1673, Queensland Mnseum, the abore specimen on a tag, the head on a slide with the type of Elachertetrastichus acneipes Girault.

## diagnosis of the australian species of rhicnopeltrlea giraulat.

1. Brilliant metallic green.

Legg all deep yellow except the concolorous coxro; wings hyaline; a peltate yellowish spot in centre of abdomen at base. viridis Girault.

Legs concolorons except distal half or more of hind tibia and the tarsi which are whitish; fore wings with a slightly infuscated area under the apex of stigmal and mnch of the marginal vein.
splendoriferella Girault.
2. Dark metallic aeneous green, the legs mostly concolorous, the thorax sometimes bright green. Legs coneolorons or mostly so.

Distal joint of funicle plaiuly shorter than the pedicel.
Distal funicle joint somowhat over half the length of the pedicel; large.
immaculatipennis Girault.
Distal funicle joint only about a fourth the length of the pedicel; thorax bright green; small.
consobrinus Girault.
Distal joint of funicle as long as the pedicel and more than twice the size of the third club joint. Outer half of cephalic tibiec yellowish. reticulata Girault. Legs lemou yellow except coxze. faripes Girault.
3. Dark metallie purple or blne.

Dark bue-gren, the wings lyaline, the antenne concolorons; cephalic tibiæ, the knees and the tursi pallid dusky; distal funicle joiut uot more than half the length of the petiecl. filiu Girault.
Metallic jurple; knees, cephalic tibio and all tarsi pale yellow; club greyish; distal funcle joint distinctly shorter than the distal club joint aud not more than a fifth the length of the large pedicel. purpurea Girault.

## Gents ACIIR ISOCHARIS Giranlt.

Differs from Closterocerus Westwood in having filiform anteunæ; funicle 2 -jointed, club B-jointed; wings usually hyaliue. Brilliant metallic green and yellow.

1. ACHRYSOCHARIS MAGNIFICA Girault. Female. Cenotype.

## See table.

Habitat: Nelsom (Cairns), Queensland. Forest.
Type: No. II 1674, Queensland Museum.
2. ACHRYSOCHARIS PULCHRA Girault. Female.

Seo table.
Habitat: Nelson (Cairms), Queensland. Forest.
Type: No. Hy 1675, Queensland Museum.
3. ACHRYSOCHARIS GRANDIS Girault. Female.

See table.
Hubitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1676, Queensland Museum.
4. ACHRYSOCHARIS MACULATIPENNIS Girault. Female.

See table.
IIabitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1677, Queeusland Museum.

See table.
5. ACHRYSOCHARİ BIFASCIATUS Girault. Female.

Irabitat: Nelson (Cairns), Queensland. Jungle.
Type: No. Hy 1678, Queensland Museum.
6. ACHRYSOCHARIS LEIBNITZI Girault. Female.

Sce table.
Habitat: Mount Tambourine, Queensland. Jungle.
Type: No. I. 13£2, South Australian Museum, Adelaide.

## \%. ACHRYSOCHARİ TRIFASCXATUS new species.

Femalc:-Length, 1.30 mm .
Like lifuseiatus Girault but liffering in that of the thorax only the whole of scutum is faintly washed with metallie green and there are three distinct black stripes across the abdomen at alnut the midne fortion and two rather large dusky spots at sides of hase (dorsad); also median line of scutellum from hase is slightly metallie and each axilla at cephalie end and the mesal margin of each parapside; propodeun witha a number of dark areas; the bloteh on the fore wing is more distinct but from the distal part of the marginal vein in both species and a cross-stripe. The abdominal stripes are farther apart aud characteristic. The same otherwise.

Male:-Not kuown.
Described from one female captured by sweeping grass along a forest streamlet, August 7, 1913 (A. P. Dodd).

Halitat: Nelson (Cairns), Queensland.
Type: No. Hy 1679, Queensland Museum, the above specimen on a slide.

## 8. ACHRYSOCHARIS CLARISCUTELLUM new species.

Female:-Length, 1.15 mm .
Like maculatipennis but the seutellum very highly polished yet still finely sealy (througb a lens appearing smooth and brilliantly polished; mesad it is nearly without fine sculpture); and the antenna are litack, the first funcle joint not small and globular but plainly longer than wide while the three club joiuts are all shortened; pedicel lougest of the flagellum, the distal funicle joint next longest. Proximal half of seape mithe. Like lribnitsi except that the sentellum is polished and the mandibles with only two distinct, acute, equal teeth, the third subobsolete, very much shorter than the others and barely indicated; also the club joints are shortened.

Male:-Not known.
Described from one female eaptured by sweeping forest growths along the summit of the second coast range of mountains ( 1,500 feet), May 21, 1912.

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1680, Queensland Museum, the above specimen on a slide.

## 9. ACHRYSOCHARIS BREVICORNIS new species.

Female:-Length, 1.15 mm .
Like maculatipennis except that the wings are hyaline, the hind femur distinctly concolorous, the hind knees, all of other legs exrept coxa, white; antenno black except proximal half or less of seape, the pedicel no longer than the funicle joints which are short, the first sulquadrate, the second globular and a little shorter. Sentellum with the usual senlpture. Nandibles as in clariscutcllum.

## Male:-Not known.

Described from one female captured by sweeping in forest, August 21, 1913.
Habitat: Nelson (Cairns), Queeusland.
Tyme: No. IIy 1681, Queensland Museum, the above specimen on a slide.

## 10. ACHRYSOCHARIS FOERSTERI new species.

Female:-Length, 1.00 mm .
Similar to brevicornis Girault but smaller, the antenm more slender, the second funicle joint distinctly longer than the first, distinctly longer than wide, a little longer than each of the three cluh joints, the first funicle joint barely longer than wide, subequal to the pedicel (in brevicornis the club joints are a little wider than long, the third a little longer than wide, conical); also differing from brevicornis in that the hind wings are much slenderer and acutely pointed, the longest posterior marginal cilia as long as the greatest width of the blade (less than third in brcvicornis). Mandihles tridentate. Wings hyaline. Hind tibir more or less dusky below knees.

## Male:-Not known.

Described from two females captured April 26, 1913 among undergrowth and June 29, 1913 by sweeping herbage respectively (H. Hacker). Dedicated to Arnold Foerster.

Habitat: Brisbane, Queensland.
Type: No. IIy 1689, Queensland Museum, one of the above specimens on a slide to itself.

## 11. ACHRYSOCEARIS NIGRIPES new speeies.

Male:-Length, 1.20 mm .
Like Urevicornis but the legs all concolorous except knees, tips of tibiæ and tarsi; also the posterior marginal cilia of hind wings are longer, the hind wings somewhat narrower but obtuse at apex, both funicle joints plainly longer than wide, the first longer, the first two club joints more or less quadrate. Mandibles and scape not seen. Wings hyaline.

Female:-Not known.
Described from a male reared in connectiou with a coccid, June 6, 1913 (H. Hacker).
Habitat: Brisbane, Queensland.
Type: No. Hy 1683, Queensland Museum, the above specimen on a slide.

## DIAGNOSIS OE TIE SPECTES OF ACHRYSOCHARIS GIRAULT. Austrafia.

1. Body (excluding appendages) wholly metallic green.

Fore wings hyaline, the legs usually white except hind legs.
First funicle joint subquadrate the second globular and a little shorter.
brevicornis Giranlt.
Second funicle joint distinctly louger than wide, longer than the first.
foersteri Girault.
The same as brevicornis but all legs concolorous except knees, tips of tibiæ and tarsi; both funicle joints plaiuly longer than wide. nigripes Girault.

Fore mings with a sulstigunal bloteh.
Legs white, excepting cox: fore wings with a half eomplete fascia from the stigmal knob; antenne black.
leibnitzi Girault.
Legs white excepting coxio but the hind femur more or less dusky; fore wings with a subelliptical stained area about the stigmal knob; antenne dusky yellowish.
maculalipennis Girault.
The same but sentellum with a highly polished appearance; antenna: blaek; elub joints shortened. clariscutc7lum Girault.
II. Body (excluding appendages) mostly jellow, marked with deep metallic green. Thorax wholly metallie green.

Abdomeu pale cadmium yellow, at extreme tip more or less metallie greenish and also across base; a round greenish spot at each side of abdomen, somewhat dista!! o aline; lower face yellow. grandis Girault.
Thorax not wholly metallie green but with much yellow.
Pore wings hyaline.
Pale cadmium yellow; head except lower face, prouotum, mesonotum except laterocandal lalves of eaeh parapside, base and tip of abdomen, propodeum except laterall, a spot ou each side of abdomen about the middle, cephalie half of axilla and a narrow line down proximal two thirds of sentellum, metallie green. maynifice Girault.

The same but the metallic green line down the seutelhur much brouder and ovate in shape.
pulchra Girault.
Fore wings with an obseure but broad elouded stripe across from the stigmal vein.
Goldeu yellow; prouotum, eephalie half of sentum and apex of each parapside, metallic grecu; two stripes across abdomen abont midalle, propodeum, spot in centre of sututlum, one across apex of axilla and another on axilla caudad of middle, dusky or dusky black. bifascialus Girault.

The same; whole of scutum faintly metallic green; three stripes across abdomen about middle.
trifasciatus Giranl.

## GEnUS GYROLASELLA Girault.*

Differs from Clostcrocerus Westwood in bearing two riug-joints aud two grooved lines on the seutellum, the pedicel not compressed, the flagellum stout but not greatly flattened.

## 1. GYROLASELLA FASCIATUS Girault. Femalo, Genotype.

Honey yellow; the abdomeu with about eight cross-stripes of metallic green and blaek, the seventh consisting only of two spots, one on each side of the meson; scutum metallie green except lateral margiss and most of scutellum within the grooves, the parapsides mesad and apex of axillo: also distal apex of propodeum; ocelli in green spots. Wings hyaline, the legs dusky yellowish.

## Habitat: Brisbane, Queensland.

Type: No. Hy 1684, Queensland Museum.

[^53]2. GYROLASELLA CONSOBRINUS Girault. Female.

The same but pale greenish yellow, the abdominal stripes denser and confluent at meson, laterad turning cephalad like a foot.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1685, Queersland Juseum.

## 3. GYROLASELLA SPECIOSISSIMA Cirault. Female.

Like consobrinus but the postseutellum has a line of green down all of the mesco, the fore wings bear a fuscous spot from the stigmal knob; the footlike cephalic projections laterad of the abdominal stripes are thicker, line 7 is complete and there is a dumbbell-shaped area at the meson distad of stripe 6.

II abitat: Nelson (Cairns), Queensland.
Type: No. ILy 1686, Queensland Mnseum.

## 4. GYROLASELLA SPECIOSA Girault. Female.

Lemon yellow; inner margiu of parapside, median line of scutellum to distal fifth, the same of sentum nearly centrally, the cephalic eud with a line across it, a stripe across cephalic propodeum, epphalic margin of scutum narrowls, two short transverse lines in ceutre of abdomen and opposite to them on cach side, three spots in a line longitndinally, metallic green. Wings hyaline.

Habilut: Caperille (Pentland), Queensland.
Type: No. Iy 1687, Qucensland Museum.
5. GYROLASELLA LINEATA Girault. Fomale.

See table.
Habitat: Mount Tambourine, Queensland.
Type: No. I. 1298, South Anstralian Museum, Adelaide.

## DIAGNOSIS OF TIIE SPECTES OF GYROLASELLA GIRATTLT.*

Fore wings hyaline.
Abdonen with more than three eross stripes.
Scutum with much more than the median line metallic green.
Honey yellow; ahdomen with about eight cross-stripes, the seventh consisting of two spots on cach side of the meson, the stripes isolated from each other and straight. Scntellum metalic green between the groores. fasciatus Girault.
Pale greenish yellow and the same but the cross-stripes of abdomen confment at meson, laterad turning cephatarl like a foot.
consobrinus Girault.
Scutum with only part of median line green.
Honey yellow, the abdomen with many cross-stripes which are narrowly confluent at meson; median line of scutum caudad, the same of scutellum to distal fifth and a short transverse dash on each side of meson just cephalad of median green line of scutum, green.
lineata Girault.

[^54]Abdomen with not more than three cross-stripes; scutum with median line metallic green at middle, the rest yellow.

Lemon yellow; inner margin of parapside, median line of scntellum to distal fifth, the same of scntum nearly centrally, the ceplialic end with a line across it and two short transverse lines in centre of abdomen and opposite them, on each side, three spots in a line longitudinally, metallie green. speciosa Giranlt.
Fore wings with a substigmal spot.
Like ronsobrinns but the postscutellum is green down all of the median line and the footlike lateral projections of the abdominal stripes are thicker, stripe 7 is complete and there is a dumblell-shaped area at the meson distad of stripe 6.
speciosissima Giranlt.

## Genus ACHRJSOCHAROTDES Girault.

Similar to Gyrolasella Giranlt bnt the postmarginal vein longer than the stigmal, the scntellum with a rather conspicnons forea on each side of the median line, the funicle 3-jointed, the club 2-jointed.

## 1. ACHRYSOCHAROIDES SARCOPHAGUS Girault. Female. Genotype. <br> Chrysocharis sareophagus Giranlt.

Bright metallic green, tinged with coppery and pmrple, the wings hyaline; legs white except coxar; antemas black, the scape dusky; funcie joints cylindrical ovate, longer than the pedicel, the first somewhat the longest.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1688, Queensland Musenm.

## BRACIIYCHIRYSOCHARELLA Bew genus,

Fomale:-Head rounded, the mandibles bidentate, the antennw inserted somewhat below the middle of the face, shorl and strongly clavate somewhat as in lificnopeltella but the pedicel very much longer than the funcle and there are only nine joints, two ring-joints, two funicle joints, and a 3 -jointef "lub, the latter much snolleu and ovate. Club not terminating in a seta. Otherwise as in fhemophellelle except that the marginal fringes of the fore wing are a little longer than usual. Hind tibio with one spmr.

Male:-Not known.
Type: The following species.

## 1. BRACHYCHRYSOCHARELLA DUBIA new species.*

Female:-Length, 1 mm .
Dark metallic aeneous green, the wings hyaline; coxas and the hind femur concolorons, eaclı of the legs pallid; antemm pallid dusky. Thorax finely scaly.

Described from two females captured from the foliage of Eucalyptus in forest, November 9, 1911.

Ilabital: Nelson (Cairns), Queeusland.
Type: No. II 1689, Queensland Mnseum, the above specimens on a slide.
The stont abdomen hides the ovipositor so that I am not sure they are females; there are two funicle joints.

[^55]
## Genus ACHRYSOCHARELLOIDEA Girault.

Differing from Gyrolasella Girault in that the club of the antennm is 4 -jointod, the last joint minute, itself terminating in a seta; also the postmarginal vein is longer than the stigmal. Antennæ 10 -jointed, the funicle cylindrical.

## 1. ACHRYSOCHARELLOIDEA PAX Girault. Femate. Genotype.

Metallic green and punctate, the wings hyaline; excepting coxæ and base of femora, the legs pale yellow; excepting the pale yellow base of scape, the anteuna black. Club joints a little wider than long, the two funicle joints longest of the flagellum.

IIabitat: Sydney, New South Wales.
Type: No. I. 1319, South Australian Museum, Adelaide.

Genus Chrysocharella Girault.
Differs from Lehrysocharoides Girault in having the scutellum simple, the funicle 1 -jointed, the club 4-jointed; the stigmal vein is sometimes slightly enlarged, the postmarginal more or less equal to it. Mandibles bidentate. Club somewhat compressed, the scape longer than the flagellum which is short and clavate. Pedicel not compressed. (Type re-examined.)

## 1. CHRYSOCHARELLA PULCHRA Girault. Femate. Genotype.

Metallic aeneous green and sealy, the propodeum smooth but not glabrous; a small obscure stained area in the fore wing from the stigmal knob; legs (except articulations and tarsi) and the autenna black. Club joints moniliform, the funicle joints barely longer than wide.

Habitat: Hughenden, Queensland. Forest-downs.
Type: No. Hy 1690, Queensland Museum.
2. CHRYSOCHARELLA AEDEA new speeies.

Fenale:-Leugth, 1.05 mm .
Dark aeneous green, the wings hyaliue; thorax very finely, densely scaly, somewhat opaque. Coxa concolorous, also the femora, the knees, distal parts of tibio and the tarsi whitish. Anteunæ sooty black, the proximal two thirds of the scape white.

Described from one female captured by sweeping the forest-downs, July 14, 1913.
Habitat: Hughenden, Queensland.
Type: No. Hy 1691, Queensland Museum, the above specimen on a slide.

## 3. CHRYSOCEARELLA CONSOBRINUS new speeies.

Female:-Lengtb, 1.30 mm .
Very similar to aenea but more robust, the postmarginal rein as long as the stigmal, the first two pairs of legs more yellowish, the scape has the distal.half blackish, the pedicel is longer, the antennal joints stonter.

Male:-Not kuown.
Described from four females reared from a lot of miscellaneous galls on the foliage of Iucalyptus, forest, September 18, 1912.

Habitat: Nelson (Cairus), Queensland.
Type: No. IIy 1692, Queensland Museum, two of the foregoing females ou a slide.

## 4. CHRYSOCHARELLA FASCIATIPENNIS new species.

Femalc:-Lergth, 1.05 mm .
Dark metallic green, the ahbomen tark hhe, the coxa concolorous with thorax, the legs silvery white, except lind fomora and tibio ketween the ends, distal tarsal joint at extreme tip, other tihia: below knee and front femora along npper edge. Antenna black, the pedicel about twice the length of the fimicle joint. Mandihles bidentate. Iostmarginal vein not quite as long as the stigmal, the fore wing with a rather broad sooty black stripe across it from the distal part of marginal rein (origimating against the whole stigmal, the stripe fading somewhat caudad). T'arapsital furrows indicated only cephalad. Spiracle with a boomerang. slaped sulens orer it.

Male:-Not known.
Described from one female captured by sweeping in forest, August 5, 1913 (A. P. Dodd).
Habital: Nelson (Cairns), Queensland.
Type: No. IIy 1693, Queensland Museum, the above specimen on a slide.

## 

Fremale:-Like Rhicnopoltclla Cirault but there are only four small (ring i) joints. between the funicle and the cluh, the antennæ short, strongly clavate and $9-j o i n t e d$. Two ring-, two funicle joints, the latter harely longer than the riug-joints.

Male:-Not known.
Type: As indiented on p. 168.

## 2. BRACHYCERYSOCHARELLA HELENA new species.

Female:-Length, 1.45 mm .
Brilliant metallic green and senly, the wings hyaline, the antenne and legs intense lemon yellom:

Described from one female found among herbage, Nay 10, 1913 (II. Hacker).
Mabitat: Brisbane, Queenslant.
Type: No. Hy 1604: Queensland Museum, the above specimen on a slide.
3. BRACHYCHRYSOCHARELLA GLOBA new speeies.

Fomale:-Length, 0.75 mm . Small and stout, the abdomen globular.
Dark aencous green, the wings hyaline, the legs concolorons excepting bases and tips of first two pairs of femora, the knees and proximal four tiusal joints and all tibia. Pedicel concolorons, the rest of antenna white washed with dusky (the second ring-and two funicle joints dark like the pedicel). Mandibles bideutate. Distal funicle joint twice the size of the first but much shorter than the pedicel. Thorax densely seuly.

Male:-Not known.
Described from one female captnred by sweeping in forest, August 27, 1913.
Habitat: Nelson, Qucensland.
Type: No. IIy 1695, Queensland Inseum, the above specimen on a tag, the head on a slide.

## PSEUDOCHRYSOCHARIS new gemus.

Female:-Like Chrysocharis Foerster but the club 3-jointed, the third joint terminating in a seta, the antennx 9-jointed with one ring-joint; postmarginal vein a little longer than the stigmal; scutellum simple; club narrower than the funicle; paransidal furrows obscure. Propodeum very shont at meson. Mandibles tridentate, tho inmer tooth small.

Male:-Unknown.
Type: The following species.

## 1. PSEUDOCHRYSOCFIARIS SPECIOSUÔ new species.

Fimale:-Length, 1.00 mm .
Like Acherysocharis magnifica Crivault but the antenure and legs white; funicle joints stout, ouly a little longer than wide, oval. Club joints eylindrical, not long, yet distinctly longer than wide.

Described from one female captured February 18, 1913, by sweeping forest along a public road.

Habitat: Ripple Creek (Ingham), Queensland.
Typo: No. Hy 1696, Queensland Museum, the above specimen on a tag, the head on a slide.

## ICHRYSOCH.IRELLA new genus.

Female:-Like Aehrysocharoides but the elub 3-jointed, the postmarginal vein not as long as the stigmal, the scutelhm simple. The two funicle joints longer than wide, cylindrical, the pedicel still longer. Funicle 2-jointed.

Male:-Not known.

## 1. ACHRYSOCHARELLA DUBIA new species. Genotype.

Female:-Length, 1.15 ninu.
Like Achrysocharis leibnitai but the autennæ pale like the legs and with two minuto ring-joints; also the single fascia on the fore wing is complete but accented markedly from the stigmal vein; distal club joint dusky.

Male:-Not known.
Described from one female captured by sweeping forest, Mount Pyramid (1,500-2,500 feet), June 3, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queeusland.
Type: No. Hy 169\%, Queensland Museum, the above specimen on a slide.

## 2. ACHRYSOCHARELLA AUREA new spciees.

Female:-Length, 1.15 mm .
Orange yellow, the scutum washed with metallic purple; a rather large, oval metallic purplish spot filling the axilla centrally from end to end; a fuscous stripe across abdomen distad of tuiddle; tij, of abdomen above dark. Scutum sealy. Sereral obscure fuscous markings
along the propodeum. Legs pale, the antenne white suffused with dusky. Fore wings with a stain in the blade. Distal club joint black; funicle joiuts not very much longer than wide. Mandibles tridentate.

Male:-Not known.
Described from one female captured by swcepiug in a jungle pocket, July 2.t, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Ify 1698, Queensland Museum, the head ou a slide (the body was accidentally lost).

## 3. ACHRYSOCHARELLA SEMIFLAVIFRONS new species.

Female:-Length, 1.10 mm .
Ilead and thorax bright aeneous green and reticulated, the abdomen, face below anteuno, tegula and its vicinity, golden yellow, the abdomeu metallic greenish at distal third, crossed by a dusky stripe just proximad of the green aud a second dusky stripe indicated just proximat of the other by it transverse dash from the edge on each side. Wiugs subhyaline, the postmarginal rein subuybal to the stigmal. Parapsidel furows complete, the proproun with a short median carina (appareutly two or a pair or else a broad, flat one). Legs yellow, the coxa dark it base. Autenna hlack, scape aud pedicel white, black above, the pedicel a little shorter than either funicle joint. Mandibles distinctly tridentate.

From one specimen captured by sweeping in forest, April 16, 1913 (A. P. Dodd).
Ilabitat: Nelson (Cairus), Queensland.
Type: No. Hy 1699, Quecnsland Museum, the above specimen on a slide.

## 4. ACHRYSOCHARELLA AENEA new species.

Female:-Length, 1.25 mm.
Running to Nesomyia Ashmead in the Pediobini but the autennæ with two ring-joints, the club 3 -jointed, the third joint teminating in a couical or spine-like projection; funiclo 2 -jointed, both joints somewhat longer than wide and ouly slightly shorter than the pedicel; club tapering. Propodemm smooth, faintly reticulated, nonearinate bont with a loomerangshaped sulcus orer (cephalid of) and purtly around the small spiracle. Abdomen sessile, ovate. Scutellum simple. Stigmal veiu short, the postmarginal barely developed. Hind tibia with one spur. Fore wings with short marginal cilia. Cheeks rather short, the head nsual. Parapsidal furrows obscure bit at least half complete, not dcep. Dark metallic purple, the abdomen at base blue-green, the wings hyaline; tibiw yellow-brown, the tarsi pale; antenno dusky, the scape yellowish brown. Thorax densely, reticulate-punctate, the propodeum much smoother.

Male: - Not known.
Described from one female captured by sweeping in a jungle pocket, July 21, 1913 (A. P. Dodd).

Mabitat: Nelson (Cairns), Queensland.
Type: No. My 1700, Queensland Mruseum, the above specimen on a tag, the head and a hiad tibia on a slide.

## 5. ACHRYSOCHARELLA OLYMPUS new speeies.

fiemale:-Length, 1.25 mm .
Brilliant metallic aeneous green, the wings hyaline, the legs white except the concolorous. coxa; autenno black, the scape yellowish white at proximal two-thirds, the two funicle joints rather long. the second the shorter, only slightly longer than the moderately long pedicel, the second ring-joint large. First club joint a little shorter than the pedicel. Mandibles tridentate. Thorax densely scaly. Parapsidal furrows complete, prominent, curved, obtnse and broad.

Male:-Not known.
Deseribed from one female captured by sweeping in forest and slightly in jungle, June 27, 1913.

Malitat: Nelson (Cairns), Queensland.
Type: No. Ry. Tro1, Queensland Museum, the above specimen on a tag, the head on a slide.

## 6. ACHRYSOCHARELLA ALBIPES new species.

Female:-Length, 0.75 mm .
Like olympus Girault but both funicle joints equal and subquadrate, the pedicel barely longer than them. Mandibles bidentate. Dark aeneous green. Club joints not longer than wide (so in olympus).

Male:-Not known.
Described from one female captured by sweeping along edges of jungle, January 5, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.
Type: No. Hy 1702, Queensland Museum, the above specimen on a tag, the head on a slide.

## THE AUSTRALTAN SPECIES OF AC\#RYSOC\#ARELLA GTRAULT.

Fore wings hyaline.
Body, excluding appendages, wholly metallic.
Dark metallic purple, the tibia yellowish brown.
aenea Girault.
Aeneous green, the legs white except coxæ.
Mandibles tridentate; funicle joints rather long; brilliant green.
olympus Girault.
Mandibles bidentate; funicle joints subquadrate; dark green. albipes Girault. Body with the lower face, abdomen and tegula golden yellow.
dencous green, the abdomen so at distal third; legs yellow, the coxm dark at base abore.
semiflavifrons Girault.
Fore wings with a bloteh or substigmal fascia.
Orange yellow, the scutum washed with metallic purple; legs pale; a fuscous stripe across abdomen distal of middle; fore wings with a stain in the blade. aurea Giranlt.
Dark aencous green, the antennæ and legs pale; a complete fascia on fore wing from the stigmal vein.
dubia Giranlt.

## OMPHALOTOMYIA new grans.

Female:-Characterized by the 9 jointed antenme: which bear three distinct ring-joints, the club solid. Prolodeum with a median catiad, the soutellum smple, the parapsidal furrows convote. IIfin tibial spurs single. Marginal rein a little longer than the submarginal, the latter only slightly or incompletely broken. the postmarginal absant. Mandibles tridentate. Pedicel elongate, the chab with a short miple. Thorax shagreened. Wings hyaline. More or less anomalous and with clachertine affinities. Abdomen sessile.

Male:-Not known.
Type: The following species.

## 1. OMPHALOMOMYIA LIVIDICAPUT new sp ocios.

Female: - 1.ength, 1.47 mm .
Deep, orange yellow the head deep hue, the paralsides washed with the same color, the abdomen (dorsad) margined all round with blackish except alcross baso; legs coneolorous with thorax. Scape white, the remainder of antema dusky, the pedicel suffused with yelowish, the distal or third funicle joint less than half the length of the pedicel, globular, the club more or less equal to the pedicel, the first funiele joint longest, distinctly longer than wide.

Described from one femate captured from a window, January, 1912 (A. P. Dodia).
Habilat: Velson (Cairns), Qucensland.
Type: No. IIy 1703, queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

RIIICNOPELTOAYIA nem gems.
Fcmalc:-Antenne 10-jointed with three ring-joints, the funicle 2 -jointed both joints somewhat longer than wide, the club only slightly wider and with a terminal spine. Scutellum simple. Parapsidal furrows complete. Postmarginal rein subequal to the stigmal. Scutellum very long, cordate.

Mfale:-Not known.
Type: The following species.

## 1. RHICNOPELTOMYIA WASHINGTONI new species. Genotyps.

Femate:-Length, 1.00 mm .
Metallic green, the wings byaline, the seape and legs white the coxe concolorous; flagclim: black, the funicle joints slightly longer than mide, the second slightly the longest, subegual to the sloort pedicel. Seape dusky at tip. Thorax finely reticulately sealy, the sentallum, however, opaque, the reticulation absent or nearly, the surface glazed or frosted. Abemien dark.

Described from one female captured by sweeping in forest along the banks of Cape River, December - $4,1912$.

## Ilabitat: Capeville (Pentland), Queensland.

Type: No. My 1704, Quensland Musemm, the abore specimen on a tag, the head on a slide (fragments of other antennæ present).

The species is dedicated to Booker T. Washington.

## 2. RHICNOPELTOMYIA DOUGLASSI new species.

Female:-Length, 1.15 mm . Slender.
The same but scutcllum finely scaly, more rourex, both funicle joints distinctly :ouger than wide, also the pedicel, the club joints somewhat shorter; scipse dusky above at and nea: tip. Ahiomen snffused with brownish. Mandibles 3-dentate, the inner tooth short, abruptly drunsate. Propodeum with a lateral sulcus.

Male:—Unknown.
Described from one female captured by streeping in forest, July, 7, 1912.
Habitat: Aloomba (Cairns), Queensland.
I'ype: No. Ay 1ro.5, Qucensland Musatm, the above specimen on a tag, the liead on a slicle. Dedicated to Frederick Douglass.

## GYROLASOMYIA new genus.

Fomale:-Like Ehimopeitella Girmalt but the scutelhum with two narrow long grooves w: w the meson, are on ach side, the antema ? jointed, with two ring joints, the cinb eniarged, ajointed. Propodeum tricurinate. Postmarginal vein shopter than the short stigmal. Marginal fringes short. Groores of scutellum slighty comerging toward apex. Propoders! minutely, densely punctate, short at the meson, the lateral caring fwice the length of the median, straight, the median forking at apex, the spiracle narrow-reniform, jnst mesad of the lateral carinat which run caudo-laterad and are rather distant from the lateral margin. Second abdominal sogment occupying about a fourth of the surface, the sessile abdomen conic-ovate. Mandibles tridentate, the third tooth shorter, broader and emarginate at middle of apex nearly forming two teeth. Scutellum long, orerhanging the meson of the propodenm. Funicle joints large, wider than long.

Male:-Not known.
A genus easily recognized by the tricarinate propodeum, the two grooves on the scutellum which converge and which are near the meson and the 3 -jointed funicle, the 2 -jointed club.

Type: The following species.

## 1. GYROLASOMYIA WASHINGTONI new speeies.

Female:-Length, 1.10 mm .
Grass green, aeneous and metallic, the legs including cephalic coxæ, the antennm and venation lemon yellow; wings hyaline; thorax densely, finely pmetate. Pedicel stout, much longer than any of the funicle joints of which the third is mueh the longest, 1 and 2 sabequal. twice wider than long. Proximal club joint longer of the tro, the distal one acntely pointed. Antenue short and capitate. Scape white.

Male:-Not known.
Described from one female captured by sweeping in the forest adjoining the banks of Cape River, January 8, 1913. Dedicated to the great negro, Booker T. Washington.

Mabitat: Capeville (Pentland), Queensland.
Type: No. Hy 1706, Queensland Mussum, the above specimen on a tag, the head on a slide.

## EUDEROMYIA new genus.

Female:-Antenna 7 -jointed, without ring-joints, the chub slender, 3 -jointed; scutellum with a punctate groove down each side of the meson, somewhat orer midway between it and the lateral margins; abdomen slender. ]'irapsidal furrows complete. Postmarginal veiu barely developed. Mandibles tridentate. Club terminating in a nipple. Submarginal vein broken, much shorter than the marginal.

Male:-Not known.
Type: The following species.

## 1. EUDEROMYIA CARLYLEI new species.

Female:-Length, 0.80 mm .
Dark metallic green, the abdomen purple, the wings sublyyaline, the tibio and tarsi yellowish. Marginal fringes a little longer than usual, the fore wings with a regular, complete line of discal cilia from aper of stigmal rein to apex of wing. Antenno black, the seape white except at tip, the pedicel shorter than either of the funicle joints which are distinctly longer than wide, the club joints nearly as long. Fore wings with about a dozen lines of discal ciliation across the widest portiou. Ablomen longer than thorax, the latter finely scaly.

Described from one female cuptured by sweeping iu forest, October 9, 1912.
Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 1707 , Queensland Museum, the above specimen on a slide.
The species is dedicated to Thomas Carlyle.

## CLOSTEROCEROIDES new genus.

Fiemale:-Like Closterocerus Westwood but the postmarginal and stigmal veins long, the former the longer, the antenna 9 -jointed with two short ring-joints, the funicle 4-jointed, the club solid, long, the flagellum fusiform. Propodeum with an abbreviated median carina at base. Mandibles bidentate.

Male:-Not known.
Type: The following species.

## 1. CLOSTEROCEROIDES TRIFASCIATIPENNIS new speeies.

Female:-Length, 1.26 mm .
Deep metallic green and sculptured like species of Clostcrocerus; legs and antennæ black but the tibis whitish before tip, the tarsi white except distal joint. Propodeum smooth or nearly. Mesothoras with two parallel dark stripes down mildle to about centre ot sentellum; also tro parallel dark stripes across vertex (caudad) from each lateral ocellus. Fore wings with three jet black stripes across them, the first one (proximad) narrowest, from the break of the submarginal vein, the second closer to the first than to the third aud from near the base of the marginal vein; the third longest and somewhat wider than the second, from under the whole of the postmarginal vein. The blade otherwise slightly, uniformly stained. Pace helow antenar yellow. Fourth funicle joint longest, a little wider than long; club as long as the two preceding funicle joints, spined at apex.

Described from one female captured by sweeping in the forest, February, 1913.

IIabitat: Australia-Seymour (Ingham), North Queensland.
Type: No. Hy 1ros, Queensland Museum, the above female on a slide.

## TABLE TO THE OMPHALINE GENERA OF EULOPHIDA.

## Australia. Females.

The parapsidal furrons are complete or ineomplete, always distinctly indicated (but sometimes only by long sulci or by depressions caudad) the mesonotum at least trilobed; the abdomen is sessile, rarely with a short petiole. Species nsually metallic green, the propodenm short and withont carinæ, the thorax usually with a sealy senlpture. Mandibles bi or tridentate. Scntellum nsnally without grooves, at the most with two, the scutum without a median grooved line. Tarsi 4 -jointed. Stignal vein usially of moderate length, not sessile, the marginal vein usnally of moderate length.
I. Antemne wilhout xing-joints, T-jointed.

Scutelluw with two punctate grooves; parapsidal furrows complete; marginal rein much longer than the sul margiual; club 3-jointed, slenter. Postmarginal vein 1 arely developed.

Euderomyia Girault (Type: E. carlylei Girault).
II. Antenna with but one ring-joint.

Anteme with the funicle 4 -jointed, the club 3 -jointed.
Antenna 10 . ointed; wings hyaline, almost glabrons, much of the short discal citiation arvanged in lines; postmarginal veiu well developed; abdomen long, conical, longer than the rest of the body, the propodeum short, noncarinate or with only a trace of a median carina, punctate or at least senlptured.

Secodes Girault (Type: S. capensis Girault).
The same bnt the propodeum smooth, impunctate, the diseal ciliation of the fore wing dense, normal; malar space distinct.

Euderus Haliday (Type: Entedon amplus Walker).
Antenna with the funcle - -jointerl, the chat 3 -jointef; antenna 8 -jointed.
Eyes occupying the whole side of the head, extending to the mouth.
Postmarginal vein long, the stignal usually with a fascia from the knob. Antenna cylindrical.

Zaommomyie!a G . ault (Type : Zaommomyia oculata C rault).
Autennæ with the funicle 2 -jointed, the club 3 -jointed; the antenne 8 -jointed.
Scape dilated at apex, the pedicel flat, the flagellunı fusiform, flattened, the joints compact, wider than long, the third club joint terminating in a long spur. Fore wings with faseine. Ring-joint hidken. Posturginal vein not well developed usually shorter than the stigmal. Mandibles tridentate. Fyes normal.

Closterocerus Westwood (Type: C. trifasciatus Westwood).
Scape not dilated at apex, the pedicel normal, the flagelhm eylindrical, the third club joint terminating in a long spur; postmarginal vein slightly shorter than the stigmal. Wings usually hyaline.

Achrysocharis Girault (Type: A. magnifica Girault).
Antenno with the funicle and club each 3-jointed. Scutum and scutellnm simple.
Postmazinal vein a little longer than the stignal ; club narrower thau the funicle.
Pseudochrysorharis Girault (Type: P. speciosus Girault).
Postmarginal vein absent. Parachrysocharis Girault* (Type: P. jarensis Girault).

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* Java.
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1.1. Antenne witl turo ring-joints.

Anteuna greaty flattened or depressed, the pedicel compressed. As in Closterocerus but the funicle is 4 -jointed, the club solid and terminating in a long spur; -tignal and postmarginal veins long; otherwise as in Closterocerus but the mandibles tridentate.

Closteroceroides Girault (Type: C. trifas:ix'ipennis Girault).
Antennw rery short and strongly capitate, the funicle joints transterse, barely longer than the ring-joints.
Scutellum simple.
Antenna 9-jointed; as in Rhicnopeltella.
Brachychrysocharella Girault (Type: B. dubia Girault).
Sentellum with two narrow groored lines near the meson, one on cach side.
Antenno 9 -jointed, the club enlarged, 2 -jointed.
Gyrolasomyia Girault (Type : G. washingtoni Girault).
Antenna normal, rarely compressed, the pedicel always normal.
Scutellum with two grooved lines which are near the lateral margins.
Antennar 9 -jointed, the elub 3 -jointed, the appendage stout and short, the joints thick; postmarginal vein absent.

Gyrolasella Girault (Type: $G$. jasciatus Girault).
Aritenas 10 -jointed, the club 4 -jointed, the fourth joint mimnte and termin. ating in a seta; postmarginal vein longer than the slender stigmal.

Achrysocharelloidea Girault (Type: A. pax Girault). Sutellum at the most with a fovea on each side, usually simple.

Anteme with the funicle 1 -jointed, the elab 4 -jointed. Flagellum somewhat compressel, short; fimicle joint much shorter than the pedicel. Mandibles bidentate.

Chrysocharella Girault (Type: C. pulchra Girault).
Antenna with the funicle 2-jointed, the club 3 -jointed. Postmarginal vein shorter than the stigmal. Fhaceltum filiform. Club tapering.

Achrysocharella Girault (Typo: A. dubia Girault).
Antenna with the funicle 3 -jointed, the elul 2 -jointed. Seutellum with a fovea on each side; postmarginal vein longer than the stigmal.

Achrysocharoides vipault (Type: Chrgy charis arcophafer Girault).
Antennu with the funicle 4 -jointed, the clob 3 -jointed; fore wings with the discal eiliation arranged in more or less regular línes; postmarginal foin luger that the stigntal.*

Abdomen short, ovate.
Propoleum with or without a median carina; parapsidal furrows complete. F'ore wings nearly nakca.

Omphalomorpha Girsult (Type: O. viridis Girault).
III. Antenna with three ring-joints; parapsidal furrows complete.

Antennal club solid, cylindrical, the antennw normal, the jedicel elongate, some of the fimmele joints longer than wide.

* The same but wings normally ciliate, the postmarginal vein twice longer than the stigmal, longer than margina!, the stigmal loug; rinq-joints large, distinct. Omphalomorphella Girault is Dodd (type: O. auripes new species). The genotype is bright aeneons green, the wing lightly stained, the legs golden yellow except coxx ; pedicel elongate. Hind femur compressed. Body denscly shafreened, the thor:x with some scattered pmetures Melbourne, Victoria.

Propodenm with a median carina; postmarginal vein absent.
Omphalomomyia Girault (Type: O. lividicaput Girault). Antennal club 3 -jointed, enlarged, the antenno capitate, the fnnicle joints wider tharis long.
Propodenn withont a median carina, the postmarginal vein shorter than the stigmal. Rhicnopeltella Girault (Type : R. immaculatipennis Girault). Antennal club 3 -jointed, not minch enlarged, the two fnnicle joints somewhat longer than wide.
The same. Abdomen conis-ovate.
Rhicnopeltomyia Girault (Type: R. washingtoni Girault).

## Tribe TETRACAMPINT.

I have not met with any genera of this tribe in Australia except the following which donbtfully belongs here. The tribe is pecnliar and mnst resemble the Pteromalida in mayy respects. Of the tribes of Entedoninx, this group seens closest to the Entedonini because of the minute stignal rein and the very long marginal but the clongate body and 6 -jointed fmicle seem quite claracteristic.

## DIPARELLOMYLA new genus.

Female:-Like Panstenon Walker of the Pteromalidw but the antennæ only 10-jointed with one trausverse ring-joint, the club solid. Marginal vein somewhat longer than the submarginal, the postmarginal long, the stigmal short but not sessile, about a third the length of the postmarginal which is abont a third the length of the marginat. Mandibles bidentate. Petiole surequal to the hind coxa. Scutellnm with a crosssiture. Propodeum pubescent from pinponctures, with a long median carma which is delicate and paired. Segments 2 and 3 of abdomen subequal, combined occupying latf of the surface, the incision hetween these deep acress the meson. llind tibial spurs double, stout and long, mequal, inserted bofore the tip as in the torymid genus I'errisocontrus Clawford nearly but the spurs nearer the tip and not so long Scutellum without grooves. Pronotum distinctly separated. Postmarginal vein not broken. Axillas separated. Hind coxa twice the sire of the others.

## Male:-Not known.

This genus, were it not for the double spurs of the candal tibia I ronld place within the Diparma of the Pleromalida since the abdomen is petiolate and the marginal and postmarginal reins bery long. The axillm are not advanced and the genus resembles Euplectrus, yet the arsi are $\bar{j}$-jointed and the tibial spurs not greatly enlarged. It will not go into any of the subfamilies of the Miseogasteridw.

T!yue: The following species.

## 1. DIPARELLOMYIA HAECKELI new speeies.

Female:-Length, 1.65 mm .
Metallic green, the pronotum, parapsides, distal third of abdomen, scutum and axillæ purple. Wings hyaline. Legs yellowish brown, the hind coxe concolorons with the thorax. Mesopleuxm polished, the sutures distinct. Petiole coloured like the legs. Scape cylindrical, the clnb with a short nipple, the first funicle joint over twice longer than wide, longest, 2-4 subeqnal, a third shorter, 6 distinctly longer than wide, somewhat longer than the pedicel. Thorax fincly shagrecued. Scape yellowish except at tip; rest of antenna black.

> Male:-Not known.

Described from one female captured by streeping in the forest, August $3,1913$. Dedicated to Ernst Haeckel.

Mabitat: Nelson (Cairns), Queensland.
Typo: No. Hy 1700. Queensland Museum. The above specimen on a tag, the head, fore wing and hind legs on a slide.

## Subrhmity APHELTNTNE.* <br> Tribe APIIELININI.

## Gevus APIIELINUS Dalman.

Fore wings with an oblique hairless line from the stigmal vein; antenuw of both sexes G jointed. tro small fimicle joints, the club 2-jointed, the distal joint longest. Oriyositor not much exserted.

Synonym: Paraphelinus Perkins.
The forms named Paraphelinus Perkins interguade with the forms of Aphelinus Dalman, as the Australian species shon, so that obviously there are not two genera represented by them. Paraphelimus inust therefore fall as a trne synonym of Aphelinns.

## 1. APHELINUS DIES Girault. Female.

Black, the antenna and legs lemou yellow, the hind coxa black; wings hyaline; abdemen lemon yellow and with obscure dusky cross-stripes; discal filia proximad of hairless line arranged in tro long lines with a third short line ( $2-3$ cilia) and six or seven times coarser than the main ciliation.

Ilabitat: Nelson (Cairns), Queensland. Forest.
Tyuc: No. Hy 7ヵ10, Queensland Museum.

## 2. APHELINUS NOX new species.

Femule:-Tengtl, 1.20 mm .
Like dies but the distal two thirds of abdomen concolorous with rest of body, the proximal third lemon yellow; discal cilia proximad of hairless line arranged in two long lines and twer or three short ones (type re-examined).

Captured by sweeping, November, 4, 1911.
Ilabitat: Kuranda, Queensland. Jungle.
Tyme: No. Hy IT11, Qucensland Minseum, the above specimen on a slide.
3. APHELINUS AUSTRALIENSIS (Girault). Female.

I'aramblinus australiensis Giranlt.
Deep orange yellow, immacnlate; fumicle 2 distinctly more than half the length of the proximal club joint. Discal ciliation rery fine and short, the six lines proximad of the hairless line about twiee coarser than the main ciliation. Proximal club joint atout a third of the length of the distal joint.

HaEitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1\%19, Queensland Museum.

[^56]4. APHELINUS PAX new speeies.

Malc:-Length, 0.70 mm .
Like nox Girault but the fore wings slightly dusky from base out to the end of the veation; also the hind wings are narrower, bearing only about seven lines of discal cilia (about fwelve in nox).

Female:-Not known.
Described from one male captured by sweepiug jungle growths along a streamlet in a forest, Juue 17, 1913 (A. P. Dodd).

MaZitat: Nelson (Cairns), Queensland.
Type: No. Hy $1: 13$, Queensland Museum, the above specimen on a slide with the type Prospalteila antiopia Girault.

## 5. APHELINUS NIGER new species.

F'emale:-Length, 1.00 mm .
Like Aphelinus mati (Mald.) but proximad of the obliquo hairless line of the fore wing there is bat one line of discal cilia bounding the oblique line and completo; no cilia under the marginal veiu eacept a row just under it for its entire length and a short line of about four cilia originating at the origin of tho line of cilia bouuding the hairless liue and running more proximad, forming a sort of $V$-shaped ciliated line. First two funicle joints convined as long as the first club joint. Abdomen browu, lighter across base. Thorax with a dense scaly scuipture.

Male:-Not kuown.
Described from eight females captured by sweeping herbage, June 29, 1913 (H. Hacker); also on another slide several males and females. The males do not differ.

Habitat: Brisbaue, Queensland.
Types: No. Hy.1714, Queensland Museum, the above slide with eight females.

## 6. APHELINUS HAECKELI new species.

Fcmale:-Length, 1.05 muu.
Goldeu yellow, immaculate and like australiensis but the fore wings are broader, the body moro robust and the club joiuts much longer, the first club joint over twice the length of the distal funicle joint.

Mate:-Not known.
Described from one female captured fron a window, February 17, 1913. Dedicated to Ernst Haeckel.

Habitat: Inghan, Qucensland.
Type: No. $\operatorname{Hy}$ 1715, Queensland Museum, the above specimen on a slide.

## 7. APHELINUS GROTIUSI new species.

Female:-Length, 0.75 mm .
Nlmost exactly like australiensis but the second funicle joint is wider than long, subequal to the first, distinctly less than half the length of the first club joint which is somewhat longer than wide. Also the general colonr is lemon yellow.

Male:-Not known.
Described from ore female captured from a window in a building on a sugar-cane farm, December 18, 1911. Dedicated to Hugo Grotins.

HaHitat: Nelson (Cairns), Queensland.
Type: No. My Jry 16 , Queensland Museum, the abovo specimen on a slide with a female of newtoni and a Pterygogramma.

## 8. APHELINUS DARWINI new speeies.

Female:-Length, 1.00 mm .
Like grotiusi but the funicle joints subquadrate, subequal, the fore wings much broader; no distinct median groove dowu thorax.

Male:-Not known.
Described from one female captured by sweeping in forest, August 28, 1913. Dedicated to Charles Darwin.

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1717, Queensland Museum, the above specimen on a slide (with several Signiphoras).

## 9. APHELINUS FUSCIPENNIS Howard.

Fire females reared from a Chionaspis on cockatoo apple with minutissimus, forest, Nelson (Cairns), Queensland, Deceniber 18, 1911. Is this a native species? Compared with North American specimens; the Australian species could not be distinguished from them.

## 10. APHELINUS MINUTISSIMUS new species.

Fomale:-Length, 0.35 mm . Minute.
Pale lemon yellow, the wings hyaline, the legs and antenno concolorous; about four lines of cilia proximad of aud bordering the hairless line, these cilia hardly coarser than the main ciliation; wings narrow, shaped like those of a narrow winged species of Gonatocerus (about a dozen lines of discal cilia across widest part of blade) ; funicle joints transverse, the first cluld foint over twice the lengeth of either, slightly longer than wide and about half the length of distal joint. Scutum probably with a median groove.

Male:-Not known.
Described from a single female reared from a Chionaspis on foliage of cockatoo apple, forest, December 1S, 1911.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1718, Qucensland Museum, the above specimen on a slide.

## 11. APHELINUS NEWTONI new speeies.

Female:-Length, 0.45 mm .
The same as the preceding but somewhat larger and the fore wings are different. Thus, the forl wings are broader, more rounded (at widest portion with about sixteen lines of fille
discal coliation) and there are 3-4 lines of cilia proximad of the hairless line, these being distinctly (about thrice) courser than the main ciliation. Hiud femur somewhat swollen. Thorax epparently with a complete median groove to end of phragma (specimen not seen ont of balsani). Rich golden yellow. Antenuar about the same as with the preceding species.

Male:-Not knowa.
Described from one female captured from a window, March 13, 1912.
Habilat: Thursday Island, Torres Strait and Nelson, Queensland.
Type: No. Hy1719, Queenslaud Museum, the above specimen on a slide with a female of Alaplus newtoni Girault.

Liater, a female was found on a slide labelled "From windows of men's quarters on a sugar farm, Nelson, Qsld., December 18, 1911.'"

## TABLE TO THE AUSTRALTAN SPECIES OF APHELINUS Dalman.

(Compiled from the types.)
Black species, the antennæ and legs yellow.
Abdomen all yellow except for a more or less obscure stripe across midale; cilia proximad of hairless line arranged in two long lines and a third short one. Robust.
dies Girault.
Abdomen with the proximal third lemon yellow; cilia proximad of hairless line arranged in two long lines and two short ones. Hind wings with about 12 lines of discal cilia.
nox Giravit.
The same but the fore wings infuscated slightly along proximal half to end of venation, the proximal patch of ciliation consisting of one long line and three short ones. Hind wings with about 7 lines of discal cilia.
pax Girault.
Black and like mali but cilia proximad of hairless line consisting of but one long line, which is complete and four cilia representing its second line but nearly parallel with the marginal vein.
niger Girault.
Yellow species, the wings hyaline.
Extremely minute.
Pale lfmon yellow; pedicel as loug as the funicle and first club joint combined; fore wings with about 12 lines of discal cilia at the widest part. Funicle joints rings; proximal ciliation hardly coarser than the main ciliation. minutissimus Girault.
The same but somewhat larger, the fore rings broader bearing about 16 lines of diseal cilia at widest portion and the proximal cilia distinctly (about thrice) coarser than the main ciliation.
newtoni Girault.
Of normal size or robust; immaculate.
Second funicle joint distinctly larger than the first.
First club joint twice the length of funicle $2 . \quad$ haeckeli Girault.
First club joint plaiuly not twice the length of funicle 2. australiensis Girault.
Second funicle joint barely louger than the first, subequal to it.
Fore wings broad, bearing about 45 lines of very fine ciliation (widest portion). Funicle joints a little longer than wide; club 1 nearly half the length of 2.
darwini Girault.

Fore wings of moderate width, bearing about 25 lines of very fine ciliation (widest portion).
Funicle joints quadrate or a little wider than long; club 1 plainly not half the length of club 2.
Yellow species, the wings infuscated.
Dull honey yellow with obscure trausserse stripes across abdomen; both funicle joints transverse and equal; au indefinite fuscous patch below the stigmal vein; cilia proximad of hairless line arranged in about 10 lines. fuscipennis Howard.

## GENuS PERISSOPTERUS Howard.

Fore wings with an oblique hairless line from stigmal veiu; antenno 6-jointed with two small fuuicle joints; ovipositor plainly exserted; fore wings with au irregular pattern of spots or lines; postscutellim acutely triangular.

A species of this genus was reared in large numbers at Nelson (Cairns), Queensland, in December, 1911, from a Chionaspis on the foliage of a native forest tree, but the material unfortunately was badly preserved, and I could not make out with certainty its complicated wing pattern. It is probably a native species and unknown to science.

Later better specimens were found and I an now able to describe the species. The spermins were of the same lot.

## 1. PERISSOPTERUS INEXPLICABILIS new speeies.

Femule:-Lengtli, 0.60 mm .
Brown with a (or several) row of round dots down each margin of abdomen; legs white, conspicuously spotted and banded with black; fore wings with a reticulate pattern of fuscous as in mexicants Horrard and pulchellus Howard, but there is a less number of inclosed hyaline areas and the arrangement is different; proximad of hairless line, a small patch of coarer discal cilia against origin of stigmal vein and the larger patel iucloses a couicovate hyaline space; midnay between the apex of renation and apex of wing a little cephalad of centre there are two large rounded inclosed clear spaces, their bounding fuscous ciliation forming a complete figure 8 ; the whole apical margin of the wing is clear, noue of the fuscous bands reaching it; femor: with four unequal dusky spots, the tilian with tro (the hind tibie with thee) encircling Lands, the distal two on hind tibits adjacent, aplarently confluent in one aspect Proximal and distal tarstl joints in all legs dusky black. Scape white at tip and beneath; third funicle joint white toward tip, narrowing there; antemm black.

Male:-Not known.
Habitat: Nelson (Cairns), Qneensland.
Type: No. $\Pi y$ 1700, Queensland Museum, two females on a slide with the types of Casca nigra.

## 2. PERISSOPTERUS CAPILLAIUS Howard.

Howard. 1907, p. 87.
The principal characteristies of this species are taken from its original description: Head miformly orange yellow; mesonotum lemon yellow; inctanotum darker; abdomen marked with alternating transverse bands of light yellow and honey yellow; antennæ light yellowish; legs pallid, femora dusky at tip; middle and hind tilim dusky at tips, and with two other
dusky spots or bands; first and fifth tarsal joints dusky. The wings are spotted with patches of dark cilia, not connected in a reticulate pattern as with pulchellus and mexicanus. Vertex reticulated: thorax sinooth.

Mabitat: Syduey, New South Wales.
Type: Cat. No. 10,313, United States National Mnsenm, Washington, D.C., U.S.A.
Host: Lepidosaphes pallens Maskell on Xanthorrhoea.

## Genus COCCOPHAGUS Westwood.

Fore wiugs without an oblique hairless line from stigmal vein; antennæ filiform, 8 -jointed, the scape not especially short, the clnb 3 -jointed; stigmal vein present, the marginal cilia of fore wing not long, the marginal vein as long or longer than the submarginal Hiud tibim normal.

## 1. COCCOPHAGUS FUNERALIS new species.

Female:-Limgth, 1.05 mm .
Wholly black suffused with brownish, the wings hyalinc; legs and antenno lemon yellow, the posterior coxa and femora black; funcle joints distinctly longer than the pedicel, the first longest, nearly twice longer than wide, the third distinctly longer than any of the club joints. Thorax finely sealy, withont noticeable punctures. Fore wings broad, very finely, densely ciliate. Thorax pubescent.

Male:-Not known.
Described from one female reared from coccids, June 28, 1913 (II. Hacker).
IIabitat: Brisbane, Queensland.
Type: No. Hy InR1, Queensland Museum. The above specimen on a slide with an encyrtid and an enlophid.

## Genus Physcus Howard.

Fore wings without an oblique hairless line; antennæ 7 -jointed, the club 2 -jointed, the first funicle joint usually shorter than sceond or third. Ovipositor scarcely extruded.

1. PHYSCUS NIGRICEPJ, new species.

Female:-Length, 1.00 mm .
Bright golden yellow, the head, the first fnnicle joint and the club, hase of abdomen and of thorax all around and a cross-stripe across abdomen distad of the middle, black. Distal two fuuicle joints white, all three joints subequal, the distal club joint the longest joint of the flagellum, the proximal clnb joint a little shorter than the funicle joints. Wings subhyaline, denscly ciliate, the marginal cilia short. Hind coxm dusky, the legs otherwise golden yellow. Hind wings with about seven lines of discal cilia, their caudal marginal cilia thrice or more the length of the longest marginal cilia of the fore wing. Mandibles bidentate, the inner tooth broadly truncate.

Male:—Unknoẃn.
Described from one female captured by sweeping foliage in jungle. June 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns) and Kuranda, Queensland.

Type: No. Hy 1722, Queensland Museum. The above specimen on a slide.
A second specimen of this specie: was captured in jungle some days later and a third in jungle at Kuranda in September.

## 2. PHYSCUS FUSCIVENTRIS new species.

Female:-Length, 1.00 mm .
Bright golden yellow, the abdomen, parapsides and axillo, a large area on each side of meson of discal thind or nore of scutellum, sides of mesothoras centrally and pronotun narrowly, brownish black; legs pale yellow, the hiud femur subfuscous above at base. Antenno brown, the second funicle joint distinctly shorter than any of the club joints; wings hyaline. Immediate tip of abdomen pale.

Male:-Not known.
Described from one female captured by sweeping in forest, January 1, 1912 (A. P. Dodd).
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 7723 , Queensland Muscum. The above specimen on a slide with miscellaneous trichogrammatids and a Signiphora.

## Genus ENCARSIA Foerster.

F'ore wings without an oblique hairless line from stignal vein; antennæ 8 -jointed, the clnb 2 -jointed. Nind tibiæ without stiff black bristles.

## 1. ENCARSIA CYBELE new species.

Female:-Iength, 1.10 mm .
Black, the abdomen lemon yellow, orange toward tip; across the base aud down each side nearly to tip (dorsad), margined with dusky black; wings subhyaline, the legs and antenne pale lemon yellow; all tarsi plainly 5 -jouted; first funicle joint longer than the pedicel, the two dub joints suberpal. Mandibles minutely tridentate. Funcle cylindrical, the four joints all about equal. Fore wings miformly ciliated discally to the break in the submarginal rein, the marginal fringes short. A short postmarginal vein plainly prosent. Proximal tarsal joints elongate.

Male:-Not known.
Described from one female captured by sweeping the jungle growth along the margins of a forest streamlet. June 17. 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland. Jungle.
Type: No. Hy 1794, Queensland Museum. The above specimen mounted on a slide with the type head of Philotrypesis longiventris Girault.

On August 7, 1913, a second female was obtained by sweeping grass along a forest streamlet (doubtless edged with jungle growth).

## 2. ENCARSIA AURITHORAX new species.

Female:-Length, 0.90 mm .
Deep black, the thorax except the axillæ golden reddish, the scutum suffused more or less with dusky; antennæ and legs dusky yellowish, the wings hyaline and characterised by
leing very finely densely ciliate over the blade, the marginal cilia moderately short. Joints 3 and 4 of funicle longest, 1 shortest yet distinctly longer than the pedicel. Fore wings slightly stained under the proximal half of marginal vein.

Male:-Not known.
Described from two females on a slide in the Queensland Museum labelled "Among undergrowth, June -6, 1913. H. Hacker.'"

Habitat: Brisbane, Queensland.
Type: No. My 1795, Queensland Museum. The :ibove specimens.

## 3. ENCARSIA JUSTICIA new species.

Fimale:-Length, 0.70 mm .
Deep orange yellow, the head pale greenish yellow, the antenna and legs pale yellow, the legs the paler; all tarsi 5 -jointed. Wings hyaline. Distal club joint dusky. Thorax with a mediau groove running to end of phragma and crossed by a transverse groovo not far from cephalic margin of scutum. First funicle joint about subequal to the pedicel, the flagellum cylindrical, the second funicle somewhat longer than joint 1 , the fourth longest yet somewhat shorter than the first club joint which is the longest joint of the flagellum. Longitudinal striation of antennx appurently absent.

Male:-Not known.
Described from one female captured by sweeping in the forest, July 9, 1913 (A. P. Dodd).
Mabitat: Nelson (Cairns), Queensland.
Type: No. II y 1796, Queensland Museum. The above specimen on a slide.

## Genus ASPIDIOTIPHAGUS Howard.

Fore wings with a lonce marginal fringe, without an oblique hairless line from the stigmal rein; anteuneo 9 -jointed, the club 3 -jointed, one ring-joint. Stigmal rein present. The antennw in this genus bear a very short ring-joint.

## 1. ASPIDIOTIPHAGUS CITRINUS̃ (Craw).

I have specimeus of this species from Pabincta and Nelson, North Queensland, associated with Coccido on imported citrus fruits near cultivated areas and settlements.

## 2. ASPIDIOTIPHAGUS AUSTRALIENSIS Girault. Female.

Dusky black; a crescentic land arouul base of scrtum, tip of abdomen, the scutellum. and the head lemon yellow; legs pallid, the antenum dusky yellow; face below antenne dusky black. Wiugs infuscated as in citrinus. Antennal segmentation as in citrinus (antennæ 9-jointed with one riug-joint).

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 17※7, Queensland Museum.

## Genus PROSPALTELLA Ashmead.

Fore wings with comparatively short marginal fringes, the oblique hairless line from stigmal vein absent, the submarginal vein louger than the marginal ; antennæ 8 -jointed with the. club 3-jointed.

## 1. PROSPALTELLA ANTIOPA new species.

Female:-Length, 0.55 mm .
Agreeing with the original description of quercicola Howard but the legs all pallid, the parapsides piceus except near caudal margin, also the scutum, the antennm orange yellow and filiform and there is no indication of a postmarginal rein. The hlade of the hind wings distad of the renation is naked excepting around each murgin where a single row of discal cilia delimits the naked areat under the venation, several additional lines of cilia are present. The band across the fore wing is uuder the marginal rein but distan extends beyond the apex of the stigmal rein, proximad to the bend of the submarginal; it is not pronounced but dusky, its margins not well defined.

Male:-Not known.
Described from one female captured by sweeping jungle (500 feet), October 28, 1912.
Habitat: Babinda, Queensland.
Type: No. Hy 1798, Queensland Museum, the above specimen on a slide with the type of Aphelinus pax Girault.

## 2. PROSPALTELLA SEMINIGRICLAVUS new species.

Female:-Length, 1.00 mm .
Bright lemon yellow, the sides of the thorax and the abdomen black, the legs (pallid) and antennæ (orange) yellow, the third or distal club joint black. Fore wings hyaline but crossed by a broad, conspicuous black band (under all of the marginal vein) ; centre of occiput black. Distal cluh joint shorter than the other two, the club rather short, the third funicle joint of the three slightly longest, orer twice longer than wide, the first shortest but longer than the pedicel. Hind femur black (and probably all of the cosæ).

## Male:-Not known.

This magnificent species was described from a single female captured by sweeping in jungle, June 14, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1789, Queensland Museum, the above specimen on a slide.

## 3. PROSPALTELLA ALBISCUTELLUM new species.

Female:-Length, 0.80 mm .
Sooty black, the sentellum contrasting, silvery white, the antennm white, the fore wings distinctly infuseated out as far as the end of the marginal vein; legs whitish. Funicle joints subequal, a half longer than wide or nearly, each longer than the short pedicel, more or less like the three club joints. Proximal tarsal joint much the longest. Ovipositor valves exserted distinctly but shortly.

## Male:-Not known.

Deseribed from one female from the collections of the Queensland Museum on a slide labelled ' Sweeping undergrowth, mostly eucalypts, June 16, 1913. H. Hacker."

## Habitat: Brisbane, Queensland.

Type: No. Hy 1730, Queensland Museum, the above specimen.

## 4. PROSPALTELLA NIGRIVENTRIS new speeies.

Female: -Leugth, 0.65 mm .
Bright lemon yellow, the legs and antenno concolorous, the pronotum and abdomen sooty black; fore wings iufuscated under all of marginal vein across to caudal margin, their longest marginal cilia over a fourth the greatest wing width; first funicle joint very short but longer than wide, about half the length of the secoud, the thind longest, somewhat shorter than any one of the next three joints which are subequal and longest of the flagellum (joints $1-3$ of club, the latter not differentiated, the flagellum filiform). Pedicel short.

Male:-Not known.
Described from one female on a slide from the collcetious of the Queensland Musemm labelled " Among undergrowth. June 26, 1913. II. Hacker."'

Hakitat: Brisbane, Queensland.
Type: No. Hy 1731, Qucensland Museum, the above specimen (mounted with the type of P. aureola).
5. PROSPALTELLA AUREOLA new species.

Female:-Length, 0.73 mm .
Deep orange yellow, the abdomen suffused with dusky, the wings hyaline; antennar subclavate, the first funicle joint suhglobate, the second and third longer than wide but short, iike the club joints, yet over twice the length of the first; distal club joint a little the longest. Wiugs with the discal ciliation mbroken. First funicle joiut a little longer than the second.

Male:-The same but the antenno filiform, the face pallid ventrad.
Described from a single pair on a slide with the preceding species.
Habitat: Brisbane, Queensland.
Type: N゙o. My İ39, Queensland Museum, the above pair (mounted with the female type of nigriventris).

## 6. PROSPALTELLA AURANTII (Howard).

Adelaide, South Australia.

Genus AbLERUS IIoward.
Synonym: Azotes Howard.
Fore wings without an oblique hairless line from stigmal veiu, their marginal cilia moderately long to short, the wings usually infuscated; ovipositor plainly extruded. Antennar S-jointed, the club solid, joint 3 of funicle more or less quadrate; one ring-joint. Metallic, the antennto varicolored. When the ovipositor is mentioned, the exserted portion is meant.

1. ABLERUS MARCHALI (Howard).

Azotus marchali Howard, 1898, pp. 13s, 139.
This species is urknown to me.
TIalitat: Sydney. New South Wales. Paris, France.
Tupe: Probably in the Trited States National Museum, Washington, D.C., U.S.A.
Host: Parasitic upon Aspidiotus hedera Vallot in Australia.
2. ABLERUS SPECIOSUS Girault. Female.

Like the North American clisiocampoe (Ashmead) but the pedicel is white, the club all black, the fore wings subhyaline, crossed by a subcrescentic stripe of black from the apex of the marginal rein; legs white excepting a black band across femora and tibie just above and below knees.

Habitat: Nelson (Cairns) and Mackay, Queensland.
Type: No. Hy 1733, Queensland Museum.
Host: Parasitic upon native coccids.
One female captured at Mackay, October 21, 1911, by sweeping lantana and othr bushes in a field.

## 3. ABLERUS SEMIFUSCIPENNIS (Cirault). Female. <br> Azotus semifuscipennis Girault.

Dark metallic blue, the legs coneolorous except kuees, tips of tibiro, tarsi (first four joints), most of pedicel and scape and joints 2 and $t$ of the funcle which are white. Fore wings deeply infuscated from base to apex of stigmal vein, the distal margin of the fumation darker or accented. Funicle 1 a little the longest, 3 wider tlian long, 2 and 4 subequal in lengtl. Oyipositor valves exserted for a third the length of the abdomen, concolorous.

Habitat: Inglam, Queeusland.
Type: No. Hy 1731, Queensland Museum.
4. ABLERUS SPECIOSISSIMUS (Girau't). Female.

Azotus specrosissimus Giranlt.
Dark metallic grass green, the valves of ovipositor at tip, the parapsites except lateral end, legs (except distal tarsal joint) and most of antenna (a spot on seape above, side of chis. base of pedicel and funicle joints 1 and 3 dark, submetallic) white. Fore wings hyaline but with a very obscure, faint stain across them under the marginal rein. Funicle a a little the longest. Head white.

Hatitat: Magnetic Island (Townsville), Queensland.
Type: No. Пy 1735, Queensland Museum.

## 5. ABLERUS NYMPHA new species.

Female:-Lerigth, 1.00 mm ., excluding ovipositor which is half the length of the abdomen.
Like clisiocampue (Ashmead) but much more robust and the club is wholly black; also the infuscation of the fore wing is intense, jet black; the first joint of hind tarsi is longer. Distal half of tibio yellowish. Face with a transverse black spot.

Captured by streeping in forest (2,000 feet), June, 1913.
Hatitat: Nelson (Cairns), Queensland.
Type: No. IIy 1736, Queensland Museum, the above specimen on a slide.

## 6. ABLERUS SAINTPIERREI new species.

Female:-Length, 0.85 mm ., excluding ovipusitor which is halt the length of the abdomen.
Like speciosus but more robust, the wings broader and the black stripe around hind tibix is at apex; the fore wings, moreover, bear very short marginal cilia. Stripe of fore wing from the stigmal vein; face blue-green at ventral half.

From one female captured on a window, Felruary 3, 1912.
IHalitat: Cooktomn, Queensland.
Type: No. Hy 173\%. Queensland Muscum, the above specimen on a slide.

## 7. ABLERUS HYALINUS new species.

Female:-Length, 1.15 nm., excluding ovipositor which is a fifth the length of the abdomen.

Differing from the precering specifs in bearing nearly hyaline wings; otherwise like speciosus but the legs are wholly white; oripusitor valves white at tip; mesopostscutellum with a sitvery lustre, the parapsides white. (Tosely allied with specososisimus (see table). Like speciosissimus but the thorax with a straight, narrow silvery white band across it between the scutellum and postsentollum. Hind cosio at proxianal half concolorons. Silvery white at tip, of abdomen centrally and down mesopleumn from apex of the white on the parapside. Face with a motallic wary stripe across it through the antenna, oceput concolorons at ventral half. The faint stripe across the fore wing in both species originates at about the distal third of the margiuat vein. Iu hyctinus, the wing stripe is extremely faint. A second specimen was larger, more robust.

From one female reared from a mass of galls on Eucalyptus, September 3, 1912.
Hatitat: Nelson (Cairns), Qucensland.
Type: No. Ky 1738, Queensland Mnsenm, the above specimen on a slide.

## 8. ABLERUS GROTIUSI new species.

Female:-Length, 0.70 mm .
Differing from all the Australian species in haring a tiing pattern like the Javanese pulchriceps 7.ehntner. From that species, however, differing in being smaller, the fore wings narrower, their longest marginat eilia over haff the greatest wing width (in the Javanese specees less than half) ; in this Anstraliau s.eccics, the wing pattern is less distiuct, the spot at the distal margiu of the blade is longer and extends over more of the apical margin ; of the two large white spots distad of the white stigmal rein, the distal one is larger (hardly sn in putchriceps where bath are large and subergal) ; the area lending proximad from the apex of the blade docs not form a prong like fuseous marking. Moreover, in groliusi, the white second funicle joint is subquadrate like the third which it equals, while in pulchriceps it is twice the size of the black third joint and only slightly shorter than the first aud fourth.

Male:-Unknown.
Deseribed from one female captured by sweeping in forest, January 19, 1913.
Hatitat: Magnetic Is'and (Townsville), Queensland.
Type: No. Hy 17.9?, Queersland liuseum, the above syecimen on a slide (mounted with three females of $A$. pulchriceps Zehntner from Java).

Respectfully dedicated to Ingo Grotins.

## 9. ABLERUS POMNCAREI new speeies.

Femole:- Iength, 0.75 mm ., excluding mipnsitor ralves which are black and about a thirci the aldonen's length.

Like speciosus but the femora and tibies are concolorous except toward tip, not distinctly ringed with the concolorons color, the stripe across the fore wing is fainter and nearly straight and the fore wings are a little narrower; the discal cilia mader the marginal rein are more seatered aud recular. Antennal joints somewhat shorter and stonter.

Mate:-Not knomn.
Described from one female captured by sweeping in the forest along the banks of Cape River, Jamary 6, 1913.

Hatitat: Caperille (Pentland), Queensland.
Type: No. Hy 17 fi), Queensland Museum, the above specimen on a slide (with the type female of Parufens argentipes Girault).

## 10. ABLERUS LONGFELLOWI new species.

Female:--Length, 1.25 mm., exeluding the oripusitor.
Closely resembling both speciosus and saintpicrei. From the former it may be recognized at once becatuse the band atross the fore wing from the apex of the marginal vein is incomplete, fading out before reaching the caudal margin of the blade, the femora and tibise are wholly black except at tip and at the knees, the fore wings are bronder, more densely ciliated and the marginal cilia guite short. From saintjacrei, it differs distinatly in having the black femora and tibiæ, in having only three or four coarser lines of diseal cilia under the marginal vein (this ciliation finer in sututpierrei and in abont seven or eight lines), in the incomplete stripe arross the fore wing and in the fact. that this stripe is nearly wholly under the apex of the marginal rein (in the other species-scintpierri-this strope is somewhat narrower and is from tho middle of the stignal wein which is more colored than in longfellowi). Differing from all species known to me in bearing long anteme, the first funicle joint longer than usual, nearly twice the length of the pedicel, the second thrice the length of the short third. Valves of oripositor whitish at tip.

## Male:—Unknown.

Described from one female captured by sweeping in the forest, April 18, 1912. This trouly remarkable species is respectfully dedicated to Henry W. Longfellow, the poet.

Mabitat: Nelson (Cairms), Queensland.
Type: No. $\Pi$ y 17 17, Queensland Mnsemm.

## 11. ABLERUS ELEGANTISSIMUS new species.

Female:-Length, 1.00 mm., excluding ovipositor.
Like grotiusi and puldibleph in wing pattern and more like the latter but differing as follows:-The clear and maked spot under the margimal rein is smaller being much narower and shorter, the pattorn is darker and more clar; the short thind funicle joint is longer, 1) lainly longer thau wide (not a little wider than long) and the extreme tip of the ralses of the oripositor are not white. Vertex clong margins ot eyes silvery white, also a stripe arross routral conds of eyes bordered ventrad by a black cross-stripe. May be distinguished at ance from groliusi in having the second funicle joint plainly longer than the thitd not shor? and subequal to it.

Male:-Not known.
Described from one female captured by sweeping in forest, August 31, 1913.
Hảitat: Nelson (Cairns), Quecrisiand.
Typc: No. My I\%\&刃, Queensland Museum, the above specimen on a slide with the type of hyaïñus.
12. ABLERUS PAN new species.

Female:-Leugth, 0.65 mm ., excludiug exserted portion of the ovipositor.
Like speciosissimus but the ralwes of the ovipositor are wholly black.
Male:-Not known.
Described from one female caprured in the forest, December 15, 1911.
Matitat: Mambledon Junction (Cairns), Queensland.
I':/2e: No. Ty 1743, Queensland Museum.

## 13. ABLERUS BIDENTATUS new species.

Female:-Length, 0.85 mm .
Very similat to scmifuscipentis but the mandibles bidentate, the hind wings wider and more obtuse at apex and with seattered disen? cilia distad of the renation (absent in the type of semifuscipennis), the fore tibia pallid along distal half or more; the eyes are margined with ivory or silvery white.

Male:-Not known.
Described from two females olic of which was reared from an alemrodid infesting the leaves of acacia, June 17, 1913 and the other captured anong undergiowth, April 26, 1913 (II. Hacker).

Habitat: Brisbane, Queensland.
Type: No. Hy 1r44, Queensland Musenm, the above specimens on two slides.

## TABLE TO THE AUSTRALIAN FORMS OF ABLERUS HOWARD.

## Females.

(Compiled from the types, exclnding marchati Howard.)
I. Fore wings with a network pattern of fuscous (fuscous but broken into large clear areas). Valves of ovipositor white at tip; second funicle joint short barely longer than the subquadrate third joint.
grotiusi Girault.
Valves of ovipositor wholly concolorons; second funicle joint much longer than the third which is somewhat longer than wide.
elegantissimus Girault.
II. Fore wings with or withont a distinct or faint rather narrow cross-stripe.

Femora, tibia and nost of tarsi wholly white; parapsides white.
'T'ip of valres of orjpositor wiite.
Wings hyaline, translucest.
hyalinus Girault..
Wings with a faint but distinct, oblique brownish stripe across them from a little distad of middle of marginal vein. speciosissimus Girault. Tin of valves of ovipositor black; wings as in speciosissimus. pan Girault. N

Femora and tibize concolorous; parapsides concolorous.
Joint 1 of funicle four or mure times longer than wide; valves of oripositor white at tip; cross-stripe of fore wing plainly oblique and from end of marginal rein. Robnst. longfellowi Giruult.
Joint 1 of funicle about triec longer than wide; ralves of oripositor black at tip; cross-stripe of fore wing nearly straight and from tip of stigual vein.
poincarei Girault.*
Femora and tibiæ concolorous only at one end (with a metalic band around femora and
tibiæ near knees).
Valves of the ovipositor white at tip; parapsides concolorous; cross-stripe of fore wing broader, distinet.
speciosus Girault.
Femora and tibie blotched with metallic; 1rarapsides cuncolorous.
Valves of ovipositor white at tip; fore wings with rery short narginal cilia, the crossstripe distinct and from the side of the stigmal vein; about 10 lines of ellia under the marginal vein which are mnch coarser than the very fine main ciliation. Robust.
saint pierrei Girault.
III. Fore wings more or less uniformit, distinctly lilackened from base to end of venation or somewhat farther.
Fumation extending to end of ranation, its distal margin straight and aceented.
Mandibles tridentate.
Valves of oripositor concolorons at tips; tibie concolorous.
semifuseipennis Girault.
Mandibles bidentate.
The same but fore tibise pale along distal half or more, the hind mings broader and more obtuse ai apex, and with scattered discal ciliation distad of renation.
bidentatus Giranlt.
Fumation the same but deeper and its distal margin is convex or curved.
Tips of valves of ovipositur white; first two tibio pale at distal half or more.
nymupha Girault.

## Gexus TUMIDISCAPUS Girault.

Only the male of this genus is known. It is characterised ly bearing an enormous, leaflike expansion rentrad from the shaft of the seape, but agreeing otherwise with the male of Aphetimus Dalman. The second species of this genus (the type species is from North America) is described herewith.

## 1. TUMIDISCAPUS AUSTRALIENSIS̃ new speeies.

Male:-Length, 0.75 mm .
Coklen yellow and like the North American speciss, except that the second funicle joint is quadrate and harely longer than the fisst. the poximal chib joint somewhat larger than it.

Fiemale:-Not known.
Described from one male captured by streeping in the forest, April, 1912.
Hảitat: Nelson (Cairns), Qucensland.
Type: No. Ty 1745, Queensland Musemm, the above specimen on a slide.

[^57]
## GENUS MARLATTIELLA Howard.

Fore wings with an oblique harless lime; antenmo in the female 4-joiuted, one small frimicin joint, the club long, solud. Marginal vein longer than the submarginal, the stiginal normal.

## 1. MARLATTIELLA ALEYRODESII Cameron.

$$
\text { Cameron, } 1912, \text { pq. } 215.216 .
$$

I take the priucipal cinaracters of this species from the original deseription:-Yellow; mesonotum and dorsum of abdomen reddish orange; wings hyaline; body smooth and shining; submargiual veiu longer than the marginal; scape a little shorter than the club.

Habitat: Broken Mill, New South Wales.
Type: Unknown.

## Genus PLASTOCFARELLA Girault.

Differs from Thysanus IIaliday in having three true funicle joints (instead of three ring-joints, the funicle absent) and the margimal cilia of fore wings rery short. Scutun and scutellum with a median grooved line. Autenno 6-jointed. Fore wings with an oblique hairless line, densely ciliated. Male only.

## 1. PLASTOCHARELLA FUSCIPENNIS Girault. Male. Genotype.

Orange sellow, the abdomen black, also the legs except the trochanters, knees, tips of tibiar and the tarsi; antennæ dusky, last two joints black; hind wiugs embrowned, clearer toward ip, tho fore wing similuly so bat less clear toward tip, clear and nearly naked proximad of the bend of the submarginal win. Mesopleurum and tegula black.

Habitat: Ingham, Queensland.
Tupc: J̌o. Hy 1'\&6, Queensland Museum.

## Genus MYOCNEMELLA Giranlt.

Differing from all the genera of the subfamily in being 9-jointed antenno with two minute $\because$ ing-joints. With the habitus of Ahfrus Howard, the ovipositor strongly exserted for a third of the length of the abdomen; intermediate fibia and first tarsal joint greatly, foliately fattened, also the femur somewhat flattened toward tip. Third funicle joint abruptly short and transwerse, the funicle 3 -jointed, the chbl 2 -iointed. IVind femur compressed. Club somewhat as in the genus Aphelinoidea of the Jrichogrammatidx. Margiual reiu distinctly shorter than the submargimal. The male is not known.

## 1. MYOCNEMELLA BIFASCIATA. Girault. Female. Genotype.

Dark metallie blue, the legs and antmme black; mirldle tarsal joints white; fore wings with two crescentric cross-stripes of brownish, one from the apical two thirds of the marginal vein (the broader), the ofher between the end of the stigmal vein and apex of wing; also a spot proximad at caudal margin which is large and sends out an arm to the first cross-stripe. A patch of consse cilia under marginal vein, distal half. Other discal ciliation absent except from distal stripe to wing apex aud along caudal half or more of first stripe.

Habitat: Capeville (Pentland), Queensland.
Type: No. Пy 1747, Queensland Museim.

## Gwnes THysanus Inaliday.

This genus certainly resembles Signiphora Ashmead of the Encyrtide in most respects, jndging from Haliday's figures and Foerster's description, but if these latter are correct, the resemblanee is not very close.

Genus MYIOCNEMA Ashmead.
Thifers from Encarsia Foerster in haring the hind tibire arned with very stiff black bristies

1. MYIOCNEMA PALLIDA Ashmead.

Ashmead, 1900, Canadian Entomologist, London, Ontario, xxxii., p. 349.
Habitat: Brisbane, Queensland,
Type: Probably in the United States National Museum, Washington, D.C., U.S.A.
Host: Saisscticu olece Bermard.

## TABLE TO THE APHELININE GENERA OF EULOPHIDE.

## Australifa. Females.

The following table is adapted from Iloward (1907), making changes where necessary. The tribe is characterised by the 5 -jointed tarsi. An oblique hairless line is freqnently borne by the fore wing.

Fore wings with an obliquely transverse hairless line running back from the stigmal vein.
Antennæ 4-jointed, with one short funicle joint, the club long, solid.
Seape slender, the pedicel strollen; ovipositor somewhat exserted.
Marlattiella Howard (Type: M. prima Homard).
Antenna 6-jointed without a ring-joint, the club 2 -jointed.
Scape normal.
Ovjpositor distinctly exserted; fore wings jrregularly maculate. Postscutelhm of mesothorax achtely triangular.

Perissopterus Iloward (Type: A phelinus mulchellus Howard).
Ovipositor searcely exserted; fore wings usually hyaline, rarely fuscous. Thoracic notal sclerites normal.

Aphelinus Dalman (Trpe: Entedon ahdominalis Dalman).
Seape greatly enlarged veution (male).
Tumidiscapus Girault (Type: T. flarus Giranlt).
Fore wings without an obiquely transvere harless line running back from stigmal vein.
Antenna 6-jointed, the funcle 3 -jointed, no ring-joints. Marginal cilia of fore wing rery short; sentum and scutellum with a median groore. Male.

Plastocharella Girault (T'vpe: I'. fuscipennis Girault).
Antenno 7 -iointed, withont a ring-joint, the clnb 2-jointed.
Ovipositor scarcely extruded; funicle 1 shorter than 2 or 3 .
Physcus Howard (Type: Coccophagus varicornis IIoward).

Antennæ S-jointed, with oue ring-joint, the club solid.
Ovipositor distinctly exserted; stigmal vein normal; funicle 3 usually abruptly shortench; fore wings infuseated and sometimes reticulately patterned, rarely hyaline.
Marginal cilia of fore wing variable, often long; antennæ varicoloured; body metallic.

Ablerus Ifoward (Type: Centrodora clisiocampos Ashmead).
Antennæ 8-jointed, without a ring-joint; flagellum cylindrical; legs normal; marginal cilia of fore wing shorter than the greatest width of that wing.
Club 2-jointed.
Hind tibix armed with very stiff black bristles.
Myiocnema Ashmead (Type: M. comperei Ashmead).
Hind tibio simple. Encarsia Focrster (Type: E. tricolor Foerster).
Club 3-jointed.
Marginal vein shorter than the submarginal.
Prospaltella Aslmead (Type: Prospalta murtf eldtii Howard).
Marginal vein as long as or longer than the submarginal.
Coccophagus Westwood (Type: C. pulchellus Westwood).
Antennæ 9-jointed with one ring-joint.
Club 3-jointed; marginal fringes of fore wing long, longer than the greatest widtlo of the wings; fore wings obtusely conical; stigmal wein not prominent. Ovipositor not exserter.

Aspidiotiphagus Howard (Type: Coccophagus citrinus Craw).
Antennæ 9. jointed with two ring-joints.
Club 2-jointed; ovipositor strongly exserted; intermediate tibix and first tarsal joint foliaceously thattoned; fmicle 3 abruptly short and transverse; marginal rein distinetly sloorter than the submarginal; fore wings usual in shape, their marginal cilia not as long as the greatest width.

Myocnemella Girault (Type: M. bifasciata Girault).

## Tribe Pteroptricint.

The tribe is characterised by the 4 -jointed tarsi. The oblique hairless line of the fore wings rare with the genera if not absent.

## Genus Bardylis Ifoward.

Antenne 7 -jointed without a ring-joint, the funicle 2 -, the club long ovate, 3 -jointed. First tarsal joint of middle legs uearly as long as joints 2 and 3 combined, the middle tibial spur not quite as long as the first tarsal joint. Marginal vein somewhat shorter than the submarginal; marginal cilia of fore wing rather long, the discal cilia dense, no oblique hairless line from stigmal vein. Funicle joints longer than wide, the flagellum clavate.

Male antenne 8 -jointed, more slender, the joints of flagellum not much unequal, the club 3 -jointed; the tarsi are longer.

# 1. BARDYLIS AUSTRALIENSIS Howard. Female, male. Genotype 

$$
\text { Howard, 1907, pp. 84-85, fig. } 21 .
$$

Head, pronotum, scutum, tegulæ and abdomen brown; scutellum, metascutum, mesopleura and metapleura dull orange yellow; antenna, coxæ and femora light brown. Fore wings with a dusky cloud below marginal vein. Mesosentim faintly aciculate, the oceiput densely and finely so. In the male the clouded portion of fore wing is ligliter than in the female.

Hfahitat: Swan River and Perth, West Australia.
Types: Cat. No. 10,311, United States National Museum, Washington, D.C., U.S.A.

## Genus CASCA Howard.

Antenns. 7 -jointed, somewhat clavate, the club 3 -jointed, its joints subequal, the region long; funicle joints longer than wide. Tarsal joints of middle legs all short and subequal, the intermediate tibial spur as long as the first two tarsal joints of middle legs taken together. Marginal vein somewhat shorter than the submarginal, the fore wings uniformly ciliate, the marginal cilia long; no oblique hairless line. Nale not known. Fore wing curved or broken.

## 1. CASCA NIGRA new species.

Male:-Length, 0.50 mm .
Black; antonno, knees, distal halves or more of tibia and tarsi pale yellow; sculcllum bromrish with slight yellow; fore wings embroirned ont to the eud of the marginal wein or slightly herond. Funicle 1 quadrate, no longer than the pedicel, joint 2 transverse, joint 3 a quarter longer than 1; the three club joints shbegual in length, each shightly longer than funicle 3. Mandibles tridentate. A very short ring-joint present? Removed from Arehenomus Howard.

Mabitat: Nelson (Cairns), Quecnsland. Forest.
Type: No. Ty 1718, Queensland Museum, the above specimen on a slide.
The female of this spocies was discovered later, rpon which the species was removed to Casca, with which jt agrees; accordingly, the male of Casea agrees with the fomale of Archenomus. I describe the female herewith. The tarsi of both sexes are alike, also the wings.

Female:-Length, 0.45 mm .
Black, the coxa aud femora concolorous or dusky, rest of legs white; proxinal half of tibia sometimes dusky; fore wing more or less distinctly infuscated ont to end of venation and a more or less distinct hroad liairless line back from end of venation; longest marginal fringes about a third of the greatest wing width (fore wing) ; antennæ yellowish, the second funicle joint slightly longer thau the first. Scutellum yellowish.

Described from six or scren females reared from a Chionaspis on cockatoo apple, forest, December 18, 1911.

Hanitat: Nelson (Cairns), Quecusland.
The above male was captured by streeping jungle growth along a forest streamlet, Aprib 15, 1913.

# SUbFAMILy TETJASTICHIN A己。 <br> Tribe 'TETRASTICHINI. <br> GENus TETRASTICHUS Haliday. 

1. TETRASTICHUS ARSES Walker. Female.

See De Dalla Torre, 1898, 1' 10. 'J'asmania.
2. TETRASTICHUS AUTONAE Walker. Female

See De Dalla Torre, 189S, 1. 11. Tasmania.
3. TETRASTICHUS BAUCIS Walker. Female.

See De Dalla Torre, 1898, p. 11. Australia.
4. TETRASTICHUS DYMAS Walker. Female

See De Dalla Torre, 189S, 1. 14. Tasmania.
5. TETRASTICHUS GLYCON Walker. Female.

See De Daila Torre, 1898; p. 16. Tasmania.
6. TETRASTICHUS HIPPASUS Walker. Female.

See De Dalla Torre, 1898, p. 16. Tasmania.
\%. TETRASTICHUS LELAPS Walker. Female.
See De Dalla Torre, 189S, 1. 17. Australia.
8. TETRASTICHUS NEIS Walker.

See De Dalla Torre, 1898 , p. 19. Tasmania.
9. TETRASTICHUS OTYS Walker. Female.

See De Dalla Torre, 1898, 1. 20. New South Wales.
10. TETRASTICHUS PROTO Walker. Female.

See De Dalla Torre, 1898, p. 21. Tasmania.
11. TETRASTICHUS VALENS Walker. Female.

See De Dalla Torre, 1898, p. 24. Tasmania.
12. TETRASTICHUS XENARES Walker. Female.

See De Dalla Torre, 1898, p. 25. Tasmania.
13. TETRASTICHUS ZALEUCUS Walker. Female.

See De Dalla Torre, 1898, p. 25. Tasmania.
14. TETRASTICHUS QUEENSLANDENSIS Girault. Female.

Dark metallic aeneous green, the tibio and tarsi straw yellow, pale, the femora and the soxæ concolorous with the body; scape black and the rest of antennæ. Wings byaline.

Propodeum reticulated, tricarinate, the spiracle large, elliptical, just mesad of the lateral carino, fumicle joints each twice or more the length of the pedicel. Median carina of propodenm short bit complete.

Habitat: Quecnsland (? Brisbane). Forest.
Types: No. Hy 1749. Qutemsland Museum.

## 15. TETRASTICHUS VICTORIENSIS Girault. Female.

Shining black, the median gronve of scutum and the lateral margin of seutellum straw yellow, also the antemax, venation, tarsi, knees and portion of the tibir. Wings very slightly enhbowned thronghout and a light stain under apex of stigmal vein. Pedicel long, obconic, joints 1 and 3 of funicle subequal, joint 2 shorter and subquadrate.

Habitat: Melbourne, Victoria.
Typc: No. Hy 1200, Queensland Museum.
16. TETRASTICHUS NELSONENSIS Girault. Female and male.

Mucls like Telmasticholla fasciatus but the abdomen less regularly banded, there being but five transverso stripes, the proximal one faint, the fourth abbreviated laterad, the fifth consisting merely of a transverse dash on carh sido of the meson. A round black spot in centre of scutum on cach sith of meson (sometimes olscure) ; an elongate spot in the ceutre of mesal margin of each parapide and a round dot in ecotre of seutellum at cephalic three fourths; another similar spot on the shomlder, directly cephalad of the base of each parapside. Differs markedly from fusciatus in that the discal ciliation of the fore wing beneath the marginal rein is coarser and less dense than that distad of the venation; in fasciatus the ciliation is equally fne aud dense.

The mals averages a half smaller, the diseal ciliation of the fore wing less dense but relatively the same. There are threc black stripes across the abdomen on distal half, the first interrupted at the meson.

Mabitat: Nelson (Cairns), Queensland. Forest.
Types: No. Hy 1750, Queensland Muscum.

1\%. TETRASTICHUS FLAVIOS Girault. Female.
Dark aencous green, the face beneath antenne straw yellow, the legs white, the hind coxa blue; . Wings hyaline. Abdomen longer than the rest of the body, somewhat produced. Tegule white, pedicel yellow benenth. Funicle joints not long, the distal one a little longer than wide.

Habitat: Nelson (Cairns), Qucensland. Forest.
Type: No. IIy 1\%51, Queensland Museum.
18. TETRASTICHUS XANTHER Girault. Female.

Reddish yellow, the abdomen with six black cross-stripes; centre of face and tip of ovipositor also black. Funicle joints cylindrical ovate.

Habitat: Nelson (Cairns), Queensland. Forcst.
Type: No. If y 1752, Quecnsland Museum.
19. TETRASTICHUS SAINTPIERREI Giranlt. Female.

Brilliant metallic grass green; the legs white except hind coxa; proximal third of abdomen orange yellow, the rest purple, the latter projecting at each lateral margin a little cephalad into the yellow; wings hyaline. Finst funicle joint longest.

Mabitat: Nelson (Cairns), Queensland. Associated with Melaleuea, forest.
Type: No. Hy 1753 , Queensland Museum.
20. TETRASTICHUS LADDI Giranlt. Female.

Like queenslandensis but the femora and pedicel concolorous, the distal funicle joint shorter and the propodeal spiracle is laterad of the lateral carina.

ILabitat: Nelson (Cairns), Queensland.
Type: No. $\Pi y$ 1754, Queensland Museum.

## 21. TETR.ASTICHUS MITTAGONGENSIS Girault. Female.

Like laddi but the propodeum is longer, the distal club joint spined at apex.
Nubitat: Nittagong, New South Wales.
Type: No. I. 1832, South Australian Musenm, Adelaide.

## 22. TETRASTICHUS POINCAREI Giranlt. Female.

Like quecnslundensis (ixanli but the femora concolorous and the abdomen prodnced into a slende: stylus. Wach fonicle joint about trice longer than wide and only slightly nnequal. Spiracle of propodeum laterad of the lateral carina.

Habilat: Nelson (Cairıs), Queensland. Jungle.
Type: No. T1y 1\%55, Queersiand Museum.

## 23. TETRASTICHUS BICOLOR Girault. Female.

Like flavios hut black, the antennæ black, the distal joint of funicle distinctly longer than wide; proximal third of abdomen lemon yellow, also the tegula and legs. lind coxa black. Median carina of propodeum short.

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1756, Qucensland Mnseum.

## 24. TETRASTICHUS MARGIVENTRIS new species.

Female:-Length, 2.00 mm . With the habitus of Ootetrastichus.
Jet black, the wings hyaline, the coxx concolorous, the legs ant abdomen deep orange vellow, the abdomen at distal fourth or less and the lateral margins from base to tip rather breadly (eontinuously frem dorsal to rentral atpects) black. Scape yellowish along proximal two thirds, elsewhere the antenur black; jedicel elongate but shorter than the third fnnicle joint which is shortest of the funicle, the fery long first funicle joint longer than the club,
nearly twice the length of the pedicel. Club with a short nipple, long, the divisions not very distinct but present. Two large ring-joints. Propodeum with a short median carina which is continued around the caudal margin by forking at the apex; the short lateral carina leads directly from the oral spiracle. Fropodeum with a fine seulpture.

Male:-Unknown.
Described from a single female eaptured from the flowers of Boeckea, April 22, 1913 (II. Hacker).

IIalitat: Brisbane, Queenstand.
Type: No. II! 1757 , quecnsland inuseum, the abore specimen on a tag, the head on a slide.

## 25. TETRASTICHUS DARWINI new species.

Female:-Length, 1.65 mm .
Yellow-brown, the wings hyaline, the legs concolorous, the antennæ black except the pale fellowish scape proximad of tip; pronotum dorsad, a large wedge-shaped spot at cephalic halt of sentum on each side of meson, propodeum, spex of the parapsides and cephatie hatf of each axilla dusky black, ablomen with cight dusiy, narrow cross-stripes (including one at immediate base), the lifth rery broadly intermited at meson. Pedicel elongate, somewhat longer than the funcle joints which are more or less equal and abont twice longer than wide; terminal seta of chub much shorter than the first club joint which is about latf of the club and somewhat shorter than the funde joints. Mandibles 3-dentate.

Mole:-Not known.
Jescribed from une female captured by sweeping a forest streamlet edged with jungle growti, December 2, 1913 (A. P. Doilu).

Mẩital: Nelson (Chirns), Queenslaud.
Type: No. Hy 1758, Queensland Minseum, the above specimen on a tag, the head on a slide.

## 26. TETRASTICHUS MARGINATUS new species.

Female:-Length, 1.15 mm .
Agreeing with the description of Qualrastichus sannio Girault but blacker, the abdomen broadly margined only for proximal two thirds but the extreme tip colored, the legs wholly yellow except coxn. Mandibles strougly bidentate and with a third minute tootli. Antennæ yellow; first funicle joint as loug as the pediccl, the other two subequal, longer than wide; club with a short nipple.

## Male:-Not known.

Described from a single female captured by sweeping fruit and other trees along a tramway and in mixed jungle and forest along the Herbert River, February 26, 1913.

Habitat: Ilalifax, Qucensland.
Type: No. Hy 1759, Queensland Museum, the above specimen on a tag, the head on a slide.

## 2\%. TETRASTICHUS COBDENI new species.

Female:-Length, 1.20-1.50 mm.
Somerthat like bicolor Girault but nearly the entire head is lemon yellow, the centre of the occiput blackish. The scape is also yellowish. Abdomen yellowish brown at proximal third, otherwise dark brown with more or less obscure cross-stripes.

Described from two females captured by sweeping, summit of Pyramid Mountain ( 3,000 feet), August 17, 1912. Dedicated with respect to Richard Cobden.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1760, Queensland Museun, the two females together ou a tag, one head on a slide.
28. TETRASTICHUS XANTHICOLOR new species.

Female:-Length, 1.70 mm .
Reddish rellon, the wings hyaline, the abdomen dusky and with more or less obscure transverse stripes; legs yellowish brown, the front coxa dusky at base; cephalie portion of scutum, cephalic end of parapsides, sides of thorax aud the propodeum dusky. Pedicel not elongate, somewhat shorter than the first funicle joint which is not quite twice longer than wide, the other two each shortening somenthat; antenase dusky yellowish browu. Maudibles tridentate.

Mate:-Not known.
Described from one female captured by sweeping Leptospermum, April 16, 1913 (H. Hacker).

Habitat: Byisbane, Queensland.
Type: No. Hy 7r67, Queensland Museum, the above specimen on a slide.
29. TETRASTICHUS 10 new species.

Female:-Length, 1.35 mm .
Greenish yellow inarked with black as follows: The abdomen with four transverse stripes, the first one of these interrupted at the meson, not coutinuous there, the fourth stripe with an acute, triangular projection rephalad at the meson; a round spot at base of scutellum betweeu the first grooves; the propodeum; cephatic half of each axilla; the parapsidal turrows margined rather broadly laterad; cephatic third or less of scutum; tip of abdomen and last tarsal joint; centre of occiput; base of hind coxa and femur the latter along one side; and irregularly, the thoracic pleurum. Wings hyaline, the discal ciliation uniform. Pedicel longer than any of the funicle joints, the latter subquadrate, the first a little the longest ; club joints wider than long. Second ring-joint extremely short, the first large, distinct.

Male:-Not known.
Described from one speciuen captured by sweeping forest growths on Mout Pyramid (1,500-2,500 feet), Juue 3, 1913 (A. P. Dodd).

## Habitat: Australia-Nelson (Cairns), Queensland.

Type: No. Hy 1766, Queensland Museum, the above specimen on a slide.

## DIAGNOSIS OF THE AUSTRALIAN SPECIES OF TETRASTICIUS IIALIDAY.

The species of Walker (1839) are omitted from the talle for the reason that all we know of them is that they bear a median groove on the scutum; most probably they belong to various genera. Walker described all of them in Cirrospilus Westwood-an elachertine genus which Westwood describes as bearing 7 -jointed antenna but which Aslmead changes to - gointed with one ring-joint without giving reasons for so doing. Thus, if referred to the Tetrastichini they should have been placed more properly with Aprostocetus. It is hazardous, however, to consider them other than as most probable tetrastichine because of the thoracic grooves. To attempt to identify them withont seeing their types would be the more hazardous. None of the following species are likely to be Wralker's since the latter are mostly from Tasmania.
I. Metallic green.

Abdomen normal, only slightly produced.
Head and abdomen all concolorous; femora concolorous.
Propodeal spiracle laterad of the lateral carina.
Dark green, the coxer and femora concolorous; propodeum short, the autennal club without a terminal spur.
laddi Girault.
The same; propodeum long, the distal club joint spined at apex. mittagongonsis Girault. Propodeal spiracle mesad of the lateral cariua. quecnslandensis Girault.

Either the head or the abdomen partly yellowish; femora white.
Dark aeneous green, the face beneath antcuna straw yellow; legs white, the hind coxa blue; distal funicle joint a little longer than wide.
flavios Girault.
Brilliant metallic green, tho legs the same; proximal third of abdomen orange yellow, the rest purple.
saintpierrei Girault.
Abdomen produced into a stylus.
Dark green; funicle joints about twice longer than wide and more or less equal. poincarci Girault.
II. Black or dark purple.

Abdomen all black.
Median groove of scutum and lateral margins of scutcllum straw yellow; also the antcuns, venation, knees, tarsi and portions of the tibia; joint 2 of fuicle shortest, subquadrate.
victoriensis Girault.
Abdomen partly or mostly yellorv.
Head all black.
Abdomen deep orange yellow, black at distal fourth and down each margin from base; legs colored like the abdomeu (except coxæ); autennæ black; pericel and funicle joints elongate; lateral carina leading directly from the spiracle.
margiventris Girault.
Abdomen lemon yellow, margined along each side from buse to distal third with black and the extreme tip colored; legs except coxa, yellow; funicle joints not elongate. marginatus Girault.

Head partly or mostly yellow.
Face beneath antennæ yellow; distal joint of funicle longer than wide; proximal third of abdomen lemon yellow, also the teguln aud legs; hind coxa black.
bicolor Girault.

Nearly entire head lemon yellow; abdomen yellowish brown at proxinal third, the rest dark browu and with more or less obscure dusky cross stripes. cobdeni Girault.
III. Lemon or reddish or bromnish yellow:

Reddish yellow.
Thorax immaculate, the abdomen with six black cross stripes; ceutre of face and tip of ovipositor black; funicle joints cylindrical ovate.
xanther Girault.*
Cephalic portion of scutum, cephatic end of parapsides, sides of thorax and the propodeum dusky; fuuicle 1 uot quite twice louger than wide, the others shorteuing. xanthicolor Girault.

Lemon rellow, the antenne concolorous (see description). nelsonensis Girault.
Greenish fellow, the abdomen with four cross stripes (see description). io Girault.
Brownish yellow, the legs concolorous, the antennm black, the scape yellor nearly to tip; see description.
daruini Girault.

## Genus Melittobia Testwood.

1. MELITTOBIA AUSTRALICA Girault. Female, male.

Brown-black; Mroximal two thirds of abdomen liglter; legs yellow, the coxe and femora washed with dilute dusky; antenmo brownish black; funicle joints 2 and 3 subequal, slightly wider than long, joint 1 subquadrate, slightly wider than the pedicel. Hind wings with about twelve lines of disenl cilia where widest. Fore wings about two and a quarter times longer thau wide. Distal joint of tarsi longest of the four. The cuncate scutun stained with minute setigerous dots. Scutellum longer than wide. Club with a stout terminal seta.

The male is light honey yellow: abdomeu dorsad, femora, distal tarsal joint and scapo subfuscous. Fore wings with about eight lines of discal cilia; funicle joints wider than long, the first shortest, transrerse; terminal spme of club just traceable.

Mabitat: Mt. Tambourine and Brisbane, Queensland.
Hlost: Pison spinoloe.
Type: Nंo. Hy 99\%, Queensland Nuseum.

## Genus SYNTOMOSPIIYRUM Foerster.

Ncotetrastichus Perkins, 1912, is a synonym of this genus.

## 1. SYNTOMOSPHYRUM HYALINIPENNE Girault. Female.

Purplish black; wings hyaline; femora aud coxa more or less concolorous, the rest of legs yellowish. Antenna yellow-brown, the club not terminating in a spine; pedicel slightly longer than cither of the funicle joints which are subequal and one and a quarter times longer than broad. Propodenm shiuing, with a median carina.

Malitat: Brisbane, Queensland.
Type: No. Hy 1763, Queensland Museum.

[^58]
## 2. SYNTOMOSPHYRUM GREGI new species.

Female:-Length, 1.00 mm .
Brown, the abdomen with four faint dusky transrerse stripes, the wings hyaline; distal two thirds of scutum and the legs yellow, the autenne black, filiform, slender, the pedicel elongate, nearly as long as the first fimicle joint which is longest of the flagellum; distal fumicle joint longer than any of the clnb joints but barely more so than the first two of that region which are subequal and twice longer than wide, the third joint ending in a stout, rather long seta.

Male:-Not known.
Described from a single female captured by sweeping Leptospermum, April 16, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.
Type: No. Hy $1 \tau 6 \leq$, Queensland Museum, the above specimen on a slide.

## 3. SYNTOMOSPHYRUM PULLUM new species.

Female:-Length, 1.05 nun.
Brownish black, the scutellum laterad of first groove yellowish brown, the head except the cheeks just below the eyes which are dnsky, golden yellow. Legs pale lemon yellow. Antennæ dusky black but otherwise as in Aprostocetus obscurus except the pedicel is distinctly shorter than the first funicle joint which is just about twice longer than wide.

Male:-Not known.
Described from one female captured by sweeping in a jungle pocket, Nay 26, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1765, Queensland Museum, the above specimen on a slide.

## 4. SYNTOMOSPHYRUM FLAVISCUTELLUM new speeies.

Female:-Length, 0.85 mm .
Bromnish black, the scutellum, postscutellum, lateral and cephatic margins of scutum and most of the head bright lemon yellow, the wings hyaline; legs bright pale lemon yellow, the coxio aud hind femora at proximal half concolorons with the body; antennw pallid, the fnnicle joints all wider than long. Mandibles tridentate.

From one fomale eaptured ky sweeping in forest (Ayr), November 7, 1912 and another same situation, Townsville, January 27, 1913.

Habitat: Ayr and Tomsville, Queensland.
Type: No. Hy 1766, Queensland Museum, the abore specimen on a slide.

## DIAGNOSIS OF TIIE AUSTRALIAN SPECIES OF SFNTOMOSPIYRUM FOERSTER.

Club not terminating in a distinct stout seta or spine.
Purplish black, the tibia, tarsi and antenne yellowish; funicle joints a fourth longer than wide, subequal, the pedicel a little longer.
hyalinapenne Girault.

Brown-black, the scutellum, postscutellum, lateral and cephalie margins of scutum and most of head bright lemon yellow; legs lemon yellow, oxcept coxæ and basal halt of hind femur; funicle joints all wider than long. flaviscutellum Girault.

Clnb terminating in a distinct seta or spine.
Brown, the abdomen with four dasky cross-stripes; distal two thirds of scutum and the legs yellow, the antennw black, filiform, slender, the pedicel elongate and nearly as long as funicle 1.
gregi Girault.
Brown-black, the scutellum laterad of first groove yellowish brown, the head golden yellow; legs pale Jemon yellow. Antenno dusky black; funicle 1 twice longer than wide.
pullum Girault.

## Genus TETRASTICHODES Ashmead.

## 1. TETRASTICHODES FROGGATTI Ashmead.

## Tetrastichodes froggalti Ashmead, 1900, pp. 346-347.

Yellow; a dusky band across vertex inclosing the ocelli; scutum, a dot on inner hind angle of parapides, a spot on seutellum at anterior middle, propodeam and segments 3,4 and 5 (more or less) of dorsal abdomen brown or brown-black. Wings hyaline. Legs pale yellowish. Antenner light brownish.

Hubitat: Hornsby, New South Wales. Gall on Eucalyptus.
Types: Cat. No. 4900, United States National Museum, Washington, D.C., U.S.A.
2. TETRASTICHODES MORUM new species.

Female:-Lengtl, 0.70 mm . Short and robast.
Brownish black, the wings hyaline, the legs (plus coxa), base of abdomen broadly and a more or less distinct yellowish stripe just beyond, also the untenno, lenron yellow (scape not seen) ; front tibia with a black dot centrally, latero-rentrad, the proximal half of hind femur slightly embrowned. Ilead mostly lemon yellow. Mandibles tridentate; joint 1 of funicle as long as the other two eombined which are much wider than long, 1 being quadrate.

Male:-Not known.
Described from two females captured with the proceding.
Mabitat: Caperille (Pentland), Queensland.
Type: No. Hy 1767, Queensland Museum, one of the abore specimens on a slide (with two foreign specimens, the type head under a different cover with one of the foreign specimens).

## 3. TETRASTICHODES LINEATUS new species.

## Female:-Length, 0.85 mm .

Golden yellow, the wings hyaline, marked with black as follows: Four stripes across abdomen; the first three interrupted rather widely along the meson and all thin, the fourth barely intermpted at meson and stout; immediate base of abdomen more or less obscurely at centre, a round dot on pronotum dorso-laterad, disk of propodeum, two wedge-shaped spots on scutum cephalad, one on each side of meson, one on each parapside, a rather large round spot in centre of scutellum at base, the tegulx and parts of axillx. Mandibles tridentate. Funicle joints all rather much wider than long, the last shortest, transverse.

Male:-The same or nearly.
Described from one male and two females captured by sweeping in the forest along the banks of Cape River, December 26, 1913.

Habitat: Capeville (Pentland), Queensland.
Types: No. $\Pi$ y 1768 , Queensland Nuseum, the above specimens on a slide.

## 4. TETRASTICHODES AUSTRALICUS new species.

Female:-Length, 1.15 mm .
Orange fellow, the abrionen Temon yellow and transversely striped with many obscure round dusky stripes; wings hyaline: legs lemon yellow; cephatic portiou of scutum deep fuscous, the propodenm lemon yellow. Seape and perticel yellow at sides and beueath, the rest of the antenna black, excepting the ring-joints: funicle and club joints elongate, those of the former subequal, twice the length of the pedieel nearly, the elub joints shorteuing in succession, the first a fourth shorter than one of the finicle joints, the last no louger than the pedicel yet terminating in a long, stout spine-like process which is as long as the first club joint. Pedicel short. Mandibles tridentate. A fuscous spot at base of scutellum at meson; median carina of propodeum forked just hefore apex, the disk on each side of it fuscous. Apex of each parapside and axilla (copliatad) fuscous.

Male:-Not known.
Described from a single female captured by sweeping forest growth along a roadside, February 18, 1913. The peculiar antenne are unique for the genus.

Malitat: Ripple Creek (Tngham), Queenstand.
Type: No. Hy 1769, Queensland Museum, the above specimen on a tag, the head on a slide.

## 5. TETRASTICHODES MARGISCUTUM new speeies.

Female:-Leugth, 1.55 mm . Short and robust, the abdomen almost round from lateral aspect.

Chocolate brown, the legs except the coxw and hind femora; sides of pronotum, tegulæ, sides of scutum narromly and each side of the grooves of scutellum, pale yellow or white. Thorax microscopically sheened or satiny; non-metallic. Wings very broad, hyaline. Antennæ pale brown, the seape compresced, the pedicel much longer than any of the funicle joints, the third joint of the funicle transwersly cur-shaped, the other two subequal and about twice longer but still mider than long. Mandibles tridentate. ILead pale yellow or white.

Male:-The same but smaller and the incisions of abdominal segments pale and sometimes, if not usually, conspicuous.

Described from many specimens of both sexes reared from a gall on the foliage of Eucalyptus in forest, Septemler 18, 1912. Also reared in large numbers from a tuber-like gall on Euculyptus, September -, 1913 (E. J. Girault).

Habitat: Nelson (Cairns). Queensland. .
Type: No. My IMro, Queensland Museum, one male, one female together on a tag, two feniale heads on a slide.

## 6. TETRASTICHODES AURISCUTELLUM new species.

Female:-Length, 0.85 mm . Short, compact and robust.
Funicle as in morum. Golden yellow, the wings hyaline, the pronotum, the abdomen except down the whole of the median line and a large medge-shaped spot at cephalic margin of scutum on each side of meson, dusky black. Incisions of abdominal segments and the legs white, the hind coxw more or less dusky. First funicle joint somewhat shorter than the pedicel.

Male:-Not known.
Descrihed from one female captured by sweeping in a jungle pocket, July 24, 1913.
Walitat: Nelson (Cairns), Quemshont.
Type: No. Hy 1\%n1, Queensland Museum, the above specimen on a slide.

## \%. TETRASTICHODES CONSOBRINUS new speeies.

Female:-Length, 1.50 mm .
Tike fuscialus but the abdomen bears five narrow stripes of black across it, all of which are intertupted at the meson except the third, the fifth stripe merely represented by a short, transyerse dot in the centre of encle medial halt'; also the dorsmm of thornx is unmarked excepting for a small orate spot at the apex of each axilla, a larger spot near the tegula just caudo-laterad of the first and the cephalic margin of the propodemm and the latter meson. Centre of scutellum a little bromnish. Sccond funicle joint shorter thau the other two. Compared with specimens of fasciatus.

ITaic:-Unknown.
Described from three females reared with fasciatus from a lot of miscellaneous galls on Eucalyptus, September 18, 1912.

Habitat: Nelson (Cairns), Qucessland.
Type: No. Ify 1779, Qucensland Museum, one of the above specimens on a tag, two heads on a slide.
8. TETRASTICHODES FASCIATUS (Girault). Female.

Zagrammosomoides fascintus Girault. Genotype.
Flavous, the wings hyaline tho appendages concolorous. Conspicuously marked with black as follows: In the dorsat aspect the abdomen is banded across the posterior margins of the segments commencing at hase, there boing six transverse stripes which lengthen (widen) distad. The propoleum is black, also the pronotum rephalad in the dorsal aspect on each side of the nedian line appeating like two large cuncate spots, a large ovate spot in the centre of the mososcutellum, an orato spot on each sirle of (not nyon) the scutum, in the cephatic angle of each axilla and a smabler spot at the cando-lateral angie of the pronotum. Cephalad in the disk the seutum is distinctly stained except along the median line; each parapside is similarly stained and also the vertex may be so the stained area projecting into the face (cephalic aspect) like wedges on each side. The antenno are suffused with dusky as are also the femora of the legs more or less. The proximal club joint is nearly half as long as the entire club. Whole liony finely polygonally reticulated, the rertex and face with more or less obscurs umbilicate punctures. Funicle joints much smaller than the pedicel, subquadrate.

Male:-Somewhat smaller; the same but the dark areas on the cephalic part of the scutrm usually black aud nearly coalesced; the abdomen bears only fire transverse stripes which lengthen (become thicker) caudad, the second concaved at the meson, the fifth twice longer than the fourth, noue of the distal four stripes with parallel margins. (Types re-examined.)

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1169, Queeusland Mnseum.

## TABLE TO THE AUSTRALIAN FORMS OF TETRASTICHODES ASHMEAD.

## Females.

It is well to point out that there are two distinct types in Tetrastichodes, the oue robust, the antenne short, the abdomen short and globular, the propodeum short and usually noncarinate; the other more slender, the antema with louger joints aud slenderer club, the abdomen conic ovate, the propodeum long aud with a distinct median carina. The former belong to the subgenus Zayrammosomoides (irault which I descriled as a genus in the Elachertimi. Howerer, its anmewhat hroken submarginal rein, the fine sculpture and the thoracic grooves serve to show its true affinities. It seems entitled to generic rank but I do not know the characieristics of the genotype of Tetrastichodes,

Yellow species.
Scutum wholly black-brown.
A dot ou inner hind angles of parapsides, a spot at base of scutellum at meson, propodeum and segments $3-5$ of abdomen brown or black-brown. Legs pale jellow.
froggatti Ashmead.
Scutum only parlly black-brown or dusky.
Funicle joints elongate (much longer than wide).
Orange yellow, the abdomeu lemon yellow and with mauy obscure, narrow dasky cross-stripes; eeplable portion of scutum fuscous; siape and jedicel yellow at sides and beneath, the antemm black; funicle joints subequal, twice the leugth of the pedicel or uearly; a fuscous spot at meson, base of scutellmm; median cariua on propodeun. Disk of propodeum ou each side of meson, apex of parapsides and axilla cephalad, fuscons.
australica Girault.
Funicle joints short, quadiate or wider than long.
Abdomen with "ross-stripes.
Golden yellow; four cross-stripes on abdomen, the first three interrupted at mesou, a dot on pronotum dorso-laterad, disk of propodeum, two wedgeshapel spots on cephalic sentum, another on each parapside, a round spot at centre of scutellnm at base, black. Fruncle joints all wider than long. lincatus Girault.

Yellow; six complete cross-stripes on abdomen; prouotum cephalad on each side of median line, propodeum, a large ovate spot in centre of scutellum, an ovate spot on each side (not upon) sentum at cephalic angle of each axilla and a smaller spot on pronotum caudo-laterad black; scutum stained cephalad on each side of meson, also each parapside and the vertex (more or less). Proximal club joint nearly half the club. fasciatus Girault.

The same; five narrow cross-stripes on abdomen, all interrupted at the meson except the third, the fifth represented by a transverse dot contrally on each side; thorax uumarked excepting for a small ovate dusky spot at the apex of each axilla, a larger spot near the tegnla just caudo-laterad of the first and cephntic margin of propodenm and the meson of the latter. Funicle 2 shorter than others.
consobrinus Girault.
Abdomen without cross-stripes.
Golden yellow; pronotum, abdomen excopt down the whole of the median line and a large cnneate spot on each side of meson of cephalic scutum, dusky black. Legs pale. Funicle 1 quadrate, the other two wider than long. auriscutcllum Girault.
Brown or brownish black species.
Scutellnm concolorous.
Brownish black; head, base of abdomen and a cross-stripe distad a little farther and the legs lemon yellow ; joint 1 of funicle equal to 2 and 3 combined. morum Giranlt.
Scutellum with the grooves pallid yellowish.
Chocolate brown; lead, sides of scutum narrowly, legs except coxæ and hind femora and the antennæ pallid; funicle 1 shorter than 2 and 3 combined, subequal to 2. margiscutum Girault.

## Genus APFOSTOCETUS Westwood.

## 1. APROSTOCETUS KURANDENSIS (Girault). Female.

Tetrastichus 7ourandensis Girault.
Bright dark metallic green-blue, tibio and tarsi straw yellow, the femora more or less metalic; scape brown, the pedicel dark fuscous; rest of antennæ black; propodeum tricarinate, the large spiracle laterad of the lateral carina; funicle joiuts each twice or more the length of the pedicel; third club joint with a terminal spur. Abdomen conic-ovate. Wings hyaline.

Habitat: Kuranda, Queensland. Jungle?
Type: No. Hy 1773, Queensland Museum.

## 2. APROSTOCETUS IMIPERIALIS new species.

Female:-Length, 1.15 mm .
Dark metallic purple including dorsum of abdomen excepting a large round lemon yellow spot centrally at base; rest of abdomen and legs pale lemon yellow; antennæ pale dusky yellow, the second funicle joint subequal to the pedicel, the first a little longer; the third shortest of the funicle, a little longer than the first club joint which is longer than wide. Pedicel long.

Malc:-Not known.
From two females captured August 2, 1913 by sweeping in forest (A. P. Dodd).
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1\%yá, Queensland Museum, the above specimen on tag, the head on a slide.

## 3. APROSTOCETUS VIRIDIFLAVUS new species.

Female:-Length, 1.60 mm .
Intense greenish yellowr, the mings lyaline; immacnlate, fiagellum darker, the funicle joints long, the second one in little the longest. the first it little the shortest, subequal to the rather long pedicel which is black above at base; distal club joint nippled, dusky, shortest (exeluding the nipple); flagellum with scattered, long hairs. Nandibles tridentate. A dark :rea on abdomen just before tip.

Mate:-Unknown.
Described from one female captured by sweeping in forest, June 27, 1913 (slight jungle Tris encountered).

Mabitat: Nelson (Cairns), Queensland.
Tylve: No. IIy 1775 , Queensland Museum, the above specimen on a tag, the head on a slide.
Later, on August 5, 1913, another female of this beautiful species mas captured in the forest.

## 4. APROSTOCETUS FLAVUS new species.

Female:-Levgth, 1.18 mm .
Bright lemon yellorr, the wings hyaline, the antennæ and legs eoncolorous; two crossstripes of black-bromn on dorsal abdomen just at the middle, the first or proximal one only represented by a short part on each side, medially widely separated. A long sulbuscous spot down cephalo-mesal side of each axilla and the middle of each half of the scutum is cmbrowned or stained; pronotum with a short, tolerably mide cross-narking at meson. Propodeum with a short nedian carina, its cephalie margin fuscous. Funicle joints all a little longer than mide, shorter than the elongate pedicel; ring-joint large. Mandibles tridentate.

Male:-Not known.
Described from one female captured by streening on the forest domns, July 14, 1912.
Mabitat: Hughenden, Queensland.
Type: No. Hy $17 \pi 6$, Queensland Nnseum, the above specimen on a tag, the head on a slide.
5. APROSTOCETUS MARGIVENTRIS new speeies.

Female:-Length, 1.20 mm .
Dark metallie pmple, the mings hyaline, the abdomen, knees, tibix and tarsi pale lemon yellorr, the rest of the logs concolorous; abdomen margined down each side rather broadly with metallie purple nearly to tip and crossed on the distal half by thin, rather faint purplish stripes; immediate tip of ahdomen purple and the base rery narrowly so. Antenno pale, the club rather dusky. Seenn and third funicle foints subequal. distinetly longer than the first and subequal to the pedicel which is pmerlish above at base. Club with a short terminal spine. Mandibles tridmtate.

Male:-Not kuorru.
Described from a single female eaptured by sweeping in a jungle pocket, July 21, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. $H_{y}$ Irann, Queensland Mruseum, the above specimen on a slide.

## 6. APROSTOCETUS OBSCURUS new speeies.

Female:-Length, 1.10 mm .
Tellowish brown, the wings hyaline, the pronotun, cephalic part of scutum and its median grooved line, inner sides of parapsides, propodeum, postscutellum and three cross-stripes on abdomen beginning just distad of middle, dusky blackish; autenna except scape and lower part of pedicel (white or pallid), rertex and oral region, dusky. Mandibles tridentate, scutellum with four grooves. Pedicel slightly shorter than first funiclo joint, the next two joints longest of the flagellum, subequal; elub terminating iu a long seta, the flagellum cylindrical. First funicle joint over twiee longer than wide.

Male:-Not known.
Described from oue female captured by streeping in jungle, July 26, 1913.
Mrbitat: Meerawa (Cairns), Queensland.
Type: No. Hy 1778 , Queensland Museum, the above specimen on a slide, with type head of Quadrastiehus aeneus Girault.

## \%. APROSTOCETUS NIGRITHORAX new speeies.

Ficmale:-Length, $1.1 \overline{5} \mathrm{~mm}$.
Black, the wings hyaline, the abdomen brownish, lemon yellow at base, the legs lemon yellow (coxr not seen) ; inner margins of parapside yellow; autenuro dusky yellowish, the funicle joints all subquadrate, the first a little the longest, somewhat shorter than the pedicel.

Male:-Not known.
Described from one female captured by sweeping young eucalypts, April 20, 1913 (II. Hacker).

Habitat: Brisbane, Queensland.
Type: No. My İr9, Queensland Nuseum, the above specimen on a tag, an antenna on a slide.
8. APROSTOCETUS SEXGUTTATUS new speeies.

Frmale:-Length, 0.80 mm .
Golden yellow and like farus but ou dorsal abdomeu along proximal half there is a line of three rather large spots down each side; the scutum is not noticeably embrowned and there is a fuscous dot on pronotum at latero-caudal angle. Funicle joints subquadrate, the third a little longer, all shorter than the pedicel whieh is not elongate, only of moderate leugth. Club with a minute nipple, its middle joint subtrausterse.

Male:-Not known.
From one female captured by sweeping in forest, bauks of Cape River, December 26, 1913.
Habitat: Capeville (Pentland), Queensland.
Type: No. Hy 1780, Queeusland Museum, the above specimen on a slide. I have compared this speeies with the type of Epentaslichus which it so elosely reseubles; the antennal differences are easily seen, since here the pedicel is not elongate but usual in length. It is necessary that more material be seen, howerer, before it can be stated positively that the club is 3-jointed, plainly indicated in the above specimen of sexguttatus.

## 9. APROSTOCETUS MONTANUS new speeies.

Female:- Length, 1.33 mm .
Dark metallic green, the wings hyaline; sculpture usual for the tribe; legs intense lemon yellow except the coxa (second coxa yellow except at base) ; proximal half or mort of hind femora concolorous, abdomen suffused with brownish; tegulw, side of prothorax (proplure), cephatie margin of pronotum and a narrow transverse line near caudal margins of came on cach side of meson, bright lemon yellow. Antenne yellow, the pedicel dusky at base, the first funicle joint a little longer than the others which are subquadrate, each a lititle shorter than the pedicel. Club with a very uinute nipple. Maudibles weakly tridentate, the head more or less yellorish about the facc.

Mate:-Not known.
Described from a female captured by streeping forest along top of second coast range of mountains ( 1,500 feet), May 21, 1912.

Habitat: Nelson (Cairns), Queensland.
Type: No. II y 1781, Quecnsland Muscum, the above specimen on a tag, the head on a slide.
The pronotum, between the marginal lines of yellow, is more or less yellow, leaving a rather broad concolorous path down the meson. This species is probably a Syntomosphyrum.

## 10. APROSTOCETUS PURPUREUS new speeies.

Female:-Length, 1.30 mm .
Very much like montanus bit purple, the candal margin of pronotum, head (except occiput), a large spot near cach lateral margin of pronotum, propleuro, inner and cephalic margins of the axillu, buse of aludomen on each side and a narrow cross-stripe just before tip, lemon yellow; abdomeu brown. Funicle joints all wider than long, all distinctly shorter than the pedicel, juints $\Omega$ and 3 nearly twico wider than long; club nipple small but distinct. Mandibles with three long slender tecth.

Described from one female captured in the forest, November 29, 1911.
Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 1788, Queeusland Museum, the above specimen on a tag, the head on a slide.

## 11. APROSTOCETUS FLAVICAPUT new speeies.

Female: Length, 1.20 mm .
Dark metallic green, the wings hyaline, the abdomen longer than the thorax, conic-ovate, dark; legs excent coxm, white, the head yellow, the antenno dusky yellow, the scape and pedicel palcr; foints 2 and 3 of funicle subequal, shortest, joint 1 longer than the pedicel which is subequal to joint 2 of the funicle which is somewhat longer than wide; club with a small nipple. Propodeum very short at the meson. Mandibles trideutate.

Mate:-Not known.
Described from one female captured from a window in an iron foundry, December 26 , 1911.

Mabilat: Marecba, Queensland.
Type: No. Hy 1783, Qucensland Museum, the above specimen on a tag, the head on a slide.

## 12. APROSTOCETUS GOBIUS new speeies.

Female:--Length, 0.89 mm .
Chocolate brown, the scape and pedicel pallid, the funicle and club pallid dusky, the legs yellow brown; scutellum darker; wings lyaline, the marginal fringes lengthened somewhat, the stigmal vein long and very sleuder, the postmarginal developed somewhat. Ovipositor distinetly but shortly extruded. Propodenm with a median carina only. Antenna slender, filiforru and loosely jointed, funicle 1 distinctly longer than the rather long pedicel (rhich narrows proximad), funicle 3 subequal to pedicel and first club joint; distal club joint with a long terminal spine. Funicle with seattered, soft long hairs. Scape slender. Mandibles tridentate.

Male:-Not known.
Described from one female captured by sweeping in jungle, September 14, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.
Type: No. Hy 1784, Qneensland Mnsenm, the above female on a tag, the head on a slide with the type of Ooctonus gigas Girault.

## 13. APROSTOCETUS POVIOSUS new speeies.

Femaie:-Length, 1.10 mm .
Golden yellowish bromn, the wings hyaline; pronotum, all of abdomen except at base and til rather broadly, cephalo-lateral portion of propoderm and tho llagellim black; seape and distal half of podicel pale yellowish, the flagellum filiform, clothed with seattered long hairs and as in gobius but the funcle joints are all equal, or 2 and 3 slightly longer than 1 , the pedicel is shorter than in gobius, distinctly shorter than funicle 3. Propodenm with a pair of delicate median carine. Fostmarginal vein wholly absent. Maudibles tridentate.

Male:-Not known.
Described from one female captured by sweeping in the jungle, September 15, 1913 (A. P. Dodd).

Mabilat: Kuranda, Queensland.
Type: No. $\Pi$ y 1785, Queensland Musenm, the above specimen on a slide.

## TABLE TO TIIE SPECIES OF APROSTOCETUS WESTWOOD OF AUSTRALIA.

## Females.

Metallic green or purple species.
Body wholly metallic green (excluding appendages).
Dark metallic green, the tibie and tarsi straw yellow, the femora washed with metallic; scape brown, the pedicel fuscous, rest of antenna black. Propodeum tricarinate; fmnicle joints each twice or more the length of the pedicel.

Rurandensis Girault.
Body (excluding appendages) more or less yellow.
Dark metallic green, the wings hyaline; legs intense lemon yellow except coxæ; proximal half or more of hind femur green; tegulx, proplenra, cephalic margin of pronotum and a narrow transverse line near caudal margin of same on each side of meson, lemon yellow. Antennæ yellow, the funicle joints subquadrate, joint I a little longer. montanus Girault.

Dark metallic purple; abdomen, kuees, tibia and tarsi pale lemon yellow; abdomen margined down each side rather hroadly uearly to tip with purple and crossed on the distal half by thin faint purplish stripes. Joiuts 2 and 3 of funicle subequal, each distinctly longer than the first. margiventris Girault.
The same; hind margin of pronotum, head, a large spot near lateral margiu on pronotum, propleurm, inner and cephalic margins of axillm, abdoum at base on each side and a stripe just before tip, lemou yellotr. purpureus Girault.
Dark metallic purple; a large round yellow spot centrally at base of abdomen dorsad; venter of abdomen and legs lemon yellow; pedicel long, joint 3 of funicle shortest. imperialis Girault.
Dark metallic green, the head ycllow, the legs white except coxm; pedicel subequal to joint 2 of funicle.

Mavicaput Gitault.
Black species.
Abdomen brownish, lemon yellow at base, the legs and inner margins of parapsides, yellow; funicle joints subquadrate, 1 a little the longest, slightly shorter than the pedicel.
nigrithorax Girault.
Greenish, brownish or golden yellow species.
Lemon yellow, the antenuas aud legs concolorous; two cross-stripes of fuscous on abdomen just at middle, the first widely interrupted at middle; a long dusky spot down cephalo-mesal side of cach axilla; funicle joints all a little Ionger than wide, shorter than the elongate pedicel.
flavus Girault.
Golden follow; the same but there is a line of three rather large dots along cach side of abdonen at proximal half and a fuscous dot on pronotum at latero-caudal angle. Pedicel not elongate, longer than the subquadrate funicle joints.
sexgultatus Girault.
Intense greenish yellow, non-metanlic and immaculate; funicle joints long, 2 a little the longest, I subequal to the rather long pedicel which is black above at base; a dark area on abdomen just before tip. viridiflavus Girault.
Fellowish brown; prouotum, cephalic part of scutum and its median sulens, inner sides of parapsides, propodeum, postscutellum and three cross-stripes on abdomen just distad of middle, blackish; joints 2 and 3 of funicle longest, 1 over twice longer than wide. obscurus Girault.
(See descriptions of gobius and pomosus.)

## Genus OOTETRASTICHUS Perkins.

Synonym: Trichaporoides Girault.
The origiual description of this genus is not very clear but the elongated funicle joints and the long 2-jointed club are characteristic and I have very little doubt but that I bave correctly described the geuus under the name of Trichaporoides which is thus a tiue synonym. The antennæ show four ring-joints.

## 1. OOTETRASTICHUS BEATUS Perkins. Genotype.

Ootetrastichus beatus Perkius, 1905, pr. 263-265, pl. xx., fig. 8.
Ootetrastichus beatus Perkins, 1912, pp. 7, 9, 10.
Pale or greenisl yellow marked with dark fuscous or black as follows: Two subcontiguous spots on mesonotun in front, extending on to the pronotum and there connected; one at each
posterior angle of pronotum; anterior angles of parapsides and of the axillæ; a line and one or two obseure marks near the tegula; propodeum toward the sides; four or five pairs of marginal dots on the abdomen dorsad, the ovipositor and the tip of the tarsi. In certain lights, these dark markings show metallic green. Only slightly rariable.

Mabitat: Queensland, Australia; Fiji.
Types: (?) In the collections of the Hawaiian Sugar Planters' Association, Honoluln.

## 2. OOTETRASTICHUS FASCIATIVENTRIS (Girault). Female. Type of Trichaporoides.

Light lemon yellow marked with metallic greenish black or purplish as follows: The abdomen with about fire franstorse stripes and a longitudinal row of three spots on each side, the distal tro just distad of the first and secoul stripes respectively; an inverted subcordate marking at the midde of the cephalie utargin of seutom, the dorsal aspect of proporeum, the axillw and a large spot, just bofore base (cephalad) cephalo-mesad ou each parapside; a short elliptico-transverse, ohlique dash just cephalad of the paripside; the distal tarsal joints and the tip of the valves of the ovipositor. Differs from bealus in the rather faint abdominal stripes, the wholly purplish rrojodeum and the solid marking on cephalic scutum.

Habitat: Nelson (Cairns), Qucenslaud.
Type: No. Hy 1\% 86 , Queensland Museum.
3. OOTETRASIICHUS VIRIDITHORAX Girault. Female.

Tricheporoides viridithorax Givault.
Bright metallic green, the abdomen rery pale yellow with the centre broadly blackish along the meson from apex proximad a little more than half way to base, this coloration verging to metallic green at apex; a line of blackish around base and down each side (dorsal aspect) for a quarter the length of the abdomen; lather faint cross-stripes on abdomen. Lower half of face yellowish. Hind coxa concolorons, rest of legs pale yellow. Pedicel as long as the third funicle joint.

Habitat: Nelson (Cairns), Qucensland. Forest.
Type: No. Hy 1787, Queensland Museum.
4. OOTETRASTICHUS FLAVUS (Girault). Female.

Trichaporoiles flavus Girault.
Differs from fasciativentris in lacking the metalic coloration, in having but four abdominal stripes, in having the pedicel plainly shorter than the distal funicle joint and in being brownish yellow, the thorex obscurely dusky, more especially at eephalic margin of scutum centrally.

Habitat: Babinda (Cairns), Qucensland. Jungle.
Type: No. IIy 1\%88, Queensland Museum.
5. OOTETRASTICHUS NYMPHA (Girault). Female.

I'richaporoides nympha Girault.
Differing from viridithorax in having the proximal half of the abdomen pale remon yellow and the entire head the same color; also the hind coxa is yellow like the rest of the legs.

Sides of thorax around ming insertion and the prepectus, pale yellowish. Ocellar area metallic green. Scape yellow, the funicle joints subequal, the first somewhat longest.

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1789. Qucensland Museum.

## 6. OOTETRASTICHUS GROTIUSI new species.

Female:-Length, 1.25 mm .
Bright metallic green, the wings hyaline, the head, legs except the concolorous hind coxa and the black distal tarsal joints, abdomen except distal fourth which is metallic green and thrce or fout cross-stripes of dusky at middle, pale lemon yellow; ocellar area colored somewhat. Sidos of pronotum lemon vellow, also the prepectus. First funicle joint distinctly longer than the second which is subequal to the third. A black stripe across between the eves (but on the occipat?). Allied with nympha.

Male:-Not known.
Described from ouc female captured by sweeping in the forest, July 9, 1913 (A. P. Dodd).

Dedicated to Hugo Grotins.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1790, Queensland Museum, the above specimen on a tag, the head on a slide.
Another female was captured in a similar situation, August 3, 1913.

## \%. OOTETRASTICHUS INGHAMENSIS new species.

Female:-Like the preceding (grotiusi) but the distal third of abdomen green, the cross-stripes absent, but the distal green contimued up each margin to base. Prepectus. concolorous and propleura also.

From one female captured by sweeping a boggy meadow, July 17, 1912.
Mabitat: Ingham, Queensland.
Type: No. $\Pi y$ I721, Queensland Museum, the above specinen on a slide.

## 8. OOTETRASTICHUS LUSTRIS new speeies.

Female:-Length, 1.25 mm .
Like sublustris but the margins of the eyes are yellowish and the scape all dusky, the antenno differing as follows:-The funcle joints are shorter and stouter, also the club whose two joints are sulecqual (in sulolustris, the proximal joint distinctly shorter thau the distal); the first fumicle joint is not more than twice jts width (somewhat over thrice in sublustris); the pedicel is subequal to the distal chbl joint (distinctly shorter than it is in sublustris). The three teeth of the mandibles one short but distinct (in sublustris the two immer teeth arehardly separated).

Male:-Not known.
Described from one female captured by sweeping in forest, June 27, 1913.
Habitat: Nelson (Cairns), Queensland.
Type: No. II 1\%92, Queensland Museum. The above specimen on a tag, the head on a slide.

## 9. OOTETRASTICHUS SUBLUSTRIS new species.

Female:-Length, 1.25 mm .
Differing from the other species in being wholly metallic dark green, the scutum coppery, the legs white except the concolorous hind coxa, the abdomeu striped with white due to the white incisions showing; scape white, rest of antennæ black, the first funicle joint longest, not as long as the club, the third funicle joint distinctly longer than the pedicel.

Mule:-Not known.
Described from one female captured by sweeping grass in a forest streamlet, July 9, 1913 (A. P. Doda).

Habitat: Nelson (Cairns), Queensland.
Type: No. $\Pi_{y}$ 1703, Queensland Museum, the above specimen on a slide.
10. OOTETRASTICHUS MISERICORDIA new species.

Femate:-Length, 1.05 mm . Slender and with the habitus somewhat of Gonatocerus.
Dark anmenus green, the head abore the anteune (including vertex and upper fourth, more or less, of occiput), scape, pedicel and ring-joints and a rather broad band around base of abdomen, pale lemon yellow, also the legs excepting the concolorous hind coxa. Rest of abdomen dusky, submetallic at distal half; rest of antenno dusky, the first funicle joint a little shorter than the club, the second and third subequal to the pedicel.

Male:-Not known.
Described from one female captured by sweeping juugle along a forest streamlet, June 16, 1913.

Habitat: Nelson (Cairns), Queensland.
Type: No. $\Pi_{y}$ 1roi, Queensland Mnseum, the above specimen on a slide.
11. OOTETRASTICHUS CONSIMILIS new speeies.

Female:-Length, 1.50 mm .
Like flavus but the pedicel as long as the distal funicle joint and the pronotum and propodeum are black, the abdomen margined down each side with fuscous nearly to tip and with fom (ross-stripes of fuscous (no other murkings) ; upper part of occiput transversely fuscous. Distal club joint uot greatly longer than the proxiual.

Male:-Not known.
Described from one female captured by sweeping the jungle along a forest streamlet, December 1, 1912 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Ey 1795, Queensland Museum, the above specimen on a tag, the head on a slide.

## 12. OOTETRASTICHUS SILVENSIS new species.

Female:-1.45 mm.
Netallic green, tinged with purple and like speciosissimus Girault but the whole head concolorous and excepting for an elliptical spot in centre at base, uearly the proximal half of abdomen all aromnd pale whitish; the legs are white except the coneolorous hind coxa (white, however, at distal third) ; scape white, the flagellum düsizy yellow, the first funicle join: distinctly shorter than the elub, the pedied distmetly shorter than the third funcle joint.

Mate:-Uukuown.
Described from one female captured by sweeping a jungle edged forest streamlet, January 3, 1913 (A. P. Dodd).

Habitat: Nelsou (Cairns), Queensland.
Type: No. If $y$ 1706, Queensland Museum, the above specimen on a slide.
13. OOTETRASTICHUS GUTTATA new species.

Female:-Length, 1.1.) mm.
Orange yellow: wings hyaline, other appendages concolorous; cephatic two thirds of axilla, fire large subquadrate spots along each side of abdomen and a large oval spot in centre of abdomen at about proximal third, fuscous. First funicle joint uot as long as the rlub but distinctly the longest. Tip of valves of ovipositor black.

Male:-Not known.
Described from a female captured by sweeping low regetation in the forest on the side of Mount Pyramid, November 21, 1911 (elevatiou about 500 feet).

Habitat: Nelson (Cairus), Queeusland.
Type: No. II 1797, Queensland Muscum, the above specimen on a slide.

## 14. OOTETRASTICHUS SPECIOSISSIMUS new species.

Female:-Length, 1.40 mm .
Metallic purple, the face centrally abore anteuum. the mesal margins of each eye, the scape, ring-joints and pedieel, the legs (expept the concolorous hind coxa) and somewhat over proximal third of abdomen pale lemon yellow; antenno blackish, also the pedicel above. The yellowish proximal third of abdomen crossed distad by a cross-stripe of narrow dusky and distad of this stripe, the vellow is narrowed by the short space being margined at each side with purplish. A very uarrow stripe, triaugularly accented, at immediate base of abdomen. First funicle joint as long as the clnb, the other two more or less equal (not subequal), the third somewhat shorter thau the pedicel.

Male:-Not known.
Described from one female captured by sweeping jungle, May, 1913 (A. P. Dodd).

## Mabitat: Nelson (Cairns), Queensland.

Type: No. Hy $1 \%$, Queensland Nuscum, the above specimen on a tag, the head on a slide with the type head of Diaulomella australiensis Giranlt.

## 15. OOTETRASTICHUS SPECIOSUS new species.

Female:-Length, 1.60 mm .
Metallic acneous greeu, the mouth, the legs except last two pairs of coxse, a stripe across base of abdomen broken by a small green triangle at immediate centre of base and a broad stripe down each side (lateral aepect) from base nearly to apex, golden or lemon yellow. Wings nyaline. First funcle joint nearly twice the length of the third. Scape and pedicel suffused with yellow.

Male:-Not known.
Described from one female captured by sweeping in forest, July 9, 1913 (A. P. Dodd). Habitat: Nelson (Cairns), Queensland.
Typc: No. Hy 17:15, Qucensland Museum, the above specimen on a tag, the head on a slide.

## 16. OOTETRASTICHUS PROSERPINENSIS new species.

Female:-Length, 2 mm . Sleuder.
Dark metallie aeneous green, the hrond wings hyaline, the renation, legs (excepting hind coxx, the others not seen), head helow the autenm and the scape pale lemon yellow; funicle and club hlack (anteune lost before examined uuder the microscope). A deep orange yellowish spot in centre of ahdomen just out from base. Thorax densely seuptured as in Tetrastichus, the propodeum with a long inedian carina, densely polyconally punctate. Last tarsal joint black. Nandibles 4-dentate.

Mate:-Not known.
Iescrifed from a single female captured on a window, November 4, 1912.
Habitut: Proserpine, Qucensland.
Ty? e: No. My 1800, Queensland Museum, the above specimen on a slide.

TABLE OF THE AUSTRALIAN SPECIES OF OOTETRASTICHIUS PERKINS.

## Females.

I. Wholly metallic dark greeu (excluding appendages).

Legs except hind coxw, and the scape white; rest of antennæ black; funicle 3 distinctly longer than the pedicel, funicle 1 longest, thrice longer than wide, not as long as. the club. sublustris Girault.
II. Metallie green or purple (excludiug appendages), marked more or less with yellow.

Thorax entirely metallic.
Abdomen wholly metallic.
Wholly dark metallic green except the margins of the eyes; scape dusky; like sublustris but the two club joints sulsequal, the funicle joints shorter and stouter, funicle 1 trice its width; pedicel subequal to funicle 3.
lustris Girault.
Abdomen marked more or less with yellow.
Metallic green.
Bright green, the abdomen rery pale yellow, the eentre from apex broadly blackish along the meson a little more than half way to base and aronnd lase and along each side dorsad for the proximal fourth margined with black; pericel as long as the first funclo joint. Legs pale, except hind coxæ. Faint cross-stripes on abdomen. Lower face yellow.
viridithorax Girault..

Deep aeneous green; a deep orange yellow spot in centro of abdomeu just out from base; legs and face as in preceding species.
proserpinensis Girault.
Acneous green, the mouth, legs except last two pairs of eoxx, a stripe aeross base of alodomen and down each sido (lateral aspect) from base nearly to aper, golden yellow; funicle 1 nearly twice the length of 3 :
speciosus Girault.
The same; the head above the antenne, seape, pedicel and it rather broad band aromd base of abdomen pale lemon yellow; also the legs; hind coxa metallic; abdomen dusky verging to metallic distad of middle; joints 2 and 3 of funicle subequal to pedicel. misericordia Girault.

The same but tinged with purple; scape, legs (except hind coxa) and uearly proximal half of abdomeu whitish; pedicel distinctly shorter than funicle 3. silvensis Girault.
(Sce description of inghamensis.)
Metallic purple.
Face above antenne centrally, mesal margins of eyes, scape, pedicel, legs (exerpt hind coxa) and somewhat over proximal third of abdomen, pale lemon yellor, the yellow of the abdomen crossed distad ly a erossstripe of narrow dusky; funicle 1 as long as the club.
speciosissimus Girault.
Thorax mostly but not wholly metallic.
llind coxa yellow like the rest of the legs.
Bright green, the head, proximal lalf of abdomen, sides of thorax around wing insertion and the prepectus, pale lemon yellorr. Funicle 1 somewhat the longest.
nympha Girault.
Ifind coxa metallic, not like the rest of the legs.
Bright metallic green, the head, sides of pronotum, the prepectus and proximal three fourths of abdonen pale lemou yellow; aldomen with three or four dusky eross-stripes at middle. Funicle 1 distinctly longer than either 2 or 3 which are subequal. grotiusi Girault.

IIT. Pale lemon yellow or yellowish brown or orange.
Pale yellow marked with metallie green.
Two subcontiguous spots on mesonotum cephalad (extending on to the pronotum and there connectea), one on etcll himl angle of pronotum, cephatic angles of the parapsides and of the axille, sides of propodeum and four or five pairs of marginal dots on darsal abromen, blackish or metallic. beatus Perkins.

An inverted subcordate markiug on cephalic seutum, dorsal aspect of propodemm, the axilla, a large spot on each parapside cephalo-mesad, fire transverse stripes across abdomen and three pairs of marginal spots. the distal two just distad of the first and second stripes respectively, metallic greenish or purple.
fusciativentris Giranlt.
Browuish or orange yellow.
Brownish yellow, the thorax obscurely dusky especially at cephalie scutum centrally; abdomeu with four transverse stripes; pedicel plainly shorter than the distal funicle joint.

Navus Girault.

The same but the prouotum and propodeum black, the abdomen margined down each side with fuscous nearly to tip and with four cross stripes; pedicel as long as funicle 3.
consimilis Girault.
Orange yellow, including appendages; ceplialic two thirds of axilla, five large subquadrate spots along eacli side of abdomeu and a large oral spot in centre of abdomen at about proximal third, fuscous. Funicle 1 distinctly the longest but distinctly shorter than the club.
guttata Girault.

## OOTETRASTLCHELAA new gems.

Difiers from Ootctrastichus Perkins in having the abdomen at tip produced into a long slender procoss, the oripositor exserted at leugth; the process abore and two thirds the Iength of the exserted portiou of ovipositor which is as long as the abdomeu.

Type: The following species.

## 1. OOTETRASTICHELLA LONGIVENTRIS new species.

Female:-Length, 2.00 mmn ., excluding the oripositor which is exserted for a length nearly equal to that of the abdomen.

Brown, the head and body (above, especially mesonotum) with aeneous purplish greenish tinges, the very broad wings subhyaline; scape and legs pale yellowish brown, including the coxæ. Antenna black, the three finuicle joints rery long and slender, the last two subequal, the first longer than them nearly as long as the club of which the distal joint is the longer of the two; first ring-joint large (four ring-joints). Perlicel about half the length of joint 2 of the funicle. Face below antenna yollowish. Abdonen at tip produced into a long slender prccess mearly two thirds the length of the exserter part of the ovipositor.

## Male:-Not known.

From ene female captured by sweeping in virgin jungle, December 31, 1911.
Habitut: Australia-Malanda, North Queensland.
Type: No. IIy 1801, Queensland Muscum, the above specimen on a tag, the antennæ and fore wings on a slide.

## GENUS TRICHAPOROIDELLA Girault.*

Differs from Ootetrastichus Perkins in laving the club solid and in bearing but three ring-joints. Scutum simple.

## 1. TRICHAPOROIDELLA AENEA Girault. Female. Genotyne.

Dark metallic green, the wings hyaline, the legs lemon yellow, the coxa metallic at base; antenna black, the scape and pedicel with some yellow; funcle 1 subequal to the long club; propodeum with a median carina.

Habitat: Nelson (Cairns), Queensland.
Iype: No. IIy 180®, Queensland Museum.

[^59]
## 2. TRICHAPOROIDELLA DECORA new speeies.

Female:-Length, 2.10 mm .
Wholly dark metallic green excepting face below antenne (and the corresponding part of occiput), margins of eyes on rertex narrowly, the scape (except along upper edge) and legs (except hind coxa) which are lemon yellow (also perlicel slightly beneath). Clnb slightly longer than the first funicle joint which is orer one and a half times longer than the pedicel, the latter distinctly shorter that the third fmicle joint, two thirds (abont) the length of the club. Propodeum with a median carina, deusely scaly, lougher than the usual fine sculpture of rest of thorax.

Male:-Not known.
Described from one female captured by sweeping grass along a forest streamlet, August 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1803, Queensland Musemm, the above specimen on a tag, the head on a slide.

## 3. TRICHAPOROIDELLA SUBAENEA new speeies.

Female:-Length, 1.25 mm .
Like aenea but the lower part of the face, an orate spot in the centre of the aldomen at base and the abdomen at proximal fifth beneath, golden yellow. Pronodeum densely scaly.

Male:-Not known.
Described from one female cantured by sweeping iu forest, July 9, 1913 (A. P. Dodd).
Ilabitat: Nelson (Cairns), Queensland.
Type: No. Iy 1804, Queensland Museum, the above specimen on a tag, the head on a slide.

## 4. TRICHAPOROIDELLA DUBIA new speeies.

Female:-Length, 2.30 nm .
Sike acnea bat the face below antenne yellow: propodeum as in accora, punctate but the surface $n 0$ coarser in grain than the sealy scutellum. Median carina well developed and as in decora. One mandible bidentate, the second tooth broadly truncate, the other the same but a scooped-ont prortion interrenes hetween the two teeth and the second tooth is only slightly broar at apex and there oliliquely truncate. In decora both mandibles are tridentate, the two outer teeth acute and distinct; in subaenea they are about the same. Spiracle small, round, over its own width from the postscutellum; no lateral carina. The legs are intense lemon yellow while those of decora are pale. Tins of coxæ yellow.

Male:-Not known.
Habitat: Ayr, Queensland. Forest.
Type: No. $\Pi y$ 1805, Queensland Museum, the above specimen on a tag, the head on a slide.

## 5. TRICHAPOROIDELLA ELEGANTA new speeies.

Female:-Length, 1.30 mm .
Golden yellow, the propodeum, all of scutum except lateral margins, seutellum between the first grooves (median line broadly nearly to first grooves), meson of pronotum broadly, cephatic half or less of each patapside, over cephalic half of each axilla (except a small space eentre of ephatie margin) and the margins of abdomen brokenly along slighty over cephatic half, dark metallie green; also thorax just laterad of each axilla and a spot on abdomen at meson dinsad at distal hluce fouths: abdomen with abont four lusky cross-stripes along the margined proximil part and an obsemre fifth one across at the isolated spot. I'ip of ovipositor valves black, Propodeum scaly. Antenno dusky; funicle 1 longest, 3 much shorter, slightly longer than the pedicel; club with a stout nipple, more or less equal to joint 1 of funicle. Wings hyaline. Mandibles tridentate. Propodeum without true lateral carinse.

Male:-Not known.
Described from one female captured ly sweeping in forest, February 20, 1913 (A. P. Dodd). A second specimen was seen later.

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1806, Queensland Museum, the above specimen on a tag, the head on a slide.

## GENL'S SELITRICIODELLA Girault.

Antenne 7 -jointed with one ring-joint, the club solid. Scutum with is median sulcus, the scutellum with four grooves. Propodeum tricarinate, the spiracle minute, round. Male antenna S-jointed, the funicle 4 -jointed.

1. SELITRICHODELLA MIRA Girault. Female, male. Genotype.

Metallic purple, the abdomen light lemon yellow with a broad purplish stripe down each side from base to distal third or fourth. Appendages yellow, the wings hyaline. Distal two funicle joiuts subequal, longest of the funicle.

In the males the distal third of abdomen is purple, the marginal stripe absent.
Mabitat: Nelson (Cairns), Queensland. Forest.
Type: No. Hy 1807, Queensland Museum.

## 2. SELITRICHODELLA ACUMINATA new species.

## Female:-Length, 1.55 mm .

Purplish black, the wings hyaline; lateral margins of scutum narrowly, scutellum laterad of first groove and distal half or more, parapsides, cephalic portion of axilla, the legs and antenne pale lemon yellow. Scutum very long; propodeum with a short, hroad median carina. Abdomen long and conical, sordid yellowish. Flagellum dusky yellow, the funicle joints stideqnal, all somewhat longer than witc. combined longer than the club which bears a small nipple-like spine at tip; pedicel slightly shorter than the funicle joinis. Mandibles tridentate.

Mate:-Not known.
Descrihed from a female captured by sweeping in forest near the banks of Cape River, January 8, 1913.

Habitat: Capeville (Pentland), Queensland.
Typc: No. Hy 1808, Queensland Museum, the above specimen on a tag, the head on w slide.

GENL's NEOMPHALOLDES Girault.
Scutum with a median groove, the scutellum with four; propodeum with a pair of median carinæ. Antenno 11-jointed with three ring-joints, the club 3 -jointed; abdomen distad produced into a moderately long stylus.

## 1. NEOMPHALOIDES CINCTIVENTRIS Girault. Female. Genotype.

Dark metallic green, the thorax bronzy, the abdomen abore at base with a broad orange band; legs, ventral hate of occiput and fare and the cheeks, pale yellow; scape and pedicel brownish, rest of antenna black. Wings hyaline. Vertex yellowish along the eye margins. Funicle joints olongate, also the pedicel which is subequal to fnnicle 3 ; funicle 1 nearly as long as the club.

Habitat: Sydncy, New South Wales.
Type: No. Hy 1197, Queensland Museum.

## Genus SELTTRICHODES Giranlt.

Antennm 8-jointed with two ring-joints, the club solid; scutum simple, the scutellum with a narrow groove along each side of the meson.

## 1. SELITRICHODES FASCIATIVENTRIS Girault. Female. Genotype.

Lemon yellow, the dorsal abdomen with two transverse black stripes across it both interrupted ut the meson ; a black marginal spot at base on each side. Appendages concolorous, the wings hyaline. Pedicel longer than any of the funicle joints.

Mabitat: New South Wales.
Types: No. Hy 1198, Queensland Museum. $^{\text {1 }}$
2. SELITRICHODES VARIGATUS new species.

Female:-Length, 1.15 mm .
Honey yellow, the legs concolorous, the wings hyaline; two triangular spots on the face of the pronotum, the propodem and three transverse stripes across the abdomen just before middle, black. Scutum on each side of meson, brownish. Antenno dusky yellow, the pedicel longer than any of the funcle joints. Scutellum with four grooved lines; scutun simple. Mandibles 4-dentate.

Mate:-Not known.
Despribed from a single female captured by sweeping in forest, August 17, 1912.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1909, Queensland Museum, the above specimen on a tag, the head on a slide.
3. SELITRICHODES FLAVA new specits.

Female:-Length, 1.20 mm .
Pale lemon yellow, the wings hyaline; a minute black dot just mesad of insertion of fore wing and another on each lateral angle of pronotum; otherwise immaculate. Mandibles tridentate. Otherwise as in varigatus.

MLale:-Not known.
Described from one female captured by sweeping in open forest, April 18, 1912.
Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1810, Queensland Museum, the above specineu on a tag.

Genus TETRASTICliOMORPHA Girault.
Differing from Tetrastichus Haliday in that the club is solid and there are four ringjoints.

## 1. TETRASTICHOMORPHA FLAVA Girault. Female. Genotype.

Cadmium yellow, the abdomen lemon yellow, also the legs, scape and pedicel; a black marginal stripe on dorsal abdomen from base a little over a third the distance to apex; extreme apex of each parapside, black. Funicle 1 four or more times longer than wide, subequal to the club.

Habitat: Nelson (Cairns), Queensland.
Typc: No. ily 1811, Queensland Museum.

## 2. TETRASTICHOMORPHA BICOLOR new spocies.

Female:-Length, 1.20 mm .
Browuish black, the wings hyaline, the hind margins of the eyes, the rertex, the mesal margin of each parapside (except cephalad) and the antenno yellowish white, also the legs (except cosm and hind femora) and sutures of thoracic pleura. Fuuicle joints all a little longer than wide, subequal to the pedicel.

Male:-Not known.
Described from two females captured by sweeping in the forest, April 9, 1913.
Mabitat: Nelson (Cairns), Queensland.
Tuprs: No. $\Pi$ 1819, Queensland ILuseum, the above specimens on a tag, the heads on a slide with the type head of the following species.

## 3. TETRASTICHOMORPHA PARTISCUTELIUM new speeies.

Female:-Length, 1.15 mm .
The sanme as the nreceding snecies but the median line of scutnm and the four grooved lines of scutellum are white alsu.

Male:-Not known.
Described from a single female captured with the preceding species.
Mabitat: Nelson (Cairns), Queensland.
Type: No. $\Pi y$ 1813, Queensland Museum, the above specimen on a tag, the head with the type appendages of bicolor.

## Genus NEOTETRASTICHODES Girault.

Differing from Tetrastichodes (xirault in bearing four ring-joints; funicle 3-jointed.

## 1. NEOTETRASTICHODES FLAVUS Girault. Female. Genotype.

Light orange yellow, the appendages concolorous, the wings hyaline; middle of face and. dorsum of abdomen olscurely dusky; finicle joints subequal, each slightly shorter thau thepedicel. Male abdomeu dusky with a white area at base; the male funicle is 4 -jointed, the last joint longest, the antenuw with long hairs.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 18.14, Queensland Museum.

## 2. NEOTETRASTICHODES AENEUS new species.

Female:-Length, 1.35 mm . Short and stout, the abdomen globular.
Dark metallic green, the wings hyaliue; coxæ dusky, the legs pale yellowish except the dusky hind femur; antenno dusky yellowish, the long pedicel black, the scape compressed, the three funicle joints stout, subequal, subquadrate, each distinctly shorter than the elongate pedicel. With the usual fine tetrastichine sculpture.

Male:-Not knowu.
Described from a single female captured by sweeping in forest, August 4, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Qucersland.
Type: No. Ty 1815, Queensland Museum, the above specimen on a tag, the head on a slide.

Another feinale was obtained the following day in the same place. This species differs from the type species in having a short propodeum and globular abdomen.

## 3. NEOTETRASTICHODES CANDIDUS new species.

Female:-Length, 1.60 mm .
Brilliant metallic green, the legs excent last two pairs of coxa intense lemon yellow. the wings hyaline. Like aenca structurally but the distal two funicle joints distinctly wider than long, joint 1 distinctly longer thau them, subquadrate. The elongate pedicel orange. Mandibles 4 -dentate, the first two tecth apparently miunte and shortest. Scape enlarged at apex and with a coarse scaly sculpture.

Male:-Not known.
Described from one female captured by sweeping in forest, September 12, 1913 (A. P. Dodd.)

Hatitat: Kuranda, Queensland.
Type: No. Hy 1816. Queensland Museum, the above specimen on a tag, the liead on a slide.

The two speries acneus and candidus have short propodeums, the abdomen short and: globular, tbe scape more or less distinctly enlarged and with a coarse spaly senlpture
(candidus), the pedicel elongate. They form at least a subgenus. Their ring-joints are large and distinct like those in the Pteromalidn. In acneus, the scape is compressed along the middle and without coarse scaly sculpture, while in the third species it is enlarged at apex and coarsely scaly. The species candidus has a wore distinct terminal nipple on the club than has aeneus (type antoune of both species re-examined).

## Genus EPITETRASTICIIUS Girault.

Synonym: Pentastichodes Girault.
Differs from Tetrastichus Maliday in bearing four ring-joints; the propodeum is variable, sometimes very short, with a short median carina, the abdomen conic-ovate, the form robust. (Type species re-examined.)

## 1. EPITETRASTICHUS SPECIOSISSIMUS Girault. Female. Genotype.

Golden yellow, characteristically marked with black, thus: A large obconical area from cephalic margin of scntum to proximal third of scutellum; most of interior of each axilla; a triangular spot at cephalo-mesal margin of parapside, lateral pronotum, propodeum, much of mesopleurum and sides of propodemm and six broad stripes across the abdomen, each stripe with a large, roundish yeliow spot centrally on each side of meson, forming a paired longitudinal row (six pairs, the fifth largest) ; vertex and centre of occiput. Funicle 1 lenger than the pedicel, joint 3 shorter than it. First ring-joint distinct, the others transterse-linear.

Habitat: Babinda and Nelsou (Cairns), Queensland. Grass and forest.
Type: No. IIy 1817, Queensland Muscum,
A female mas captured at Nelson by sweeping in forest, August, 1913.
2. EPITETRASIICHUS FLAVIPOSTSCUTELLUM (Girault). Female. Type of

Pentastichodes Cirault.
Pentastichodes Aavipostscutellum Giranlt.
Plack, the postscutellum and all of abdomen except tip of ovipositor valves, lemon yellow, also the legs and antenn (coxm not seen). Funicle 1 subequal to the pedicel, the distal two joints subequal; mandibles tridentate. Propodeum with a median carina, scaly.

Mabitat: Capeville (Pentland), Queensland.
Type: No. Hy 1818, Queensland Insenm.
A second female of this species has been seen, captured with the type specimen.

## 3. EPITETRASTICHUS LONGFELLOWI new spocies.

Female:-Length, 1.30 mm .
Dark metallic green, the wings hyaline, the legs including coxæ, scape and pedicel, orange jellowish, the rest of antenna black. Sculptured finely as in Tetrastichus. Cephalic femur fuscous, the cephalic coxa concolorous. Ring-joints yellowish, the first funicle joint elongate, as long as the club, a third longer than the pedicel, second and third each in turn distinctly shortor: the third subequal to the long pedicel, half or more the length of the club;
the latter paler toward tip. Reticulation of propodeum coarser or less dense. Abdomen yellowish at extreme base. Propodem with two narrow median carinx, paired but diverging widely at about the middle. Abdomen with a short petiole which is distinct.

Male:-Not known.
Described from two females captured by sweeping in jungle country, June, 1913 (F. P. Dodd).

IIabitat: Kurauda, Queensland.
Tupe: No. Hy 1810, Queensland Museum, one of the abore specimens on a tag, the head on a slide with the type appendages of Eurydinotella viridicoxa Girault.

Respectfully dedicated to H. W. Longfellow.

## 4. EPITETRASTICHUS RUFISCUTELLUM new species.

Female:-Length, 1.65 mm .
Black, the abdomen dusky, suffused with yellowish across extreme base and with some more or less obsure cuss-stripes of hatek, the distal third of sontum, the seutellum, parapsides except at cephalic apex, caudal third of each axilla and the tegula deep orange yellow; face ventrad yellowish, also the vertex more or less. Legs lemon yollow; pronotam Jaterad and extreme cephalo-lateral angle of scutum, orange yellow. Scape yellowish, the rest of autenna dusky, the funicle joints ovatc, the first a little the longest, subequal to the pedicel which is of usual lengtl. Antenua with five (?) ring-joints. Mandibles ${ }^{3}$-dentate. Club with a prominent nipple.

Male:-Not known.
Described from one female captured by sweeping along a jungle-edged forest streamlet. Arril 14, 1913 (A. P. Dodd).

IIabitat: Nelson (Cairns), Queenslaud.
Tupe: No. Hy 1890, Queensland Museum, the above specimen on a tag.

## 5. EPITETRASTICHUS FULVIPOSTSCUTELLUM new species.

## Female:-Jencth, 2.25 mm . Rolmst.

Dark metallic green, the postscutellum bright lemon yellow; tegulw, legs (except coxæ at basal half), scape and pedicol (except above), yellow; antenno black, funicle I longest. ciongatc but not as long as the club whose proximal joint is a little longer than the pedicel but distinctly shorter than fonicle 3. Propodeum with a short median cariua which forks at each end. Wings lyaline. Laternl carina near (mesad) the spiracle, comvine cando-faterad to the carinated caudal margin, then looping back to the other side of the spiracle.

Mate:-Unknown.
Described from one female captured by sweeping in forest, November 6, 1913.
Habitat: Ayr, Queensland.
Typc: No. Hy 78.31, Queensland Museum, the above specimen on a tiag, the head on a slide (and a tag with the variety purpurus).

A second female captured at the same time differed in being dark metallic purple. I name it the variety purpurcus and deposit it with the type of the species; a second female of the rariety had the groove of scutum only at distal fourth!

## 6. EPITETRASTICHUS TRIFASCIATUS new species.

Female:-Length, 2.05 mm .
Honey yellow, the wings hyaline, the seutum reddish; tip of valves of ovipositor black; akdomen margined along each side with hlack from base to distal two thirds just within the proximal halt crossed by three black stripes. Antenua with four ring-joints, black, the pedicel rather long, subsequal to the distal joint of funicle. Mandibles tridentate. Propodeum short at meson, the caudal margin strongly earinate and the median carina quadrate. Abdomen long, eonic-ovate.

Male:-Not known.
Described from a single female captured by sweeping in the jungle, July 13, 1913.
Habitat: Harcey's Creek (Cairns district), Queensland.
Topp: No. SLy 1822, Queensland Museum, the above specinen on a tag, the head on a slide.

## 7. EPITETRASTICHUS NYMPHA new species.

Female:-Length, 2.00 mm .
Agreeing with the description of longfellowi but the pedieel nearly concolorous with the rest of the antenna, the abdomen is not yellowish at extreme base and the propodeum has a single, distinct median cariua which forks at apex. Pronotum and scutum with obseure thimble punctures.

Male:-Not knomา.
Described from one fenale captured from herbage, April 6, 1913 ("6.t.13,'" H. Hacker).
Mabitat: Brisbane, Qucensland.
Type: No. My 1890, Qucensland Musemn, the above specimen on a tag, the head on a slide.

## 8. EPITETRASTICHUS NIGRIVENTRIS new species.

Female:-Length, 1.65 mm .
Orange yellow, the abdomen and middle of occiput black; flagellum dusky black, the proximal half of the scape yellowish. Mandibles tridentate. Legs orange yellow; face of pronotum blaek; wings hyaline. First funicle joint only slightly longer than the other two, all cylindrical-oval and not much longer than wide. First ring-joint apparently divided into two transverse ones (making five in all). Propodeum with a short moliay carina, the lateral earina ruming directly from the rather large oral spiracle. Abdomen pointed, conie-ovate.

## Male:-Ñot known.

Described from a single female captured by sweeping in a jungle, July 13, 1913.
Mabitat: Marvey’s Creek, Nelson and Kuranda (Cairns), Queensland.
Type: No. Hy 1894, Queensland Museum, the above specimen on a tag, the head on a slide.

Later, a second female was captured August 1, 1913, at Nelson, N.Q., by sweeping jungle growths along a forest streamlet and a third in September, jungle, Kuranda (A. P. Dodd).

## TABLE TO THE AUSTRALIAN SPECIES OF EPITETRASTICHUS GIRAULT.

## Females.

Metallic green or purple species.
Dark metallic greeu, all of legs (except first coxa) scape and pedicel orange yellow; rest of autenna black; frunicle 3 subequal to pedicel, joint 1 subequal to the club; aldomen yellowish at extrome base; propodeum with a pair of widely diverging median carinæ.
longf cllowi Girault.
The same but pedicel nearly black, the abdomen without yellow; propodeum with a single median carina which forks at apex. nymphes Girault.
Whole body dark metallic green or purple, the postscutellum, legs (except bases of coxx), tegulæ, scape and pedicel lemon yellow; funicle 3 longer than pedicel; propodeum with a median carina and a lateral carina just mesad of the spiracle which at apex loops back to the lateral side of spiracle.
fulvipostscutellum Girault.
Black species.
Postscutellum, abdomen except tip of ovipositor valyes, leqs and antennw, pale lemon yellow. Funicle 1 subequal to pedicel. flavipostcutellum Girault.
Distal third of scutum, scutellum, parapsides except cephalad, candal thind of axillæ, deep orange; ablomen dusky, suffused with yellowish at extreme base; vertex and ventral face orange, also extreme latero-cephalic anglo of scutum and sides of pronotum; legs yellow. Funicle 1 subequal to pedicel.
rufiscutellum Girault.
Golden or honey yellow species.
Golden yellow; a large, oheonical area from cephalic margin of scutum to proximal third of scutellum, most of axilla, propodeum and six broad stripes across abdomen each stripe with a yellow spot in it on each side of meson centrally, black. Funiclo 1 longer, funicle 3 shorter, than the pedicel.
speciosissimus Girault.
IIoney yellow; scutum reddish; abdomen along each margin from lase to distal two thirds, tip of values of ovipositor and three cross-stripes on abdomen within proximal hati, black; fomicle 3 subequal to pedicel; mediau carina quadrate.

Lrifusciatus Girault.
Orange yellow; abdomen, middle of oceiput, fiagellum, distal half of seape and face of pronotum, black; funicle joints not much louger than wise; lateral carina running directly from the spiracle.
nigriventris Girault.*

Genus qutadrastichus Girault.
Synonym: Epichrysocharis Girault.
Differs from Pentestichus Ashmead in bearing short marginal cilia on the fore wing, the antennæ 8 -jointed with one ring-joint, the club 2 -jointed. Abdomen depressed, ovate, the ovipositor not exserted.

1. QUADRASTICHUS NIGRINOTATUS Girault. Fomale. Gonotype.

Canary yellow; the wings hyaline; meson of pronotum, meson of scutum centrally (divided along median line), outer lateral angle of pronotum, apices of axillæ, median line of

[^60]propodeum and three broken stripes (distinct laterad) across abdomen out from base, dusky black. Scape, pedicel aud legs concolorous, rest of antenna dusky yellow. Second funicle joint longest, joint 1 shortest of the funicle, longer than wide, subequal to the pedicel. Mandibles tridentate. Club with a spinelike seta.

Habitat: Mittagong, New South Wales.
Type: No. I. 1830, South Australian Museum, Adelaide.

## 2. QUADRASTICHUS LATITHORAX new speeies.

Female:-Length, 1.15 mm .
This species is like Pentastichus Ashmead but the antennæ 8-jointed with one distinct ring-joint, the club only two-jointed, the pedicel not much longer than the first funicle joint, rather subequal to it, all the funicle joints longer than wide. Body very short and stout, with a peculiar habitus, resembling somewhat a Hadronolus, the abdomen very short, flat, triangular. Mardibles bidentate, the inner tonth broadly truncate. Otherwise as in Tetrastichus Haliday. Narginal cilia short. Purple-black, the antenuz and legs lemon yellow, also the abdomen but in the dorsal aspect margined all around (apically broadest) rather broadly with purple-black. Wings hyaline. Sculpture of thorax like that of Tetrastichus but exceedingly fine. Pedicel black above near base. Distal club joint a little the longer, with a short nipple, the funicle joints subequal.

Male:-Not known.
Described from a single female captured by sweeping foliage of lantana and other trees in an open field near town, October 21, 1911.

Habitat: Mackay, Queensland.
Type: No. Hy 1825, Queeusland Museum, the above specimen on a slide.

## 3. QUADRASTICHUS SANNIO new species.

Female:-Length, 1.60 mm .
Tike the preceding but much larger and normal, the tibia ringed with purple just below snees, the antenur sooty, the club white, its two joints coalesced or nearly. Mandibles rridentate. Scape pale, purple along dorsal edge; pedicel purple.

Male:-Not known.
Described from one female captured by sweeping in forest, July 3, 1913.
Habitat: Nelson (Cairns), Queensland.
Type: No Ty 1836, Queensland Muserm, the above specimen on a tag, the head on a slide.

## 4. QUADRASTICHUS AENEUS new species.

Female:-Length, 3.00 mm ., excluding valves of ovipositor which are exserted for a third of the length of the abdomen.

Dark metallic green, the wings hyaline; coxæ and proximal parts of the femora concolorons, the rest of the legs pale straw yellaw. Scuipture as in Tctrastichus; propodeum fnely transversely rugulose, the median carina apparently absent. Antenno brownish black, the three funicle joints subequal, each a little longer than wide. Mandibles tridentate.

## Male:-Not known.

Described from one female eaptured by sweeping iu forest, July 9, 1913 (A. P. Dodd).
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1897, Qucensland Muscum, the above specimen on a tag, the head on a slide.
5. QUADRASTICHUS FUSCA (Girault). Female.

Enichrysocharis fusen Giranlt.
Dusky yellow, the scutum yellow; legs and antemat pale yellow; wings hyaline. Pedicel longer than any of the funicle joints, the second of the latter smallest, transverse, ringlike, the first longest but wider than long. Ring-joints rexy minute. Fore wings densely ciliate. Impunctate. Iype re-examined.

Itetritat: Nelson (Cairns), Queensland.
Type: No. II 1888, Queensland Museum.
The mandibles are tridentate; club with no nipple, the Jistal joint twice the length of the proximal.

## Genus Quadrastichodes Girault.

Differs from Tetrastichodes Ashmead in having the antenno 13-jointed, four furicle and ring-joints, the third cluh joint conelike but articulated; scape enlarged distad, clavate and together with the pedicel with a coarse sraly sculpture. Propodeum with a median carina; postmarginal vein three fourths the length of the stigmal.

1. QUADRASTICHODES CYANEIVIRIDIS Girault. Female. Genotype.

Britliant metallic bluc-green; wings hyaline; legs straw yellow, the coxe metallie; femora darkened proximad; pedicel as long as funicle 1 which is longest of the funcle, much longer than wide (abont two and a quarter times) ; joint 1 of club somewhat longer than wide, subequal to funicle 3.

Habitat: Port Lincoln, South Australia.
Types: No. I. 1231, South Australian Museum, Adelaide.

## Gents NEOMPHALOIDEJLA Giranlt. <br> Synonym: Eulophotelrastichus Giranlt.

Like Neomphaloides Girault but the funicle joints usually shorter, the three ring.joints uneven, the abdomen depressed and broadly ovate, the propodeum usually with a single median carina. The synonymic genus was erroneonsly deseribed, the scutum with but a single groove.

1. NEOMPHALOIDELLA FASCIATIVENTRIS Giranlt. Female. Genotypo.

Dlack, the \#ings hyaline; face and cheeks, lateral margins of scutum rather broadly, occipital angles of vertex, cephalic third of parapsides, all margins of scutellnm (except cephalic), postscutclum, legs except base of coxa, antenne ind more or less obscure transverse stripes across the abdomen, lemon yellow. Funicle joints subquadrate, joint 1 slightly longest.

Habitat: King Island, Tasmania.
I'ype: No. I. 1293, South Australian Museum. Adelaide.

## 2. NEOMPHALOIDELLA 10 (Girault). Female. Genotypo of Eulophotetrastichus.

Eulophotetrasticlues io Girault.
Black, the wings hyaline, the sentellum and apex of scutum contrasting orange yellow, the postscutellum, abdomen and legs (except coxa at base), lemon yellow, the abdomen conspicnously margined with black from base to apex (dorsad and ventrad), the dorsal meson broadly yellow. Scape and pedicel pale. Propodem with a short, stont median carina which tapers distad; joint 1 of finicle longest, joint 3 much longer than the pedicel.

Mabitet: Kuranda, Queensland. Jungle.
Type: No. IIy 18.99, Queensland Museum.

## 3. NEOMPHALOIDELLA FUSCA (Girault). Female.

Neomphaloides fusca Girault.
Yellow-brown; the funicle and club black; a row of dark spots down each side of abricmen; funicle joints thrice longer than wide, the club with a long spur; pedicel half the length of funicle 1; wings narrow, the marginal fringes longer than usual.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. My 1830, Queensland Museum.

## 4. NEOMPHALOIDELLA SILVENSIS new speeies.

Fomale:-Length, 2.50 mm .
Jet black; distal third of scutum and along each lateral margin, parapsides, sides and rester of thorax except prothorax, tegula and axille deep orange yellow; abdomen deep lemon yellow except the black of distal third, edged from base on each side with black, conspicuously in the dorsal aspect. Legs concolorous with abdomen. Ovipositor not exserted. Face near mouth and scapo except tip, yellow, rest of antenna black, the first funicle joint very long, as long as the very long cluh, the other two more or less equal, a third shorter but much longer than the long pedicel. Mandibles tridentate.

Mate:-Not known.
Described fiom one female captured by sweeping in a jungle pocket, August 7, 19]3 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. My 1831, Queensland Mnseum, the above specimen on a tag, the head on a slide.

## 5. NEOMPHALOIDELLA WESTWOODI new speeies.

Female:-Length, 1.50 mm .
Jet black, the wings hyaline, the abdomen reddish brown, its margin and distal third fuscous; coxæ black, rest of legs concolorous with the abdomen; propodeum with two short diverging median carine at distal half at the middle meeting a basal carina-loop. Mandible tridentatc. Scape yellowish heneatl, the antenno otherwise black, the first funicle joint one and a half times longer than loroad, suliegnal to the pedicel, the other two funicle joints each shortening, the third somewhat louger than wide; nipple very short; the club joints not quite as long as the distal funicle joint. Propodemm and rest of thorax polygonally reticulated.

Male:-Not known.
Described from threc females captured amongst undergrowth, April 26, 1913 (II. Hacker). Dedicated to John Obadiah Westwood.

IIabitat: Brisbane, Queensland.
Type: No. Hy 1832, Queensland Museum, the above specimens on a tag, two antennæ and a head (fragments) on a slide.

## 6. NEOMPHALOIDELLA SANNIO new species.

Female:--length, 1.70 mm .
Like fasciativentris but the face yellow only below antenna, the distal fourth of scutum lemon yellow, the dateral margin of each parapside the same color and only the distal halves of the lateral margins of seutellum. The antenne are dusky, the chab not quite as long as the funcle, the pedicel rather long, longer than any of the funcle jonts, the first of the latter rather distiuctly longer than the second.

Male:-Not kuown.
Described from one female captured by sweeping in the forest, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 1893, Queensland Mruseum, the ahove specimen on a tag, the head and fore legs on a slide.

## TABLE OF THE SPECIES OF NEOMPIIALOIDELLA Girault.

Black species.
Scutellum mostly or all black; legs yellow.
Scutellum all black.
Distal third of sentum and each lateral margin, parapsides, sides and renter of thorax exepit prothorax, tegule and axille, orange yellow; abdomen lemon yellow margined from base to apex with black, the distal third black; mouth and sape rellow; pedicel long but shorter than funicle 3 , funicle 1 very long, as long as the club.
silvensis Giranlt.
Abdomen reddish brown, the scupe yellow beneath; abdomen margined with fuscous, its distal third fuscous; coxa black; funicle 1 subequal to pedicel.
westwoodi Girault.
Scutellum margined with yellow.
Face and cheeks, lateral margins of scutum, occipital angles of vertex, cephalie third of parapsides, margins of seutellum (exept rephalie), postscutellum, antennæ and obscure stripes across the abdonen, lemon yellon; funicle joints subquadrate.
fasciativentris Girault.
Face below antemie, distal fourth of scutum, lateral margin of parapside and distal half of each lateral margin of scutellum, lemon yellow.
scmnio Girault.
Scutellum wholly orauge yellow.
Apex of scutum orange yellow; postseutellum, abdomen and legs lemon yellow; margins of abdomen conspichously black from base to apex; scape and pedicel pale; propodeun with a short, broctl, median earian which tapers distad; joint 3 of funicle much longer than the pedicel. io Girault.

Yellow-brown species.
Funicle and club black; a row of dark spots down each side of abdomen; funicle joints thrice longer than wide, the club with a long spur; pedicel half the length of funicle 1 ; wings narrow.
fusca Giranlt.

## Genus quadrastioliodella Giranlt.

Scutum with a median groove; antennæ with four ring-joints; scape clavate and coarsely scaly. Otherwise as in Tetrastichus Haliday.

1. QUADRASTICHODELLA BELiA Girauit. Female. Genotype.

Brilliant metalic green, the legs (except bind coxa), tegula and scape lemon yellow; rest of antema dark brown; pedicel longest of the flagellom, joints 2 and 3 of funicle wider than long, joint 1 longer than wide. Propodeum glabrous in dorsal aspect.

Habitat: Lawson, New South Wales.
Type: No. I.1234: South Anstralian Museum.

## 2. QUADRASTICHODELLA AENEA new speeies.

If cmale:-Length, 2.50 mm . Robust.
Metallic aeneons purplish, the wings hyaline, the legs including coxæ lemon yellow; hind coxa concolorons. Antermo hromnish back, the scape yellow, the predicel elongate, much longer than aly of the following joints, the first funicle joint barely longer than wide, the other two subequal, wider than long. Mandibles tridentate. Postmarginal rein orer half the length of the rather short stigmal. Club as long as the funicle. Propodem densely sealy, with a short median earina meeting a semicircular carina at apex. Evidently like the type of the genus but differing in general coloration and the scaly dorsal aspect of the propodeum. Hind tibial spur single.

> Malc:-Not known.

Described from one female captured by sweeping in jungle pocket, July 21, 1913 (A. P. Dodd).

Mabitat: Nelson (Cairns), Queensland.
Type: No. Ify 1834, Queensland Museum, the above specimen on a tag, the head and rind legs on a slide.

Genus Tetrastichella Giranlt.
Differing from Tetrastichus Haliday in bearing three ring-joints in the antenm, the club only 2 -jointed. Postmarginal vein usually developed.

## 1. TETRASTICHELLA FUSCIPENNIS Ciranlt. Female. Genotype

Metallic green; seutum laterad and candad, the sentellum and the base of each axillamore broadly, margined with yellow; a yellow spot in each parapside at base. Fore mings infuscated from hase of marginal vein distad to about three fouths the distance from apex of stigmal vein to ajex of blade, the fumated area narrowing distad. Oral area yellowishPedicel longer than any of the funicle joints of which 2 is largest. Club without a nipple.

Ilabitat: Murray Bridge, South Australia.
Type: No. I. 13:18, South Australian Arusemm, Adelaide.

## 2. TETRASTICHELLA NOVIFASCIATUS (Girault). Female. <br> Ictrastichus fasciatus Giranlt.

Lemon yellow, the abdomen darker, the wings hyaline; centre of scutum with a round fuscous spot on each side of meson; pronotum cephalad, parapsidal furrows and suture between scutum and scutellum black; also lateral margin of sentellum more broadly; abdomen with from six to seveu black cross-stripes. Appendages concolorous, the antennw more or less dusky. Propodeum and cephalic half of scutum centrally darker. Funicle joints more or less quadrate. Two chb joints, three ring-joints. Pedicel twice the length of any of the funicle joints. (Type antenno re-examined.)

Habilal: Queensland (? Brisbane). Forest.
7upes: No. Hy iP01, Queensland Museum.

## 3. TETRASTICHELLA ACUMINATIVENTRIS new species.

Fomale:-Length, 1.70 mm , including the ovipositor which is exserted for a third the length of the abdomen, the latter nearly twice the length of the thorax.

Very dark metallic mish, the wings hyaline; distal third of first two pairs of femora, krees, thin and tarsi yellow, the rest of the legs concolorons; antemm dusky yellowish, the first ring-joint latge, disfinct, the other two extremely short but easily found, the funicle joints longer than wide, subequal to sach other and to the pedicel; first club joint much shorter than the second which bears a small nipple. Mandibles tridentate. Postmarginal rein absent. Characterized by the slender abdomen ant the longly exserted uripositor.

Male:-Not known.
Described from two females captured by sweeping in forest, August 4, 1913 (A. P. Dodd).

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1835, Queensland Museum, the al.ore specimen on a tag together, their heads together on a slide.

## 4. TETRASTICHELLA HAECKELI new species.

Female:--Liength, 1.00 mm .
Deep golden rellow, the legs and intenno concolorons, the wings hyaline; scutum interiorly excopt the margins and median line, median line of scutellum broadly (almost to first groove), axillæ centrally to apex, parapside along mesal margin and pronotum broadly along each side of the narrow yellow mesou, embromned. Propodeum laterad, a small round spot on pronotum just cephalad of the parapsidal furrors and five or six narrow stripes across abdomen black or dark fuscous. Propodeum witl a median carina. Pedicel stout, over twice the length of any of the funicle joints which are subequal and only slightly longer than wide. Mandibles tridentate. Postmarginal vein absent.

Mate:-Not known.
Described from one female captured ly sweeping undegrowth, mostly eucalypts, April 30, 1913 (H. Hacker).
-Habitat: Brisbane, Queensland.
Type: No. Hy 1836, Queensland Mnseum, the above specimen on a tag, the head and a fore wing on a slide.

## 5. TETRASTICHELLA HYALINA new species.

Female:-Length, 1.00 mm .
Dark metallic purple, the wings subhyaline, the legs concolorous excepting most of front fomora, the knees, tibio and tarsi which are lemon yeljow. Postmarginal vein absent. Antennæ lemon yellow suffused with dusky, the three funicle joints more or less subquadrate and no longer than the pedicel; club with a small terminal seta.

## Male:-Unknown.

Described from five females captured by sweeping miscellaneous flowers in a garden, February 18, 1913.

Habitat: Ripple Creek and Halifax, Queensland.
Type: No. Hy 189\%, Queensland Museum, three of the above specimens on a slide with detached heads.

Sereral days later, three females by sweeping grass along a road at Malifax.

- Gents APROSTOCETELLA Girault.

Differs from Tetrastichella Girault in that there are four ring-joints.

## 1. APROSTOCERELLA KELLOGGI Girault. Female. Genotype.

Honey yellow, the wings liyaline, the abilomen with three to five black cross-stripes from base; the propodenm, a large triangular spot on each side of meson of scutum (cephalic half), pronotum and a crescentic bar actoss dorsal half of occiput, black or purplish black. Scape pale; antenna black, the first funicle joint slightly longer than the other two. Club joints subequal. Mandibles tridentate.

Mabitat: Rossville (Cooktorn), Queensland.
Type: No. Hy 1838, Queensland Museum.

## 2. APROSTOCERELLA 10 new species.

Fomale:-Length, 1.90 mm .
Dask metallie green, the legs (excent hind coxa) and a large spot in centre of abdomen just out from base above, lemon yellow, the scape pale, the pericel less so; antenna black, the pedicel long but shorter than ayy of the funicle joints of which the first is longest; distal club joint not as long as the distal funicle joint. Ovipostor valves somewhat exserfed. Mandibles tridentate. Wings hyaline. Club 1 shorter of tho two. Propodeum with two delicate median carinw which diverge at each eud, both short. Talves of ovipositor exserted for a fifth of the abdomen.

Ilatitat: Nelson (Cairns), Qneemsland. Jungle, June 5, 1913.
Type: No. Hy 1839, Queensland Muscum, the above specimen on a slide.

## 3. APROSTOCERELLA CINCTIVENTRIS new species.

Female:-Length, 1.20 mm .
Focembling Ootetrastichus nymnha (Giranlt) but the hind coxo are metallic green and less than the proximal half of the abdomen is lemon yellow. Sides of mesothorax concolorous. Mandibles tridentate. Ovipositor exserted for a fifth the length of the abdomen. Funicle and club blackish.

Male:-Not known.
Described from one female captured by sweeping jungle growth along a forest streamlet, June 10, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1810, Queensland Museum, the above specimen on a tag, the head on a. slide.

## 4. APROSTOCERELLA FLAVA new species.

Female:-Length, 2.10 mm .
Somewhat like Neotrichoporoides uniguttata Girault but the median earins of propodeum fork a little mily at cxtreme apex and there is no black pot in the eentre of the abdomen near middle; also the edging of the proximal hall of the abromen is blacked and interrupted and the line dowu the meson of thorax is only from apex of scutum a little orer the base of seutellum; the :millay are not darker. Otherrise like the speeies uamed exeept the generic character. Scutum near cophatic margin orange yollow and each parapside has an orange spot aeross it near cephalic apex. Scumm will u distincl medinn grooverl line. Mandibles tridentate.

Mate:-Not known.
Deseribed from one female captured by sweeping in jungle, May 9, 1913.
Habitat: Nelson (Cairns), Queeusland.
Type: No. Fy 18.81 , Queensland Museum, the abore specimen on a tag, the head on a slide.

Gencs EPOMPHALOIDES Girault.
Like Neomphaloidella Girault but the scutum without a median groove. Otherwise like Tetrastichus Haliday.

## 1. EPOMPHALOIDES FLAVUS Girault. Female. Genotype.

Lenom yellow, the wings hyaline; a little rounded spot ou proplenrum, dorso-caudad just off the notum, two small spots near the tegula, the propodeal spiracle and two dots in a longitudinal line on each side of abdomen, segments 3 and 4, haek. An obscure brownish dot on each side, eephalic third of scutum; legs, scape and pedicel pale yellow, the antennx dusky yellowish. Pedicel louger than the fuiele joints. Club without a noticeable terminal spur.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1849, Qucensland Museum.

## 2. EPOMPHALOIDES VIRIDIS new species.

Female:-Length. 1.65 mm .
Metallic green, dark and aeneous, the legs except first two coxa, orange yellow; wings hyaline; scape, pedieel and ring-joints eoneolorous with the legs, the pedicel somewhat dusky; pedicel elongate, a little longer than joint 2 of funicle, funicle joint 1 clongate, a fourth longer than the pedicel. Propodeunu scaly, the median carina forking before apex. Mandibles tridentate.

Male:-Not known.
Deseribed from one female eaptured from a window in a hotel, July 13, 1913.
Habitat: Harvey's Creek (Cairns), Qucensland.
Type: No. Hy 1843, Queensland Museum, the above speeimen on a tag, the head on a slide.

## 3. EPOMPHALOIDES NIGER new species.

Female:-Length, 1.55 min.
Jet black, the wings hyaline, the coxio concolorous, the legs yellow, also the scape, the fedicel dusky yellow, rest of antema black; pedicel elongate, intermediate between the first and second funcele joints, the first fumicle joint about as long as the clul, nearly twice the length of the third; nipple not long, distinct. Mandibles tridentate, the two inner teeth smaller and close togother. Median carina of propodeum paired, forked at each end (i.e., a fine pair of carino, etach curving off laterad at base and apex following the cephalic and caudal margins).

Male:-Not known.
Described from one female captured amongst herbage, April 6, 1913 (II. Hacker).
Mabitat: Brisbane, Queensland.
I'ypos: No. Hy 18:1, Queensland Museum, the above specimen on a tag, the head on a slide.

## Gents NEOTRICIIAPOROIDES Girault.*

Differs from Trichaporoidella Girault in bearing four ring-joints.

1. NEOTRICHAPOROIDES UNIGUTTATUS Girault. Female. Genotype.

Honey rellow, the wings hyaline; a little less than the proximal half of the abdoment along each margin dorsad and a strive down thorax from middle of scutum to a little distad of middle of schtellum, metallic green; a round Iot in centre of abdomen slightly distad of middle and tip ot ovipositor valves, blackish. All of sontmo cephalat of the median stripe reddish hrown margined with lemon yellom, seape and pedicel lemon yellow except above, rest of antenna black; yerlicel much shorter than the distal funcle joint, the first funicle joint over four times its own widtl. Mandilles tridentate. Median carina of propodeum forking a little cephalad of middle, prong-shaped.

Mabitat: Nelson (Cairns), Queensland.
Tupc: No. Jy 1815, Queensland Museum.

## GExUS EPENTASTICHUS new genus.

Female:-Like Quadrastichus Girault but the scutum without a median grooved line.
Male:-Unknown.
Type: Epentastichus nugatorius new species.

## 1. EPENTASTICHUS NUGATORIUS new species.

Female:-Length, 1.00 mm .
Black suffinsed with brown, the antenno and legs lemon yellow, the wings hyaline; Find coxa brown-black; propleurum lomon yellow, also the head and scutellum except the base of the latter between the first grooves. First funicle joint slightly shorter than the pedicel lomt distinetly longer than wide, longer thau the length of 2 and 3 combined, 2 shortest, 3 cupshaped. Pedicel dusky. Mandibles tridentate.

[^61]Described from one female specimen captured by sweeping in forest, November 6, 1912.
Habitat: Ayr, Queensland.
Type: No. Hy 1816, Queensland Museum, the above specimen on a tag, the head on a slide (with the anteune of a Rhicnopeltella).

## 2. EPENTASTICHUS FUSCUS new species.

Female:-Length, 0.65 mm .
Bromn, the wings hyaline, the scutellam yellow, the abdomen with three or four narrow transverse stripes across it, these stripes blackish and not rery distinct. Legs paler, the antenne pallid, the pedicel much longer than any of the funicle joints which are wider than long; distal club joint nearly twice the length of the proximal, the club somewhat longer than the funicle. Mandibles tridentate.

Male:-Not known.
Described from one female specimen captured by sweeping lantana and other shrus in an open field wear town, October 20, 1911.

Habitat: Mackay, Qneensland.
Type: No. Ty 184n, Queerslard Nusenm, the abore specimen on a slide.

## 3. EPENTASTICHUS SEXGUTTATUS new species.

Female:-Length, 0.95 mm .
Bright golden yellow, the wings hyaline, the abdomen with a blackish stripe across extreme base followed along each margin by a line of three short transverse black spots, the candal one of these a little distad of middle. Pronotum at the meson, seutum across eephalic third nearly to each margiu, apex (rephalic end) of each axilha and the propodeum dusky black. Legs wholly concolorous, also the antenno but the pedicel dark except at tip, the seapc pallid, slender, the first funicle joint shortest, subquadrate, the second longest, nearly twice the length of the first, longer than the pedicel. Mandibles trideutate. First elub joint not much longer than the sccond.

Male:-Not known.
Described from one female captured by sweeping forest, summit of second coast range ( 1,500 feet), May $26,1913$.

Mabitat: Nelson (Cairns), Queensland.
Type: No. $\Pi$ y 1818, Queensland Museum, the above specimen on a slide.

## 4. EPENTASTICHUS NIGRIVENTRIS new species.

Fomale:-Length, 1.00 mm . Short, rohist, the abdomen globate.
Reddish brown, the abdomen black; cephalic half each of scutum and axillæ, the parapsides and pronotum darker; wings hyaline; thorax extraordinarily, finely, densely, longitudinally lined; mandibles tridentate; legs yellow (coxm not seen) ; antennw rellow. the distal club joint over twice the length of the proximal, the perlicel stont, much larger than any of the funicle joints of which the first is much the longest, yet cupshaped and somewhat
wider than long; second funcle joint shortest, narrower, transverse and like a ring-joint, the third twice longer, plainly wider than long, about half or more the length of 1 . Stigmal vein long.

Male:-Not known.
Described from two females captured by sweeping undergrowth, mostly eucalypts, April 20, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.
IJpes: No. Hy 184:, Qucensland Museum, the abore specimens on a tag, the heads on a slide.
5. EPENTASTICHUS FLAVUS (Girault). Female.

Quadrastichodes flavus Girault.
Honey yellow; dot on pronotum cando-laterad, a triangular spot on axilla meso-cephalad, dorsar aspect of propodemm, several spots on cach side of abdomen near base followed by an apparent short cross-stripe near the middle; ring-joint large, the pedicel loug but not quite as long as joints 1 and 2 of the funcle united, these joints longer than mide, joint 3 barely so.

Mabilat: Mughenden, Queensland. Forest-downs.
Type: No. IIy 1850, Queensland Museum.

APROSTOCEROLOLDES new genus.
Female:-Like Trichaporoidella Girault but the scutum with a median grooved line. Mandibles tridentate.

Male:-Not known.
Type: The following species (speciosus).

## 1. APROSTOCEROLOIDES SPECIOSUS new speeies. Genotype.

Female:-Length, 2.10 mm .
Honey yellow; centre of vertex and flagellum black. Abdomen above shining coppery brown, but centrally near base this is broken by a large, triangular yellow area. Pedicel dusky, scape dusky along upper edge. Wings hyaline. Scutum (except cephalo-lateral angles), scutellum and propodetum metallic light blue, also the centre of each axilla. Propodeum with a strong meilian cirina, densely reticulate scaly like the rest of the thorax. Funicle joints elongate, the first longer thau the club, the third a little shorter than the club, the second subequal to it. Axillw not advanced.

Male:-Not known.
Described from a single female captured by sweeping in the forest, July $9,1913$.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1851, Queensland Mnseum, the above specimen on a tag, the head on a slide.

## 2. APROSTOCEROLOIDES MARGIVENTRIS new species.

Femate:-Length, 1.50 mm .
Deep orange yellow, the wings hyaline; legs concolorous; proximal half of abdomers margined with black (dorsill edge), the extreme tip of abdomen black and a minute dot in centre about opposite the ends of the marginal stripes; an obscure black spot near tegula in the cephalic part of each axilla. Scape concolorous, also the pedicel (but black above), the flagellum black. First funicle joint distinctly longer than the clutb, the second more or less subequal to the club, the third distinctly shorter than it yet orer a thiod longer than the pedicel.

Male:--Not known.
Desmibed from one fomale captured by sweeping low regetation in the forest on the side of Mount Pyramid, November 21, 1911 (elevation about 500 feet).

Habitat: Nelson (Cuirns), Queensland.
Type: No. Jy 1850, Qucensland Museum, the above female on a tag, the head ou a slide with the type head of Ootctrastichus grotiusi Girault.

## SYNTOMOSPIIYRELLA new genus.

Femate:-Like Syntomosphyrum Foerster bat the anteunse with two ring-joints, the club only 2 -jointed, nine joints in all. Scutum simple. Mandibles tridentate. Scutellum with four grooved lines. Postmarginal rein distinctly developed, three fourths the length of the stigmal; marginal rein as loag as the submarginal.

Male:-Not known.
Type: The species described herewith (fuscipennis).

## 1. SYNTOMOSPHYRELLA FUSCIPENNIS new speeies.

## Female:-Length, 1.10 nmm .

Black, the abdomen brown, the sculpture as in Tetrastichus; abdomen with metallic lustre; fore wing with a broad fuscons stripe across it from the marginal rein; legs concolorous except tibir and tarsi and much of cephalic femora which are yellowish. Antennæ and face dusky yellow, the funcle joints barely unequal, more or less quadrate, each shorter than the pedicel.

Described from one female captured by sweeping along the side of Mount Pyramid (1,000 fect), forest, August 17, 1912.

Ilabitat: Nelson (Cairns). Queensland.
Type: No. Ify 1853, Queensland Museum, the abore specimen on a slide.

## 2. SYNTOMOSPHYRELLA AURIFLAVA new species.

Female:-Length, 1.15 mm . Short and stout.
Deep golden yellow, the wings lyaline, the other appendages concolorous; cephaiec margin of pronotum narrowly, a spot near insertion of fore wing and sereral incisions of the abdomen (obscurely but forming two four narrow transserse stripes, wide apart and broadly interrupted at meson), dusky; scape dusky above, compressed, the third funicle joint sub-
globular (but wider than long), decidedly larger than the other two, the pedicel much longer than either three; first club joint longest, the second with a slight nipple. (One antenna in this specimeu was abuormal, the second funicle joint uot at all divided from the third but the articulation merely indicated by a deep incision or sinus from oue side). Mandibles tridentate.

Male:-Unknown.
Described from one female captured August 5, 1913, by sweeping in forest.
Habitat: Nelson (Cairus), Queensland.
Type: No. My 1854, Queensland Nuseum, the abore specimeu on a slide.
Another female was captured in the same place, three days later. The abdomen bears four narrow dusky stripes aud a fifth represented by two spots, one on each side of the meson.

## 3. SYNTOMOSPHYRELLA AURA new speeies.

## Fomale:-Length, 1.50 mm .

Deep golden yellow, immaculate excepting for a dot on pronotum at lateral wngle and another near the tegulw; othermise like auriflava except that the club is short, the distal joint obliquely truncate. The median groove of scutum is apparently present (at least cephalad). Intermediate tibial spur loug and slender.

Male:-Unknown.
Described from one female specimen captured by sweeping undergrowth, mostly eucalypts, April 20, 1913 (II. Hacker).

Ilabitat: Brisbane, Queensland.
Typc: No. Hy 1856, Queensland Museum, the above specimen on a slide.

## 4. SYNTOMOSPHYRELLA QUADRIMACULATA new species.

Ficmale:-Length, 1.00 mm .
Golden yellow, the legs paler, the wings hyaline; a round spot in eentre of scutellum at base, a diamond-shaped spot on each parapside at middle of mesal margiu and more or less of the propodeum, dusky black; funicle joints 2 and 3 subequal, a little wider than long, joint 1 a little longer and wider than either but somewhat shorter than the pedicel.

Male:-Not known.
Described from two females captured on the foliage of Eucalyptus in forest, November 9, 1913.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1856, Queensland Museum, the above specimen on a slide.

## SELITRICHODELIA new genus.

Female:-Like Sclitrichodella Girault but there are two ring-joints. Mandibles weakly 4-dentate. Lateral carinæ absent on propodeum, the median carina also absent but the carinated cephalie and caudal margins meeting at the short meson.

Male:-Not known.
Type: The species described herewith (aenea).

1. SELITRICHODELIA AENEA new speeies.

Female:-Lengtlı, 1.60 mm .
Dark metallic aeneous green, the wings hyaline; tegula and legs (except intermediate and hind cosm) deep lemon yellow, the antenno dusky yellow; funicle joints distinctly longer than wide but stout, joints 1 aud 2 subequal, each a fourth longer than 3 which is very nearly as long as the pedicel. Club with a nipple, about as long as the two preceding joints.

Described from one female captured by sweeping the floor of forest, May 26, 1912.
Habitat: Nelson (Cairns), Queenslaud.
Type: No. Tly 185\%, Queensland Museum, the above specimen on a tag, the head ou a slide-

## 2. SELITRICHODELIA AURIOS new speeies.

Female:-Length, 2.00 mm . Slender, the abdonen elongate, longer than the sleuder thorax.

Jet black, the wiugs hyaline, the legs reddish brown (coxa darker toward base), the antennæ wholly yellow; clypeus and immediate surronnding portion orange yellowish (but not up to antemnal insertion ly far) ; thorax and abdomen very fimely shagreened. First funicle joint elongate but not quite as long as the club, the others shortening in succession, the third more or less equal to the rather long pedicel.

Mate:-Not known.
From one female captured by sweeping Leptospermum, April 16, 1913 (II. Hacker).
Type: No. II y 1858, Queensland Museum, the above on a slide.

## 3. SELITRICHODELIA FUSCIPENNIS new species.

Female:-Length, 1.05 mm .
Jet black, the forewings with a broad fuscous stripe under the marginal vein; legs mostly concolorons, the antenua greyish or neutral, the funicle joints all shorter than the pedicel, the first two a little longer than mide, the third subquadrate, the two ring-joints distinct.

Male:-Not known.
Deseribed from two females captured among herbage, May 10, 1913 (II. Hacker) and a third on the flower: of Breckea, April 22, 1913.

Habitat: Brisbane, Qucensland.
Type: No. Hy 1859. Queensland Museum, the above specimens on two tags (heads of all and abdomens of two destroyed).

## 4. SELITRICHODELIA TRIMACULOSA new speeies.

Fcmale:-Lengtth, $0.60-0.80 \mathrm{~mm}$.
Pale lemon yellow, the wings hyaline; appendages concolorons; a long, wedge-shaped spot (acute eud candad) on each axilla and a shorter, triangular or rounded spot at base of scutellum mesad, dusky black; propodeum dusky at meson; an obscure spot abont the tegula
dusky. Pedicel stout, rery much longer than the three funicle joints, the last two of which are wider than long, the first somewhat longer', only slightly wider than long.

Male:-Unknewn.
Described from two females captured from the leaves of Eucatyptus in forest, November 9, 1911.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1860, Queensland Museum, the above specimen on a slide.

## 5. SELITRICHODELIA QUADRIMACULATA new species.

Female:-Length, 0.85 mm .
Like trimaculata, but there is an additional dark reddish spot (round) at the lateral angle of pronotum (dorsal aspect), one on each side; first funicle joint somewhat shorter than the other two. Nandibles tridentate. Abdomen with several obscure cross-stripes. Scutum with an obscure long, wedge-shaped sordid marking its whole length, one on each side of meson, from hase to apex, the acute end caudad.

Male:-Not known.
Described from one female captured by sweeping lantana and other shrubs in an open field near town, October 20, 1911.

Malitat: Mackay, Queensland.
Type: No. II y 1861, Queensland Muscum, the above specimen on a tag.

## 6. SELITRICHODELIA OCCULTA new species.

Female :-Length, 1.25 mm .
Pale honey yellor, the wings hyaline, the legs and antenno concolorous; four fuscous stripes across the abdomen (a fifth indicated just out from base) between base and apex, the third and fourth joined along the meson by a longitudinal stripe; propodeam, base of abdomen and axilla except along caudal margin and extreme latero-cephalic angle, jet black; a large round spot at base of sentellum between the first grooves and eephatic half of the long scutum broadly neally to margins, deep fuscous, the median line of scutum cephalad more or less yellowish. Face of pronotmon black. Median carina of propodeum extromely short, forking at both ends, the fropodeum scaly. Pedicel longer than any of the funicle joints of which the first is longest but only slightly longer than 2 , both somewhat longer than wide, joint 3 subequal to 2 but wider, globate-oval. Mandibles 3 -dentate, the two inner teeth more or less conffuent.

## Male:-Not known.

Described from one female captured by sweeping in forest, November 6, 1912.
Habitat: Ayr, Queensland.
Type: No. Hy 1862, Queensland Museum, the above specimen on a tag, the head on a slide.

## 1\%. SELITRICHODELIA VIVATA new species,

Female:-Length, 0.75 mm . Short, stout.
Thorax intense green yellow, the propodenm jet black, the cephalic half of scutum (except along margins) and distal tro thirds of abdomen brown; wings hyaline. Parapsides pale brown except caudad. Proximal third of abdomeu very pale yellow. Brown part of abdomen with more or less obseure cross-stripes. Legs and antennio lemon yellow, the pedicel very much longer than any of the funicle joints of which 1 is longest, cup-shaped, small, joint 3 shortest, a half shorter than 2 , which is a little shorter than 1. Mandibles with three wellseparated teeth.

Male:-Not kuown.
Described from one female captured November 6, 1912, from a window in a smithy.
Habitat: Ayr, Queensland.
Type: No. IIy 1863, Queensland Museum, the above specimen on a tag, the head on a slide.

TABLE TO THE SPECIES OF SELITRICHODELIA Girault.

## Females.

Dark metallic green.
Tegulæ and legs (except last two pairs of coxæ) deep lemon yellow; antennæ dusky yellow; funicle joints distinctly longer than wide but stout, 1 and 2 subequal, 3 a fourth shorter and nearly as long as the pedicel; mandibles weakly 4 -dentate. aenea Girault.
Black.
Wings hyaline.
Legs reddish brown, the antenn yellow, also the clypeus; funicle 1 elongate, 3 subequal to the ratieer long pedicel.
aurios Girault.
Wings with a fuscous or sooty stripe across them under the marginal vein.
Antenna greyish; fuuicle joints shorter thau the pedicel, joint 3 (funicle) subquadrate.
Yellow and nommetallic.
fuscipennis Girault.
Joint 3 of funicio transverse, a half shorter than joint 2 and much the shortest.
Intense green-yellow, the propodeum jet black; ceplalic half of scutum, parapsides except caudad and distal two thisds of scutum brown; proximal one third of abdomen pale yellow; mandibles with three distinct teeth. vivata Girault.
Joint 3 of funicle not so formed; not a half shorter than joint 2.
Pale lemon yellow; a long, wedge-shaped spot on axille, a rounded spot at base of scutellum mesad, propodemm at meson aud an obscure spot about the tegulm dusky; funicle joints 2 and 3 wider than long, the first joint somewhat longer, all much smaller than the pedicel.
trimaculosa Giranlt.
The same but a dark reddish round spot at lateral angle of pronotum and the abdonen with obscure cross-stripes; scutum with an obscure, long, wedgeshaped, sordid marking on each side of meson for whole length; joiut 1 of funicle somewhat shorter than the other two.
quadrimaculala Girault.
Pale honey yellow; four fuscous stripes across abdomen, the third and fourth joined along the mesou; propodcum, base of abdomen aud most of axilla jet black; a spot at base of scutellum between the first groores and the cephalic half of the long scutum deep fuscons; funicle 1 longest, 2 and 3 subequal iu length but 3 wider.
occulla Girault.

## Genus Asyntomospilyrdy Girault.

Differs from Syntomosphyrum Foerster in being small, the abdomen pointed conic-ovate, a little longer than the rest of the body.

1. ASYNTOMOSPHYRUM PAX Girault. Female. Genotype.

Sooty black, the wings hyaline, the scutellum chocolate brown, the lower face and vertex lemon yellow; trochanters, knees, tips of tibise and tarsi (also cephalie tibire) whitish yellow. Scape pallid, the intennw dusky yellow, 9-jointed with one riugjoint, the funicle joints shorter than the pedicel, the first subquadrate, the second transwerse, short, smallest, the third twice louger than 2, hemispherical. Club much wider than the funcle and longer than it and a little longer than the moderate seape mhich is compressed. The abdomen pointed conic, a little longer than the head and tharax combined, the oripositor not exserted. Fore wings ample, very closely, densely, uuiformly ciliate, the marginal cilia short, the stigmal vein long and slender. Mandibles tridentate.

Habitut: Nelson (Cairns), Queensland.
Type: No. IIy 1864, Queenslaud Museum.

## 2. ASYNTOMOSPHYRUM ACUTIVENTRIS new speeies.

Ficmale:-Length, 1.00 mm ., excluding ovipositor. Small and slender.
Very dark metallic blackish green and seulptured as in Tetrastichus but most finely, the wings hyaline. Abodomen long and coubally produced, (excluding oripositor) over twice the length of the thorax, the ovipositor longly exserted, the exserted portion mearly as long as the thorax. Lateral grooves of sentellum nearly in the lateral aspect, hardly visible from above. Antenns 9-jointed, with one ling-joint, the funicle joints all longer than wide, the distal two subequal and lougest, subequal iu length to the pedicel. Scape and pedicel pallid, the flagellum dusky. Tibia pale yellowish, the tarsi dusky.

Male:-Not known.
Described from two females captured by sweeping in jungle country, June, 1913 ( $\mathrm{F} . \mathrm{P}$. Dodd).

Mabitat: Kuranda, Queensland.
Type: No. IIy 1865, Queenslaud Museum, one of the above specimens on a tag, the head on a slide with the type appendages of Neorileyclla fasciatus Girault.

## DIAGNOSIS OF THE GENERA OF TETRASTICHINE EULOPHID ※. <br> Females. Austradia.

TETRASTICHINI.
The tribe is characterised by the sessile abdomeu.
I. Funicle 3-jointed.

1. Mesoscutum without a median sulcus; seutellum with four grooved lines.

Auteunal club solid.
Antenna 8-jointed with two ring-joints, the scape somewhat swollen, the funicle joints uot elongate, more or less quadrate.

Selitrichodes Girault (Type: S. fasciativentris Girault).
Antennm 9 -jointed with three riug-joiuts, the scape slender, the funicle joints elongate. Trichaporoidella Giranlt (Type: T. aenea Girault).

[^62]Autenne 10 -jointed with four ring-joints, the scape slender, the funicle joints elongate; median carina of propodenm forking before the middle.

Neotrichaporoides Giruult. (Type: N. uniguttata Girault).
Antennal club 2-jointed.
Abdomen slender, conic-orate, not produced at tip, the ovipositor not exserted.
Autennas 8 -jointed with one ring-joint, the funicle joints not long but longer than wide. Epentastichus Giranlt (Type: E. nugatorius Girault).
Antenna 9-jointed with two ring-joints; postmarginal vein distinctly developed; funicle joints not elongate.

Syntomosphyrella (iirault (Type: S. fuscipennis Girault).
Antennæ 11-jointed with four ring-joints; funicle joints elongate.
Ootetrastichus Perkins (Type: O. bealus Perkins).
Abdomen produced at tip into a long slender process, the ovipositor longly exserted.
Antennæ 11-jointed with four ring-joints.
Ootetrastichella Girault (Type: O. longiventris Girault).
Antennal club 3-jointed.
Anteune 9-jointed with one ring-joint.
Pronotum long, conical.
Antennw inserted near the mouth border; abdomen longer than the rest of the hody.

Melittobia Westwood (Type: Cirrospilus acasta Walker).
Pronoturn not especially long, trausserse (more or less).
Antenna inserted nearer to the middle of the fiace, the funcle joints ridrible. sometimes long, the ahdomen stont, uo louger than the thorax and usually broader. Club usually with a terminal seta.
Syntomosphyrum liocrstev (Type: Eulophus cyclogaster Ralzeburg).
Abdomen pointed conic-owate, a little longer than the rest of the body; funicle joints shorter. Sleuker, small.

Asyntomosphyrum Girault (Type: A. pax Girault).
Antenne 10-jointed with two ring-joints.
Abdomen conic-orate; funicle joints sometimes elongate.
Tetrastichodes Ashmead (Type: T. floridanus Asbmead).
Antennæ 11-jointed with three ring joints.
Funicle joints not elongate; abdomen broadly orate.
Epomphaloides Girault (Type: E. favus Girault).
Antenne 12-jointed with four ring-joints.
Neotetrastichoides Girault (Type: N. flavus Girault).
2. Mesoscutnu with a median groored line; scutellum with four sulci.

Antennal club solid.
Antennæ 7 -jointed with one ring-joint.
Abdomen depressed ovate; funicle joints not elongate.
Selitrichodella Girault (Tyne: S. mira Girault).
Antenne 8-jointed witlı two ring-joints.
Selitrichodelia Girault (Type: S. aenea Girault). Antennæ 9-jointed with three ring-joints, the funicle joints usually elongate.

Aprostoceroloides Girault (Type: A. speciasus Girault).

Antennæ 10-jointed with four ring-joints; funicle joints elongate to subquadrate.
Tetrastichomorpha Girault (Type: T. flava Girault).
Antennal club 2-jointed.
Antennex 8 -jointed with one ring-joint; marginal cilia of fore wing short; funicle joints longer than wide, the flagellum a little capitate.

Quadrastichus Girault (Type: Q. nigrinotalus Giranlt).
Antennæ 10-jointed with three ring-joints; postmarginal vein slightly developed; fore wings sometimes infuseated.

Tetrastichella Girault (Type: T. fuscipennis Giranlt).
Antennæ 11-jointed with four ring-joints.
Aprostocerella Giranlt (Type: A. Relloggi Giranlt).
Antennal club 3-jointed.
Antennæ 9-joiuted ni̛h one ring-joint; abdomen conic-ovate. Legs normal.
Aprostocetus Westrood (Type: A. caudatus Westwood).
Antennæ 10-jointed with two ring-joints.
Tetrastichus Haliday (Type: Eulophus miser Nees).
Antenne 11-jointed with three ring-joints.
Abdomen distad produced into a moderately long stylus; pedicel and funicle joints elongate.
Propodeum with a pair of median carinæ.
Neomphaloides Girault (Type: N. cinctiventris Girault).
Abdomen normal, depressed, broadly ovate; pedicel short, the funicle joints variable.
Propodeum with a single median carina.
Neomphaloidella Girault (Type: N. fasciativentris Girault).
Antenneo 1-jointed with four ring-joints.
Propodeum usually long with a median carina.
Scape strongly clavate and with coarse scaly sculpture.
Quadrastichodella Girault (Type: Q. bella Girault).
Scape normal, sleuder; propodeum rariable but with a median carina which is often rery short.

Epitetrastichus Giranlt (Type: E. speciosissimus Girault).
II. Funicle of antenna 4 -jointed.
3. Mesonotum withont a median groored line, scutellum with four grooved lines.*

Antenne 13-jointed with four ring-joints, the scape strongly clavate and with a coarse sculpture; third joint of club spine-like but articulated; postmarginal vein three fourths the length of the stigmal.

Quadrastichodes Girault (Type: Q. cyaneiviridis Giranlt).

## Tribe CERATONEURINI. $\dagger$

This tribe is characterised by the distinctly petiolate abdomen; the type genus lacks all thoracic grooves and its hind wings bear a long, clavate marginal vein. Otherwise it is like the Tetrastichini. The following genera bear the thoracic grooves.

## Genus CERATONEURONELLA Girault.

Scutellnm with five groored lincs, one median; antennæ 11-jointed with three ring. joints, the club 3 -jointed; propodeum with a $V$-shaped median carina and a hood-like neck; petiole of abdomen distinctly longer than wide. Scntum with a median grooved line.

[^63] scutellum.

## 1. CERATONEURONELLA NIGRIVENTRIS Girault. Female. Genotype.

Yellowish red, the base of scutellum lemon yellort, the body of the abdomen black, the petiole red; legs red, the hind coxa with a linear black spot down the side; scape pale, pedicel yellowish, rest of antemio dusky vellowish. Foro wings with a large, snbovate smoky spot centrally muder distal renation. Fnaicle 1 much longer than the pedicel and only slightly longer than 2.

HaUitat: Nelson (Cairns), Queensland. Jungle.
Type: No. $\Pi$ y 1866, Qucensland Iusenm.

CERATONEURONOMYIA new genus.
Type: The following species.

## 1. CERATONEURONOMYIA ARNOLDI new species.

Fcmale:-Length, 1.70 mm .
Shining black, the wings hyaline, the tegulo and legs (except the black eoxm), reddish brown; also the scape. Propodeum with a strong median carina and rugose, the short, stont petiole also rugose, the second and thind segments of abdomen longest, sukequal, together occupying half of the surface. Simpture otherwise as in Tctrastikhus as are also all other characters except that the first fumicle joint is clongate, as long as the club, the pedicel also longer than usual, subequal to the second funcle joint, the third funiple joint distinctly longer than wide, longer than any of the three club joints, whont half or less the length of the first funicle joint. Abdomen smooth. Mandibles tridentate. Second ring-joint very short, the first distinct; club with a short nipple. Abdomen short. orate. Anfenm inserted in the middle of the face, the head triangukar, the mandibles tridentate.

Mate:-Inknown.
Described from one female captured by sweeping jungle foliage, July 25, 1912. The genus differs from Ccratoneura Ashmead in bearing the grooves on the thorax as in Tetrastichus. The species is respectfully dedicated to Matthew Armold.

Habitat: Goondi (Tmisfail) and Kuranda, Queensland.
Type: No. Ify 1867, Queensland Museum, the above specimen on a tag, the head on a slide.

## 2. CERATONEURONOMYIA LONGISCAPUS new species.

Fenale:-Length, 1.75 mm .
Dark metallic green, the wings hyaline, the scape long and slender, white, the flagellmm biack, the pedicel and ring-joints dusky, the pedicel elongate, subequal to fnnicle 2; funicle 1 clongate, over twice the length of 3 which is somewhat longer than wide; clnb pale toward tip. Mandibles tridentate. Club with a short nipple. Propodem rugnlose, with a distinct median carina and neck, the abdomen with a short petiole. Coxa mostly concolorons. Segments 2 and 3 of abdomen ocenpying only over a fourth of the surface.

Male:-Not knotrn.
From one female, forest, September 16, 1913 (A. P. Dodd).
Habitat: Knranda, Queensland.
Type: No. Hy 1869, Qneensland Mnselum, the abore specimen on a tag, the head on a slide.

Differs from the type species in being smaller and slenderer, metallic and the propodeum has a distinct neck; also the first two segments of abdomen are much shorter; the pedicel. a little more slender, the seape white. Types of hoth species examined.

## CERATONETROPSIS new genus.

Female:-Of small build, somewhat resembling a small spalangia but the head is not ollong, the antcunx not inscrted fiar down. Like Tetrastichus but the abdomen distinctly petiolate, the antenna as in Ootetrastichus except that the club is solid, 10 joints in all, including four ring-joints. Scutum, hovever. simple. Fiftlu abdominal segment very long, as long as half of the lody of the abdomen and as segments $2-4$ united; of the latter 3 is shortest. Propodemm rather loug. with a distinct median carina. Mandibles tridentate. Sculpture as usual in the subfamily, the abdomen polished, like the surface of tar. Stigmal vein. long, the marginal as long as the sulmarginal. Petiole longer than wide.

Male:-Not known.
Type: The following species.

## 1. CERATONEUROPSIS POINCAREI new species.

Female:-Length, 1.10 mm .
Elack, the wings hyaline, the knees, tibim and tarsi straw yellow, also the scape, the rest of the antenua dnsky. Distal two funicle joints a little longer than the proximal, each about trice (or somewhat less) longer than wide, the first funicle joint only slightly longer than the pedicel which is yellowish beneath; club as long as the first two funcle joints combined, slightly nippled at tip.

Described from one female captured by sweeping the edges of a jnngle pocket, May 26, 1913 (A. P. Dodd).

Respectfully dedicated to Jules Henri Poincaré.
Mabitat: Nelson (Cairns), Queensland.
Type: No. My 1868, Queensland Nuseum, the above specimen on a tag, the head on a: slide.

## TABLE TO THE CERATONEURINE GENERA OF EULOPHIDAE.

Australia. Females.
The tribe is characterised by the distinctly petiolate abdonen and variable sulci. Mesonotum with a median grooved line.

Scutellum with five groored lines, one median.
Antcnna 11-jointed with three ring-joints, the club 3 -jointed; propodeum with a: $V^{T}$-shaped median carina and a hood-like neek; petiole of abdomen distinctly longer than wide. Ceratoneuronella Girault (Type: C. nigriventris Girault).
Scutellum with four groosed 7ines, the median absent.
Like T'ctrastichus Haliday the antenna 10 -jointed with two ring-joints; second and third abdominal segments occupying half of the surface; pedicel elongate; petiole short and stout.

Ceratoneuronomyia Girault (Type: C. arnoldi Girault).

Mesonotum without a median grooved line, the seutellum with four groores.*
Antenne 10 -jointed with four ring.joints, the cluo solid; eegment 5 of abdomen very long, oceupying half of the surface, the petiole longer than wide.

Cenatoneuropsis Girault (Type: C. poincarei Girault).

## Subramily ELACIIERTIN色。

Tribe ELACHERTiNi.

## Genus Zagrammosumit Ashmead.

Abdomen sessile; antenna 8 -jointed with one very short ring joint, the funicle 2 -jointed; Tertex elevated; ffagellum subeompresed; body spotted or striped; scutellum with two grooved Jines; wings maculate or bauded.

## 1. ZAGRAMMOSOMA PULCHRA Girault. Femate.

Thorax dark metallic green, the heat pale yellow, the face with a line running down it to about the lerel of the antenna, the line wary and metallic green; a short green line from end of eye to end of head; a fonsous line duwn the length of the stigmal rein, the wings otherwise hyaline; logs yellow, the hind fomur hack centrally, the himd tibia black just below knees. Dbdomen hackish, one roum suot on each side just out from base followed by a suberescentic transterse line, followed on the next segment by an irregular marking on each side and on the next sagment ly a still wider subsimilat marking, on the next segment a subobconical spot near lateral maxgin and on the next a similar but larger subpuatrate obscure spot. Ring.joint apparently present. Funcele largest, subglobose; third joint terminating in a little spine. Head triangular. Propodelim tricarinate. Mandibles j-dentate.

Hulitat: Nelson (Cairns), Queenstand. Forest.
Type: No. Hiy 1s:o, Queensland Mruseum.

GENUS CTRRONPILOIDELAELS Girault.
Like Cirrospilus Wertwood (Ashmead) but the antenna 9-jointed with two ring.joints and two funirle joints; third joint of chnh teminating in a rery long spur. Scutelhm without groores. Abdomen with a very short petiole. Mandibles t-dentate. Propodeal spiracle minute, round.

## 1. CIRROSPILOIDELLEUS BICOLOR Girault. Female. Genotype.

Sulametallic hueblack, the proximal half of ahdomen orange jellow. Wings with a slight discoinal stain. Loms lemon yollow, also the antema bat the clabl hack. Thorax sealy, the propodeum rugose. Pedicel huser than either funicle foint; terminal spine as long as funicle 1 which is sightly longer than wide.

Habitat: Nelsou (Cairns), Queensland.
Type: No. $\begin{aligned} & \text { y 1.8~1, Queensland Museum. }\end{aligned}$
2. CIRROSPILOIDELLEUS PURPUREUS new s yecies.

Fcmale:-Length, 1.50 mm . With the habitus of Tetrastichus.
Dark metallic purple, the wings hyaline, the legs pale lemon yellow except the coxa. Sculpture fine as in Telrastichus, the propodemm rather short. like the rest of the thorax, not

* The game lut only the lateral grooses ai contellum are present. Antenrae 11-Jointed. three ring-joints, three club ioints; petiole short. Ceratornistichts firatht and Dodd. n. gen. (type : C. bisulcutus n. sp. Gir. d Dodd). The genotype is dark aeneons, the scutum with setigerous puctured, ilie wings hyaline.
rugose, without carinæ; abdomen sassile. Antenna pale lemon yellow, short and stout, the club enlarged, the funicle joints quadrate (the first somewhat longer, slightly shorter than the pedicel); pedicel dusky. Mandibles tridentate. IIind tibial spur forked at tip. Parapsidal furrows deej. Antemal club without a nipple.

Male:-Not known.
Described from one female captured by sweeping in forcst, July, 1913 (A. P. Dodd).
Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1872, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

## 3. CIRROSPILOIDELLEUS FASCIATIVEINTRIN new species.

Female:-Length, 1.30 mm .
Mandibles with six teeth; propodeum honeycombed; antenne terminating only in a short, stont seta, the club not enlarged. Orange yellon, the abdomen crossed by four narrow transverse stripes; marginal rein longer than the submarginal which, however, is not broken. Face lemon yellow. Antenno krown, the first fuxicle joint rather long, over twice longer than wide, a third longer than the second joint which is subequal to the pedicel. Thorax densely scaly.

Male:-Not known.
Described from a single fentale captured by sweeping in jungle, July 13, 1913.
Habitut: Harvey's Creek, Queenslaud.
Type: No. IIy 1873, Queensland Mruscum, the above specimen on a tas, the head and hind tibire on a slide.

PSEUDIGLYPHELLA ner genus.
Type: The following species.

## 1. PSEUDIGLYPHELLA CERLESTIS new speeies.

Female:-Length, 1.50 mm .
Like Pscuriglyphus grotiusi but the oripositor not exserted, the scutcllum betreen the grooves is reticulately sealy like the rest of the thorax, the propodeum is short at the meson and with a slight ridge there but no true carine and the tarsal joints are long as in Elasmus. (Mandibles $4-5$ dentate) ; moderately dark, ameous green, the legs white except the concolorous coxa, the hind femur with an elliptical black spot centrally against upper edge (lateral aspect). Seape yellowish, the flagellum dusky, the pedicel somewhat longer than both funicle joints which are subequal (nearly, the first a little shorter), the second distinetly longer than wide. Otherwise the same. Postmarginal veiu slightly broken. Parapsidal furrows distinct, complete.

## Male:-Unknown.

Described from one female captured by sweeping in forest, August 4, 1913.
Mabitat: Nelson and Cooktown, Queensland.
Type: No. Hy 1874, Queensland Museum, the above specimen on a tag, the hind legs and head on a slide.

A second female was obtained, same place, August 30, 1913. The spot on hind femur was absent. A third female was captured at Cooktown by sweeping in open fields, February 4, 1912. This specimen also lacked the spot on the hind femur while funicle 1 was longer than 2.

## Gents AsCOTOLINIX Girault.

Antennæ 9-jointed with two ring-joints, the elub 3 -jointed, the two fuaicle joints petiolate. Scutellum with two grooves; propodeum with a broad, smooth median carina, the latcral carine preseut. Segment 2 of abdomen occupsiug nearly half of the surface. Scutellum with no transterse suture before apex.* Abdomen conic-orate.

## 1. ASCOTOLINX FUNERALIS Girault. Female. Genotype.

Black, the tibise and tarsi brown, the wings hyaline; scutellum and sceond abdominal segment glabrous, the scutellum really very finely reticulated. Thorax roughly scaly; propodeum rery finely shagreened. Antemnæ black; funicle 2 a little wider than long.

Mabitat: Nelson (Cairns), Queensland. Jungle.
Type: No. Hy 1875, Queensland Museum.

## Genus Cirrospilomyla Girault.

Like Cirrospiloidellens Girault but the abdomen sessile, the club 4 -jointed, the fourth joint minute and conic, without a nipple; antemm 10 -jointed with two ring-joints. Mandibles 3-dentate. Scutellum without grooves, the propodeum non-carinate. Abdomen large, much wider than the thorax and a half longer, orate. Parapsidal furrows deep.

1. CIRROSPILOMYIA MAGNIVENTRIS Girault. Female. Genotype.

Dark aeneous green, the wings lyaline, the abdomen purplish black and with a banded appearance due to the light incisions. Legs whitish, also the scape, the flagellum dusky. Pedicel longer than either of the funicle joints which are subequal aud longer than wide.

Habitat: Nelson (Cairns), Queensland. Jungle.
Type: No. II y 1876, Qucensland Museum.

## Genus Atoposoma Masi.

Differs notably from Zagrammosoma Ashmead in bearing two ring.joints in the antennæ.

## 1. ATOPOSOMA ZOLAI Girault. Female.

Lemon rellon; pronotum, scutum except lateral margins, meson of sentellmm broadly and conically mearly to tip, $7 \cdot 8$ narron stripes across the abdomen ( $\pm .6$ broadly, the rest narrowly, joined by a longitudinal mentan stripe), two wary stripes across face, all of propodeum ind parapsides and tro diamond-shaped spots on each axilla dark metallic green. A dusky spot against the stigmal vein. Funicle joints subequal. Two stripes across fore wing. (Type re examined.)

Habitat: Caןerille (Pentland), Queensland. Forest.
Type: No. IIy 18\%7, Qneensland Mnseum.

[^64]
## 2. ATOPOSOMA LANEI new species.

Female:-Length, 1.00 mm .
Intense lemon yellow. A broad stripe down median line of thorax, a narrower one down meson of abdomen forking near each end and intersecting five cross-stripes, the margins of the abdomen (dorsad) to fourth cross-strije and around apex, a stripe along each side of thorax (dorsad), converging, crossing over each side of propodenm and joining broadly around its base, biack. A narrow stripe across occiput at ventral ends of eyes and two diverging stripes $f r o m$ it up the occiput. Substigmal spot present. Maudibles 6 -dentate.

From one female captured by sweeping along a roadway near the Herbert River, February 28, 1913. Dedicated to Ralph Lane for his book The Great Illusion, A Study of the Relation of Military Power in Nations to their Economic and Social Advantage.

Habitat: Halifax (Ingham), Queensland.
Type: No. Hy 1878, Queensland Museum, the above specimeu on a slide.

## 3. ATOPOSOMA CHANNINGI new species.

Female:-Length, 1.05 mm .
Like saintpierrei Giranlt but the abdomen bears six distinct cross-stripes and the whole of the median line of scutum is hack, the short apical median stripe on abdomen absent. The fore wings in both species are faintly banded as in species of Closteroccrus; the heads are also striped in both species but I could not make out the pattern.

Male:-Not known.
Described from a single female captured by sweeping in jungle, July 26, 1913.
Habitat: Meertwa (Cairns District), Queensland.
Type: No. Hy 1879, Queensland Museum, the above specimen on a slide with the type head of Zagrammosomoides consobrinus.

## 4. ATOPOSOMA SAINTPIERREI new speeies.

Female:-Length, 1.00 mm .
Orange yellow narked with black almost as in variegatum as figured by Masi but the pattern on the abdomen is different consisting of about five narrow cross-stripes, a more or less obscnre mesical blotch centrally and a short median dark stripe at apex. Also, the fore wings are obseurely iufnscated und bear a distinct snbstigmal spot which embraces the stigmal knob. Three narrow hlack stripes down the long pronotum; parapsidal furrows dark except at each end and the middle of the median line of scutum, scutellum and postscutellum is black; also cephalic margin of scutum (accented on each side of middle, triangularly); a mavy black line across propodeum, resembling a bat with the wings ont but not expanded. Scntnm wifh two grooved lines. Lags and futenux yellow; two ring-joints. (Head markings not seen.) Mandibles with six teeth, the sixth minute.

Malc:-Not known.
Described from one female captured by streeping in the forest, September 13, 1912. Later, a second female was found in a bottle labelled "Nelson, October, 1912. Sweoping in forest."

Habitat: Quingilli and Nelson, Queensland.
Type: No. Hy 1880, Qucensland Mnsenm, the first specimen on a slide.

## 5. ATOPOSOMA GROTIUSI new speeies.

Female:-Leugth, 1.10 mm .
Greenish or lemon yellow, the pronotum pale green, the head orange yellow, wonderfully marked with black metallic green in this manner: The parapsides, a broad stripe down meson and each side of the long pronotum, two spots in the upper part of the oeciput, a bullet-shaped spot at base of scutellum at the meson, a rounded spot at cephalic margin of each axilla nearly centrally, the scutum with a large acuminately conical marking whose broad base fills rost from side to side lut quickly recedes, all of propodeum and 6 or 7 narrow stripes across the abdomen (stripes 4 and 5 (close together; there is also a narrow mediau stripe); also a spot in centre of postsmathum, a broad stripe across neciput below the eyes and rarious stripes on the head (not definitely seen in this specimen). Legs pale yellow but the hind femur and tibia with two dusky bands. Antennæ dusky yellowish. The usual substigmal spot.

Male:-Not known.
Described from one female captured by sweeping in forest, ApriI 13, 1913.
Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1891, (ueensland Museum, the abore specimen on a slide (with the liead type of Sclitrichodelia acnca Girault).

## 6. ATOPOSOMA GREGI new species.

Female:-Tength, 1.45 mm .
Gremish rellow, the wings biffariate, one broaler stripe around apex, the other from the stigmal knoh. Narked with bright metallic green as follows:- Meson (conically) and etch margin of pronotmn, parapsides, an owal spot in centre of cephalice end of wach axilia, scutum across ecphalic margin, the madal margin of the green obligned eando-mesad to the meson, shortly and then conically, slenderly prolonged down whole of meson so that it is acute when candal margin is reachot, an clongate, conical sfot on scutellum down meson from base, all of propodeum exwent trabsversely just laterad of postscntellum and six erossstripes on the abdomen, the first fom stripes cach with a candal triangular projection from them on each side half way to margin, the Inojection increasing in size caudad. Head pattern not scen. Antemme dusky. Himd legs as in groliusi nearly, the hind tibia with a stripe below kuce and lefore 1 ip , Somewhat similar to grotiusi but less green on the scutum, the wings are bunded and so on. Tegula green.

## Male:-Not known.

Described from one female captured by sweeping in the forest, August 23, 1913 (A. P. Dodd). Dedicated to W. R. Greg.

Habitat: Nelson (Cairns), Quecnsland.
Type: No. Hy 1889, Queensland Museum, the above specimen on a slide.

## \%. ATOPOSOMA ARNOLDI new species.

Female:-Length, 1.35 mm .
Orange fellow, the abdomen with seven black cross-stripes including the one at base, stripes $3-6$ usually thickened centrally and confluent; fore wings with a small substigmal spot and infuscated slightly distad of the stigmal rein and caudad of a straight line drawn longitudinally through the knob of that vein. Little orer caudal half of median line of
scutum narrowly, proximal half of same of scutellnm similarly, thoracie sutures narrowly, median line of propodenm more broadly and the cephalic and caulal margins, a number of spots on the mesopleura and a dot on each side of pronotnm, black. Legs uniformly orange yellow, the antennw orauge. Head immaculate. Both funicle joints distinctly longer than wide. Abdomen with a very short petiole, nsnally concealed. Mandibles with at least five teeth.

Mate:-The same but the sentum and sentellnm immaculate, the seventh abdominal stripe obscure, the abdomen more depressed, less acute; the fore wings hyaline. Mandibles not seen.

Described from one male, six females captured on the flowers of Boeckea, April 22, 1913 (H. Hacker).

Habitat: Rrisbane, Queensland.
Type: No. Hy 1883, Queensland Museum, the above specimens on a slide.
The species is respectfully dedicated to Matthew Arnold.

## 8. ATOPOSOMA MAZZININI new species.

Female:--Length, 1.30 mm .
Very similar to saintpierrei but greenish yellow, the abdomen with seven stripes, the fore wings hyaline (excepting the stigmal spot which runs along the entire vein), the median stripe of thorax is continuous and complete (propodeum not seen) ; there is also a distinct ovate spot in the axilla. A short broad stripe across the cheeks from the eyes; a narrow stripe up the occiput on each side continuing over on to the vertex. Lateral stripes of the several thoracic regions complete. First funicle joint quadrate, the second wider than long, the scape margined along dorsal edge with black, the pedicel coloured dorsad, the antenne dusky. Otherwise with the markings so fur deseribed for samtpicrrei.

Male:-Not known.
Described from one female captured by sweeping undergrowth, mostly eucalypts, April 16, 1913 (H. Hacker).

Ilabitat: Brisbane, Qneensland.
Type: No. Hy 1881, Queensland Museum, the above specimen on a slide.
Dedicated to Giuseppe Mazzini.

## TABLE OF THE SPECIES OF ATOPOSOMA MASI.

## Australia. Females.

(Compiled from the types.)
The colours of the markings are metallic or submetallic.
Legs immacnlate.
Wings hyaline (excluding a more or less obscure substigmal spot).
Whole of median line and lateral margins of thorax black; meson of abdomen, five cross-stripes and margins to fourth stripe from base and aronnd apex, black.
lanei Giranlt.
Whole of median line and lateral margins of thorax not contimuously colonred bnt only those of pronotum narrowly and the middle of the median line of scutum, sentellum and postscutellum are black and the cephalic margin of scntum. A wavy stripe across propodenm.
mazzinini Girault.

Wings with a stigmal and apical cross-stripe and infuscated more or less longitudinally proximad of the stignal stripe.
Pronotum with median line and lateral margins narrowly black; also midales of median line of scutum, scutellum and postscutellum; also cephatic margin of scutum and five abdominal cross-stripes and a short apical median longitudinal stripe.
saintpierrei Girault.
The same but whole of median line of soutum is black and the abdomen bears six cross-stripes, the short apical median longitudinal stripe is absent.
channingi Girault.
Wings generally infuscated, without distinct stripes, the infuscation distad.
Orange yellow; seren cross-stripes on abdomen, candal half of median line of sentum narrowly, proximal half of same ot scotellum, thoracic sutnes, median line of propodem more broadly and the cephalic and caudal margins, spots on mesopleura and a dot on each sido of pronotum, blark. arnoldi Girault.
Wings with a distinct stigmal and apienl cross-land, otherwise hyaline.
Pronotnm, all of scutum excejt lateral margins, meson of scutellom broadly and conically nearly to tip, T-S narrow ahdomiual cross-stripes, propodeum and parapsides and tro spots on axilla, metallic green.
zolai Girault.
Legs with distinct bands, the fore wings with two more or less distinct rross-stripes.
Cross-stripes of fore wings obspure, the apieal one indicated centrally.
Greenish jellow, the pronotmm pale green; parapides, three stripes down pronotum, a spot at base of seutellum nessad, mother at cephalie margin of axilla, a large conical marking on scutum cephalad, abdominal stripes and propodeum metallic greenish; hind femmr and tibia with two dusky bands.
grotiusi Girault.
Stripes of fore wing distinct.
The same; meson of monotum conically and an clongate conical spot on scutellum at base bright metallic green; first four abdominal stripes with a caudal triangular projection from them on each side half way to margin; hind tibio with two bands.
gregi Girault.

## PSEUDELACHERTEUS new genus.

Fomale:-Antenme inserted somewhat below the middle of the face, $\mathrm{a}_{\mathrm{j}}$ jointed, two ringjoints, the club solid; scutellum with two grooved lines united aronnd the apical margin; parapsidal furrows complete, decp. Mandibles 5 - and 6 -dentate. Abdomen distinetly petiolate. Hind tibial spur normal. Pronotum as in the Furytomind. Propodeum with a long median enrina, lateral carime also present. Second abdominal segment oceurying half of the surface, the petiole short. Postmarginal and stigmal veins subequal, the marginal two and a half times longer than the stigmal.

Male:-Not known.
Type: The following species.

## 1. PSEUDELACHERTEUS NIGRITHORAX new speeies.

Female:-Length, 1.50 mm .
Shining Llack, the abdomen (except the black petiole) dull brown, also the legs and antenna but the scape lemon yellow. Wings hyaline. Pronotum and scutum finely reticulated,
the sentellum and propodeum subglabrous. Pedicel and first funicle joint subequal, tho four funicle joints more or less equal and subquadrate. Club half the length of the funicle.

Described from one female captured from a window, January 11, 1912.
Habitat: Innisfail, Queensland.
Type: No. $\Pi y$ 1885, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## 2. PSEUDELACHERTEUS SILVENSIS new species.

-Female:-Length, 1.50 mm .
Like the type species but the second abdominal segment is only a third the surface, the abdomen margined all around with black, the pedicel distinctly shorter than the first funicle joint, the flagelinm more or less dusky.

Male:-Not known.
Described from one female captured by sweeping the edge of jungle, May 17, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.
Type: No. Hy 1886, Queensland Museum, the above specinen on a tag, the head and hind legs on a slide.

## 3. PSEUDELACHERTEUS AURIPES new species.

Female:-Length, 1.40 mm .
Like silvensis but the scape usually concolorous with the rest of the antenna, while the body of the abdomen is reddish browu margined as in silvensis but darker and less distinctly margined. Scutellum and propodeum quite smooth. Ring-joints apparently absent but the proximal margin of first fuuicle joint plainly rimmed, apparing like a ring-joint.

Male:-The same but only the centre of the abdomen is yellowish centrally.
Described from one male, three females, captured by sweeping berbage, June 29, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.
Type: No. Hy 1887, Queensland Museum, one male, two females on a single tag and a slide bearing a femal.

## ENTEDONOMORPHA new genus.

Female:-Head rounded, the antenno inserted below the middle of the face on a level with the ventral ends of the eyes, the scape long and slender, the funicle 3-jointed, the club 4-jointed, two ring joints. Mandibles 4 -dentate. Scutellun with two foreate grooved lines. Abdomen petiolate, the petiole somewhat longer than wide. Hiud tibial spur small. Postmarginal and stigmal veins moderately long, subequal. Propodemm with a median carina which forks at apex; lateral carinæ complete, regularly curved. Spiracle minute, round. Pronotum subquadrate, nearly as long as the scutum. Abdomen conic-ovate, short.

Male:-Not known.
Type: The following species. See p. 270.

## 1. ENTEDONOMORPHA TENNYSONI new species.

Female:-Length, 1.00 mm .
Shining black, the wings hyalinc, the whole of the interior of abdomen dorsad and ventrad lemon yellow; legs pale yellow including coxæ (at least the hind and intormediate coxx, others not distinctly scen). Thorax coarsely reticulated, the lines not raised, the scntellum at apex and the propodeum glabrous. Scape white, the pedicel, riug-joints and first funicle joint pallid dusky, rest of antenna black; funicle joints subequal, cylindrical ovate. longer than the pedicel (the first somewhat longest) or than any of the club joints; club rather compact, the fourth joint like a large nipple but distinctly articulated and black, the three preceding oues more or less square. First ring-joint very short, the second collar-like. very distinct.

Described from one female captured September 3, 1913, by streeping in a jungle pocket (A. P. Dodd).

Mabitat: Nelson (Cairns), Queensland.
Type: No. IIy 1888, Queensland Mnseum, the above specimen on a tag, the head and hind legs on a slide.

Genus GYROLASELLA Girault.
The following additional species:

## 1. GYROLASELLA PULCERA now species.*

Female:-Length, 2 mm . Robust.
Honey yellow, the wings hyaline; the mandibles only tridentate; scutellum with an obscure second grooved line, nearly as in Tetrastichus, bnt very far laterad and thus not easily visible (most probably imaginary); vertex not at all elevated; antennæ more sleuder than with Aloposoma; antenne inserted in the middle of the face like those of Atoposoma. Like channingi but most of the green is lacking on the parapsides and the coxe are all yellow except for a spot on hind coxa laterally; femur above near base with a short green line; seape bordered with green along each upper side, the pedicel green above; no spot on postscutellum, the marking of scutum conicrlly pointed distad, that of sentellum narrow, cylindrical; each ocellus in a green spot and at the front corner of rertex near the eye is a caret-shaped green mark; head otherwise not marked except on oceiput. Sculpture fine sealy reticuiatict.

Mate:-Not known.
Described from six females reared from a gall on the foliage of Eucalyptus in forest, September 18, 1912.

Habitat: Nelson (Cairns), Queensland.
Types: No. IIy 1889, Queensland Museum, three of the above on a tag.

## 2. GYROLASELLA ELEGANTISSIMA new species

Female:-Length, 1.60 mm .
Bright lemon yellow, the wings hyaline; marked with brilliant metallic grass green as follows:-A round spot in centre of pronotum, a short slender spot in caudo-lateral angle of

[^65]same, cephalic sixtlo of scutum, inner margins of parapsides, centre of axila from middle to ceplialic aber, centre of scutellun conically between the grooves to distal sixth, a round dot at base of postscutellum at meson and a triangular one at apex ot scutum at ineson, propodeum (forming a U from dersil aspect) and three short father broad transverse marks across meson of abdomen (excluding at base centrally a more or less rounded, submetallic area) between base and apex. Valves of oripositor black. Legs concolorous. Antennæ yellowish, the scafic crossed by : metallic stripe from middle ot dorsal margin; also the pedicel above at base metallic; the first funicle joint subequal to pedicel, the second slightly looger than mide. Scutellum with two groores. Mandibles with six teeth. Hind tibial spur slender.

Male:-Not known.
Described from one female captured in forest, August 28, 1913.
Habitat: Nelson, Queensland.
Type: No. II 1890, Qucensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## 3. GYROLASELLA CHANNINGI new speeies

Female:-Length, 1.50 mm .
Like Atoposoma zolai but the wings perfectly hyaline, no substigmal spot, the yellow latera! margins of the scutum narrow and the facial markings differ, also somewhat the arraugement of the abdominal stripes; the axilla bears only one large dark green spot, huug from the cephalo-nesal margin. The area on the scutellum is subquadrate and fills nearly the whole space in between the lateral grooves. Inner three or four teeth of mandibles very weak and minuta. Hind coxo metallic green, the others the stme at proximal half; hind femur blackish, the first fomm lroady margined rentrad with metallic green.

Male: -Traknown.
Described from one female captured by sweeping on the forest-downs, July 14, 1912.
Respectfully dedicated to William E. Channing for his Discourses on War.
IIubitat: Hughenden, Queensland.
Type: No. Hy 1891, Queensland Musenm, the above specimen on a slide.

## 4. GYROLASELLA QUADRIFASCIATA new speeies.

Female:-Length, 1.25 mm .
Dull honey yellow, the legs concolorons, the wings wholly hyaline, the abdomen with four narrow cross-stripes of black across the portion between each end, the third and fourth stripes curred cephalad at the meson. Propodemm with a distinct median carina. Otherwise agreeing generically. Thorax scaly. Mandibles with six teeth. First funicle joint longer than the pedicel, the second quadrate. Scutellum with two grooves.

Male:-Not known.
Described from one female captured by sweeping in the forest, April 13, 1912.
Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1802, Queensland Museum, the above specimen on a tag, the head on a slide.

## 5. GYROLASELLA WORCESTERI new species.

Female:-Length, 0.90 mm., excludiug ovipositor which projects beyond tip of abdomen for orer lialf the latter's length.

Like Atoposomoidclla channingi Girault but much less lobust and the legs are all pallid; also the large area on the scutmm is conical, its acute apex just reaching the distal margiu and the metallic green centre of tho seutellum is rectangular, slightly narrowing distad, extending from hase not quite to alpex and not retching from side to side to the two grooves; the parapsides are only narrowly green aloug the caudal half or more of the mesal margin; propodeun with two stripes across it. Wings hyaline. (l'ronotum not scen well but al! green.) Tlead dnsky, vertex orange yellow. Mandibles 5-dentate. Pedicel distinctly longer than any joint of the funicle or club.

Male:-Not known.
Described from a single female captured by sweeping along the banks of Cape River in forest, Jaunary 6, 1913.

Habitat: Caperille (Pentland), Queensland.
Type: No. II y 1893, Queensland Museum, the above specimen on a slide.
This species was at first mistaken for an Atoposoma, but the submarginal vein is more brokeu than usual with that genus and the pronotum is short.

## ELACIIERTETRASTICHUS new gemus.

Female:- With the build of Trerastichotes margiscutum Girault, that is short and compact, the abdomen almost round from lateral aspect, no longer than the thorax. Sentellum without grooves. With the habitus and structure of Tefrashichus except as noted, yet the submarginal vein with only a slight break, not broken in the usnal way and plainly different; postmarginal vein harely doveloped, the marginal plainly shorter than the submarginul. Head normal, the mandibles tridentate, the antennæ short and stout, inserted somewhat below the middle, 11-jointed, the funicle 2-, the club 3-joiuted as in Gyrolasella, but there are four distinct ring-joints. Propodeum very short, the median carina rery weak or absent. Seutum simple, the parapsidal furrows very deep.

Male:- (See beyond.)
Type: The following species.

## 1. ELACHERTETRASTICHUS PURPUREUS new species.

Female:-Length, 1.65 mm .
Dark metallic purple with bluish tinges, the mings hyaline, the knees, tibio and tarsi white, the distal tarsal joint dusky black; antenna dusky black, the club paler, the scape white beneath, the two funicle joints short, equal, somewhat wider than long; no nipple on club; pedicel a little longer than either funicle joiut; club somewhat enlarged. Mesopleurum bluish. Thorax finely, densely scaly. Hind tibia with a small dusky spot some distance below knee.

Described from one female reared from a gall on the foliage of Eucalyptus in forest, September 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1891, Quecnsland Mruseum, the above specimen on a tag, the head and hind legs on a slide.
(What seemer to be a male of this species was captured August 22, 1912, by sweeping in forest at Nelson; the tibix were all concolorous, the renation noticeably darker, the antennæ rery thickly hispid bnt otherwise the same.)

## 2. ELACHERTETRASTICHUS AENEIPES new species.

Female:-Length, 1.7 is mm .
Like purmureus but dark aenous green, the legs concolorons except kinecs, tips of tibix, a!l of cephatic tibion and three basal tarsal joints, the mandibles are only bidentate and the first funicle jeint not half the length of the second which is slightly wider than long. Scape enneolorous. l'edicel longer than secoud funicle joint.

Mate:-Not kuown.
Described from one female captured August 30, 1913, by sweeping in forest.
Habitat: Nelson (Cairns), Queensland.
Type: No. \#y 1895, Queensland Museum, the above specimen on a tag, the head and a hiud leg on a slide.

## Cirrospilomella new genus.

Female:-Like Cirrospilomyia Girault, but wholly nonnetallic, the mandibles with about six teetl, the five inner ones small, the pedicel shorter than the first funicle joint; propodeum with interlacing carina. Abdomen with a very short petiole, depressed, conic-ovate. Scutellum with a nedian impressed line (not a groove).

Male:-Not known.
Type: The following species.

## 1. CIRROSPILOMELLA FASCIATUS new speeies.

Female:-Length, 1.45 mm .
Deep orange yellow, the tip of the oripositor valves and fire stripes across abdomen black, none of the stripes especially near base or tip, the last two with each arm obliqued cephalo-mesad to the neeson; oripositor exserted slightly. Fore wings unitormly stained. Thorax punetate. Legs lemon yellow. P'ostmarginal vein subequal to the stigual. Autennæ brown-black, the seape yellow, the second funicle joint a little shorter than the perlicel.

Described from one female captured by sweeping in a jungle pocket, July 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. IFy 1896, Queensland Anseum, the abore specimen on a tag, the head and hind legs on a slide.

## EULOPHOSCOTOLINX new genus.*

Female:-Head normal, the antenne inserted somewhat below the middle of the face, 9-jointed, with one ring.joint, four funicle and two clnb joints, the second club joint terminating in a nipple. Parapsidal furrows deep, the scutellum with two grooved lines. Abdomen sessile,

[^66]conic-ovate, somewhat longer than the head and thorax combined. Propodeum short, with a median carina which meets a scmicircular carina at apex; also several obscure carinate folds mesad of the spiracle but no true lateral carina. Tenation resembling that of Totrastichus, the postmarginal rein barely developed but the submarginal rein is only about half broken. Hind tibial spurs single. Mandibles treakly bi- or trideutate. Type re-examined.

Male:-Not known.
Type: The following species.

## 1. EULOPHOSCOTOLINX VIRIDIS new speeies.

Female:-Length, 2.00 mm .
Grass green, metallic, the wings hyaline, the legs deep lemon yellow (excluding most of all coxa) ; tegula yellow; antenna brown, the scape pallid yellow. Head and thorax finely densely scaly, includiug the propodeum. First funicle joint longest, longer than the first club joint, about i half longer than wide, the fourth shortest, a little longer than wide, but longer than the short pedicel.

Described from one female captured by sweeping grasses and weeds along a roadside, Narch 4, 1913.

Habitat: Halifax (Ingham district), Queensland.
Type: No. Hy 189\%, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## EURYSCOTOLINA new genus.

Female:-Non-metallic: head triangular (ceplalic aspect), the antennæ inserted near the middle, 10 -jointed with two ring-joints, the clul, 2 -jointed and with a short uipple. Parapsidal furrows complete, distinct, the prouotum large, the seutellum with two grooves, the propodeum with the mesial portion elevated and with an $X$-shaped median carina and short neck; abdomen with a distinct but short petiole, the second segment longest, occupying about a fourth or more of the surface. Postmarginal rein lengthened, twice longer than the stigmal. Mandibles about 5 -dentate. Grooves of scutellum joined around the apex.

Male:-Not knotrn.
Type: The following species.

## 1. EURYSCOTOLINX GUTTATIVERTEX new species.

Female:-Length, 1.45 mm .
Orange yellow, the centre of the tertex with a large, romnd black spot and a little over proximal half of abdomen margined with fuscous and centrally, opposite the ends of the marginal stripe, a rather large dusky black spot; also the tip is black. Wings hyaline. Legs and scape concolorons, the pedicel dusky, rest of antennw black. Thorax with a scaly sculpture. Distal two funcle joints longest, the first slightly longer than the pedicel, the club divided slightly beyond the middle, its first joint shorter than funicle 4.

Described from one fomale captured August 14, 1913, by swceping grass along a forest streamlet (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. My 1898, Queensland Museum, the above specimen on a tag, the head and last two pairs of legs on a slide.

## PSEUDTGLYPHOATYIA new genus.

Female:-Like Pscudiglyphucla Girault but nonmetallic, the abdomen with a short stout petiole, the propodeum usually rugulose (no distinct carina), the sceond abdominal segment covering a third of the surface, the others much shorter than it; mandibles with about five teeth. Pronotum conical. Postmarginal rein a little longer than the stigmal, neither long.

Male:-Not knomn.
Type: The following species.

## 1. PSEUDIGLYPHOMYIA BIGUTIATA ew species.

Female:-Lengtlı, 1.80 mm .
Orange or reddish yellow, the wings hyaline, the legs whitish; propodeum, tip of abdomen, a broad stripe across a little distad of middle, two subquadrate spots just out from base of abdomen from each lateral margin, cephalic fourth or more of scutm and a dot on cach axilla at cephalic margin laterad, black. Antenno dusky, the scape and pedicel dusky, the pedicol black above, the first funicle joint longer than the second which is longer than the pedicel. Thorax reticulately scaly. Caudal half of pronotum lemon yellow.

Described from one female captured by sweeping jungle growths along a forest streamlet, August 1, 1913.

Habitat: Nelson (Cairns), Queensland.
Type: No. Try 1890, Queensland Muscum, the above specimen on a tag, the head and hind legs on a slide.

## 2. PSEUDIGLYPHOMYIA FUSCA new species.

Female:-Length, 1.35 mm .
Like biguttata lont with no markings other than about seven narrow, obscurely dusky stripes across abdomen from base to tip, the distal half of pronotum paler; tegule fuscous. A more or less distinct median carina on propodeum. Mandibles with six (?) teeth. Otherwise the same.

Male:-Not known.
Described from one female captured by swecping lantana and other growths in an open field near town, October 20, 1911.

Habitat: Mackay, Queensland.
Type: No. Hy 1900, Queensland Museum, the abore specimen on a tag, the head and hind legs on a slide.

## 3. PSEUDIGLYPHOMYIA CARINATUS new speeies.

Female:-Length, 1.15 mm .
Pale lemon yellow, the wings hyaline, the abdomen beyond the second segment crossed by a half dozen or more black stripes (or the appearance of such stripes), all close together and nearly fused (practically so in death, making somewhat over distal half of abdomen black). Propodeum black, densely punctate and with a distinct median carina and no othors. Abdomen with a short petiole, just out from base with a short longitudinal fuscous mark near each
margin. Parapsidal furrows aud divisions between pronotum and mesonotum black. Thorax scaly. Mandibles 6 -dentate. Funicle joints stout, both longer than wide, the first somerwhat longer, both much longer thau the pedicel.

Male:-Not known.
Described from one female captured by streeping in forest, August 26, 1913.
Mabilat: Nelson (Cairns), Queensland.
Type: No. Hy 1901, Qucensland Museum, the above specimen on a tag, the head and a hind tibia on a slide.

## 4. PSEUDIGLYPHOMYIA RUSTICUS new speeies.

Female:-Length, 1.30 mul.
Lemon yellow, the wings hyaline, the legs white; propodeum, an exclamation-point-like (inverted) marking from base of scutellum (reaching to distal third), suture betweeu pro- and mesonotum, parapsidal furrows, centre of occiput (transversely), face of pronotnm, suture betreeu sentum and scutellum and alout four to five stripes across distal two thirds of the abdomen (more or less fused in death), hack; also a dot at cephalic margin of each axilla. Propodeum glathons or nearly, with a median carina; thorax reticulated into seale-like areas. Antenat yellow, the terminal spine of the antenna forked, one of the hranches less stout and shorter than the others. Joint 1 of funicle slightly longer than wide, joint 2 wider than long, also the three club joints; predicel somemhat shorter than the first funicle joint.

Malc:-Not known.
Described from one female captured September 6, 1913, by sweeping in forest.
Mabitat: Nelson (Cairns), Qucensland.
Type: No. IIy 1902, Qucensland Musenm, the above specimen ou a tag, a hind leg and the head on a slide.

## Genus SECODELLA Girault.

Like Secodes Girault but the anteunat with two ring-joints, hence 11 -jointed, the third club joint terminating in a seta; propodeum with a short median carina. (From the Omphalini.) Submarginal vein long, entire.

1. SECODELLA LINEATA Girault. Female. Genotype. (Type re-examined.)

Dark metallic green, the ample mings lyaline; antenma and legs black, the proximal three joints of tarsi suow white. Second funicle joint longest, a fiftll louger than wide, the first and fourth more or less subequal, subquadrate; distal club joint a little shorter than the other two.

Habitat: Mackay and Seymour, Queensland.
Type: No. Hy 1903, Queensland Museum.
2. SECODELLA PULCHRA new species.

Female:-Length, 2.60 mm .
Like lincata but longer, more rohust, the abdomen compressed and longer, nearly twice longer than the head and thoras combined. Joint 2 of the funicle is plainly much longer than
wide, ahout twice longer than wide, joint 4 plainly longer than wide, much longer than the pedicel. Distal club joint plainly shorter than the other two takeu separately. Funicle 2 a third longer than funicle joint 3 .

Habitat: Little Mulgrave River (Cairns), Queensland. Jungle.
Type: No. IIy 190f, Queensland Museum.

## 3. SECODELLA RUFISCAPIS new species.

Female:-Length, 2.25 mm .
Like lineata but the scape reddish brown, the general coloration dark metallic bluc; thorax (excluding propodeum) finely reticulately punctate as with lineata. Joints 1 and 2 of funicle subequal, each a third longer than wide.

Male:-Nut known.
Described from two females captured March 29 and April 22, 1913, among grass and herbage and on the flowers of Bockea respectively (1I. Hacker).

Habitat: Brisbane, Queensland.
Type: No. Hy 1905, Queensland Museum, the above specimens on a tag, the heads on a slide.

Later, two females were found, each captured with one of the others (on two slidesnot types).

## 4. SECODELLA PETULANS new species.

Female:-Length, 1.00 mm .
Like lineata but the funicle joints all quadrate and equal, the sculpture (reticulate punctation) of the scutum not coarser than that of the scutellum. The body is much less robust, the ovipositor less prominent. Hind tibial spur single.

Male:-Not known.
Described from one female captured by sweeping forest along the banks of Cape River, January 9, 1913.

Habitat: Capeville (Pentland), Queensland.
Type: No. Hy 1906, Queensland Museum, the above specimen on a tag (miuns abdomen), the head and a hind leg on a slide with the type appendages of Gyrotasomyia washingtoni.

## Genus Mestocharella Girault.

Differing from Mestocharis in laving four funicle joints and the scutellum with tro grooved lines; propodeum with a median carina and a number of irregular carine. Pronotum long; stigmal vein very short; segments ? and 3 of abdomen occupying half of the surface.

1. MESTOCHARELLA FERALIS Girault. Female. Genotype.

Shining black. The renter of abdomen and a large orate area in centre of its dorsum yellow; legs hrownish yellow exccpt coxæ; wings hyaline; antenno brownish yellow, the distal three joints blackish. First funicle joint longest of the funicle. Thorax scaly. Length, 1.20 mm . Funicle 4 ovate, longer than either of the club joints.

Halitat: Nelson (Cairns), Queensland.
Type: No. ITy 190\%, Queensland Museum.

The genus and species transferred from the Fintedonini, the type re-examined because yellow was moticed to be present ou the body. The propodeum is rugulose but a median carina shows for its entire length. Submarginal vein slightly broken, shorter that the marginal and as the stigmal rein is very short, the reuation is very similar to that of the tribe from Which, on the grounds of composite characters, this genus is removed. Petiole of aldomen a little longer than wide. Hind tibial spur short, maudibles tridentate. One ring-joint, the cluk 2-jointed.

## Genus Entwdonomorpha Girault.

Female:-With the form of the Entedonini but with yellow coloration on the abdomen, the submarginal rein not broken, long but somewhat shorter thau the long marginal, the stigmal long and slender hat shorter than the long postmarginal. Antenno l1-jointed, two ring, three funcle and four distinct (hub joints, the romical distal joint with a short, stout, curved spine from the side of its :mex. Soutclum with two foveate grooves, the propodeum t:irarinate Abdomen depressed, orate, with a distinct, quadrate petiole, the secoud segment crupring somewhat orer half the surface. Hind tibial spur slender. Metallic green. Mandibles 4-dentate. Antenum insarted below the middle of the face.

Male:-Not known.

## 1. ENTEDONOMORPHA RENANI new species.

Female:-Length, 1.35 mm .
Dark shining metallic green, the wings hyaline, the thorax reticulately scaly, the lines not raised; fropodeum moth snoother. Legs, seape, pedicel, ring-joints and ahdomen yellor, the latter margined all aromm with dark grecush. Antoune lilak-green, the first three club joints sukquadrate, the three fnnicle joints subpetiolate, eylindrical, 1 longest, 2 and 3 subequal, a fourth shorter than 1 , a little longer than the pedicel.

Described from one female captured in the jungle September, 1913 (A. P. Dodd). Dedicated to Ernest Renan.

Habitat: Kuranda, Queensland.
Type: No. $\Pi$ y 1908, Queensland Museum, the above specimen on a slide.

## GENUS CLUTHAIRA Cameron.

Eyes pilose. occupying thee fouths of the cheeks; sontellum without two dorsal groores; propodeum with median and lateral sulei. Abdomen distinetly jetiolate, the second segment occupying as much space as the others united. Intermediate tibial spurs two thirds, the hind spurs half, the length of the metatarsus. Marginal vein more than twice the length of the submarginal, the postmarginal and stigmal veins short. Club 3 -jointed? Abdomen mpturned. Head triangular.

1. CLUTHAIRA AGARIST> Cameron. Female. Genotype.

Cameron, 1912. 1. 212.
Dark blue, segment 2 of abdomen bright blue, also hind femora; legs concolorous; knees and tips of tibias more or less testaceous; tarsi white except last joint. Wings hyaline. Smooth, shining, mesonotum transyersely striated. Length, 2 mm .

Habitat: Sydney, Now South Wales. Associated with Agarista glycine.
Type: Qnery.

This poorly described genus, I think, belongs to the Entedonini-abdomen petiolate, its second segment lengthened, marginal rein rery long, postmarginal and stigmal reins short, metallic blue color, the upturned abdomen. It will be difficult to recognise without seeing the type.

## SPECIES UNKNOWN.

Coelocyba viridilineala Froggatt, 1907, p. 79, fig. 48.
Described in an agrientural journal as a merisine pteromalid, figured with 4 -jointed tarsi and in form resembling the Elachertini.

Cirrospilus species of Walker-de Dalla Torre, 1898.

## DIAGNOSIS OF THE ELACHERTINE EULOPHIDE. Jigmajes. Australla.

The tribe is claracterised ly bearing bat a single normal spmr on the candal tibix. 1. Seutelhm with two dorsal groored lines.
(1) Antenne with the funicle 2 -jointed.

Clnb 3-jointed; one (?) ring joint.
Head much longer than wide and very thin; flagellum subcompressed, the ringjoint usually hidden. apparently present; hody variegated, the wings banded or with a substigmal fascia or a pattern.
Zagrammosoma Ashmead (Trpe: Hippocephalus multitineata Ashmead). Club 3-jointed; two ring-joints.

Propodeum rery short, more or less lidden at the meson by the postscutellum. Eody variegater.
Vertex elevated; pronotum long triangular.
Postmarginal vein shorter than the stigmal; flagellum subcompressed. Fore wings usually with a sulstigmal spot, often with fascio.

Atoposoma Masi (Type: A. variegalum Masi).
Vertex not elevated; monotum transverse.
Wings usually lyaline.
Gyrolasella Giranlt (Type: G. fasciatus Giranlt).
Propodeun long, easily visible at the meson.
Body all metallic or all hlack the abdomen sessile; propodeum with a distinct median carlma (single or paired).
Propodeun tricarinate, the median carima liroad, solid; second abdominai segment oceupying nearly half of the surface, seutellum with nu transverse suture kefore apex; funicle joints petiolate.

Ascotolinx Girault (Type: A. funeralis Giranlt).
Propodeum bicarinate, short, with an obscure paired median carina at the mesou; antenua short, capitate; second abdominal segment occupying less than a fourth of the surface; scutellum without a cross-suture lefore apex; funicle joints not petiolate.*

Pseudiglyphella Gurault (Type: P, coelestis Girault).
Body nonmetallic, yellowish; propodeum usually rugulose, the abdomen shortly petiolate.
Pronotum conical; second abdominal segment ocenpying about a third of the surface; postmarginal vein a little longer than the stigmal.

Pseudiglyphomyia Girault (Type: P. biguttata Giranlt).

[^67]Club f-jointed; two ring joints.
Eody monmetallic; mandibles about fi-dentate; propodeum with interlacing carino, the abdomen with a short petiole, depressed, conic-ovate.

Cirrospilomella Gitault (Type: C. fasciatus Girault).
(2) Antenna: with the finicle 3 -jointed, the club 4 -jointerl; two ring-joints.

Metallic; abdomen petiolate; propodem tricarinate; segment 2 of abdomen occupying half of the surface. EntedonomorphaGirault (Type: E. temysoni Girault).
(3) Antennæ with the funicle $t$-jointed.

Club solid; two ring-joints.
Grooves of scutellim united around the apex; pronotum large, as in the Eurytomida, cephalo-rentrat conically produced; propodenm tricarinate; second abdominal segment occupying from a third to a half of the surface; mandibles 5- and 6-deutate; aldomen distinctly, shortly petiolate; the habitus of Euplectrus; body black.

Pseudelacherteus Girault (Type: P. nigrithorax (tirault).
Club 2-jointed.
Antenwo 9 -jointed with one ring-joint; abdomen sessile, conic-orate; propodeum short, with a median carina which meets a semicirnlar carina at apex; no trme lateral carina; mandibles weakly bi- or tridentate; postmarginal rein barely developed. Metallic.

Eulophoscotolinx Girault (Type: E. viridis Giranlt).*
The same but nonmetallic, the abdomen distinctly petiolate, the stigmal rein very short, the pronotum long, segurnts 2 and 3 of the abdomen long, together occupying half of the surface.

Mestocharella Giranlt (Type: M. feralis Girault).
Antenna 10-jointed with two ring-joints; propodeum with the mesal portion elevated and with an X -shaped median carina and short neek; abdomen with a distinct but short petiole; postmarginal vein lengtheued, twice the length of the stignal. Mandibles about 5-dentate. Nommetallic.

Euryscotolinx Giranlt (Type: E. guttativertex Girault).
2. Scutellum without dorsal grooved lines.
(1) Antenure with the funicle 2 -jointed.

Antenne 9 jointed mith two ring-joints, the club 3 -jointed, the third joint terminating in a long spur ; ablomen with a short stout petiole; propodeum rugose; mandibles 4 -dentate. Submetallic.

Cirrospiloidelleus Girault (Type: C. bicolor Girault).
Antenne 10-jointed with two ring-joints, the clnb 4 -jointed, the fonrth joint minute and conic, not with a surp; ahdomen large, ovate, sessile; propodeum without a median carina; mandibles $3 \cdot d e n t a t e$. Metallic.

Cirrospilomyia (iranlt (Type: C. matmicentris Girault).
Antenne 11 -jointed with fon ring-joints, the eluh 3 -jointed, the flagellum short and stout; body short and complact, the abdomen almost round from lateral aspect; parapsidal furrows rery deep; pustmarginal rein karely developed; mandibles tridentate; propodeum rery short, with a weak median carina or without carinæ.

Elachertetrastichus Giranlt (Type: E. murpurcus Girault).

[^68](2) Antenne with the funicle 4 -jointed, the club 3 -jointed; two ring-joints.

Fore wings with the discal ciliation arranged in nore or less regnlar lines; postmarginal vein longer than the stigmal; propoleum short but with a median carina; abdomen sessile, long, conical, pointed ovate. Mandibles tridentate.

Secodella Girault (Type: S. lineata Girault).
(Compare Cluthaira Cameron.)

## Tribe Fuplectrini.

Characterised by bearing two unequal, elongate spurs on the hind tibio.
Genus Euplectrus Westwood.
The Australian forms described by me have a 2 -jointed club, the funicle 4 -jointed, the scutellum with no groores. The antenno 9 -jointed. Mandibles absent?

## 1. EUPLECTRUS AUSTRALIENSIS Ashmead. Female.

Ashmead, 1900, 1. 347.
Black, antennæ light brownish; abdomen except extreme tip above and the legs except the black hind coxo, peach yellow. Pronotum menther coarsely, confluently punctate, mesonotum with sparse, moderately large punctures cephalad but smooth caudad; scutellum feebly shagreened.

Habitat: Australia.
Type: Cat. No. 4901, United States National Musenm, Washington, D.C., U.S.A.
2. EUPLECTRUS AGARISTR Crawford. Female.
(Crawford, 1911, p. 281. Caneron, 1912, p. 212.)
Black, the ahdomen largely reddish-testaccous; clypeal region whitish, all of legs reddishtestaceous; funicle 1 distinctly longer than the perlicel, the following joints shortening; joint 4 about equal to pedicel in lengtl. Seutum with a median longitudinal carina and rather finely rugose, the rugat more or less transverse, the paransidul area more finely sculptured than the median lobe; axillæ much more finely striate; schtellum finely indistmetly lineolately reticulated, the lines more or less longitudinal; wings slightly yellowish; proximal joint of hind coxæ slightly longer than second; abdomen margined all around with dark brown.

Habitat: Sydney, New South Wales. Larre of Agarista glycinc.
Type: Cat. No. 13.979. Uniter States National Museum, Washington, D.C., U.S.A.
According to Cameron (1.c.), the larro of this species feed exteriorly on the larro of its host, forming their cocoons in company, "enveloping them in a mass of dark greyish, coarse, woolly hair, on the remains of the devoured caterpillars." Thus, the Australian members of the genus have the usual larval habits of its extra-Australian species. Cameron in the same place supposes this species to be common and variable, the median carina of scutum present or absent.

## 3. EUPLECTRUS XANTHOCEPHALUS Girault. Female.

Like australiensis Aslmead but the head and hind coxa also honey yellow; petiote of abdomen black; a broal brownish stripe across the abdomen distad of middle followed by a narrow stripe, the two joined along the midde; scrobes blackish. Wings slightly stained
under venation. Thorax seulptured nearly as in species of Tetrasichus but the seutum densely scaly except at rephalic third. Abdomen margined with brown. Antenna 10 -jointed, one ring-joint and a 3 -jointed club, the third joint of the latter very minute like a nipple yet apparently :nticulated. Funicle joints subequai, each slightly longer than the pedicel. Eropodeum with a long median carina, apluently smooth. Longest hind tibial spur not quite half the length of the hind tarsus.

Habitat: Nelson (Cairns), Queenslund. Forest.
Type: No. Ify 1.909, Queensland Museum.
4. EUPLECTRUS CAIRNSENSIS Girault. Female.

The same as in xanthocephalus but the head is black, the wings hyuline; longest spur of hind tibia over half the length of the hind tarsus. Joints 1 and 4 of funicle a little longer than either of joints 2 or 3 . Dedian carina of propoderm straight, single.

Habitat: Cairus and Nelson, Queensland and Thurstay Island, Torres Strait. Jungle and forest.

Type: No. My 1.11C, Queensland Museum.
What appears to be a male of this species was captured by streeping in forest, March 12, 1912, on Thursday Island.

## 5. EUPLECTRUS MELANOCEPHALUS Girault. Female.

Differing from cairnsensis in haring the third coxa black; like australiensis but the sides of the abdomen dorsad margined with purplish black while the whole distal third of that region is the same colour; promotum not punctate, feebly alutaceous, the vertex nearly smooth; sculpture otherwise as in xanthocephalus; antenna blackislı torrard tip.

Habilat: Nelson (Caims), Queensland. Jungle.
Type: No. Hy 1.911, Queensland Museun.

## 6. EUPLECTRUS NIGRIFEMUR Girault. Female.

Differing from melanocephalus in having the cephalie coxa black, the legs brown, the hind femur black, the first femur hackish around the middle. Flagellum pale dusky yellow; distad somewhat less than thind of abdomen blackish above. Median carina of propodeum forked at proximal fourth as in the others but the fork longer. Seutellum and seutum rugose, the axillo nearly smooth, the parapsides alutaceous, the pronotum along cephalic margin with a cross-row of deep forea. Ilead nearly smootl. Seutellum with two foreate grooves.

ITobitat: Nelson (Cairns), Pueensland. Jungle.
Type: No. Hy 1912, Queensland Musemm.

## 7. EUPLECTRUS SCOTTI new species.

Female:-Length, 3.20 mm .
Like cairnscnsis but the scutellum is longitudinally wrinkled and the seutum with a distinct median cariua. Like agaiisire 1 ut all legs, alidomen and antenne pale lemon yellow, funicle 4 distinetly longer (by a fourti) than the pedicel, funimle 1 alout one and a half times the length of the pedicel. Long stwiation of scntellum aistinct: haripsides sculptured like the
scutum. Pronotum rery finely reticulated like the cephalic part of scutum. Vertex smooth. Clypeal area and tegula lemon yellow. Abdomen margined with blackish along sides for proximal three fourths, the margining black then crossing the dorsum. Wings yellowish. Axillio glabrous.

One female ly sweeping along a road near the Herluert River, Febrary $28,1913$.
Habitat: Halifax (Ingham), Queensland. Jungle.
Type: No. Uy 1213, Queensland Musemm.
Dedicated with respect to Mr. Nlarlan Scott, an American negro.

## 8. EUPLECTRUS KURANDAENSIS Girault. Female.

Like melanocrphalus but the scutum with a median carina; the axillæ smooth mesad.
Mabilat: Kuranda, Queensland. Jungle.
Type: No. Hy 1014, Queensland Maseum, the above spocimen on a tag.

## TABLE TO THE AUSTRALIAN SPECIES OF EUPIECTRUS WESTVOOD.

The specjes seeu by me do not have the axilla adranced and the submarginal vein is partly broken.

The types of the species described by me have been re-examined in making up the table. Black species.

Head yellow:
All of each leg and the abrtomen yellow, the latter margined with brown and with a brownish stripe distad of middle followed by a narrow stripe; wings slightly stained under venation; funicle joints subequal, each slightly longer than the pedicel. Longest hind tibial spur not quite half the length of the lind tarsus. xanthocephalus Giravit.
Head black or nearly all so.
Hind coxa black.
Femora yellow or mostly so.
Aldomen not margined with black.
Pronotum rather coarsely, confluently punctate; abdomen black at extreme $\mathrm{i}_{\mathrm{L}}$; mesonotum with sparse moderately large punctures cephalad, smooth candad. australiensis Ashmead.
Abdomen margined all around with black; sentellum fincly reticulated, finer than cephalic part of sentum.
Distal third of ubdomen black; pronotum fechly alutaceons; scutum densely scaly except at cephalic third. Scutum without a median carina. Axillw finely reticulated. Wings clear.
melanocephalus Girault.
The same; scutum with a median carina; mesal half of axilla smooth. Wiugs stained.

Kurandaensis Girault.
Hind femur black.
Cephalic coxa black; scutellum and scutum rugose, the parapsides alutaceous, the pronotum with deep forew across eeplalic margin. Wings clear. nigrifemur Girault.*

[^69]Hind coxa yellow.
Scutum with a distinct median carina.
Abdomen margined all around with brownish; funicle 4 subequal to pedicel; parapsiles more finely seulptured than scritum. agaristoe Crawford.
Abdomen margined along proximal three fourths with brownish, then with a cross-stripe; funcle 4 a fourth longer than the pedicel; parapsides sculptured like the scutum. Scutellum finely longitudinally lined. Axille glabrous or nearls
scotii Girault.
Scatum without a median carina.
Abdomen marked as in xanthocephatus; joints 1 and 4 of funicle subequal, longest. Longest tibial spur of hind legs over half the length of the hind tarsus. Scutelhum and axille finely polygonally reticulated.
cairnsensis Girault.

## Genus EUPLECTROMORPHA Girault.

Like Eruplectrus lut the abdomen less depressed, the ovipositor longer, the submarginal vein is not broken and the antennal club is solid. Type re-examined and mistakes in original description comecterl. Antemar 9 -jointed with two ring-joints, the first very short. Scutellim with a lateral groove as in many elacherline genera. The scutellum has not a cross-furow in the sense in which usually understood lout in the type species the candal margin is indented. Wings as in Euplectrus. Propodeum with a median carina. The species are more inclined to yellow than to black.

## 1. EUPLECTROMORPHA UNIFASCIATA Girault. Female. Genotype.

Bright orange yellow, the wings subhyaline, the legs, scape and head paler, also the abdomen which bas a rather broad black stripe across it somewhat distad of the middle. Funicle 1 somewhat longer than wide, longer than the pedicel, the other large, subquadrate. Club solid. Head and thorax rery finely reticulated.

Ilabitat: Babinda, Queenslant. Jungle.
Type: No. IIy 1915, Quemsland Museum.

## 2. EUPLECTROMORPHA MALANDAENSIS new species.

Female:-Length, 2.95 mm .
Head, scutellum, caudal margin of pronotum and scutum except cephalad, deep orange yellow, also all of the legs and abdomen (except margins all around). Otherwise black. Therax with a fine dense scaly sculpture, the popodem somewhat finer, its median carina thickened at base. Scutum with setigerons punctures. Anteone and distal half of scutellum lemon yellow, Wings slightly yellowish. Occiput black. Candal margin of scutellum not indented. Type re-examined.

From one female captured ly sweeping in virgin jungle, December 31, 1911.
Hatilat: Malanda, Quectsland. Jungle.
Type: No. IIy 1916, Queensland Minsemm.

## 3. EUPLECTROMORPHA FLAVA new species.

## Female:-Length, 1.70 mm .

Like unifasciata but there is a dusliy stripe across the abdomen somewhat proximad of the middle and a second fuscous spot in middle at tip; also the first funicle joint is distinctly longer, nearly as long as the club, distinctly shorter in the type species. The chub is solid in both species, since 1 have re-examined the type species. The mandibles appear to be absent. Two ring-joints, niue antennal joints.

Male:-Not known.
Described from one female captured by sweeping in forest, August 13, 1913.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1917, Queensland Museum, the above specimen on a tag, the head on a slide.

## Tribe OpiteLinini.

## Genus OPHELINUS Haliday.

Antennæ 9-jointed with one ring-joint, the club thickened, 3-jointed; tibial spurs long; sentellum simple; abdomen sessile or subsessile.

## 1. OPHELINUS URSIDIUS̃ (Walker). Female. Genotype.

Eulophus ursidius Walker, 1839, pp. 44-45.
Ophelinus ursidius Walker-Haliday, 1843, p. 301.
Habitat: Tasmania (Hobart).
Type: Probably in the Natural Mistory Museum, London.
2. OPHELINUS FANNIUS (Walker). Female.

Cirrospilus fannius Walker, 1839, p. 49.
Ophelinus fannius Walker-Haliday, 1843, p. 301.
Tetrastichus fannius Walker, 1846, p. 79.
Habitat: Tasmania (Hobart).
Type: Probably in the Natural History Museum, London.

## 3. OPHELINUS SABELLA (Walker). Female

Éulop7uts sabella Walker, 1839, pp. 41-42.
Cirrospilus Prymno Walker, ib., p. 50.
Ophelinus sabellus Walker-Haliday, 1843, p. 301.
Mabitat: Tasmania (Hobart).
Iype: Probably in the Natural History Museum, London,

## Genus ALOPHOMORPHA Girault.

Mctallic; antema 11 -jointed with two ring-joints, the club 3-jointed; parapsidal furrows shallow; grooves on schtellum curving toward each other around tip but not joining. Propodeum with a distinct median carina with a short sulcus on each side of it at middle. Postmarginal rein longer than the stigmal. ILind tibial spurs short, strong. Abdomen sessile, broadly orate. Club not widened.

## 1. ALOPHOMORPHA PULCHRA Girault. Female. Genotype.

Dark metallic blue, the scutellum between the groofes and second segment of abdomen green, the mings hyaline; coxie and femora concolorous, the hind femur white at proximal half; tibio and tarsi white. Sentum and pronotum densely punctatereticulate, the scutellum between the grooses densely shagreened, the postscutellum and propodeum smoother, very finely reticulate, the axille more grossly so. Second segment of abdomen glabrous. Funiclo 1 large, as long as the clul, the others shortening, the fourth not much longer than wide, subequal to the pedicel but larger. Snall distal club joint without a nipple.

Mabitat: Nelson (Cairns), Queensland. Jungle.
Type: No. My 1918, Queensland Minseum.

## Genus sympiesomorphelleus Girault.

Antenne 10-jointed with two ring-joints, the club 2-jointed; abdomen subsessile, long, orate, segments 2 and 3 longest, subequal. Nonmetallic. Median carinæ of propodemm forked just before base, their ends parallel, the propodeum with a short neck. Parapsidal furrows well defined. Scutellum with tro grooves. Mandibles about 6-dentate. Spiracular sulci present, carinated along each margin.

## 1. SYMPIESOMORPHELLEUS SUTTNERI Girault. Female. Genotype.

Ochreous rellow, the wings hyaline, the antenno black except undor parts of scape, the legs wholly concolorons but somewhat paler than the body; abdomen at base centrally pale vellow, elsewhere purplish black, this color at dorsal moson projecting obtusely into the proximal yellow area. Thorax scaly, the surface of the propodeum less so. Fnnicle 1 longest, about as long as the club, longer than the pedicel.

Habitat: Nelson (Cairns), Queensland.
Type: No. Iy 1919, Queensland Miseum. $^{\text {19 }}$
2. SYMPIESOMORPHELLEUS SPECIMENIPENNIS new species.

Female:-Length, 1.55 mm .
, Orange yellow, the parapsides, apex of scutum and scutellum faded or lemon yellow, the abdomen brownish yellow with very obscure, narrow blackish cross-stripes and black across immediate base; legs concolorous, the coxm palc. Antenna yellowish white, the club white, joints 3 and 4 of funicle black. Fore wings mith a smoky loop (crescentic mark), from proximal third of marginal vein round to apex of stigmal, the apex of the curve extending candad beyond midlongitudinal line of the blade. Ring-joints short; funicle 1 longest, nearly as long as the club, the following joints shortening, funicle 4 longer than wide,
stout, longer than club joint i which is subequal to the pedicel. Mandibles about 7 -dentate; funicle joints subpetiolate and with a nipple-Tike spine from each latero-distal angle. One spur of hind tibix very short, stout. Grooves of scutellum near lateral margin and joined ronnd apex. Axillw not adranced. Thorax reticulate-punctate, the axillæ smooth, faintly reticulate. Propodenm glabrous.

Male:-Not known.
Described from one fenule captured by sweeping in heart of jungle, September 12 , 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.
Type: No. Hy 1920, Queensland Museum, the abore specimen on a tag, the head and hind legs on a slide.

## Genus Parentedon Girault.

Scutellum with two groores. Antennm 10 -jointed with two ring-joints, the club 2 -jointed. Body mostly metallic; abdomen subsessile, short, ovate; propodeum tricarinate; antennæ inserted below the rentral ends of the eyes; mandilses 13 -dentate. Postmarginal vein somewhat longer than tho rather long stignal. Ifind tilial spurs normal, the spur of the intermediate legs long and slender. Propoteal spiracle minute. This genus was renoved from the Entedomini on suspicion hecause when compiling the portion of this mannseript on that tribe it was noticed in the deseription of the type species that the latter was partly nonmetallic. Conseqnently, the type was re-examined with the result that the true position of the genus is ascertained. Oceipital margin of vertex acute.

## 1. PARENTEDON AUSTRALIS Girault. Female. Genotype.

Dark metallie green, the abdomen (except distad, more or less, where it is metallic) and legs reddish brown. Eyes hairy. Thorax scaly, the axillo smoother. Funicle 1 somewhat longer than the pedicel, the fourth joint a little longer than wide; scape pale, the flagellum. dusky brownish. Fore wings indefinitely stained (yellowish). Inner eleven teeth of mandibles comblike, minnte.

Mabitat: Capeville (Pentland), Queensland.
Type: No. IIy 1921, Queensland Nuseum (altered now from that published originally: A thorax and two abdomens on one tag and a slide with three lind, one intermediate, legs and two antennæ).

## Genus OpHELTMinus Giranlt.

Like Alophomorpha Girault in antennal structure and otherwise but the scutellum simple, the propodeal median carina has not the short sulci on each side; also the abdomen is long pointed conic-ovate. Mandibles 5-dentate.

## 1. OPHELIMINUS GROTIUSI Girault. Female. Genotype

Brilliant metallic green, the wings hyaline, the abdomen dark purplish, dorsad with a pale yellowish, large subquadrate area centrally a short distance from base; this yellow area larger ventrad. Tegs white except proxinal part of hind coxa; scape white, dnsky above, the flagellnm black; fnnicle 1 about twice the length of the pericel, joints 2 and 3 of funicle
subequal, a little the longest aud stoutest; joint 1 of club equal to the combined length of the other tro. Reticulated, including the propodeum. Fore wings with dense discal ciliation, the marginal cilia very short.

Habitat: Nelson (Cairns), Queeusland.
Type: No. Hy 1922, Queensland Mruseum.

## 2. OPHELIMINUS LONGFELLOWI new speeies.

Female:-Length, 2.25 mm .
Same structurally as the type species but the abdomen somewhat shorter and stouter and wholly dark purplish, blue at base; coxr suffused with dusky. Pedieel only slightly longer thau wide, the first fuuicle joint much more thau twiee its length, a little the lougest of the funicle, the fourth the shortest yet longer than the first club joint and nearly twice the length of the pedicel. Hind tibial spurs distinct, rather stont. Propoderm with no carinæ laterad.

Male:-Not known.
Described from a single female captured by sweeping iu a jungle pocket, July 24, 1913 (A. P. Dodd).

Dedicated to Henry W. Longfellow.
Ilabital: Nelson (Cairns), Qneensland.
Type: No. II 1 1204, Queeuslaud Museunı, the above specimen on a tag, the head and a hiud leg on a slide.

On July 29, a secoud female was captured in the same place; this was more robust and there was a distinct elongate black spot on front femur about the middle beneath (present in the type specimeu but smaller). A third female from the same place, August 7.

DIGLYPHOMORPHELLA new genus.
Female:-Like Diglyphomorpha Ashmead but the scutellum withont a median grooved line only with lateral groores; funiele 4-joiuted, the clnb 2-jointed. Propodeum with a strong median carina but without lateral carine. Autennal club terminating iu a nipple-like spur. One spur of hind tibie slort. Abdomen sessile, stout and ovate. Postmarginal vein longer than the long stigmal. Spur of antennal club apparently articulated but I do not think so.

Male:-Not known.
Type: The following species.

1. DIGLYPHOMORPHELLA DELIRA new species

Female:-Length, 1.10 mm .
Dark metallic blue-green, the scutellum and abdomeu eoppery; wings subliyaline; legs and antenno dusky. Propodeun shiny steel blue but polygonally reticulated, the rest of the thorax more noticeably so. First fnnicle joint a little longer than wide, the others a little wider than long; pedicel harely longer than the first funicle joint. Portion of face yellowish.

Described from one fenale captured from a mindow in a railway depôt, July 11, 1912.
Habitat: Tomnsville, Queensland.
Typo: No. Hy 1993, Queensland Museum, the above specimen on a tag, the hind tibix and the head on a slide.

## 2. DIGLYPHOMORPHELLA SANNIO new species.

Female:-Length, 1.50 ıum.
Dark metallic green with a pecnliar pattern as follows: Lateral and caudal margins of pronotum and scutellum, all of postscutellim, extreme cephalo-latcral corner of scutum, the axillæ except a central portion, golden yellor; also the hackish stout abdomen down the centre with elongate transerse lemon yellow marks and with reciprocal roundish spots of the same color down each side; venter of abdomen yeltow. Pronotnm as in Atoposoma, the propodeum short but with a medith carina and no others. Head with more or less yellowish (not distinctly seen). Wings hyaline. Flagellum black, the scape pale, marked with dusky, the funicle joints all short, wider than long. Mandibles j-dentate. Clnb withont a nipple. Ring-joint very short, probably absent.

## Male:-Not known.

Described from one female captured by sweeping in the forest, August 23, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. My 1925, Queensland Museum, the abovo specimen on a tag, the head and hind legs on a slide.

## DIGLYPHOMORPHOMYIA new genms.

Fomule:-Like Diglyphomorphella Ginault but nommetallic and the seutellum instead of the grooved lines bears a line of isolated punctures along the candal and lateral margins in one continuons line. Parapsidal furows romplete. Postmarginal rein slightly longer than the stigmal. Mandibles with six tecth. One shont ringojoint, \& funicle and 2 club joints. The propodeum is tricarinate. Abdomen flat, ovate, the second segment with its distal margin spherical, along the meson the segment corering a third of the surface and much the longest. Funicle joints with short peduncles. Propodeun with a neek, the abdomen sessile or subsessile.

Male:-Not known.
Type: The following specios.

## 1. DIGLYPHOMORPHOMYIA NIGRISCUTELKUM new species.

## Female:-Length, 1.30 mm .

Blood red, the abdomen yellowish brown, margined laterally with black (not to tip), crossed by rery obscure darker stripes and with a roundish blackish spot about centrally; scutellum jet black and with scattered pin-punctures in the disk. Wings hyaline. Legs white including the coxa; also the scape and distal antennal joint, the rest of antenua black. Thorax scaly. First funicle joint elongate, twice the length of the fourth, which, however, is broader and not much longer than wide, about as long as the pedicel. Face yellow, the vertex dusky.

Described from one female captured by sweeping in jungle, July 30, 1913 (A. P. Dodd).
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1926, Queensland Museum, the above specimen on a tag, the liead and hind legs on a slide.

## ALOPHOMOPSIS new genus.

Female:-Scutellum witliout groores; antenne - -jointed without ring-joints, the club solid, the funicle 4-jointed; abdomen sessile, short, conic-ovate. Postmarginal rein distinctly longer than the stigmal. Mandibles 5-dentate. Propodenm apparently with a median carina and no others, the spiracle minute. Metallic.

Male:-Not known.
Type: The following species.

## 1. ALOPHOMOPSIS SPENCERI new species.

Female:-Length, 0.95 mm .
Dark green, the wings hyaline, the abdomen purplish, the thorax finely shagreened. Legs yellowish, the hind coxa concolorous, the hind femm concolorous or clse blackish along the middle. Autenno dusky, short, the funcle joints subglobular, shorter than the short clubr which is longer than wide. Pedicel globular. Mandibles minute. Club without a terminal: spur.

Described from one female captured by sweeping in the forests adjoining Cape River, January 8, 1913.

Dedicated to Herloert Spencer.
Habitat: Capeville (Tentland), Queensland.
Type: No. Hy 19:\%, Queensland Museum, the above specimen on a tag, the head and hind leg on a slide.

## ALOPHOMORPHELLA new genus.

Femole:-Like Alophomoriha Girault but the abdomen petiolate, the propodeum strongly tricarinate, the sulci on each side of the median earina absent or nearly. Seutum and scutellum at base with a longitudinal median depression. Grooves of scutellum joining around distal margin. Mandibles with seven teeth. Parapsidal furrows deep. Petiole short but distinct. Mabitus of Euplectrus.

IFale:-Not known.
Typc: The following species.

## 1. ALOPHOMORPHELLA ILLUSTRIS new species.

Female:-Length, 2.50 mm .
Brilliant metallic aeneons green, the wings hyaline, the abdomen purplish black, white rentrad excepi: at tip amd also all along the middle portion dorsad at proximal half. Legs white except the sides of hind coxie. Thorax fincly, tramsversely wrinkled somewhat as in Megastigmus, the propodemm, however, glabrous. Scape and tegnla white. All funicle joints longer than the predicel, the first long, orer a third longer than the fourth. Scutum with scattered, long, soft pubescence.

Described from one female captured ly sweeping in jumgle, July 10, 1913 (A. P. Dodd).
Mahitat: Nelson (Cairns), Queensland.
Type: No. Ty feges. Queensland Mruseum, the atove specimen on a tag, the head and bind tibiat on a clide.

## GROTIUSELLLA new genus.

I'emale:--Like Opheliminus Giranlt but there is only one ring-joint, the club a-jointed, the flagellum somewhat fusiform, stout and subeompressed; propodew short as in the Omphalini, noncarinate; abdomen scossile, not long, conic-ovate. Mandibles with more than threo
teeth, several very minute inner ones. Clnb without a terminal seta, the pedicel globular, not compressed, swaller than the funicle joints. Parapsidal furrows short but attaining the adranced axillo. Hind tibial spurs short, unequal. Postmarginal vein longer than the slender stigmal, the marginal about two and a half times the length of the stigmal. Metallic and with an ounphaline habitus.

NFale:-Not known.
The genus is respectfully dedicated to the , jurist and historian IIugo Grotins,
Type: The following species.

## 1. GROTIUSELLA FASCIATIFRONS new speeies.

Female:-Length, 1.15 mm .
Dark metallic acneous green, the wings lyyalive, the face with two cross-stripes of silvery white, one above, the other below, the antemns; vertex more or less whitish; legs white except the concolorous coxæ, the femora proximad (to tip in caudal femur) and a band around intermediate tibiæ faintly (distinct on caudal femur), sooty. Antenna concolorous, the seape silvery whits except above at tip, the first funicle joint subglobular, the others stout but distinctly wider than long, the club short.

Described from one female captured by sweeping in forest, October 24, 1912.
Habitat: Nelson (Cairns), Qucensland.
Type: No. Ey 1929, Queensland Museum, the above specimen on a slide.

## EUPLECTROPHELINUS new genus.

Female:-Nonmetallie. Fread triangular, the eyes widely separated and moderately small, the antenme inserted far down on the face, somewhat near the clypens, below the ventral ends of the cyes, 9 -jointed with two ring-joints (the first very short), the club ovate, solid; scape stcuder. Sculellum with four dorsal grooved lines, the mesal one in the nsual lateral position, the lateral ones dorso-lateral but distinct. Ahdomen shortly petiolate, the second segment, orcupsing about lalf the smfaee. Postmargiual vein longer than the well developed stigmal. Pronotum transterse quadrate; axilla not adranced. Propodeum strongly tricarinate, the spiracle oval, moderate in size. Mandibles not seen. Hind femora stout.

Mate:-Not known.
Type: The following species.

## 1. EUPLECTROPHELINUS SAINTPIERREI new species.

Female:-Length, 1.80 mm .
Fed; wings lysaline; face of pronotum, thoracie notum on each side of postscutellum, mest of propodenn: (except cephato-laterad), distal third or more of abdomen and flagellum black. Legs, scape, petiole and proximal two thirds or less of abdomen brownish yellow. Pedicel clongate, a little longer than the cylindrical first funcle joint which is much longer than the following funicle joints of which 2 is subquadrate, the others a little shorter and wider; clath longer than perticel. Proximal tarsal joint of hind legs rather long. Thorax with isolated, long black setæ, linely polygonally reticulated, the propodeum similarly sculptured. Segment 2 of abdomen glabrous.

From one female captured by sweeping in open forest, September 16, 1913.
Habitat: Kuranda, Queensland.
Type: No. Hy 1930, Queensland Musemm, the above specimen on a tag, hind tibiæ, head and a fore wing on a slide.

## DIAGNOSIS OF THE OPHELTNINE FULOPHIDA.

Females, Australia.

The tribe is characterised by bearing two normal spurs on the caudal tibix.
I. Scutellum with two groored lines.*

1. Antenne with two ring-joints.

Funicle of antenna 4 -jointed, the club 3 -jointed, the antenna 11 -jointed; metallic.
Abdomen distinctly petiolate; grooves of scutellum joining around distal margin; Propodeum strongly tricarinate; mandibles 7 -denitate.

Alophomorphella Cifitult (Type: A. illustris Girault).
Abdomen sessile; grooves of scutellmm not joining aromd distal margin, merely convergent; propodeunn with a distinct median carina with a short suleus on each side of it at mildle; lateral carinw absent.

Alophomorpha Gianlt (Type: A. mulchra Giranlt).
Funicle of antenna 4-jointed, the club 2 jointed, the autenne 10-jointed.*
Abdomen sulisessile, long-arate; propodemm with a median carina and a short neck, the median carina really a pair of very thin, parallel darina; segments is and 4 of abdomen subequal, longest; mandibles (i-dentate. Nonmetallie. Sympiesomorphelleus (ilualt (Type: S. suttneri Girault).
Partly metallic; abdomen subsessile, short ovate; propoleum tricarinate; antenme inscred below the rentral ends of the eyes; mamlibles 13 -dentate.

Parentedon Girault (Tyle: P. australis Girault).
2. Antenne with only one ring-joint; funicle 4 -jointed, the chb o-jointed.

Fropodeum tricariuate; roumetallic.
Grooved lines of scutellum consisting of isnlated pumetures.
Diglyphomorphomyia Girault (Type: D. nigriscutellum Girault).
I'ropodemu without lateral earine; metallic.
Grooved lines of seutellum nomal.
Diglyphomorphella Girault (Type: D. delira Girault).
II. Scutellum without grooves.

1. Antema with two ring-joints; the funcle 4 -, the club 3 -jointed.

Propodemm with a median carina; abdonen conicoovate, depressed, sessile; mandibles about 5-dentate: metallic. Opheliminus Ciranlt (Type: O. grotiusi Giranlt).
2. Antenne with only one ring-joint; the funicle 4 -, the club 2 -jointed.

Propodeum short, noncarinate, the alodomen sessile; parapsidal furrows attaining the adranced axilla; marginal vein abont two and a loalf times the length of the stigmal; flagellum somewhat fusiform, stout.

Grotiusella Girault (Type: G. fasciatifrons Girault).
3. Antenne without ring-joints; funcle $t$-jointer, the club solid.
l'ropodeum apparently with a median carina and no others; abdomen sessile, conicovate, slort; postmarginal rein longer than the stigmal; metallic.

Alophomopsis Giranlt (Type: A. spenceri Girault)..
The genus Grotiusclla should be transferred to the Eulophini, perhaps. Its 2 -jointer cluh separates it from Eluophus (also the 4 -jointed funicle).

## Subfamily Eulopifine.

## Tribe Eulophini.

## Genus EULOPIIUS Geoffroy.

Antenna inserted below the middle of the face, 9 -jointed, noncompressed, with one ringjoint: the funcle and club cach 3 -jointed, the former black. Thorax not robust, the scutellum simple, the propodeum vsually tricarinate, the median carina always present. Wings hyaline, the marginal rein not long hut only about twice the length of the stigmal.

This gems appears to he very ram in Australia it not elsewhere, The large mumber of species in the catalogue of De Dalla Torre (1898) in most instances, I dare say, belong elsewhere and in this category are the species of Walker's listed below. Unless rery strikingly coloured or cladructeristic in other ways, it would be hatardous to attempt to identify them at this distance from the types and for the present they had best be left alone. Whoever attempts. their identification must show that the types have been examined.

## 1. EULOPHUS CICUTA Walker:

De Dalla Torre, 1898, p. 59.
Jabitat: Sydney, New South Wales.
The scutellum bears two grooved lines. This species is prohably the representative of an unceseribed genus near Diaulomorpha Ashmead, the antenne probably 9 -jointed with one ring-joint and as in Eulophus.

## 2. EULOPHUS ITEA Walker.

De Dalla Torre, 1898, p. 62.
Ifthitat: Tasmania (Hobart).

## 3, EULOPHUS TELESTAS Walker.

De Dalla Torre, 1898, r. 68. (The specific name is misspelled in the catalogue.)
Ifrijitat: Sydnev, New Sonth Wales.

## Genus Astaiplesiella Girault.

Like s?mpissis but the eluh only 2 -jointer, the propodeum with only an abbreviated modian carina at lase or with a complete median cariua and incomplete lateral ones; spiracle large. oblong-oval; male antenne with rami; abdomen long and conically produced; postmarginal vein orer thrice the length of the stigmal, the marginal over five times the length of the stigmal; one ring-joint, the antenne $9-j o i n t e d$. Pronotum only half the length of the scutirm.

## 1. ASYMPIESIELLA NELSONENSIS (Girault) Female, male. Genotype.

 Sumpiesis nelsonensis Girault.Bright metallic purplish hlue; wings hyaline; coxa white, the legs white, the tarsi fuscons. Ilead and thorax roughly polygonally reticulated, the axilto smoother, the propodeun smooth. Antenna liack, the first famicle joint longest of the four, alout twice the length of 4. Propodem with a short median carina at hase, the lateral carina absent.

In the male, the hind femur is metallic, the fxille, sentellum and distal half of scutum metallic green, the abdomen with a whitish stripe across some distance out from base. Antomat with thee lons rami, 9-jointed, funcle 4 over twire the length of the club joint, longest of the whole, joint 1 of funcle suberqual 1.0 the perlicel.

Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. Ky 1031, Queensland Museum.
2. ASYMPIESIELLA PROSERPINENSIS (Girault). Female.

Sympicsis proserpinensis Girault.
Datk steel biue, not hright, the propodemm bright metallie green, the coxa blue, the legs mhite, the tarsi more or leas fascuns; wings hyaline. Head and thorax raised polygonally reticulated forming areas unaly like puretures; propodemm similarly scuptured but smooth and shiny, scaly. A complete median carina on propodem and a more or less irregular lateral carina. Mandibles 6-lentate; funi"le joints at apex armed with nipple-like projections. Otherwise as in melaonensis. Male maknown.

Thabital: 1'roserpine, Queensland. Forest.
Tryf: No. II y 1938, Queensland Museuni.

## Gents EULOPIIINUSTA Girant.

Antennæ S-jointed, the funicle 4 -jointer, the club solid, one ring-joint. Scutellum simple. Propodeum with a shorl median carina. Mesopostantellum rather large. Postmarginal rein a third longer than the stigmal, the marginal rein shorter than the submarginal, about two and a quarter times the length of the stigmal. Mandibles with four or five minute teeth. Abdomm ovate.

## 1. EULOPHINUSIA CYDIPPE Girault. Femalc. Genotype.

Dark metallic green, the abromen coppery, the wings lyaline, the antenno dusky; legs yellowish white but the costo more or less concolorous: thorax densely sealy reticulate but the scutollon and projodeam much finer, opaqae or very finely alutaceons. Joints 1 and 2 of funicle lomger thai wide, subequal, longest, the remaining two more or less equal, wider than long; elub short, longer than any of the funicle joints.

Mabial: Thursday Island, Torres Strait. Forest.
Type: No. Hy 1033, Queensland Museum.

## Genus PsEUDOPHELTMINUS Giranlt.

Like Notanisomorphella Girault but the abbreviated median carina at base of propodeum, the shorter pronotum, the absence of lateral grooves on the propodeum and the elongated,
depressed abolomen are characteristics. Pronotum only half the length of the scutum; abdomen sessile; mandibles 7 -dentate. Antenna 10 -jointed, with two ring- and club joints. Scutellum simple. Metallic. Fostmarginal vein slightly longer than the stigmal.

## 1. PSEUDOPHELIMINUS LONGIVENTRIS Girault. Female. Genotype.

Bright aeneous gleen with bluish tinges, the wings hyaline, the coxa concolorous, the legs white; abdomen coppery black. Thorax polygonally reticulater, the propodem smooth and shining (very faintly reticutated). Seape white, flagellum back, the first funcle joint as long as the club, the proximal joint of the latter slightly longer than wide, shorter than funicle 4.

Habitat: Nelson (Cairns), Queensland. Braconid cocoons.
Type: No. Hy 1934, Queensland Museum.

## Genus Notheisomorphella Girault.

Scutellum without lateral grooves; antenno 10-jointed with two ring- and club-joints; pronotum not as long as the sentum; propolctim with a strong, long median carina, the lateral carino represented by a curved line of fover; abdomen sessile. Mandibies 6-dentate.

## 1. NOTANISOMORPHELLA AUSTRALIENSIS Girault. Female. Genotype.

Dark metallic blue, the propodeum, and base of abdomen dorsad, green; coxe blue, the legs white; wings hyaline; scape and parts of pedicel white, rest of antenne black. Funicle I as long as the club, joints 2 and 3 subequal, 4 shortest of the funicle but distinctly longer than wide. Thorax sculptured with raised polygonal figures, the postscutellum and propodeum shining yet sealy. First ring-joint short.

Habitat: Nelson and Kuranda, Queensland. Frequent.
T'y2e: No. Hy 1935, Queensland Museum.

## 2. NOTANISOMORPHELLA FEMORATUS new speeies.

Female: Length, 2.40 mm .
Dark aeneous green, the distal half of abdomen purplish black, the proximal half with a tolerably large, orate orange yellow spot centrally. Coxio and femora concolorons, the knees broadly and hind tibix bromish yellow; tansi and other tibie white. Wings hyaline; marginal vein over thrice the length of the stigmal which is ouly aloout half the length of the postmarginal. Whole thorax reticulately punctate. Abdomen with a short but distiuct petiole, depressod, conicovate. Spitacular sukus of propodem shallow and broad, somewhat broken but not foreate, its mesal margin carinate; spiracle oval, moterate. Marginal vein a little longer than sumarginal. Mandibles abont 7 -dentate. Scape white, not long, the fagellunn black, compressed; finicle 1 subelongate, nearly as long as the scape, a little longer than the club, joint 2 a third shorter, 4 gradrate; second club joint much the smaller, its nipple distinct; funicle joints subpedunculate, clothed with stont, flattened setm; pedicel very slort. Pronotum only a third the length of the scutum (as seen from dorsal asplect). Hind tibial spurs moderate in length, stout.

## Male:-Not known.

Deseribed from one female captured by sweeping in jungle, September 12, 1913.
Mabitat: Kuranda, Queensland.
Type: No. Hy 1936, Queensland Museum, the above specimen on a tag, the head on a slide.

## NECREMNOIDES new genus.

Fomule:-Antenna 10 -jointed with two ring-joints, the club 2-jointed, ending in a stout spur'; scutelhm simple; propodeum tricarinate; abdomen conic-orate, sessile; mandibles j-dentate. Hind tibial spurs moderately stont. Marginal vein a little over twice the length of the stigmal which is slightly shorter than the postmarginal. Second abdominal segment occupying somewhat less than a fourth of the surface. Median carina paired, diverging at base (cephalad), the lateral carinæ straight, near (mesad of) the small, round spiracle.

Male:-Not known.
Type: The following species.

## 1. NECREMNOIDES TRICARINATUS new species.

Female:-Length, 1.33 mm .
Olire green, metallic, the wings hyaline, the legs reddish brown inchading the coxx; antemme black, the seape reddish brown except at distal fouth, the pedicel shorter than any 01 the funicle joints of which the first is slightly the longest, the other thee gradually shortening; all oval; thorax folygonally reticulated, the lines not raised, the seulpture finer ou tho axilla and at base of seutellum. Propodeum shining, pronotum about a third the length of the scutum or slightly more. Marginal vein about equal to the submarginal or a little longer.

Described from two females capturen by sweeping in forest, August 24 and 29, 1913.
Habitat: Nelson (Cairms), Queensland.
Type: No. Jy 1937, Queensland Museum, the above specimen on a tag, the head and bind legs on a slide.

Tro more fenales were captured in forest, August 31, 1913.

## 2. NECREMNOIDES FLAVIVENTRIS new species.

Ficmale:-Length, 1.65 mm .
Bumblied hlack, the abdemen orange yellow with a row of black dots along each edge (dorsad) and the extreme tip black. Wings hyaline. Scape and legs orange yellow (including eoxas). Densely, deticulately punctate including the propodeum. Marginal vein thrice the length of the stigmal. Pronotum transverse. Parapsidal furrows barely indicated, the scutum short. Propodeum tricarinate. Antenna with two ling-joints, the pedicel much shorter than the first fmicre joint which is thrice longer than wide (besides two funicle joints, rest of antenna missing). Mandibles with six teeth. Othermise like the genns to which referred. Abdomen short, conic ovate.

Mate:-Not known.
From one female captured by streeping in forest, April 9, 1913 (A. Г. Dodd).
IIrfintat: Nelson (Cairns), Queensland.
Type: No. Ty 1938, Queensland Muscum, the above specimen on a tag, the head and lind legs on a slide.

This species is probably not a nember of this genus.

## NOTANISOMORPHOMYIA new genus.

Type: The following species.

## 1. NOTANISOMORPHOMYIA ALBICOXA new speeies

f'rmale:-Length, 1.80 mm .
Iike the type species of Notanisomorphella hut the coxa are also white and the propodeun bas complete lateral carine joined to the median carina by a cross-carina abont centrally. Also the body is dark metalic groen, the abdomen darker. Propodeum with a distinct neck, the first abdominal segment ring-like, the abdomen certaimly subpetiolate. Mandibles with five teeth, the inner tooth very minute. Antenne black, senpe white toward base, the fourth funicle joint distinctly longer than the first club joint, long yet shortest of funicle. Axille much smoother than scutellum, the postscutellum and propodeum polished, without visible sculpture.

Male:-Not known.
Described from one female captured by sweeping the jungle along a forest streamlet, August 1, 1913.

Mnbitat: Nelson (Cairns), Queensland.
Type: No. Hy 1939, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## DIAULOMELLA new genus.

Type: The following species.

## 1. DIAULOMELLA AUSTRALIENSIS new speeies.

Fcmaile:-Length, 1.60 mm .
Dark metallic green, the abdomen darker, and with a long central yellowish area out from base which is more or less prong-shaped and with the handle proximad. Wings hyaline; postmarginal vein orer twice the length of the stigmal. Legs white except cosa, Jetathorax with a median carina only at base, no distinct lateral carinæ. Mandibles with six teeth. Antenne black, the seape white, the pediecl hardly longer than wide, the first three funicle joints long and suberual, each as loug as the club withont its sloort distal joint. Pronotum almost as long as the sentum. Thorax sealy.

Male: - Not known.
Described from one female captured hy sweeping jungle growth along a forest streamlet, June 10. 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1940, Queensland Muscum, the above specimen on a tag, the head and hind legs on a slide.

Differs from Dimmochia Crawford in having one more antennal joint, the club being 3 -jointed instead of two.

DIAULOMYIA new genus.
Fomale:-Allied with Diaulimus Schulk but the antenne 11 -jointed with tro ring-joints, the club 3 -jointed, the third joint very small and with a minute nipple. Scutellum with tro groores. Propodeum with a strong median carina, glabrons. Mandibles with 8 teeth, the 6 inner ones minute. Stigmal vein ahout half the length of the marginal or somewhat less,
shorter than the postuarginal, the fore wing with a fuscous blotch under the marginal vein. Abdomen sessile, ovate, depressed, as long as the thorax. Parapsidal furrows half complete, not very distinct. Propodeum with a more or less distinct laterul suleus from candad. Marginal vein somewliat shorter than the sutmarginal.

Mate:-Not known.
Type: The following species.

## 1. DIAULOMYIA MACULATIPENNIS new speeies.

Female:-Length, 2.60 mm .
Dark metallie green, the scutellum, propodeun and abdomen coplery and darker; blotch on fore wing orate, under the marginal aud stigmal reins, its disto-cephatie end touching the stigmal knob. Coxas and femora concolorous, the tibia and tarsi white; inner half or more of hind femur white, also. Scape white, antenna black, the first fubcle foint clongate, over twice the length of the pedicel, 2 and 3 subegual, a third shorter, 4 hardy longer than wide, 3 and + subpedunenlate; first funiele joint halt the length of the slender seape. Pedicel brown. First ring-joint short. Scntum coarsely reticulated with raised lines, the scutellum finely scaly.

Descrited from one female captured by sweeping in a jungle pocket, July 27, 1913 (A. I. Dodd).

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 1941, Quecnsland Museum, the above specimen on a tag, the head and titads legs on a slide with the type head of Eldohertetrastichus purpurcus Girault.

## Genus DTAULOMORPHA Aslimead.

The generic diagnosis given by Ashmead (1904) disagrees with the original description and since the former is sot stated to be wiven upon re-examination, 1 must follow the latter. According to the originat description tho antema: are $S$ jointed, the funiele 3 -jointed (leaving as alternatives 2 - or 3 -jointed club and one or no ring joints) ; flagellun subeompressed; postscutellum half the length of the scatellum. Metathorax (propodeum) short, with a median carint. Marginal vein nealy as long as the subuarginal, the stigmal and postmarginal veins more than half the Jength of the marginal. Scutellum with two delicate grooved lines.

## 1. DIAULOMORPHA AUSTRALIENSIS Ashmead. Female. Genotype.

Ashmead, 1900, pp. 347-348.
Goldeu green, reticulately shagreened, the wings hyaline; antenno black, joints 1 and 2 of funicle louger than wide, joint 3 subquadrate; legs brownish yellow, the coxm concolorous, the hind coxio gohlen grecn, strongly punctate.

Itcuitat: Australia (? New South Wales).
Type: Cat. No. 4009 , United States National Musem, Washington, D.C., U.S.A.
In the diagrosis, Ashmead (1904) gives the following: Scutelhmm with two dorsal grooved lines; antennæ inserted below the middle of the face; cephalic aspect of the head nearly trice wider than long; stigmal vein nearly two thirds the length of the marginal: pronotum semicircular, not short, narrower than the mesonotum; abdomen ovate, depressed above, hardly as long as the thorax; antenno 9 -jointed, the flagellum subclavate, the funicle 4-jointed.

## DIAGNOSIS OF THE EULOPIEINE EULOPHIDA.

's he trike is characterised by the double caudal tibial spurs. Rarely nonmetallic.* I. Scutellum with two groored lines.

Antennæ 11-jointed with two ring.joints, the club 3 jointed, the third joint very small and with a minute nipple; propodemm with a strong median carina; abdomen sessile, orate; stigmal reiu about halif the lengtlo of the marginal.

Diaulomyia Girault (Type: D. maculatipennis Girault).
Antenno 8-jointed witl a ring-joint, the funicle 3 -jointed; hend from cephalic aspect muela wider than long; stigmal vein nearly two thirds the length of the marginal; abdomen ovate, depressed; propodeum with a mediau cariua.

Diaulomorpha Ashmead (Type: D. austratiensis Ashmead).
(L. Sentcllum withont, grooves, simple.

Funicle 4-jointed.
Club solid.
Antenue 8-jointed nith one ring-joint; propodemm with a short median earina; postmarginal rein a third longer that the stigmal; abdonen sessile.

Eulophinusia Girault (Type: E. cydippe Girault).
Club 2-jointed; two ring-joints.
Marginal vein long, thrice longer than the stigmal.
Pronotum not a third as long as the scutum; propodeun with a strong, long median earina, the lateral rarina represented by a curved line of forem; aldomen sessile or subpetiolate.

Notanisomorphella Girault (Type: N. australiensis Girault).
Pronotum the same; propodeum with a distinct neck and tricarinate, the lateral carina joined to the median carina by a cross carina about centrally; abdomeu snbpetiolate.

Notanisomorphomyia Girault (Type: N. albicoxa Giranlt).
Pronotum half as long as the scutum; propodeum with an abbreviated median carina at base; abdomen sessile, elongate, depressed; miandibles 7-dentate. Pseudophelimus Girault (Tyle: P. longiventris Girault).
Marginal rein shorter.
Pronotum somewhat shorter; popodeum quadricarinate, the median carina paired; abdomen shorter; marginal vein a little over twice the length of the stigmal.

Necremnoides Girault ('Гype: N. tricarinatus Girault).
Club 3-jointed; one ring-joint.
Postmarginal vein over twice the length of the stigmal ; metathorax without carinæ except an abbreviated median oue at base; pronotum almost as long as scutum; marginal vein thrice or more the length of the stigmal.

Diaulomella Girault (Type: D. australiensis Girault).
Club 2-jointed; one ring-joint.
Postmarginal rein over thrice the length of the stigmal, the marginal over five times the length of the stigmal; propodeum with only an abbreviated median carina at base or with a complete median carina and incomplete lateral ones, the spiracle large, oblong-oval; male antenmo with rami; abdomen long and conically produced. Antenna 9-jointed.

Asympiesiella Girault (Type: Sympiesis nelsonensis Girault).

[^70]Funicle 3 -jointed, the club 3 -jointed; one ring-joint.
Antemex inserted below the middle of the face, the fnnicle black; propodeum with a distinct median carina and usually lateral ones; wings hyaline, the marginal rein not long, usually only about trice the length of the stigmal. Flagellum not compressed. Eulophus Geoffroy (Type: Ichneumon pecticornis Linnæus).

## HEMIPTARSENINT.

NECREMNOMIYLA new genus.
Female:-Like Memiptarsenus Westwood but the antenno 9-jointed with two short ring-joints, the club solid, short. Parapsilal furrolis barely indicated; mandibles with 6-7 teeth. Propodeum witl a distinct median carina but no others, the spiraclo near the postscutellum, small and round. Stigmal rein short, not a sixth the length of the marginal vein and slightly shorter than the postmarginal. Scutellum simple. Abdomen sessile, slender, conic-orate, somewhat longer than the head and thorax combined. Funicle 4 -jointed. Narginat rein slightly shorter than the submargiual.

Male:-Not known.
Type: The following species.

## 1. NECREMNOMYIA SAINTPIERREI new speeies.

Female:-Length, 1.20 mm .
Dark metallic blue, the wings hyaline; tibiæ and tarsi more or less white; thorax reticulated with raised lines, the propodeum subglabrous; femora dusky; scape and pedicel dark blue, rest of antema dusky; pedicel very short, as long as mide, much smaller than any of the fumicle joints which are all short and subglohular, but moderately large and stout, the first somewhat the largest; club distinctly longer than any of the funicle joints, with a minute nipple.

Male:-Uuknown.
Described from one female captured August 25, 1913, by sweeping in forest.
Habitat: Nelson (Cairns), Queensland.
Thpe: No. \#y 19. 19 , Queenslant Inuseum, the above specimen on a tag, the head and a hind leg on a slide.

## SIMPIESONECREMNLS new genus.

Female:-Face snnken, the antennæ inserted a little below its middle, 10 -jointed, the elub 2-jointed, the funiele compressed, 4 -jointed, the joints subpetiolate. Seutellum simple, the parapsidal furrows hardly orident eephalad; mandibles about 7 or S-lentate. Marginal and submarginal veins long, subegnal, four or more times the length of tho stigmal, the latter very short and somewhat shomer than the portmarginal. Abdomen sessile, conic-ovate, abont as long as the rest of the body. Propodeum with a pair of nartow median carine which are rather close together but diverge at apex; lateral earino and sulci absent, the spiracle large, elliptical; apparently, a spiracle-like forea at cephalic inargin somewhat more than half way to the spiracle from the median carina. IInd tibial spur stout. Pronotum transverse.

Male:-Not known.
Typo: The following species.

## 1. SYMPIESONECREMNUS BOASI new species.

Female:-Length, 1.85 mm .
Metallic blue, the wings hyaline, the legs and autennæ concolorous (except most of cephalic tibim and all tarsi which are brownish, the tarsi paler) ; all funicle joints much larger than the pedicel whish is but slightly longer than wide; finnicle 1 longest, distinctly longer than wide, joints $2+4$ subequal, oval, slightly longer than wide and more or less equal to club joint 1 , the larger of the two club joints; club terminating in a minute nipple. Thorax moderately finely, polygonally reticnlated, the lines raised, the propodeum similarly sculptured but smoother.

Described from one female captured by sweeping in the jungle, May 10, 1913.
Habitat: Nelson (Cairns), Qneensland.
Type: No. Hy 1913, Queensland Museum, the above specimen on a tag, the head and hind tibim on a slide.

Dedicated to Frauz Boas for his book The Mind of Primitive Man.

## ELACHERTONECREMNUS new genus.

Female:-Pronotum transverse; scutnm long, large, the parapsidal furrows delicate and only at cephalic third; scutellum oblate spherical, without grooves, postscutellum triangular, propodeum distinct, moderately short, with a median carina, 110 others. Abdomen sessile, depressed, pointed ovate, no longer than the thorax, segment 2 longest, occupying a fourth of the surface. Head somewhat wider than long, the antenne short and stout, inserted distinctly below the middle and slightly below the ventral ends of the eyes which are short, the scape short, the pedicel also, the funicle 4 -jointed, the joints wider than long, increasing in width distad, the club missing; funicle joints subpetiolate; one short ring-joint. Mandibles broad, with one short, acute outer tooth and about nine inner minute, comblike ones. Hind tibial spur very small, the hind coxæ strongly compressed, the hind femur swollen somewhat. Body metallic marked with lemon yellow. Propodeal spiracle small. With the habitus of Zagrammosoma Aslimead.

Male:-Not known.

## 1. ELACHERTONECREMNUS CIRCUMJECTUS new species.

Femule:-Length, 1.15 mm.
Dark metallic green, the head golden yellow and with two rather broad dark greenish parallel stripes across the face from side to side, the ventral one passing throngh the antennæ; xuper half or more of occiput concolorous; outer margins of axillo, sentellum all around (except at meson of candal margin) and the lateral margins of the triangular postscutellum, golden or yellow. Thorax finely, densely scaly, the propodeum glabrous centrally. Abdomen purplish black. Scape white, dusky black at distal half; flagellum black. Eyes softly pubescent. Mandible white, along tip bromn.

From one female captured in jungle by sweeping, Soptember 13, 1913.
Habitat: Kuranda, Queensland.
Type: No. Hy 1944, Queensland Museum, the above specimen on a tag.
The species may easily be recognised by its peculiar coloration.

## DIAGNOSIS OF HEAITPTARSENINE EULOPHIDF.

The tribe is characterised by bearing but one spur on the caudal tibia.
Sccitelluin with grooved lines; funicle 4 -jointed; two ring-joints.
Club solid, the antenne 9 -jointed; propodeum with a median carina only, the spiracle small and round; stigmal vein not a sixth the length of the marginal; abdomen sessile, slender, conic-ovate. Mandibles 6 or 7 -dentate.

Necremnomyia Girault (Type: N. saintpierrei Girault).
Scutellum without grooved Iines; funicle 4-jointed.
Antennæ 10-jointed, two ring-joints, the club 2 -jointed; propodeum with a median carina only, the spiracle large, elliptical; stigmal veiu abont a fourth or more the leugth of the marginal. Sympiesonecremnus Girault (Type: S. boasi Girault).
Antennæ with but oue ring-joint; propodeum the same but the spiracle small; hind tibial spur small; mandibles about 10 -dentate.

Elachertonecremnus Girault (Type: E. circumjectus Girault).
(Lscotolinx, p. 256 .)

TABLE TO TILE SUBFAMILIES OF THE EULOPHID A.*
Submargiual veiu of fore wing usually entire, not distiuctly broken distad just before curving up to the marginal or not with all of the loug proximal portion proximad of the bend abruptly slenderer than the short curved portiou. Submarginal vein usually as long as or longer than the marginal, the stigmal rarely very short or sessile, the postmarginal vein always present, usually as long as or longer than the stigmal. Species metallic or nonmetallic, usually rather large and slender, comprising the larger forms of the family, Nandibles most frequently 5 dentate or more, larely 3 dentate or less. Scutellum frequently with two grooved limes. Sculpture usually sealy. Parapsidal furrous complete or incomplete. Propodeum usnally long. Tarsi 4 -jointed.

Parapsidal furows complete, entire, usually distinct; abdomen frequently petiolate, the boily frequenty monmetallic. Rarely, the hud tibial spurs very long, the axillo not adranced.

Elachertinæ.
Parapsidal furrows wanting or incomplete, usually present along cephalic third or half; abdomen usually sessile, the body usually metallic, the hind tibial spurs never very large.

Eulophinæ.
Submarginal rein of fore wing hroken distad just before eurving up to the marginal or the long proximal portion almptly slenderer that the short, distal curved portion, the vein usually distiuctly shorter than the marginal, frequently much shorter; stigmal vein nsually of moderate length, fregnently short and sessile, farely long and stonder; postmarginal vein most frequently alsent or only slightly developed, rarely as long as or longer than the stigmal; species metallic or nonmetallic, usually of moderately small size, farely minute or large, msnally short but frequently slender, (omprising the smaller forms of the family. Mandibles most frequently bi- or tridentate. scutellum frequently with from tro to fomr grooved lines, rarely with five, the scutnm often with a molian gronve. Parapsidal furmos variable, the sculpture usually polygonul reticulation or very fine shagreening. Tarsi sometines $\overline{6}$-fointed.

Submarginal vein usually much shorter than the marginal which is frequently very long, the postinarginal rein sariable, usually as long as the stigmal, rarely very short, sometimes much louger than the stigmal, the latter of moderate length but frequently sessile or subsessile; metapleura small, the propodeum variable, the

[^71]abdomen often petiolate. Parapsidal furrows frequently incomplete, sometimes wanting. Second abdominal segment often lengthened. Sculpture most frequently a scaly reticulation, the lines often raised, rarely punctate. Scutellum often with two grooved lines, rarely with three, the sentum rarely with an incomplete grooved median lise.

Entedoninæ.
Submarginal vein usually more or less equal to the marginal, the postmarginal vein always wanting, rarely slightly or fully developerl, the stigmal usually of morlerate length, sometimes sessile. Abdomen very rarely petiolate. Parapsidal furrows always complete, the mesopleura often withont a femoral furrow. Senlpture usually very fine shagreening. Scutellum often with four grooves, rarely with two or five, the scutum frequently with a median groove.

Scutellum with four (rarely with two or five; if withont grooves, the abdomen petiolate) grooved lines; mesoplenra with a femoral furoow, antennm usually inserted near the middle of the face, the funcle usually 3 -jointed (rarely 2 or 4 -joiuted) and from one to four transverse-linear ring-joints present; abdomeu usually sessile, rarely petiolate, never (?) with a phragma, the propodeum most frequently visible from ahove, long and with a median carina. Marginal fringes of fore wings rarely long, the fore wing never with an oblique hairless line back from the stigmal vein. Surpture nearly uniform fine shagreening. Tarsi always 4 -jointed, the strigils absent. Scutum frequently with a median groove. Metallic or nonmetallic.

## Tetrastichinæ.

Scutellum mitlont grooved lines, rarely with a median groove; scutum rarely with a median groove; mesoploura often withont a femoral furrow; antenna inserted below the middle of the face, the funicle variable, sometimes absent or composed of ring-like joints, usmally with from two to four joints, true ring-joints rarely present. Aldomen always broadly sessile and alrays (?) with a phragma, the propodeum very short and hidden; marginal fringes of fore wing frequently long aud often there is an oblique hairless line back from the stigmal vein. Sculpture fine reticulation, alutaceous or fine punctation or striation, not uniform. Tarsi usually 5-, often, 4 -jointed, the strigils always (?) strongly developed. Nonmetallic, rarely metallic (Ablerus).

Aphelininæ.

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# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA.-V.* 

## The Family Perilampidae with the Descriptions of One New Genus and Four Species.

By A. A. Girault.

## INTRODUCTION.

This family is a small one, represented commouly by a single cosmopolitan genus but in trepical countries there seem to be a number of gall-making genera which are just becoming known. Two of these are at present knowu to occur in Australia; the others occur in South America.

> Family PERILAMPIDÆ.
> Genus PERILAMPUS Latreille.

## 1. PERILAMPUS SALEIUS Walker.

Walker, 1839, p. 16.

[^72]
## 2. PERILAMPUS TASMANICUS Cameron. Female. Cameron, 1912, wp. ©i46-647.

Dark blue, largely tinged with rolaceus, especially on the head; a fiery red spot on apex of the mesonotum on each side and another at anex of mesopleura above the middle; apex of second and last segments of abdomen dark red. Legs dark blue to apex of femora, the hind tibiæ almost black; knees, each end of tibix aud the tarsi testaceous. Wings lyyaline, the veins fuscous. Antemm black, fuscons beneath, pubescent. Head somewhat strongly striated, longitudinally so on vertex and front, curved on the former; occiput more closely, finely, transversely striate. Propodeum irregularly, obliquely striated, Au oblique keel along the proplenrum cephalad of middle, dividing the selerite into two, of which the basal and smaller is irregularly striated, the apical smooth. Mesopleurum with a quadrate, smooth depression, longer than wide aud at the upper basal half; rest of mesopleurum longitudinally striated.

Habitat: Tasmania (Hobart).
Type: Quers.

[^73]
## 3. PERILAMPUS TASMANIENSIS Girault. Female.

13ronze. the abdomen durker; legs concolorous, the tibia greenish, the tarsi flarous; asienne dark metallic; wings hyaline, the postmarginal rein longer than the stigmal. Scutellum amarmed at apex. Mandibles with thee thente teetl, the lateral one long. Vertex and face striated. Fnuicle joints transerse, the first con-shaped, very much longer than the pedicel; thixteen antennal joints, one ring-joint. Dorsum of abdonen fincly punctulate. Chb with an appareat fourth, aipple-like joint at apex (not counted here as a true joint).

Habitat: Tasmania (King Island).
Type: No. I. 124~, South Australian Mrseum, Adelaide.

## 4. PERILAMPUS AUSTRALIENSIS Girault. Female.

Metallie cycmeus, tinged with green about the head and abdomen; tarsi light yellow; cephalie knees and tibios brown; seulptured like lasmaniensis but the punctures on abdomen not quite so dense and the body is more robust. Club brown; funicle 1 longer than wide, 2 cup-shaped. Nipple-like :apex of club absent.

IIabilat: National Park, New South Wales.
Type: No. 1. 1248, South Australian Mnseum, Adelaide.

## 5. PERILAMPUS MITTAGONGENSIS Girault. Nale.

Metallic blue-green, the knees, renation and antennal chub brown, the tarsi yellowish. the wings lyaline. Joints 1 and 2 of funicle suluquadrate, subequal; postmarginal vein twice the length of the stigmal; smaller than rustraliensis; otherwise similar to the fourth species as listed here.

Habitat: Mittagong, New South Wales.
Type: No. I. 1249, Soutl Australian Musemm, Adelaide.

## 6. PERILAMPUS CAPENSIS Girault. Female.

Resembles austratiensis and millagongensis but smaller and the abdomen glabrons (dorsal aspect), with the fine soulpture on the last segment and lateral aspect of the ofhars. Neares! to mitnoongensis but somewhat smaller, the seulpture of head ano thorax somewhat finer, the funicle brown, the heat aencous. From candal aspect, the upper angles of the abdomen are not achte, the upler margin concama, not straight as in miltagongensis; mesothorax brassy green.

Habilat: Capeville (Pentland), Qneensland. Forest.
Type: No. Hy 1948, Queensland JIuseum.

## 7. PERILAMPUS CAIRNSENSIS Girault. Female.

Characterised by having all of the dorsal aspect of abdomen finely sculptured (rather dense pin-punctures). Differs from australionsis in being more robusi, in having the flagellum and tarsi clopolate brown and in being dark ameous green; from mittagongensis in the same details and also in that the femora are metallie grem, not blue and the abdomen from eandal aspect is shaped differently; differs from lasmaniensis in beiug twice more robust, the abdomen more unifom? seulptured (in lusmumionsis being smooth ant shining candad of the second segment mearly to tip and coppery there) and the marginal rein is longer. Dark acneons green, the legs concolorous.

Mabitat: Cairns, Qucensland.
Type: No. IIy 19́s, Queenstand Museum. Jungle or swamp?
8. PERILAMPUS QUEENSLANDENSIS new speeies.

Female:-Length, 2.00 mm .
Tery dark metallic green, the abdomen shining black. Legs, scape and pedicel concolorous, the tarsi pale brown. Propoderm with a median carina, rugose, on each side of the median carina about the middle a large, subruadrate smooth area bonnded by carino. Oceint cincularly striate. Postmarginal rein a third longer than the stigmal, the renation brawn. Fecond segment of abdomen without semphtnre, shining, the third with pin-punctures wh cl: are mumerous but not dense. Yertex smooth and also all of the head. Funicle and cub miformy chocolate brown. Genal sulcas preseut.

Male:-Not known.
Described from one female captured by streeping foliage in a jungle, June 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 1950, Queensland Museum, the above specimen on a tag.
"IBBLE 'U THE AUSTRALIAN SPECTES OF PERILAMPUS LATREILLE.
Wings hyaline.
Mesothorax with several fiery red spots, dorsad and laterad.
Dark blue. Legs concolorous except articulations, ends of tibire and tarsi, the tibie darker; antemus black, fuscous beneath. Heal striated, the occiput finely so; an obligne keel along the propleurum diriding it in two, the smaller sclerite of the two striated, the larger smooth. Mesopleurum longitudinally striated but with a subguadrate smooth depression at upper basal halt.
tasmanicus Cameron.
Mesonotum withont red spots.
Metallic green species.
All tibia yellow.
Abdomen blackish. saleius Walker.
All tibiæ metallic and concolorons.
Dark ameous green; all dorsal aspect of abdomen with uniform, rather dense, fine pin-punctures; flagellum and tarsi chocolate brown; head seulptured. cairnsensis Girault.
The same but segment 2 of abdomen glabrous, the third with minute pinpunctures which are numerous but not dense; head smooth; fuuicle and club chocolate brown. Propodeum with a median carina, rugose but smooth on each side of median carina about the middle.
queenslandensis Giranlt.
(Compare caponsis.)
Metallic blue species, tinged more or less with greeu.
Cephalic tibia brown.
Cyaneous, tinged with green about the head and abdomen; sculptured like tasmanionsis but punctures on abdomen not quite so dense; antennal club brown; funicle 1 longer than wide, 2 cup-shaped, others shorter; club 3-jointed, no apparent fourth joint at tip. australiensis Girault.

All tibiæ metallic and concolorous.
Netallic blue-green; knees, veuation and antenual club brown; tarsi yellowish; joints 1 and of funicle subquadrate; postmarginal vein twice the leugth of the stigmal. Sculpture of abdomen as in australiensis.
mittagongensis Girault.
The same but the fine sculpture of the abdomen is only on the distal segment and lateral aspect of the otliers; head aeneous; smaller; funicle brown; mesothorax bronzy green. eapensis Girault.
Bronze species.
Tibio greenish, the abdomen darker bronze; tarsi flarous; autenna dark metallic; vertex and face striated; funicle joints wider than long, 1 cup-shaped, much larger than the pedicel; club with an apparent fourth joint at apex; dorsum of abdomen finely punctate.
tasmaniensis Girault.

## GENUS EPIPERTLAMPUS Girault.

This genus is cortainly very closely allied with Trichilogaster Nlayr and is very probably a synonym of that genos. There is no doubt that it is a true member of this family. The same as Perilampus but the thorax not coarsely panctate, only with obscure seattered thimble punctures and transversely wriukled and reticulated, the antenum with two large ring-joints* and a well defined 3 -jointed eluh, the distal joints of the funicle transverse; pedicel longer than fnnicle 1. Marginal, stigmal and postmarginal reins shortened yet moderately long, the postmarginal somewhat shortest of the three, the other two subequal. Antenum inserted in the middle of the face. Scutellum simple. Axillm barely separated inwardly. Second segment of abdomen occupying nearly half of the surface. The male is described beyond.

## 1. EPIPERILAMPUS XANTHOCEPHALUS Girault. Fomale. Genotype.

Orange yellow, the parapsides eephalo-mesad washed with metallic bluish, the propodeum and abdomen shining blackish or dark metallie hhish; at base, the abdomen with a conspicuons yellow marking which is incised medially on catudal margin; legs mostly dark metallic bluish, the cephalic tibia, the knees and tarsi brownish; submarginal rein hrown, others lemon yellow. Fore wings lightly embrowned thronghout and with a distinct smoky brown cloud under the apex of the submargiual vein, extending across but interrupted caudad of its middle by a clear, longitudinal streak. Discal cilia like minute pin-points, not dense. Scape yellow, dark above and at tip, the remainder of antenna brownish yellow washed with bluish; proximal joint of club equals distal funicle joint, both wider than long. Joints 2 and 3 of funicle subquadrate.

Habitat: Brisbane, Queensland.
Type: No. My 1194, Queensland Mnseum.
2. EPIPERILAMPUS CHANNINGI Girault. Female.

The same as the type species lint the parapsides wholly concolorous and the stigmal vein is shorter, distinctly shorter than the marginal. Autenno lighter.

Habitat: Quingilli (Cairns), Queensland.
Type: No. Hy 1953, Queenslaud Museum.

[^74]
## 3. EPIPERILAMPUS SIGNIFICATUS new species.

Ficmale:-Length, 2.25 mm .
The same as xanthocephalus lut nearly the entire body is dark parplish blue except head, sides of scutellum at the middle, front tibio, scape, sides of seutum and its candal third and the marking on the abdomen which are orange yellow; also the postmarginal vein is a little shorter and the first funicle joint subegual to joints 2 and 3 which in both species are somewhat wider than long (funicle 1 in xanhoccphatus is somewhat longer than wide, plainly longer than the noxt two joins). 'The wings are somewhat clearex.

Male:-What appears to be the male is wholly dark purplish except rephalic tibix, the venation not pale brown hut fussous. Antenna filitorm, 13-jointed, the club 3-jointed but not widened as in the female, the two ring-joints slorter, distinct, the funicle joints large, all somewhat longer than wide, the first much longer than wide, longest, unch longer than the globular pedicel which is somewhat smaller than the distal funcle joint; scape wholly blue, short. Club joints somewhat shorter than the distal funicle joint. Abdomen depressed. A little smalley than the female, the fostmarginal rein a little longer.

Described from a single pair mounted on a card from the collections of the Queensland Museum with a female of rauthocephalus and labelled "Gall No. 6. Brisbane. H. Hacker. 19.7.1911. '"

Mabitat: Brisbane, Queensland.
Type: No. IIy 1951, Queensland Museum, the above pair on a tag, remale antennæ and a male antenna on a slide (together with in antenna of a female xanthocephatus).

I have re-examined the types of xanthocephatus for the third or fourth time. The axille have a small lluish spot near centre of cephalic margin.

## 4. EPIPERILAMPUS DILUTIVENTRIS new species.*

Female:-Length, 2.40 mm .
Like xan homephatus but the eonspicuous orange Fellowish, crescentic, thick cross-marking in centre of base of distal half of abdomen entirely wanting and the postmarginal vein is a little longer than the stigmal; also the seutellum is washed with more or less bluish centrally, the parapsides ummarked, the wings hyaline except for the usual stain from near apex of submarginal vein which is widely interrupted caudad. First two pairs of less yellowish. The antenna differs in that only the third joint appears like a ring-ioint, the next two or thee much wider than long, the ninth joint large, suliqualrate, much the largest (longest and widest) of the funicle (in xanthocephalus, 1 of the funicle is the longest, 6 the shortest and widest, not counting the two ring-joints of which the sccond is the wider). The ring joint is only a little over half the wirlth of the joint following it. The scape is stouter. (Club not wholly seen.)

Malc:-Not known.
Described from one female in the collections of the Qucensland Nuseum, mounted on a card labelled "Bred from gall No. 14."

Mabitat: Queensland (? Brisbane).
Tymic: No. Hy 1950, Queensland Musenm, the above specimen and a slide boaring tro broken antennes.

[^75]
## PERILAMPOIDR's new genus.

Female:-Like Epipcrilampus Girault but the antenno only 12 -jointed, there being but five joints in the funicle, the club 3 -jointed; flagellum clavate. Also the axillu are separated a short distance, the parapsidal furrows ending at middle of cephalie margin of each axilla. Scatun, with a shallom median groove, the scutelhm large, orate, longer than mand but not extending over all of propodeum; abdomen large, ghobular, somewhat as in the Cynipidx, the orijesitor very short. near apex. Thorax impunctate. Hind tibial spurs single. Mandibles bideriate, the inner footh broadly truncate. Axilla very long, triaugular. Scutellum with a sho:t median groove at base. In Epiperilcmpus, the axilla are barely separated inwardly.

Male:-Not known.
Type: The following species.

## 1. PERILAMPOIDES BICOLOR new speeies.

Female:-Length, 3.75 mm .
Bright orange yellow, the face and mesal portion of pronotum, satum the litle at meson cephalad, propodenm and abdomen jet lack; also mesorenter mesad and the wrtex; antemme and legs pale yellow; wings hyaline, the submarginal rein hlack, the othery colorless, a rounded sooty spot on blade of fore wing just caudad of the apex of submaryinal rein. Thorax finely shogrermed (raised dots). Distal fmimo joint largest. about as lomes as the pediec, cup-shaped hut wider tham long; recond chab joint shortest. Antoman suffised with dusky. ILind tibia more or less dusky.

Described from two females reared from pupe filling the entire cavity of small round isolated gitls on the foliuge of Eucalyphts in forest early in August, 1913 (A. P. Dodd).

## Habitat: Nelson (Cairns), Queensland.

Type: No. My 195t, Queentand Nuseum, one of the above specimens on a tag, the hind leg and at head on a slide.

This gems is evidently a true gall-maker allied as is Infiperilampus with Mayr ${ }^{\text {s }}$ s three gall-making generia, Fipiperilampus, indeed, seems to me to he the same as Mayr's Trichilogaster but I cannot tell because the original description of that genus is unt arailable and there may be differences in the antemna. These gall-making gencret seem true perilampids in spite of the long seutellum in sme of them and the longer, depressed abdomen. They have the labitus, in some cases, of the Fncyrtid trihe Taneostignini but there are no eneyrtid characters. They are allied with the Oleonymide and Eurytomida.

## LITERATURE REFERRED TO.

1839. Walker, Francis. Monographia Chalciditum, London, It.
1840. Cameron, Petcr. Proceedings Linnean Socicty of New South Wales for the year 1911, Sydney, xxxyI.

# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA-VI.* 

## The Family Pteromalidae with Descriptions of New Genera and Species.

By A. A. Girault.

## INTRODUCTION.

Whole portions of this great family are barely represented in the Australian fauna. The Sphegigasterini seems the most numerously, the Pteromalini the least, represented of the trikes. Tlie large series of old-world genera are rarely met with and species of the type genus are few, one species ouly having been found so far in our extensive collections. This paper includes a large number of the genera but the species must, be much more numerous than the few recorded here.

Tribe PTEROMALINI.

## GENUS IIERAPORUS Walker.

## 1. MERAPORUS NIGRIVIRIDIS Girault. Female.

Dark metallic green, the head and thorax (excludng the propodeum) bronze, the abdomen shining black; fore wings with a rather obscure, round stained spot against the submarginal rein just before its apex, otherwise lyaline. Legs deep fuscous, the coxx concolorous; atemme black, the siaje and pedicel brownish. Marginal vein slightly longet than stigmal the latter slightly longer than postmarginal. Punctate. Iropodeal spiracle long-elliptical, the median carina half "omplete 1 rom have, the lateral ones complete. Parapsidal furrows alont hilf complete. Funcle 1 longest, much shorter than pedicel, cup-shaped, the distal funicle joints wider than long; club not culareded. Clypeus striate.

Hatitat: Tasmania (King Island).
Type: No. I. 13y7, South Australian Museum, Adelaide.

## Genvs PTEROMALUS Swederus.

It is almost needless to say that the great number of species patalngued under this genus in many instances do not belong here. Walker has described the following species as members of it from Australia. I have seen only one species of the genus which is probably the common muparmm of Linnaus but it is not recorded as such for the reason that the identity of this species is doubtful and its oceurrence iu Australia, though probable, camot be said to be proved. It is even doubtful whether auyoue knows what pugrarum is. There are too many members of its genus, tribe and family (not to mention miscogasterids) resembling it not to be fearful that mistaken ideutifications have been made in the past, especially since its type is unknown and its various descriptions vague and conflicting. Perhaps, fifty years

[^76]or more ago, nearly every green ptoromalid or miscogasterid reared in connection with the chrysalids of butterlies was identified as mupurum. The present position of this genus is certainly chaotic to sily the least. To study the group a systematist mould noed an open sesame to all museums and libraries. If wo rould afford to lose the old records concerning members of the genus, it would not be a bad plan for someone to commence a modorn study of the group ignoring all former species and fixing the genotype. This is the darker, evil horn of the dilemma but may become necessary.

## 1. PTEROMALUS BATON Walker Male, female

 Walker, 1839, pp. 32-33.Habitat: Hobart, Tasmania; Sydney, New South Wales.
Types: Probably in the Natural History Mnseum, London.
This species seems correctly placed.
2. PTEROMALUS BEBIUS Walker Ma'e, female.

Walker, 1839, pp. 31-32.
Habitat: Sydney, New South Wales.
Types: Probably in the Natural History Museum, London.
3. PTEROMALUS ELPINICES Walker. Fem le, male.

Wralker, 1839, p. 32.
The species seems correctly placed.
Habitat: Hobart, Tasmania.
Types: Probably in the Natural History Museum, London.
4. PTEROMALUS EUCTEMON Walker. Female, male.

Walker, 1839, p. 31.
Habitat: Sydney, New South Wales.
Types: Probably in the Natural ITistory Minseum, London
5. PTEROMALUS EUROPS Walker. Female.

Walker, 1839, pp. 30-31.
IIabitat: Sydney, New South Wales.
Tyne: Probably in the Natural History Museum, London.
6. PTEROMALUS FABIA Walker. Female, male.

Wralker, 1839, pp, 33-31.
Mabitat: King George's Sound.
Types: Probably in the Natural History Museum, London.
\%. PTEROMALUS GORGIAS Walkcr. Male.
Walker, 1839, p. 34. This species may be a miscogasterid.
Halitat: Sydney, New South Wales.
Type: Probably in the Natural History Museum, London.
8. PTEROMALUS HESUS Walker Female.

Walker, 1839, p. 33. This species seems correctly placed.
Habitat: Hobart, Tasmania.
Type: Probably in the Natural History Museum, Londou.
9. PTEROMALUS NIPHE Waiker. Female.

Walker, 1839, p. 29. This species seems truly placed.
Habitat: Hobart, Tasmania.
Type: Probably iu the Natural History Museum, London.
10. PTEROMALUS OCEIA Walker. Female

Walker, 1839, p. 30. Apparently in its right genus.
Habitat: Hobart, Tasmania.
Type: Probably in the Natural History Museum, London.
11. PTEROMALUS PUPARUM (Linnæus) Swederus.

Ashmead, 1900, p. 345. (See preceding remarks.)
Mabitat: New South Wales; Europe, North America.
Host: Papilio ereetheus.
Type: Unknown.
12. PTEROMALUS THESTOR Walker. Female.

Walker, 1839, pp. 29-30. Seems correctly placed.
Habitat: Hobart, Tasmania.
Type: Probably in the Natural History Museum, London.
13. PTEROMALUS UNCA Walker.

Walker, 1839, p. 28.
Habitat: Hobart, Tasmania.
Type: Probably in the Natural History Mirseum, London.

# 14. PTEROMALUS STIRONOTUS Cameron. 

(Fmeron, 1912, 1p. シ1: 211.
Dark copjery green, al.domen dark lronay-volaceous, antemal sape yellow, flagellum finscous; legs yellow, darker at hase, tarsi paler; wings liy:alne, slightly tinged with fuscons in the middle, nerrures black. Netanutum with a distinct keel down its centre, the sides distinctly margined, narrowed obliquely towards the apex, depressed inside the lateral keels. Head and thorax not rery shining, smooth, front aid rertex with some minute punctures. Vertex rather deeply, widely, roundly emarginate. Antenual seaje seqarated flom the ocelli by one-third of their leugth. Oeelli in a curve, the hinder separated from each other by douhle the distance that they ure trom the eyes. I'alpi yellow. Apex of elypeus slightly, romindy incisend.

Thorax fincly, elosely punctured and sparsely haired; the abdomen much more shining. The under side of the base of the antemal flagellum may be testaceous; the coxm may be backish. The stigmal vein is as long as the postmarginal. Thorax roundly narrowed at the base. Scutellum large, longer than wide, the apex broadly roundel. Abdomeu shorter than the thorax and wider than it, broadly oval.

Mabitat: May, New South Wales.
Type: Query.
Host: Agrotis species.

## Genus NEOCATOLACCUS Ashmead.

## 1. NEOCATOLACCUS AUSTRALIENSIS new species.

Female:-Length, 9.20 mm .
With all of the characters of the genus but the spiracular sulens certainly somerbat obscure and the transeense carina on the propoderm does not aproath the median carina on each side; also the propodeal spiracles are rather small, elliptical. Antemat bike those figured for Psendocalolacess asphomlytice Masi with its original description. Dark metallie wrecn or blue, the coxie concolorons, the femora fuscous or bluish, rest of legs pallid. Wings healine. Seare and pedicel yellow, the funcle and chal dusky. Catudal margiu of secoud abdoninal segment straight or consexed. The lateral carinas are short and cmrved, rmang toward the meson aud forming the transverse carina.

Mate:-Antennas with only two ring-joints, the abdomen shorter and stouter and with much of the centre of proximal half vellowish or brownish. Funicle aud club black, the joints of the funicle subguadrate and subequal. Pubescence not adpressed nor conspienous but short. Vertex not especially thin.

Described from two males, four females captured from a window, November 16, 1911. Also a fenale reared in December, 1912, from miscellaneons forest galls.

Ilabitat: Jelson (Cairns), Queensland and Port Darwin, Northern Tervitory.
Types: No. 1596, Queensland Mnsenm, two males, two females on a tag, male and female head together on a slide.

Later, one male, four females were received from G. F. LIIl, who reared them from the " grain moth,'" January 1, 1913, at Port Darwin, Northern Territory. On the propodeum there is a round fovea $\mathfrak{a}^{2}$ cephalic margin over halfory to the spiracle from meson.

## Genus Trichoglenes Thomson.

## 1. TRICHOGLENES BRACONOPHAGUS Cameron.

Trichoglencs (?) braconophagits Cameron, 1912, pi. 214-215.
"Trichoglenes (?) braconophagus, sp. n.
"Head and thorax dark hronzy-hack, elosely reticutated; abdonen smooth and shining, violaceous-black; metanotum slightly more finely reticulated than the scutelhm, its sides bordered by a distinct, roundly eurved furrow; its ajex is much more strongly reticulated than the rest; pronotum less strongly than mesonotum; afex of metanotum with a rounded slope. Antemal scape and legs rnfofulvons. Wings hyaline, nervere rufo-testaccous; stigmal lranch longish, curred, as long as postmarginal, dilated at apex; the two forming a longish triangle, longer than it is wide at the apex; apex of wings shortly ciliated. $\hat{o}$. Length, 1.5 mm .
"Sydney; " parasitic on a Braconid parasite"; 21st June."
"From the appearance and structure of the cocoons, I have no doubt that they are those of an Apantelcs. which, from their spimning their cocoons in company, are preyed upon by varoht larasitie Hymenoptera, Ichneumonida (e.g., Hemiteles), Braconila, Chalcidida, and Proctotrypida:
"The aldomen in the $\delta$ is brondly oral, in the $o f$ it longer (hut still shorter than the thorax), and much more sharply pointed at the apex; the oripositor shortly projects. The femora and tibite are darker-coloured, more iufnscated, in the of than in the $\hat{\delta}$. There is a broarl, smooth keel on the apex of proplemre, and a shorter, narmoner one on the base of the mesopleure. The second abdominal regment is slightly shorter than all the following mited, the third is abont one half its length. Flagellum of antenne deusely pilose; antennæ inserted opposite the end of the eyes.
"I am not certain abont the generic position of this species, owing to my not being able to make out, with certainty, if the eyes are pilose or bare. If pilose, the species might be roferred to Trichoylenes Thomas.'

## Tribe RAPifitelini.

## Genus Nasonia Girault and Sanders.

## 1. NASONJA BREVICORNIS Girault and Sanders.

This species is parasitic upon the house or typhoid fly and may be found in Australia. So far it has not been fomd out of the United states of America except, perhaps, at Honohlu. Muscidifuras raptor should also be looked for here.*

## Tribe ROPTrocerini.

## GEAUS ORMYROMORITIA Giranlt.

lifud tibie with the spur wery long and stout. Antenno with three ring-joints, the club solid, eleren joints, the funicle joints wider than long and subpetiolate, shorter than the pedicel. Abdomen subsessile, stont, conic-ovate, somewhat longer than the rest of the body, densely scaly and with seattered thimble punctures. Fore wings banded, the stigmal and postmarginal veins rather long and subequal, each about two thirds the length of the marginal. Propodeum with a meditu carina two thirds complete from base; no other carinæ, no sulci. Parapsidal furrows incomplete. Both maudibles tridentate. Pubescence of mesonotum somewhat like that of Catolaccus.

* Later, a specimen was found from Brisbane.


## 1. ORMYROMORPHA TRIFASCIATIPENNIS Girault. Female. Genotype.

Dark metallie blue-green, the flagellum brownish. Head and thorax finely shagreened, the incisions of abdominal segments sinooth. Fore wings with the middle black stripe longest, the first across from base of marginal vein, the middle from whole of postmarginal vein, the third around the apex; of the two white stripes between the three bands, the first is longest (proximo-distad). Funicle 2 longer than 1.

Habitat: Port Lincolu, South Australia; Sydney, New South Wales.
Type: No. I. 1264, South Australian Mnseum, Adelaide.

## 2. ORMYROMORPHA TRIFASCIATA Girault. Female.

Same as the type species but larger, the stignal and postmarginal veins longer; the middle stripe of fore wing is longer, the third stripe shorter, just around apical edge, the white stripes hetween the three, subequal; scape and pedicel brown. Funicle 1 longer than 2.

Mabitat: Hobart, Tasmania.
Type: No. I. 1265, South Austratian Minseum, Adelaide.

## Genus Parurtella Girault.

Like Uriclla Ashmead but the mandibles tridentate, the lateral carinæ distinct, also the median, the hind tibial spur long and slender. Antenne 12-jointed with two ring- and three club joints, the five funicle joints subquadrate. Postmarginal vein longer than the stigmal, the latter less than half the length of the marginal. Scutellum simple. Parapsidal furrows complete. Abdomen only slightly longer than the thorax, depressed.

## 1. PARURIELLA AUSTRALIENSIS Girault. Female. Genotype.

Bright aeneous green, the wiugs hyaline; knees, tips of tibiee and tarsi yellow-brown; renation dark hrown. Antenna black, the pedicel only sliglitly longer than funicle 1. Densely punctate including propodemn; aldomen sealy. Cephalic tibio sometimes paler.

Mabitat: Mittagong, New Sonth Wales; Brisbane, Queensland.
Type: No. I. 1316. South Australian Museum, Adelaide.
A female of this species mas captured by Mr. H. Hacker at Brishane on flowers of Becckea, April 22, 1913. It is in the Queensland Mnseum on a tag (a slide with the head and cephalic and hind legs).

Genus Urtellotdes Girault.
Like Criclla Ashmead but the antennæ bear three ring-joints, the mandibles 3 - and 4 dentate, the propodem triearinate, the lateral earina grooved interiorly; spiracle of propodeum small. oval. Parapsidal furrows incomplete. Somemhat like Neocatolaccus Ashmead. Antennæ inserted elose together. Club) 3 -jointed.

## 1. URIELLOIDES FULVIPES Girault. Female. Genotype.

Dark metallic 1,lue green. the legs (except coxio) lemon yellow, the wings hyaline; serpe pallid, suffused with dusky, the flagellum reddish bronn, subelavate. the first three
funicle joints subquadrate and subequal, distinctly shorter than the pedicel, the others widening and slightly shortening. Punctate, the propodeum practically smooth. Scape loug, eylindrical.

Mabitat: Cairns, Qucensland.
Type: No. I. 1345, South Australian Mruseum, Adelaide.

## ROPTROCEROPSEUS new genus.

Female:-Mead normal, the antenna inserted below the middle of the face, about on a line with the rentral ends of the eyes, 12 -jointed with two ring-joints, the club 3 -jointed. Both mandibles 4 -dentate. Parapsidal furrows complete. Scutellum with a transverse suture before apex. Propokemm short, polished, with a distinct median cariua, the cephalic and posterior margins foreate, the lateral carinm absent. Second abdomiual segment occupying somewhat over a third of the surface, the others much shorter. Postmarginal vein a little longer than the stigmal, the marginal still louger but moderately short. Somewhat like Paruriella Girault but the mandibles with more teeth, the scutellum not simple, the propodeum without lateral carinæ, the hind tibial spur normal.

Male:-Not known.
Type: The following species.

## 1. ROPTROCEROPSEUS ALBICORNIS new speeies.*

Female:-Length, 1.50 mm .
Dark metallic blue and punctate, the wings hyaline, the propodeum and abdomen bluegreen, the antemat and legs (exeepting the concolorous coxa) yellowish white. First funicle joint longest, subequal to the pedicel, the distal one a little wider thau long, shortest, the club somewhat wider than the funicle, without a nipple or terminal seta; scape long and slender.

Described from one female captured by sweeping near and along a forest streamlet clothed with more or less jungle growth, Angust 17, 1913.

Habitat: Nelson (Cairns), Queensland.
Type: No. IIy 195\%, Queensland Museum, the above specimen on a tag, the head and hind legs ou a slide.

A secoud female was captured in the forest at Nelson, September 6, 1913.

Tribe MERISTNI.

## Genus A MICROMELUS Giranlt.

This genus was referred to the Pteromalidw by mistake. It belongs to the Miscogasteridæ, tribe Trydymini, near Metastenus Walker. The type has been re-cxamined and additional specinuens seen.

## Tribe BRACHYSCELIDIPHAGINI.

## Genus CGelocybA Ashmead.

Nonmetallic; mandibles dentate; antenne short, strongly clavate, inserted near the mouth border, the pedicel large; stigmal vein as loug as the marginal, clavate. Pronotum short. Parapsidal furrows well defined. Axillon widely separated. Abdomen sessile, conie orate, depressed. Hind coxm large, compressed.

[^77]
## 1. CEELOCYBA NIGRICINCTA Ashmead. Female. Genotype.

Brownish yellow; shagreened; ocelli in a triangle, blark; occiput, cephatic face of pronotum, parapsidal furrors, the sutures of scutellum, metathorax and broad bands at base of all dorsal segments of alodomen, black; wings hyaline, the venation pale yellowich. All joints of fumicle rery short, transserse-linear. Propodeum short smootl. Postmarginal rein very long, longer than the stigmal, the marginal shorter than the stigmal. Abdomen a little longer than the head and thorax combined.

ILabitat: Syduey, New South Wates. Forest; associated with an agromyrid gall on Eucalyptus corymbosa.

Type: Cat. No. 4898, United States National Museum, Washington, D.C., U.S.A.

## 2. CGELOCYBA ACINCTA new species

Female :-Length, 1.45 mm .
IIomey yellow, tho wings lyyaline, the legs and antenna concolorons; all of centre of axille, two stripes down seutum, one on each side of meson, ecphalic ents of parapsides and portions of schtellim obscurely (meson broadly and a stripe domm each side of it), faintly reddish hrown. Tip of valres of oviposior black. Toth mandibles tridentate. Miud tibial spur stout but not especially long, the front and hind femora compressed. Thorax finely densely scaly, the scutum mith seattered short, black pubescence; parapsidal furrows delicate lut distinct and complete. Scape compressed, the enlarged, ovate club obliquely trunctate from one side. Antennir 13 jointed, the funcle joints all transwerse-linear, widening distad, the club apparently solid (here counted as of three joints; first two or three funicle joints like ring-joints). Seutellun fluttened.

Male:-Not known.
Described from one female captured by sweeping the foliage of shrubs (mostly lantana) in an open field near town, October 21, 1911.

Habitat: Mackay, Queensland.
Type: No. IIy 1958. Queensland Muscum, the abore specimen on a tag (the head accidentally destroyed following examination).

This genus closely resembles fomm of the Taneastigmini of the Encyrtidn, more especially Tancostigma Howard but the divided mesoplemum at once points to its proper family where I think Ashmend has emperty plased it. The parapsidal furmows are quite normal for its family. It also closely resembles Coclocyhomyia Giratit MS. of the Cleonymine whose type species is also colored mukh like Ashmead's nigricincta.

## Genus TEROBTELLA Ashmead.

Mandibles acute, edeatate; nonmetallic; abdomen short, globose, depressed above; marginal rein not or searcely longer than the stigmal vein; metathorax rery short. Stigmal rein ending in a small knob; abdomen with the first dorsal segment occupying half or more of the surface. Postmarginal vein a half longer than the marginal, the latter slightly shorter than the stigmal. Antenna inserted near the middle of the face; funcle joints wider than long. Parapsidal furrows complete. popodenm alrupt, smooth mesad, punctate lateral aspect, the spiracle small, younded. Abdomen broudly oval.

## 1. TEROBIELLA FLAVIFRONS Ashmead. Female. Genotype.

Mostly black, polished, impunctate; vertex and tembles hlack; face ventrad of cephalic ocellus, cheeks, mandibles, palpi, antenne and teguldo hrownish yellow; thorax and abdomen entirely black. Legs yellow, the coxit fuscous. Wings hyaline. Scape slrort, subcompressed; pedicel subglobose; ceplalolateral angles of fonicle joints acute.

Habitat: Sydney, New South Wales. Gall on Erucalyptus.
Type: Cat. No. 4897, United States National Museum, Washington, D.C., U.S.A.

## GENUS IBRACHYSCELIDTPITAGA Ashmead.

Differs from T'crobiella Aslmead in having the stigmal knob moderately large, the dorsal segments of the abdomen short. Marginal and postmarginal rems about equal, a third of the length of the submarginal, the stigmal rein a little shorter than the marginal. Flagellnm clavate, all funicle joints wider thau long.

1. BRACHYSCELIDIPHAGA FLAVA Ashmead. Female. Genotype.

Yellow, smooth or nearly, the wings lyaline; occipat, pronotum on cephalic face, a spot on scutum, one on imner angle of parapside, a large spot on middle of scotellum, sutures surrounding the latter and the propodeum hrown-black. Abdomen dusky or bromish except second segment. Pedicel almost twice longer thar thick at apex, much longer and stouter than first three funicle joints combined; funicle 1 very small, as long as thick, joint 2 also smali, a little wider than long, the following gradually widening and lengthening.

Habitat: Sydney, New South Wales. Associated with Brachyscelis prileata.
Type: Cat. No. 4896, United States National Mnseum, Washington, D.C., U.S.A.

## Genus Isoplatotdes Girault.

Antennæ inserted slightly above the ventral cuds of the eyes, 13 -jointed, with two ringjoints, the club 3 -jointed; funicle 2 lougest. One mandikle tridentate. Metallic. Marginal, postmarginal and stigmal veins long, the postuarginal three fourths the length of the marginal, a fourth longer than the stignal which is slender. Propodeum short, the lateral carino present. Wings fasciate. Parapsidal furrows shallow. Abdomen conic-ovate, flat dorsad. Propodeal spiracle round. Scutellum simple.

## 1. ISOPLATOIDES BIFASCIATUS Girault. Female. Genotype.

Dark metallie green, the seape and tarsi fulvous, rest of legs and antenno black or nearly. Knees and tips of tibieo lighter; first fuscous stripe of fore wing from base of marginal vein, the second from the postmarginal vein, the first lengtleming caudad; the second stripe extends nearly to apex. Head and whole throms densely punctate. Fimicles $3-6$ quadrate, 6 slightly wider than long; proximal club joint equal to half of that region.

IHabitat: Port Lincoln, Sonth Australia.
Type: No. J. 126\%, South Australian Museum, Adelaide.

## 2. ISOPLATOIDES BIPUSTULATUS Girault. Female.

The same as the type speecies but the legs reddish brown, the antenneo suffused with brown; median carina of propodemm distmet, complete, also the lateral carinæ; fore wings
with two fuscous dots, the first reniform and from the apex of the submarginal vein, the second rounded and much smaller, in the centre of the blade, caudo-proximad of the knob of the stigmal vein.

Mabitat: Mount Wellington, Tasmania.
Type: No. I. 1268, South Australian Museum, Adelaide.

ISOPLATA new genus.
This genus was proposed by Arnold Foerster in 1856 for Isoplata geniculata Foerster a nomen nudum because of nondescription. I adopt the name for both the genus and species following. The species fits the Foersterian generic description as given by Ashmead, 1904. The antennw are inserted near the middle of the face, 13 -jointed; scutelhm with a delicate cross-furrow. Stigmal vein about half the length of the marginal, the posturarginal somewhat longer than the stigmal. Both mandibles 4 -dentate.

The following type species.

## 1. ISOPLATA GENICULATA new speeies.

Female:-Length, 1.45 mm .
Metallic brassy grass green, the wings hyaline, the legs straw yellow except the hind cosa, the antenno yellow, the club darker, the first funicle joint narrower than the others, all of them shightly longer than wide and subequal to the short pedicel. Parapsidal furrows deep. Whole thorax polygonally reticulate, the cross-suture of scutellum eurginate at the meson, the propodeum without carina?. Second abdominal segment somewhat the longest, the abdomen conic-ovate, short.

Male:-Not known.
Described from four females captured by sweeping Leptospermum, Arril 16, 1913 (H. Hacker).

Mabitat: Brisbane, Queensland.
Type: No. IIy 1959, Queenslaud Museum, two specimens on a tag, three heads on a slide with a hind log.

## CCELOCYBOIDES new genus.

Female:-Differing from Colocyba Ashmead in having the hind tibial spur very stout, curved and long, half the length of the hiud tarsi, in having a transerse suture across the scutellum, in bearing antennæ which are only 11 -jointed, in having the rery long stigmal and postmargiual veins subequal and distinctly shorter than the margiual, the fore wings banded and with a deaso clump of stiff black bristles upon the bend of the submargiual vein. First abdominal segment no longer than the second, both logether occupying about a fourth of the surface. Mandihles tridentate. Club solid.

Male:-Not known.
A genus resembling Erotolepsiella Girault of the Miscogasteridæ.
Type: The following species.

## 1. CGELOCYBOIDES PAX new species.

Female:-Length, 2.00 mm .
Ochreous or reddish yellow, the first two segments of the abdomen pale yellowish, rest of abdomen dark brown; fore wiugs with a uarrow brommish band across from the clump of black setw ind another large one, oval in shape, across from apex of the marginal vein and all of stigmal. Thorax deusely shagreened, the propodeum rather long and with a neck, rugulose. Coxx and tarsi concolorous, rest of legs brownish, the hind femora aud tibix blackish, the latter white at tip. Antemmo dusky yollowish, the first two funicle joints small and subequal like ring-joiuts, the others (there are eight) widening, all much wider than long; club short and stout, more or less obliquely truncate at apex.

## Male:-Unkuown.

Described from, one femalo captured by sweeping in forest, December 2, 1911.
Habitat: Australia-Nelson (Cairns), North Queensland.
Type: No. Hy 1960, Queeusland Museum, the above specimen on a tag, the hind tibir, a fore wing and the head on a slide.

## Genus CELOCYBELLA Girault.

Noticing a discrepancy between the position of this genus and its original description, I hare re-examined the type, finding the mesepimeron large, the hind tibial spurs double, short, and stout, the frout femora swollen but simple, the hind femora less swollen and simple; also there is a sulcus on the propodeum between the spiracle and the meson but not a spiracular sulcus. It belongs to the Perilampidet, allied with the tropical gall-makiug genera which are anomalous.

## Subfamily EUNOTLNAE.

## Genus AliUscidea Girault.

Differing from Muscidea Motschnlsky in bearing 11 -jointed antenne with one rery short ring-joint, the club 3 -jointed. Mandibles tridentate. Parapsidal furrows complete, the scutum with thimble punctures; scutellum with a transverse suture before tip; propodeum very short, spareutly with a weak pair of median carino, no others. Abdomen ovate. Marginal rein short, abont twice the length of the moderate stigmal which is somewhat longer than the postmarginal. Segment $\because$ occupying a third of the abdomen. Hiud tibial spur moderately long.

## 1. AMUSCIDEA NIGRIPES Girault. Female. Genotype.

Dark aeneous green, the wings hyaline; proximal four tarsal joints yellowish. Antenna nearly black. Tip of scutellum bluish, the thorax polygonally scaly. Funicle joints all longer than wide, 1 very slightly shorter than the short pedicel. Scape longer than the club.

Habitat: Mouut Tambourine, Qneensland. Jungle?
Type: No. I. 1317, Sonth Australian Museum, Adelaide.

Subfamily SPHEGIGASTERINA.
Tribe AsAPlifit.
GEnus TOMOCERA Howard.

1. TOMOCERA CALIFORNICA Howard. Female, male. Genotype.

Howard, 1881, p. 368. Ashmead, 1900, p. 345.
Ashmead records Moraniln lestaceipes Cameron descrihed from Oahu, Hawaii as a synonym of this species; also that there is a sperimen of this species in the collections of the Uniteü States National Museum, Washington, 1).C., from Australia. The species is an associate of commercial crops.

Mabitat: North America (California). Sandwich Islands. Australia.
Host: Lecanium olea
Type: Probably in the United States National Museum, Washington, D.C., U.S.A.

Genus ophelosia Riley.
Riley, 1590, p. 249.
"Closely resembles in habitus Dilophogaster Howard (see Amn. Rept. Dept. Agr., 1880, p. 368, trhere it is described as Tomocera, subsequently changed to Dilophogaster on account of the preoceupation of Tomocera in Thasanura), with which it ngress in many characters, but from which it is sharpiy defined. 'The antemnal peculiatities are identieal in the two forms, viz: The simple, clavate, 10 -jointed female anteman, fund the rompressed, servate, hairy, 9 -jointed male form. The wings in Ophelosin differ markedly, as follows: The sub-marginal rein is not curved downward; the matwinal is more that twice as long as the stigmal; just below the bend of the sub-marginal in the female is a broad patel of rery stont bristles arising from the wing surface. The petiole of the abdomen is nearly as loug as the width of the metascutum; the fimrior of the callus are very ilense, but short. The tufts of hair at base of abolomen are sparse. The hind tibio are furnished at tip with a long, slender, slightlycurred spine, nearly as long as the first tarsal joint, while in Ditophogaster it is entirely unarmed.',

## 1. OPHELOSIA CRAWFORDI Riley.

"Femalc.-Leugth, 2 mm.; expanse, 4 mm . General color honey-yellorr, somewhat darker dorsally than ventrally. LLead: face and vertex strongly transverse-rugose; ocelli concolorous; cyes darker; antemm with rlul) more dusky and with joints $2-6$ of flagellum paler than the rest. Thorax: pronotmm and mesonotum phamly shayrened, with sparse, appressed concolorous pile; mesocutcllum faintly striate; lateral parts of mesoscutum strongly rugose, the centre faintly so; the foum mesoscutellar pilifemons tubercles ats atso the bairs, black, a small spot behind each tegula and the literal parts of the mesoscutum black or blackish; fimbria of metascutum white; wings with a natrow chrved transverse dusky band reaching from the bend of the submarginal vein to hind horler of wing including the pateh of wing bristles; also witl a latge nearly circulan dusky slate below stigmit ind reaching nearly across wing; legs miformly honey yellow with the coxe sometimes brownish above. Abrlomen with basal joint dark brown, and more or less hrown at sides and near tip.
"Matc.-Slightly smaller; seullture ideutical throughout. Pile rery inconspicuons, dark. General color black, shining; all legs homey-yellow; the upper sides of the hind femora and tibies somewhat darkened: hind coxe blick; fiont and middle eoxe honey-yellow at tip; antenno with the seape honey yellow, and the funicle bromish; wings perfectly hyaline.
" Described from four female and two male specimens reared by F. S. Crawford, at Adelaide, from specimens of Icerya purchasi received from S. Australia, 50 miles south of Adelaide."-Riley, ib., 11. 249-250.

The figure given with the original description of this insect shows a solid club in the female and thins $I$ am inclimed to think the following species are congeneric with it though both Riley and Ashmead state the antenne to he 10 -jointed which would make the club 3 -jointed. In the original deseription the propodeum is mistaken for the petiole. Ashmead, 1900, p. 345, records it from syduey. The types are probably in Washington.

## 2. OPHELOSIA SAINTPIERREI new species.

Female:-Lengtli, 1.60 mm .
Like Asaphomorphella Girault but the autenno with a distinct ring-joint, the first funicle joint a little longer than wide, the second quadrate, the last or next troo a little wider than long; also the proporleum is large, long at the meson, a little longer than wide and produced into a neck; ovipositor not exserted. Hind femor:a subsimple, the front femora subcompressed. Mandibles tridentate. Propodeum rugulose. Ochrous, the abdomen brownish, the legs - concolorons, the hind tibia more or less dusky; antenua dusky pallid, the solid elub dusky. Fore wing with a chump of dark latirs at the break of the summarginal rein and a narrow transverse fuscous stripe which, however, does not reach the eaudal margin; a broad fuscous stripe across from the apical third of the marginal and all of the stigmal veins. Thorax scaty, with distinct aeneous tinges on scutum and scutellum.

Male:-Not known.
Described from a single female captured by sweeping in forest, February 16, 1911 (A. M. Lea and A.A.G.).

ILabitat: Nelson (Cairns), Queensland.
Type: No. Iy 1961, Queensland Nuseum, the above specimen on a tag, the head and legs on a silde.

## 3. OPHELOSIA PINGUIS new speeies.

Female:-Length, 1.50 nim .
Like Asaphomorphella rousseani Giranlt bat the ovipositor not exserted, the propodeum apparently the same but subconical and rugose with interlacing carine, the antenno with a true ring-joint. First fumicle joint longer than wide. Postmarginal vein a little longer than the stigmal. First femora swollen. Reddish brown, the distal parts of scutum and scutellum mashed with metallic greenish. Cross-stripe from bend of sulomarginal rein not complete and there is a rather broad brown stripe across the wing from end of marginal and all of stignal reins. Thorax finely scaly. Distal half of abdomen fuscous. Tarsi whitish, the hind tibia exteriorly fnscous. Antenns yellow-brown, the club fuscous, the three distal funicle joints subquadrate.

Mate:-Not known.
Describer from one female captured from a windorr, November, 1912.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1962, Queensland Museun, the above specimen on a tag, the head, fore and hind legs on a slide.

The antenno of samtpierrei and pinguis are identical; pinguis is much darker in general color and the two species seem to differ in the details of the sculpturing on the propodeum but which is not describable. Epon comparison I could not detect other differences. Both species resemble the figure giveu of the genotype by Riley.

## Genus Asaphomorphelda Girault.

Antenma S-jointerl, the elub solid, no ring-joint but the first funicle joint transverse, only half the length of the second; hind tibial spur very long and stout; mandibles tridentate; propodeum very short, transverse, but medially broadly produced beyond tho insertion of the hind coxæ as in Lelaps; abdonen short, stont, its petiole short and stout, the second segment occupying three fourths of the surface, the ovipositor exserted for over half the length of the abdomen. Hind femur swollen. Wings fasciate, the marginal vein a little over twice the length of the stigmal which is a third longer than the postmarginal. No carinæ on metathorax. Funicle joints wider than long, the club large, ovate.

1. ASAPHOMORPHELLA ROUSSEAUI Girault. Female. Genotype.

Iloney yellow, the distal two thirds of abdomen and hind tibir fuscous, also the flagellmm, the club black. Fore wing with a large subspherical smoky area across it frou the stigmal vein and a transverse smoky stripe at the bend of the submarginal vein where there is also. a dense clump of black bristles.

Habitat: Port Lincolu, Sonth Australia.
Type: No. I. 134\%, South Australian Muserm, Adelaide.

## ASAPHOIDEUS new genus.

Female:-Agreeing with Asaphes Walker but the antennæ only 11-jointed with one ring-joint, the club 3 -jointed, the funicle joints transverse, the flagellum clavate. Mandibles strongly tridentate. Marginal rein twice the length of the sligmal, the latter a third shorter than the postmarginal. Pronotum large, as long as the scutum, and quite as in the Fnrytomidx. Scutellum with a foveate cross furrow at proxinal two thimes, heyond that polished. Propodeum with median and lateral carime, the former forking at apex and joining the distal ends of the lateral carina. Eetiole long, the abdomen conic-ovate, the fifth segment oceupying over half the surface. Thorax finely lined. Tind tilial spur normal. Antenna inserted at the mouth border.

Male:-Not knotru.
This genus resembles a nonpunctate genus of the Eurytomini but I think I have correctly allied it with the Asaphine Sphegigasterini.

Type: The following species.

1. ASAPHOIDEUS NIGER new speeies.

Female:-Length, 1.50 mm .
Black, the wings hyaline; abdomen polished. Knees, tibix and tarsi yellowish brown. Antennæ yellow.

Described frow one female labelled "No. 12 Stapleton, N.T. 1.5.13. G. F. Hill."
Habitat: Stapleton, Northern Territory.
Type: No. Hy 1963. Queensland Museum, the above specimen on a tag, the head and a hind leg ou a slide.

## Tribe SPHEGIGASTERINI. <br> Genus SYNTOMOPUS Walker.

## 1. SYNTOMOPUS AUSTRALIENSIS Girault. Female.

Very dark metallic green, the legs except the coxe and antennap pale straw yellow, the wings hyaline; sentellum withont a cross-furrow, Venation very pale, the long postmarginal rein nearly equal to the marginal, the stigmal long but shorter than the postmarginal. Both mandibles 4-dentate, the two inner teeth equal. Nost of the funcle joints longer than wide. Pronotum long but not especially so. Antennæ 13 -jointed with two ring-joints. Vertex not narrow.

Habitat: Kuranda and Nelson, Queensland. Jungle.
Type: Ňo. Hy 1.964, Queensland Museum.

GFNus Prerosmanelta Girault.
Differing from Pterosemuloerster in kearing three ring-joints in the antennæ. Mandibles 4-dentate. Pronotum transverse. Scutellum simple. Propodemm tricarinate, reticulated. Petiole of abdomen not quite as long as the hind eoxit, the second segment rery long, oceupying three fourths of the surface, its distal margin straight; segment 3 much shorter. Postmarginal rein three fourths the length of the marginal, the stignal two thirds the length of the long postmarginal. Clypeus bidentate.

## 1. PTEROSEMELLA VIRIDIS Girault. Male. Genotype.

Bright metallic green, the aldomen black suffosed with brownish, the legs straw yellow, the coxe more or less metallic greenish laterad. Polygonally reticulate-punctate, the abdomen smooth and shining, fincly reticulated distad. Wings hyaline.

Habitat: Queensland.
Types: No. Hy 1965, Queensland Museum.
Host: Eggs of Antherea simplex.

## Genus spIIEGIGASTEROIDES Girault.

Differing from Pterosema Foerster in having but one ring-joint, the mandibles only bidentate, the second tooth brond, the hind tibiw compressed toward tin, the body nonmetallic and particolored, the fore wings colored. Petiole of abdomen short and stout, the second segment not oreupying more than a third of the surface, its raudal margin incised at meson. Propodeum rugulase, the spiracle oval, tricarinate, the median carina also with two irregular carine oll each side of it. Stigmal ind postnarginal veins subequal, about half the length of the marginal. Funicle 1 suhequal to the pedicel.

1. SPHEGIGASTEROIDES RUFINOTUM Girault. Female. Genotype.

Shining black, the pro- and mesothorax and the head rufous, also the scape. Fore wings with a large smoky blotch nnder the marginal vein which extends more than half way across the wing and conically distad leyond the stigmal rein. Head and thorax finely punctate.

Habitat: Sydney, New South Wales.
Type: No. I. 1950 , South Anstralian Museum, Adelaide.

Wings rery small, with a rely long marginal rein, the stigmal and postmarginal reins short, subequal, the hind rings perfect. T'arapsidal furrors nearly meeting caudad. Profodeum with a median carina whose middle is crossed l y a semicircular carina and whose apex is forked. Second segment of abdomen over a third of the leugth of that region. Antemar 12 -fohtal, no ring-joint, the first finicle joint longest tut not as long as the pedicel. Scotum conical, the seutellum with a cross-line of fover at distal third. No true lateral carina on propolewm. Difforing from Crios Giranlt, from North America in lacking a ringjoint in the antemar, the median groove and the sule of propodemm and in the shate of the mesothoracic scleriter, the lower antennal insertion (here at the rentral ends of the eyes), the infns:ated wings and ringed antenne and the slight and short parapsidal furrows. With a distinct lelapine habitus. Nandibles tridentate.

## 1. PARURIOS AUSTRALIANA Girault. Female.

Shining reddish brown, the legs concolorous, also the scape and pedicel: first two funiclo joints and the club whitish, the rest of the funicle nearly black. Abdomen with a broad darker stripe across hase, a narrower one across the middle and with the conical distal third of the same dark color but dorsad also washed with more or less metallic green. A broad band of opaque black across the mesonotum at the base of the fore mings. Dise of fore wings with a large fuscous clond from distal thid of the marginal vein, the whole blade light brown, densely pmbescent distad and nearly truncate at apex. Petiole of abdomen longitudinally striate. Thorax alutaceous, a few punctures in the cross-land of black and the sattered, long, black bristles.

Habilat: Ourimbah, New South Wales.
Type: No. Y. 1®66. South Australian Miuseum, Adelaide.

## Genus PTEROSEMOIDEA Girault.

Like Fterosema Foerster but the antenna with three ring-joints; propodemm long, with lateral carino and an obsente, olntuse median carina at base only, the neek distinct. Postmarginal rein long, mearly as long as the marginal which is a third longer than the welldeveloped stigmal. Abdominal petiole short. At least one manlible $\ddagger$-dentate. Differs from Ptcrosemella in lacking the complete median earina on the propodeum. Segment 3 of abdomen only half the length of the second, the abdomen acntely convexed beneath at midde.

## 1. PTEROSEMOIDEA FLAVIPES Girault. Female. Cenotyre.

Metallic grass grem, the abdomen darker; pumetate, including the propodemm; seape and legs except tarsi hrownish follow; rest of antenna dusky yellowish. Wings hyaline. Seape long and slender; pedicel somewhat shorter than the first funiele joint which is subequal to the next two joints, the distal joint only slighty wider than long. Club somewhat wider than the funiele, 3 -jointed, orate.

Hatitat: Port Lineoln, South Australia.
Type: No. I. 1339, South Australian Museum, Adelaide.

## GENus APTEROSEMOIDEA Girault.

Differs from Pterosemoidea Girault in having the abdomen flat, not convexed beneath nor sunken above, the second and third segments long and subequal, together oceupying orer half of the surface; neck of propodeum much less distinct. Petiole nearly as long as the hind coxa.

## 1. APTEROSEMOIDEA NIGRIVIRIDIS Girault. Female. Cienotype.

Nearly hlack, the abdomen dark metallie blush; coxio and most of femora concolorons, the rest of the legs yellowish; wings hyaline; seape dark fuscous, the flagellum black.
 punctate; abdomen depresed, the segments tollowing 2 and 3 a third shorter and subequal. Head and thorax coarsely punctate, the abdomen smooth. Propodeal spiracle minute, round. Funicle joints all somewhat longer than wide.

Habitat: Mittagong, New South Wales.
Type: No. I. 1310, South Australian Musemm, Adelaide.

## Genus Eutry dinotellad Girault.

Like Furydinota l'oerster hat the antenas with thre ring-joints, the joints of the funicle all longer than wide, the second longest, the first some what shorter than the pedicel. Propodeun only with lateral carine, with a distinct nerk. Nandibles 3- and 4 -dentate. Segment 2 of abdomen occupying over a third of the surface, sulequal to the loug segment 3. Postmarginal vein slightly longer than the stigmal. Parapsidal furrows nearly half complete. Petiole of abdomen nearly as long as the hind coxa.

## 1. EURYDINotella prima Girault. Female. Genotype.

Dark neneous green, the wings hyaline, all of each leg reddish brown, the tarsi pallid; abdomen darker, smooth. Head and all of thorax densely punctatc. Scape and pedicel fuscons, the former paler proxinad, the flagellum back. Joints 2-4 of funicle subequal, longest, the first and last joints subequal. Distal club joint terminating in a small nipple. Ring-joints increasing in size distad.

Habitut: Murray Bridge, South Australia.
Type: No. I. 134, South Australian Musemm, Adelaide.

## 2. EURYDINOTELLA VIRIDICOXA Girault. Female.

Differs from prima in bearing concolorous coxa, the femora fuscous proximad and the pedicel is colored like the funicle. Joint 4 of funicle is distinctly shorter than joint :Pronotum impunctate, very minutely scaly.

Habitat: Capeville (Pentland), Queensland. Forest.
Type: No. $\Pi$ y 1966, Queensland Museum.

## Gexus APTEROSEMOIDELLA Girault.

This genns is allied with Plerosemoidea and Aplerosemoidea but differs in abdominal. mandibular and wing characters. Both mandibes are + dentate, the stigmal vein is long, the fore wing infuscated, the abdomen is slightly contexed beneath, its second and third segments together not oceupying over a third of the surface.

## 1. APTEROSEMOIDELLA BIOCULATA Girault.

Dark aeneous green, the abdomen darker; legs concolorous, the tibion brown, the tarsi paler. Antenno brownish, the third ring-joint largest, the first funicle joint slightly longer than the pedicel. Stigmal vein long and slender, but not as long as the postmarginal, the fore
wing with two distinct fuscous spots, the distal one round and just under the knob of the stigmal vein, the proximal one larger, crescentic and originating from the base of the marginal vein. Abdominal petiole rery short, the second segment only slightly longer than the third, longest. Median carina of propodeum apparently absent.

Habitat: Port Lincoln, South Australia.
Type: No. I.1311, South Australian Mnseum, Adelaide.

## GENus EURYDINOTOMORPIA Giratult.

Differs from Eurydinotella Girault in having the abdomen long, pointed conic-ovate, the second segment orenhying ubont a fifth (or slightly more) of the surface, the abdomen longer than the head and thorax united. Postmarginal vein rery long, wer twice the length of the stigmai. Propodeum with abhreviated median and lateral carine. Parapsidal furrows ahout half complete. Segment $\because$ of abdomen about four times the length of the third; segment 4 nenrly twice the length of 3 ; segment 7 subequal to 2. Petiole short. With the labitus of Sympiesus of the Eulophidæ.

## 1. EURYDINOTOMORPHA PAX Girault. Female. Genotype.

Metallic shining blue, the abdomen aencous green, the wings hyaline, the venation, tarsi, tips of tibir and scape pale yellow, the femora and tibite reddish brown, the coxe concolorons. Pedicel and first riug-ioint more or less pallid. First club joint forming over half the club, subequal to funicle 3 which is a fourth longer than the pedicel. Pubescence on seutum somewhat as in Catolaceus. Reticulated, the proprodeum more densely so, the abdomen finely so. Funicie and elub black, funicle I longest. Abdomen above purple.

Mabilal: Thabinda, Queensland. Jungle.
Type: No. My 100\%, Quecusland Tiseuin.

## 2. EURYDINOTOMORPHA FUSCIVENTRIS new species

Agreeing with the type of the genus in all structures but the short median carina on the propodem is absent and the marginal and postmarginal veins are shorter, the latter very long but not extending nearly to apex. Dark acneons green, the adodomen chestnut brown, the legs also brown, the wings hyaline; propodeum conical, reticulate-pumetate like the rest of the thorax; abbreviated lateral carine fresent; abdomen slender, eylindrical, the seond segment crabrous. 'Jhorax with pubescence somewhat as in Calolarcus; segments of abdomen beyond the second, very finely transbersely linealated. (oxe slightly washed with metallic. Antenna 13-jointed (tbree ring joists, the five funicle foints all longer than miale) ; distal elub joint distinctly shorter than the poximal one. King-joints increasing in size distad. Mandibles 3 - and 4 -dentate.

Mrale:-Not known.
Described from one female captured by sweening the foliage of lantana and other plants in a ficld near the tom, October 21, 1911.

Mabitat: Mackay, Queensland.
Type: No. Hy 1068, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## Genus MERISMOMORPHA Girault.

Like Acroclisis Foerster but the antenne with three ring-joints, segment 2 of the abdomen occupying only a fourth of the surface, a fourth longer than segment 3 and somewhat shorter than segment 4 which is longest; segments 2 and 3 notched at the meson eaudad, and occupying half of the surface. Propodemm along the mesou with a rounded or obtuse ridge which terminates at the apex in a moundike elevation; lateral carina and a distiuct, complete spiracular sulcus are present. Petiole of abdomen slightly longer than the hind coxa. Mandibles 3- and 4-dentate. Otherwise like Pterosemoidea, especially in venation.

## 1. MERISMOMORPHA ACUTIVENTRIS Girault. Female. Genotype.

Dark metallic green, the legs excent coxe, light yellow-liown, the wings hyaline; scapo, pedicel and first two ring-joints concolorous with the legs, the rest of the antennæ dusky black. Head and thorax with a dense scaly sculpture, the abdomen smooth (at least segments 2-4, or nearly two thirds). Third ring-joint twice the length of the others, the pedicel a little longer than any of the funcle joints which are subquadrate but the last (fifth) wider than long. Tentral margin of clypeus with a tongue-like projection at meson.

Habitat: Kuranda, Queensland. Jungle.
Type: No. Hy 1969, Queensland Museum.

## 2. MERISMOMORPHA FULVICOXA new species.

Female:-Length, 1.65 mm .
Like the type species but the coxæ also concolorous with the rest of the legs, the pedicel dusky, the somewhat longer (distinctly longer than the hind eoxa) abdominal petiole bright yellow-bromn like the legs and the last two funicle joints wider than long (at least one mandible f-dentate). Median ridge of propodeum obscure.

Described from one specimen captured August 1, 1913, by streeping jungle along a forest streamlet.

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1970, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## 3. MERISMOMORPHA NIGRA new species.

Fiemate:-Length, 1.35 mm .
Blaek, the abdomen dark metallic green including the petiole which is yellowish tomard tip; mandibles 3 -dentate; coxe concolorous, the femora fuscous, rest of legs yellowish brown and also the scape; antenne black, the funcle joints subquadrate, the first ones a little lnnger, all shorter than the pedicel. Body densely punctate. Petiole longer than the hind coxa, slonter. Postmarginal rein much longer than the stigmal.

> Male:-Not known.

Deseribed from oue female captured by sweeping in forest, April 20, 1913.
Habitat: Nelson (Cairns), Queensland.
Type: No. 历y 1971, Queensland Museum, the above specimen on a tag. W

## GBNUS POLICYSTOIDES Girault.

Differing from Polycyilus Westrood in having 11-jointed antennæ, the club solid; moreover the petiole of the abdomen is shmt and stout, the median earina of propodeum is intersected by a distinet transverse carina from side to side and the cephalic margin of the proponem is earinated, the popodemu retipulated, with a distinct neck and spiracular sulci; hetween the median carina and the spiacle atong the rephatic margin is a large fovea. Mandibles strongly tridentate. Transverse suture of scutsilum firint. Segment 2 of abdomen occupying ahout a fourth of the surface, the ahomen siont, conicorate, somewhat longer than the thorax, the cambal magin of the segments straight. Thoras inflexed at the seutellum. Head very large, wider than lomg. Postmagimal rein longer than the stigmal. Distal margin of scutellum carinated. Antenne with two ring joints. Parapsidal furrows incomplete, the axillæ widely separated.

## 1. POLYCYSTOIDES TENNYSONI Girault. Female, Genotype.

Dark blue, opaque, and punctate, the wings hyaline, the abdomen shining, aeneous green; legs and antemer yellowish brown but the cox: dark blue aod the club (which is enlarged) and distal funicle joint is black. Ring-joints stout; first three funicle joints distinctly longer than wide, 2 and 3 longest, subequal, each a little shorter than the pedicel; joint 4 only a little longer than wide, joints 5 and 6 shortening, 6 distinctly much wider than long. Club about half the length of the funicle. Scape long and cylindrical. Tarsi pale.

Itabital: Nelson (C'airus), Queensland.
Type: No. Hy 19~9, Queensland Museum.

## Gentis PSEUDOSPIIEGIGASTERUS Girault.

Antenne 11-jointed with three ring-joints, the club solid and terminating in a short niple. Propodenm nonearinate, rather long and with a distinct neck; from beneath this is appended the short petiole of the abdomen (the petiole hidden from above). Abdomen pointed conic-orate, a little longer than the rest of the body, the second segment ocempying about a third of the surface. Scntellum simple. Parapsidal furrows present cephalad only. Postmarginal and stigmil veins well developed, the former somewhat the Innger. Mandibles with at least three teeth.

## 1. PSEUDOSPHEGIGASTERUS GROTIUSI Girault. Female. Genotype,

Black, the wings densely elothed, subhyaline, the abdomen with its petiole and proximal twn thirds brownish yellow, the distal third black; legs and tegule brown, the tarsi lighter. Antenuo black, the first ring-joint whitish, funicle 5 shortest, more or less subeqnal to 1 , foints $9-4$ longest, subegual, each somenhat longer than 1 which is subequal to the pedicel. Club much longer than any of the fumicle joints. Head and thorax ronghly reticulated, the lines raised.

Habitat: Thursday Island, Torres Strait. Forest.
Type: No. Ty 1973, Queensland Museum.

## 2. PSEUDOSPHEGIGASTERUS AENEUS new species.

Female:-Length, 1.85 mm .
Difforing from grotiusi in being brassy metallic green, the coxx concolorous, the legs reddish brown, the abdomen uniformly concolorous with the thorax. Antennæ yellowish brown,
funicle 1 a little longer than 5,2 a little longer than 1 and longest, 5 quadrate. Thorax densely punctate. At least one mandible 3 -dentate, the other apparently $\pm$-dentate.

Male:-Not known.
Described from female captured by sweeping a forest streamlet edged with jungle growth, December 2, 1912 (A. P. Dodd).

Ilabitat: Nelson (Cairns), Qucensland.
Type: No. IIy 1974, Qneensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

## 3. PSEUDOSPHEGIGASTERUS VARIVENTRIS new speeies.

Female:-Length, 1.50 mm .
Almost exactly similar to acnous but characterized by having the abdominal segments nearly of equal length, all moderately long, the second not occurying more than a fifth of the surface and not much longer than the third but equal to it. In aeneus the second abdominal segment occupies a third or more of the surface and is much longer than the third which is short, the following still shorter. Also in variventris the fenora and antenna are darker, dark brown, the funicle joints all shorter, all subquadrate. The venation is darker. At least one mandible 4 -Tentate, the second probally so but not plainly seen. Compared with type of aeneus.

Male:-Not knomn.
Described from one fomale captured in forest, September 16, 1913 (A. P. Dodd).
Habitat: Kuranda, Queensland.
Type: No. II 1975, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## Genus spliegipteronenca Girault.

Antennæ 13 jointed with two ring-joints, the club 3 -jointed. Parapsidal furrows complete; propodem without a median carina; scutellum with a cross furrow before apex. Abdomen with the petiole neally as long as the hind coxer, slender, segments 3 and 4 caudad notched at the meson, segment 3 as long as 2, both together occupying not qnite half of the surface, segments 4 and 5 subequal, each not quite half the length of 3 . Propodeal spiracle long-oval. Otherwise as in Sphegipterosemelle Girantt. (hee table of genera).

## 1. SPHEGIPTEROSEMA FERALIS Ciranlt. Female. Genotype.

Dark aeneous green the wings subhyaline, the leas pallid yellowish including the second coxæ, the hind coxx dusky, the first coxx brownish and submetallic greenish. Antennæ concolorous with the body (scape not seen). Thorax with a coarse scaly sculpture, the axillm finer. Funcle joints nearly subequal, the first slightly the longest, barely longer than wide. Mandibles 3- and 4-dentate.

Mabitat: Nelson (Cairns), Queensland. Jungle.
Type: No. II 1976, Queensland Mnseum.

## Genus sphegrr'rerosemella Girault.

Differs from Sphegiptcrosemu in having the scntellum simple, the propodeum with a median carina, the petiole of the abdomen nuch shorter, the second segment of abdomen longer, its candal margin slightly convexed, the third segment much shorter than it. Propodeum tricarinate and with a distinct neek, the spirawle small, oval. Vertex wide. Mandibles 3- and 4-dentate. Segment 2 of abdomen ocenpying a third of the surface.

## 1. SPHEGIPTEROSEMELLA UNICOLOR (Girault). Female. Genotype. Pterosema unicolor Girault.

Dark metallic green, the wings hyaline, the antenuat, tegulet, legs (except coxe) ard renation fuscons, the seape fulyons. Femora and tibie (except rephalie tibia) washed move or less with motallice purphish. Head and thorax densaly polygonally reticulated, the areas nearly deep enongh for punctures, the clypeus longitudinally striate, the abdomen finely reticulated, including its short lont distinct petiole. Lateral ocelli very distant from the eye margins. Pedicel slighty longer than the first funcle joint which is shightly wifler than long and longest of the finicle. Minginal rein slender, moderate in length, subequal to the long postmarginal. The stigmal vein slender, enrved but a fourth shorter. Segments 3 and 4 of :lbdomen combined equal in length to segment 2.

Mabilat: Brisbane, Queensland.
Type: No. Hy 1997, Queensland Museuni.

## EURTDINOTELLEUS new genus.

Female:-Like Eurydinotella Giranlt but the propodeum without carinæ, punctate, with a distinct neck and the paripsidal furrows are complete but shallow and not very distinct Also the antennal club is only 2 -jointed, the distal joint somewhat the longer and with a slight nipple. Mandibles 3 - and 4 -dentate.

Male:-Not known.
Type: The folloring species (silvensis).

## 1. EURYDINOTELLEUS SILVENSIS new species.

Female:-Tength, 1.10 mm .
Black and punctate, the wings hyaline, the legs yellowish brown (including the coxa) ; abdomen shiuing; scape concolorous with the legs, the antenne black, the funicle joints cylindrical. 24 longest, subequal. 1 and 5 subequal to each other and to the pedicel, each slightly shorter than 2 : scape long and slender, projecting bevond the rertex; club long, not milarged, its proximal joint about equal to joint 4 of the funicle. Third ring-joint longest.

Male:-Not known.
Described from one female captured ky streening in inngle. November 4. 1911.
Heritat: Kuranda. Queensland.
Type: No. Hy 1978, Quecnslaud Museum, the abore specimen on a tag, the head and hind legs on a slide.

## 2. EURYDINOTELLEUS ULIGINOSUS new species.

Female:-Length, 1.40 mm .
Like silvensis but the joints of the funicle all distinctly shorter and hardly differing in length, the terminal nipple of the elub longer and more distinct, the second funicle joint only a fouth longer than wide (in the type species plainly twice longer than wide) and equal to the pedicel or nearly. The legs are paler and the general body color is dark metallic green, the thorax polygonally scaly, the propodeum with its neck rery distinct and prominent.

Male:-Not known.
Described from one female captured by sweeping in jungle, June 10, 1913 (A. P. Dodd).

Mabitat: Little Mulgrave River (C'airns), Queensland.
Type: No. Hy 1972, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

## POLYCYSTELLA new genus.

Female:-Like Polyeystus Westwood but the metathorax reticulated, the second abdominal segment oceupying only about a fifth of the surface and with a slight sinus at mesou of cadd margin, the antenne 13 jointed with three ring.joints. Propodenm with a complete median carina, the lateral canime distinct but short and rurved mesad, then abruptly continuing directly caudad or nearly, to the apex, the spiracle large, elliptical reniform.* Both mandibles 4 -dentate. Parapsidal furrows extending two thirds the way to caudal margin of the scutum. Scutelln simple. I'etiole of abdumen about as long as the hind coxie. Segments 3 nud 4 of abdomen nearly equal, longer than 2, 5 shorter than 2. Prouotum transversc. Pustmarginal vein somewhat longer than the stigmal.

## Male:-Not known.

Type: The following species.

## 1. POLYCYSTELLA FASCIATIVENTRIS new speeies.

Female:-Length, 1.85 mm .
Fright metallic green, the mings hyaline, legs white except the concolorous coxm; hind eoxæ yellow interiorly; abdomen black-green, crossed by three brown bands. Thorax densely pronctate, the axille and propodeum smoother, scaly. Antenne yellowish brown, the seape and pedicel pale yellow; funicle joints subquadrate except the first which is longer.

Described from a single female captured by sweeping in jungle, July 26, 1913.
Mabitat: Meerama and Nelson (Cairns), Queensland.
Type: No. II 1980, Qucensland Muscum, the above specimen on a tag, the head, first and last pairs of legs on a slide.

POLTCYSTELOIDES nert genus.
Type: The following species (cuprea).

## 1. POLYCYSTELOIDES CUPREA new species.

Female:-Length, 3.50 mm . Robust.
M:tallic copper-colored, the wings hyaline, the venation and legs reddish brown, the trochanters, tarsi, distal tluree fourths of hind femur and distal half of intermediate femur,

[^78]White; scape reddish brown, rest of antenna coppery. First funicle joiut long, twice the length of the pedicel, nearly as long as the club, the distal (fifth) joint subequal to the pecicel irs length; third club joint shortest. Postmarginal and stigmal veius long, the first longer, nearly as loug as the margiual. Abdomeu conic-ovate, the second segment longest, the seventh next longest, the second with a straight caudal margin and oceurying ouly about a fifth of the surface. Propodeum rather short, the lateral carinse regularly curved, forked a little beyond the middle. Thorax all closely, deusely puuctate. Petiole of abdomen very short, slender. Otherwise as in the type species of Polycystella. Coxm concolorous with thorax.

Male:-Not kuown.
Described from one female captured by sweeping iu a jungle pocket, September 3, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1981, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

The genus differs from Polycystella Girault in its more robust form, the long postmarginal and stigmal veins, the shorter third and fourth segments of the abdomen, the straight candal margin of the secoud segment, the short abdominal petiole and the forked lateral carinæ. There is a depression just back of the spiracle.

## 2. POLYCYSTELOIDES NIGRAENEUS new species.

Female:-Length, 3.15 mm .
Differs from the genotype in having a cross carina ou the propodeum proximad of middle of the median carina. Also, the neck of the propodeum is more distinct, the pet:ole less so. Very dark blackish green, the wings hyaline, the tibio and tarsi white, the feniora reddish brown with more or less metallic, the coxe concolorous. Scape and pedicel redaish brown, rest black; fifth or distal funicle joiut subequal to the pedicel, somewhat over a third shorter than funicle 1, which is longest of the fuuicle. Median carina of propodeum temninting at base (cephalic eud) of neck where it forks weakly. Compared with type of genotype. Both mandibles strongly 4 -dentate.

## Male:-Not knotrn.

From one female eaptured by sweeping in forest, September 13, 1913 (A. P. Dodd).
Habitat: Kuranda, Queensland.
Type: No. IIy 1989, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## PARACROCLISIS new genus.

Female:-Like Acroclisis Foerster but the second abdominal segment is much shorter, occupying somewhat less than a fourth of the surface, segment 3 half its length and with its caudal margin deeply concaved, segment 4 longest, twice the length of 2 and occupying nearly half of the surface. Head large, mandibles 4 -dentate. Pronotum transverse; paransidal furrows distiuct, complete. Propodeum with a long median carina, the spiracles moderate, long-oval, the spiracular sulcus present, the lateral carina distinet only at distal half, just mesad of the sulcus. Petiole slender, one and a half times or more the length of the hind
coxæ. Median and lateral carinx of propodeum joined around caudal margin. Postmarginal and stiginal veins short, the former longer of the two, only about a lialf or less the length of the marginal. Scutellum near tip abruptly truncated but without a true cross-suture. l'iopodeum with a short neck, reticulated-sealy. Antennæ 13 -jointed with two ring-joints.

Male:-Not known.
Type: The species described herewith.

## 1. PARACROCLISIS WASHINGTONI new species.

Female:-Length, 2.20 mm .
Opaque dark blne, the abdomen polished black, the wings hyaline, the coxæ concolorous, the legs otherwise reddish brown, the tarsi white. Flagellum black, the first funicle joint longest, slightly longer than wide, the others shortening in succession, the sixth very slightly wider than long; joint 1 of club longest but wider than long. Thorax densely reticulately punctate.

Described from one female captured by sweeping in forest, September 6, 1913.
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1983, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

LOMONOSOFFTELLA new genus.
Female:-Like the description of Trigonogastra Aslmeat (1904) but the lateral folds are present and half complete, the abdominal petiole is very long and slender, over twice the length of the hind coxæ, the scutpllum with a cross-suture a short distance before tip, distad of this polished, the mandibles 3- and 4-dentate, the parapsidal furrows two thirds complete. Second abdominal segment oceupying only about a fourth of the surface, its caudal margin straight or with a very slight sinns at meson, the fourth segment longest, a little longer than 2 , while 3 is somewhat shorter than 2 ; abdomen ovate, its body a little shorter than the thorax, polished. Antenne 13 -jointed with two ring-joints, the elub 3 -jointed. Postmarginal vein somewhat longer than the stignal, the wings hyaline. Whole of thorax densely, reticulately punctate except the polished portion of scutellum which is finely reticulated. A spiracular sulcus just mesad of each spiracle.

Male:-Not known.
The genus is dedicated with great respect to Michacl Lomonosoff.
Type: The following species.

## 1. LOMONOSOFFIELLA ALBIPES new speeies.

Female:-Length, 2.00 mm .
Dark metallic green, the scutellum dark coppery, the abdomen deep blue; legs white excent cephalic aspect of cephalic coxæ; scape and pedicel whitish, the rest of the antenna black; club with a minute nipple; first joint of funicle a little longer than wide, somewhat shorter than the pedicel, the distal funicle joint a little wider than long.

Described from one female captured by sweeping in a jungle pocket, July 30, 1913 (A. P. Dodd).

Habital: Nelson and Kurauda, Queensland.
Type: No. Hy 1984, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

A second temale specimen of this species was captured at Kuranda, jungle, September 12, 1913. It differed as follows: Front and hind coxa concolorous except at tip, the legs more ?ellowish, the other coxa yellowish brown; the propodeum had a very delicate obscure median carina and its distal end dorsad was glabrous (less distinctly so in albipes) ; the abdomen Was dark metallic green. Compared with type specimen.

## GENERIC TABLE OF THE AUSTRALIAN SPHEGIGASTERINI.

The Anstralian genera seem characterised, as in most Eulophidæ, by a greater number of ring-joints in the antenno, the European and North American geuera usually bearing two, the Australian genera usually three.

1. Antenuæ without ring-joints, 12 -jointed.

Wings vestigial but perfect, the marginal vein long. Parapsidal furrows nearly meeting caudad. Antennex 12-jointed. Scutellum with a cross-furrow before apex. Mandibles tridentate. Nonmetallic.

Parurios Giralt (Type: P. australiana Girault).
2. Antennie with but one ring-joint, 13 -jointed.

Parapsidal furrows complete. Mandibles bidentate. Nonmetallic. Petiole of abdomen shorter than the hind coxa, the second segment not occupying more than a third of the surface, its caudal margin incised at meson.

Sphegigasteroides Girault (Type: s. rufinotum Girault).
3. Antennæ with two ring-joints.

Antennal club solid; auteunx 11 -joiuted.
Parapsidal furrows incomplete; petiole of abdomen short and stout; median carina of propodeum intersecter hy a transverse carina, the propodeum with a distinct neek and spiracular sulci. Mandibles tridentate. Scutellum with a faint cross-sutme before apex.

Polycystoides Girault (Type: P. tennysoni Girault).
Antennal club 3-jointed; antennæ 13-jointed.
Parapsidal furrows complete.
Petiole of abdomen slender, distinctly longer than the hind coxpo.
Segment 2 of abdomen rery large, occupying full two thirds of the surface, the following very short; pronotum large quadrate; vertex narrow. Syntomopus Walker (Type: S. thoracicus Walker.)
Segment "- of abdomen occupying less than a fourth of the surface, segment 3 half as long, 4 longest, twice the length of 2 and occupying nearly half the surface; pronotum transverse; mandibles 4-dentate. Paracroclisis Girault (Type: P. washingtoni Girault).
Petiole of abdomen no longer than the hind coxe.
Scutellum with a eross-firrow hefore apex; petiole of abdomen nearly as long as the hind coxe; segments 3 and 4 of abdomen notched at meson of caudal margin, segments 2 and 3 subequal, combined occupying not quite lalf of the surface. Propodeum without a median carina.

Sphegipterosema Girault (Type: S. feralis Girault).

Scutellum simple; petiole of abdomen shorter than hiud coxa; segment 2 of abdomen nuch longer than 3,3 and 4 not notched; propodeun witl a median carina.

Sphegipterosemella Girault (Type: S. unicolor Girault).
Parapsidal furrows incomplete.
Petiole of abdomen twiec or more longer than the hind coxæ; scutellum with a cross-suture before ajex.

Propodeum with incomplete lateral carine, the median absent; mandibles 3- and 4 -dentate; segment 2 of abdomen occupying only a fourth of the surface, its caudal margin with a very slight sinus at meson, segmeut 4 longest, a little longer than 2. Postmarginal vein a little longer than the stigmal.

Lomonosoffiella Giranlt (Type: L. albipes Girault).
4. Antennæ with three riug-joints.

Antennal club solid; anteuno 11 -jointed; club with a short nipple.
Propodeun ratler long, with a distinct neck, noncarinate; petiole of abdomen short, segment 2 ocmpying alont a third of the surface, longer than 3 , which is short. Parapsidal furrows incomplete.

Pseudosphegigasterus Girault (Type: P. grotiusi Girault).
Antennal club 2-jointed; antenna 12-jointer.
Propodeum noncarinate, with a distinct neck; petiole of abdomen nearly as long as the hind coxo; parapsidal furrows complete but not very distinct; segments 2 aud 3 of abdomen long and subequal.

Eurydinotelleus Girault (Type: E. silvensis Girault).
Antennal club 3-jointed.
Parapsidal furrows complete.
Second segment of abdomen longest or as long as segment 3 ; petiole not longer than hind coxæ.

Propodeum without a complete median carina, the lateral carinæ present, the median carina obtuse, obscure and at base only.
segment - of abdomen about twice the length of 3 ; postmarginal rein vearly as long as the marginal. Abdomen convexed rentrad, its petiole short.

Pterosemoidea Girault (Type: P. favipes Girault).
Segment 2 of abdomen suberpual to 3 , together occupying over half of the surface, the petiole nearly as long as the hind coxa. Nandibles 3- and 4-dentate.

Apterosemoidea Giranlt (Type: A. nigriviridis Girault).
Segment 2 of abrlomen only slightly longer thau 3 , together the two ocenpying less than a third of the surface; mandibles 4-dentate; stigmal vein long. Petiole of abdomen very short.

Apterosemoidella Giranlt (Type: A. bioculata Girault).
Propodeum tricariuate.
Segment 2 of abdomen occupying three fourths of the surface, its candal margin straight, the petiole not quite as long as the hind coxro. Nandibles 4 -dentate.

Pterosemella Girault (Type: $P$. viridis Girault).

Second segment of ablomen not as long as segment 4; petiole longer than lind coxa.
Segment 2 of abdomen occupying only a fourth of the surface, a little longer than 3 and somewhat shorter than 4; segments 2 and 3 noteled at the meson caudad; propodeum without a median carina, monnd-like at apex; mandibles 3 - and 4-dentate.

Menismomorpha Girault (Type: M. acutiventris Girault). Parapidal furtors not complete, only cephalad.

Segments 2 or 3 of abdomen longest, their candal margins straight (entire).
Segments 2 and 3 of abdomen long and subequal occupying half the surface.
Petiole of abdomen nearly as long as the hind cowm.
Mandibles 3 - and 4 -dentate; pronodeum with a distinct neek and lateral carino. Abdomen not long. Postmarginal vein slightly longer than the stigmal.

Eurydinotella Girault (Type: E. prima Girault).
Segments 2 and 3 of ahdomen mequal, 2 longer, combined occupying much less than half of the surface.
Petiole of abdomen muth shorter than the hind coxe.
Propodeum with abbreviated median and lateral carinæ; abdomen long, fointed conic-ovate, longer than the rest of the body; postmarginal vein twice the length of the stigmal; segment 2 of abdomen oceupying a fifth of the surface, four times the length of 3. Mandibles 3- and 4-dentate.

Eusydinotomorpha Girault (Type: E. pax Girault).
Propodeum tricarinate, often with a cross carina, the lateral carinæ forked; mandibles 4 -dentate; segment 2 of abdomen necupying about a fifth of the surface, abdomen conicosate; postmarginal and stigmal veins long, the former the longer, nearly as long as the marginal.

Polycysteloides Girault (Type: P. cuprea Girault).
Segments 2 or 3 of abdomen not longest.
Petiole of abdomen nearly as long as the hind coxac.
Propodeum tricarinate, the lateral sfrina irregularly curved; mandibles 4 -dentate; segmexts 3 and 4 of abdomen nearly equal, longer than - , which bears a slight sinus at meson of eaudill margin. Postmarginal vein somewhat longer than the stigmal.

Polycystella Ciranlt (Type: P. fascintiventris Giranlt.j.

## Tribe PaCHYNEURINI.

Genus Pachycrepoldeus Girault and Sanders.

## 1. PACHYCREPOIDEUS DUBIUS Girault and Sanders.

One female on a window, Nelson, North Queensland, March 29 and April 13, 19.52. This is a parasite of the cosmopolitan, omnipresent Musca domestica Linnæus, so that it is not ctrprising to find it iu Australia. It was described from North America. Later, another female was found in a vial labelled "From window, Cooktown, Q., Feb. 6, 1912," and ahother from a window at Herberton, December 28, 1911.

## Genus Pachyneuronella Girault.

Differing from Pachymeuron Walker iu bearing but eleven antennal joints with two ringjoints, the funicle 4-joiuted; petiole of abdomen extremely short; flagellum short and clavate, the funicle joints transverse; scutellum simple. Propodeum very short, noncarinate. Mandibles tridentate, the third tooth broadly concavely truncate. Marginal vein about twice longer tran wide, the postmarginal rein a mere spur, the stigmal also rery short, merely a minute knob on a rery short petiole, not half the length of the marginal which widens distad. Abdomen conic-ovate, convexed rentrad near base.

## 1. PACHYNEURONELLA VIRIDIS Giranlt. Female. Genotype.

Dark metallic green, the abdomen very dark; wings clear; legs concolorous, the tibire dusky, the tarsi pale. Body with very fine velvety sheening as in Tetrastichus. Pedicel short but longer than any of the funicle joints: proximal club joint equal to half of the club.

Mabitat: Adelaide, South Australia.
Type: No. I. 1338, South Australian Museum, Adelaide.

## Subfamily DIPARINA. <br> Genus Panstenon Walker.

## 1. PANSTENON AUSTRALIS Girault. Female, male

Brown-black, the head and thorax washed with metallie green, the abdomen and all of legs brownish; fore wings slightly embrowned; antenne concolorous with the head. Head and thorax with a fine polygonal sculpture, the propodeum with a netrork of interlacing rarinæ; a long, irregular carina laterad of the spiracle.

The male is the same but the pronotum is brownish, the distal two thirds of abdomen dusky.

Habitat: Cairns, Queenslaud. Forest bog.
Types: No. IIy 1985, Queensland Museum.
2. PANSTENON AUSTRALIENSIS rew species.

Female:-Length, 1.25 mm . Slender.
Somewhat like anstralis but smaller and more slender, the wings hyaline and the body dark shining metallic black-green suffused with brownish, the legs pale brownish including the coxre, much of the femora concolorous. Antennæ wholly black, scape and pedicel somewhat lighter. Thorax reticulated, the propodeum rugose. Antennw with all the funicle joints subequal and longer than wide. Both mandibles 4-dentate. Propodeal spiracle exceedingly minute, round, the carina laterad of it obscure or absent.

## Male:-Not known.

Described from one female specimen captured by sweeping jungle growth along a forest stream, June 29, 1913.

Habitat: Nelson (Cairns), Queensland.
Type: No. $\Pi$ y 1986, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.
3. PANSTENON BELLICOSUS new speeies.

Fcmale:-Length, 2.10 mm .
Like the preceding but longer and dark metallic purple, the scntellum aeneous; legs including coxæ and ventral abdomen excepting at tip yellow-brown; centre of abdomen abore at proximal half or more yellow-hrown except at extreme base. Autenne as in the preceding but the scape yellow. Vertex broad; pronotmm large, subquadrate, the parapsidal fmrows incomplete. Head black-blue or else purple.

Male:-Not known.
Described fiom one female captured by sweeping jungle along a forest streamlet, May 6, 19:3.

Mabitat: Nelson (Cairns), Queensland.
Type: No. Hy 19S7, Queensland Dusem, the above specimen on a tag, the antennre and hind legs on a slide.

A second female was captured Angust 23 by sweeping in forest.

## 4. PANSTENON GRACILIS new species.

Female:-Length, 1.50 mm .
Almost exactly similar to bellicosus but the vertex is much thinner, the abdominal petiole and cephalic two thirds of pronotum and propleura yellowish brown and the head and thorax are wholly dark metallic green, the abdomen more broadly black across base and with a small round spot at the meson in the yellow just proximad of the metallic black-green distal fourth. Also the marginal vein is shorter, the body still more slender.

Male:-Not knowu.
Described from one female captnred by sweeping in the forest, Angust 20, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1988, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

## SUBFAMILY SPALANGIINA.

Genus SPALANGIA Latreille.

## 1. SPALANGIA GROTIUSI new species.

Female:-Length, 2.20 mm .
Like australiensis Ginatt, which is subaencots black, but the prouotum has a line of fover across it just before tip (cuntal margin) and the abdomen is glabrous. Also the antenne are slightly different, the second funicle joint a little longer in this species. Neck of pronotum scabrous in hoth species. Abdomiual petiole (orotiusi) longitudinally striate; face with a median line of small forex from almut the ceplatie ocelhs to mear a point opposite the rentral ends of the eyes; also two other similar iines but shorter and originating alparently at each autenual insertion and running dorso-mesarl to a point a little dorsad of the rentral end of the median foreate line; face otherwise glabrous. In australiensis, the pronotum is alutaceons and not as rough as the surface of the abdomen.
Male:-Not known.

Described from one female captured by sweeping partly cleared forest, second growth, July 2, 1912. Respectfully dedicated to Hugo Grotius.

Mabitat: Nelson (Cairus), Queensland.
Type: No. IIy 1989, Queensland Museum, the above specimen on a tag, the antennæ on a slide (with the type of Prospaltella seminigriclava).

## 2. SPALANGIA AUSTRALIENSIS new species.

Female:-Length, 1.70 mm .
Shining hack, the wings hyaline; legs concolorous, the tarsi white. Autenna 10-jointed, the chub somewhat enlarged and shorter than usnal, the pedicel elongate, the funicle joints all short, wider than long but the first subquadrate, not half the length of the peedicel whice is nearly as long as the clnl. Mandibles hidentate. Abdomen rery finely densely reticulated, the fourth segment longest. Propodeum glabrous, margined nearly all around with forer and with lateral foveate lines, at the meson a pair of these which tonch heyond the middle and are separated by a carina, proximad. Scutellum glabrous, at distal third crossed by a faint line of minute pin-punctures; just back (caudad) of this on each side at lateral margin is an isolated, distimet puncture-forea, round. Suture between axillo and scotellum foveate. Axilla with sereral seattered pin-runctures discally. Cephalad of the transperse line of scutellum on each side. a short longitudimal line of foree (3 or 4 ) and on each side of the meson about tro foven caudad in a longitudinal line. Sentum finely alutacens, together with the head bearing obscure scattered setigerous punctures. Parapsidal furrows foveate. Pronotum densely sculptured Jike the abdomen.

Male:-Not kuonn.
Described from two females captured from windows, December 28, 1911.
Habitat: Herherton, Queensland.
Type: No. Hy 1990, Queensland Museum, one of the above specimens on a tag, the head on a slide.

## 2. SPALANGIA VIRGINICA new speeies.

Male:--Length, 1.50 mm .
Differs from the preceding in being a little mure brassy and in lacking the cross-line of forem at distal third of the scutellum. Also the abdomen is smoother while the impunctate areas of the thorax show a very minute reticulation like that of the abdomen. First funicle joint as long as the next two combined.

Female:-Not known.
Described from one male captured by sweeping in a jungie, Jane 24, 1913 (A. P. Dodd).
Habitat: Nelson (Cairns), Queensland.
Type: No. Hy 1901. Queensland Musenm, the above specimen on a tag.

## Genus Spalangiomorpha Girault.

Antennæ \&-jointed, the club solid, no ring-joint. Fore wings naked, with long marginal cilia, resembling those of Sigmiphore but the stigmal rein is normal. Cephatic and posterior femora swollen hat simple. Mandibles 4 -dentate. Head simple. Funicle joints subpuadrate. Postmarginal rein tery short but distinct. Fore wings with a dense tnft of hiack hristles at the hend of the long sulmarginal rein. Hind wings as in Signiphora. Abdomen rolmst. With the subfamily characters.

## 1. SPALANGIOMORPEA FASCIATIPENNIS Girault. Female. Genotype.

Reddish browt, the abdomen black, the fore wing with a brownish stripe across it from the distal half of the marginal and the stigmal veius, the hand not crossing to the cephalic margin at the stignal rein; also beneath (against) the tuft of setio a small brownish spot. Longest marginal cilia equal nearly to a third of the greatest wing width. Scutum and scutellum metallic purplish black; petiole of abdomen (which is short) and the legs yellowish. Ginbrons, the profodeum finely transversely limolated. Face more yellowish about the elypeus. C3al black, the distal funcle joint fuserns, rest of antema yollowish brown; pedicel somewhat le nger than the first funcle joint which is slightly longer than mide, the distal joiut of funicle wher than long. Pedieel not long. Ovipositor slightly easerted.

Iabilat: Port Douglas, Nelson and Cooktown, Queensland: P'ort Darwin, Northern Torritory.

Type: No. Hy 1999, Quecusland Museum.
This species is rather commonly met with on the windows of grocery stores and $\mathrm{Mr}_{1}$. G. F. Hill has sent me specmens from the Northern Territory, where he reared it from a " grain moth."'

## 2. SPALANGIOMORPHA FRATER new species.

Female:-Length, 1.35 mm ., excludiug ovipositor.
Tery similar to fusciatiponnis but the first funicle joint wider than long, the thorax Wholly reddish bromn (scutum and seutellum tinged with purplish); in the type species, the pronotum is washed with metallic purple in addition to the scutum ant scutclum which are motallic purple; the brownish abdominal petiole is longer as is also the exserted portion of the oripositor (whitish at hase in both speries). The propodem is finely, transwersely innenlated in both species, the rather long second abdominal segment deeply incised at meson candad. In frater, the strju across the fore wing appears to project distad at eentre far beyond the stimmal vem; the rasarted portion of the oripositur is wer a fouth the lengeth of the abdomen.

Male:-Not known.
Described from one female captured by sweeping in a jungle pocket, September 8, 1913 (A. P. Dodd).

Hnbitat: Nelson (Cairns), Queensland.
Type: No. IIy 1993, Queensland Museum, the above specimen on a slide (with the type appendages of Folycystcloicies cuprea (firault).

## LITERATURE REFERRED TO.

1839. Walker, Francis. Nonographia Chalciditum, London, I.
1840. Howrard, Leland Ossian. In John llenry Comstock, Rep. Ent. f. 1880, U. S. Dep., Agric., Washington, D.C., U.S.A.
1841. Riley, Charles Ťalentine. Insect Life, Division Ent., U. S. Dep. Agric., Washington, D.C., U.S.A., II.
1842. Ashmead, Willian Harris, Proceedings Linneau Society of New South Wales f. 1900, Sydney.
1843. Cameron, Peter. Proceedings Linnean Society of New South Wales f. the year 1912, Sydney, xxxyif.

# SOME <br> SOUTH QUEENSLAND PROCTOTRYPOIDEA. 

By Alan P. Dodd.

The following species of Proctotrypoidea have been identified in a eollection of Patasitic Hymenoptera received from the Queensland Musemn. The structure and sealpture could not in all cases be satisfactorily ascertained, as the specimens were all on slides. The types are in the eollection of the Queensland Maseum, Brisbane. The magnification used was $\frac{2}{3}$-inch objective, 1-inch optic, Bausch and Lomb.

## Family SCELiONIDz.

Subfami SCELIONTN压.
Genus PLATYTELELA Dodd.
PLATYTELEIA LONGIPENNIS $s p$. nov.
F'cmale:-Length, 1.60 mm .
Shining black; legs (excluding coxa) bright red ; first five antennal joints golden yellow. Antenna as in the type species, latipemais Dodd. Forewings extending well beyond apex of abdomen; broad; ahnost lyaline; marginal cilia bery short; discal cilia rather coarse, dense; subnarginal vein attaining the costa a little before the middle of the wing; marginal vein two-thirds as long as the stigmal, which is moderately long, rather oblique; postmarginal vein two and athalf times as long as the stigmal. Structure probably as in latipennis.

Habitat: South Queensland (Kelvin Grove, near Brisbane). Describesi from one female labclled "among herbage, 6th April, '13, II. Hacker."

Type: Hy 16:5, Queensland Museum, a female on a slide.

## Gends HADRONOTUS Foerster.

HADRONOTUS sp. (?)
There was a specimen of Hatronotus in the collection, labelled "Brisbano, sweeping undergrowth, mostly Eucalypts, 20-iv-13, H. Hacker." The specimen is a male, and since there are eighteen species in the genus from Australia, I hare not further identified it.

Genus BARYCONUS Foerster.

1. BARYCONUS AMABILIS sp. nov.

Female:-Length, 2.60 mm .
Black; thorax more or less reddish brown; abdomen probably somewhat reddish brown but chiefly black; legs (including coxa) and first six antennal ioints golden vellow. Antenme ahmost as in splemdidus Dodd but the pedicel and first funcele joint are only two and a-half times as long as wide. Forewings as in splendidus. Structure, as fire as could be aseertained, as in splemdidus. Ovipositor not exserted. This species is probably coloured much as in splendidus to which it is closely related, differing ehicfly in having the ovipositor not exserted. Splendidus is also from the Brisbane district.

Mabitat: South Quecnsland (Clayfield, near Brisbane). Described from one female labelled "sweeping herbagc."

Type: Hy 1626, Quecnsland Muscum, a female on a slide in company with a Diapriid.

## 2. BARYCONUS VULGARIS sp. nov.

Female :-Length, 2.00 mm .
Black; thorax and base of abdomen a little reddish brown; legs (including coxe) and antemal seape golden yellow. Antennal structure as in amabiles Dodd. Forewings extending almost to apex of abdomen; moderately broad, the apex rather rounded; a little infuscated; submarginal vein attaining the costa distinctly beyond the middle of the wing; marginal vein short; stigmal vein moderately long, scarcely oblique, slightly convexly curved, the convexity distad; postmarginal vein a little longer than the stigmal ; basal vein rather indistinct. Ovipositor not exserted; horn on abdomen moderately long. A species probably nearest to niger Dodd and fuscus Dodd. The twenty-third Australian species of the genus.

Habital: Sonth Queensland (Clayfield, near Brisbanc). Described from one female labelled "sweeping herbage. 8-iv-13, II. Hacker."

Type: $\Pi_{y} 1627$, Quecensland Muscum, a female on a slide.

## Genus B AOONEURELLA Dodd.

BRONEURELLA BELLA sp. nov.
Female:-Length, 1.00 mm .
Head and thorax black; abdomen and legs golden yellow; antennæ fuscous, suffused with yellow basally. Antennal structure as in giraulti Dodd. Forewings a little infuseated, otherwise as in giruulti. Thorax no longer than
wide. Differing from the four described speeies of the genus in having the abiomen only twice as long as wid, all the other speeies having the abdomen four times as long as wide.

Habitat: South (Vueensland (Brisbane). Described from one female labelled "sweeping undergrowth, mostly Eucalypts, 16-iv-13, H. Haeker."

Iype: IIy 1628, Queensland Museum, a female on a slide.
Subfamily TELENOMINE.
Genus PHANURUS Thomson.
PHANURUS HACKERI sp. nov.
Female:-Length, 1.40 mm .
Blaek; legs and antennal seape lemon yellow; next five antennal joints Jellow, slightly dusky. Head as wide as thorax. Thorax twice as long as wide. Abdomen a little longer than the head and thorax united, fully three times as long as wide. Antenne 11-jointed; scape equal to next three joints eombined; pedicel slender. two and a-half times as long as wide; first funicle joint as long as the pedieel ; second and third snbequal, a little shorter; fourth slightly longer than wide; club slender, 5 -jointed, all the joints a little longer than wide, third slightly the widest. Forewings just reaching apex of abdomen; moderately narrow; hyaline; longest marginal cilia equal to one-sixth the greatest wing width, diseal eilia fine and dense in about 30 rows; submarginal vein attaining the eosta about the middle of the wing; marginal vein one-half as long as the stigmal which is moderately long, oblique; postmarginal vein three times as long as the stigmal ; venation light finsous.

Mabitut: South Queemsland ('Toohey's Hill, near Brisbane). Deseribed from one female labelled "swreping leptospernimm, 16-iv-13. II. IFarker."

Typc: Wy 1629, Queensland Museum, a female on a slide.

## Subfainly BAINA.

CERATOB AOIDES nov. gen.
Female:-Like Ceralobcus Ashmead but the head viewed from in front is triangular, being lengthened dorso-ventrad; and the antennal elub is 4 -jointed.

Iype: The following speeies (hackeri).

1. CERATOBEAOIDES HACKERI sp. nov.

Female:-Length, 1.75 mm .
Reddish brown; cyes and oeelli black; antenne somewhat dusky; legs golden yellow. Head transverse; viewed from in front, triangular; ocelli wide
apart, the lateral ones almost tonching the eye-margins; eyes large; mathdibles tridentate. Abdomer petiolate; broadly oval; as long as the head and thorax united; wider than the thorax; only one-half longer than wide; first segment wider than long, with a short, blunt horn; seeond and third subequal, the longest; remaining segments short. Antenne 10 -jointed; scape equal to next five joints combined; pedicel two and a-hall times as long as wide; funicle joints all narrower than the pedicel; first one-half longer than wide; $2-4$ very short, transverse; club large, as long as the scape, compact. 4 -jointed. Forewings very long, extending well beyond apex of abdomm; broad; slightly infuseated, but there is a very dark spot at the marginal vein, and a moderately dark line at the dpex of the stigmal rein; marginal eilia short; discal cilia fine, exeessively dense; submarginal vein attaining the eosta about the middle of the wing; marginal vein short; stigmal vein moderately long and oblique; postmarginal a.most as long as the stigmal; basal vein not indicated. Hind wings enomous; almost as long and as broad as the forewings ; hyaline.

Irabitat: South Queensland (Brisbane). Described from one female labelled "among andergrowth, 26-iv-13, II. Hacker." The species is named in honomr of the eollector.
type: Hy 1630, Queensland Museum, a female on a slide with the type of longiceps Dodd.

## 2. CERATOBTAOIDES LONGICEPS sp. nor゙.

Femalo:-Length, 1.50 mm .
Reddish brown; head blaek; abdomen, exeept first segment, blaek. Like haclecri Dodd but the head riewed from in front is longer dorso-ventrad; the spot in the forewing is muel lighter; the stigmal rein is shorter; the discal cilla is dense, but not exceedingly dense; the hindwings are broad but are only one-half as broad as the forewings.

Mabitat: South Queensland (Brisbane). Described from one female labelled as in the preceding speeies.

Type: II! 1631. Queensland Museum, a femate on a slide, with the type of hackeri Dodd.

## Family Platygasterid E. <br> Genus PLATYGASTOIDES Dodd. <br> PLATYGASTOIDES MIRABILIS Dodd.

These is a female speeimen of this remarkable species in the collection, labelled "Clayfield. Brisbane, on flowers of Backea, 23-iv-13, H. Haeker." Thespeeies had formerly been recorded from several localities in North Queensland.

## Genus APHANOMERUS Perkins.

1. APHANOMERUS RUFESCENS Perkins.

There is a female speeimen of this common species labelled "Toohey's Hill, Brisbane, sweeping Leptospermum, 16-iv-13. H. Haeker."

## 2. APHANOMERUS PUSILLUS Perkins.

There is one slide in the eolleetion containing several female speeimens of this species, labelled "Brisbane, II. Hacker."

APILANOMERELLA nor. gen.
Female:-Head a little wider than the thorax; thorax one-haif longer than wide; scutellum semicircular. Abdomen subsessile, a little longer than the head and thorax united; as wide as the thorax; first segment short, transverse; second segment long, equal to one-half the abdominal length; ovipositor exserted for a short distance. Shtemme 10-jointed, seape, pedicel, four Limicle joints and a $t$-jointed club; scape long and slender; pedied twice as long as wide; funiche joints as in the Baince, all narrower than the pedicel, first a little longer than wide; 2-4 short, transverse; club compatet, 4 -jointed. Forewings reaehing a little beyond apex of abdomen; submarginal vein terminating in a kuob at about two-fifths the wing length; basal and median veins present. Tarsi $\overline{5}$-jointed.

Male:-Like the female but the seeond funiele joint is enlarged, a little wider than the first, and not very transverse, only one-half wider than long.

A genus resembling Aphanomerus Perkins and with similar labits, but differing in bearing a 4 -jointed, though eompaet, antennal elub, and in having the same number of funicle joints in both sexes.

Type: Aphanomerella ovi sp. nov.
Feralo:-Lengtli, 1.25 mm .
Shining black; legs (excluding the coxa) golden yellow; antenual pedicel and funjcle joints golden yellew; scape and club brown. Forewings broad; hyaline; marginal eilia short: discal cilia moderately fine and dense. Ovipositor exserted for a length equal to one-third that of the abdomen.

Male:-The same, but the antenne wholly elear golden yellow.
Habitat: South Queensland (Brisbane). Described from 7 females, 1 male, labelled "Bred from eggs of a bug, 8-iv-13, H. Haeker"."

Types: IIy 1632, Queensland Museum, 7 females, 1 male on a slide.

## LIST OF PLATES.





[^0]:    * A. C. Haddon, Anthropological Expedition to Torres Strait, Cambridge, 1908, vol, vi.
    $\dagger$ The Story of Sidor, by E. Beardmore, Journ. Anth. Inst., vol. 19, 1890, p. 465.
    Also, Anthropological Expedition to Torres Strait, vol. v., 1904, pp. 28, 31, 35.
    Also, Rov. A. E. Hunt in Ethnographical Notes on the Murray Islands, Torres Straits, Journ. Anth. Inst., vol. 28 (new eeries 1), 1899, p. 5.
    $\ddagger$ A. E. Huat, Ethnographical Notes, ete., Journ. Anth. Inst., vol. 28, p. 17.

[^1]:    * See A. C. Haddon, Anthropological Expedition, vol. vi.

[^2]:    * That is, "Pole a canoe."
    $\dagger$ Made sign, " Plenty turtle here," by half squatting down and raising the arms.

[^3]:    * A. C. Haddon in Folktales, Anthropological Expedition to Torres Strait, vol. v, 1904, p. 35.
    $\dagger$ A. C. Haddon, Anthro. Exped. Torres Strait, vol. vi., 1908, p. 194, etc.

[^4]:    * Herodotus, Book 2, Ch. 95.

[^5]:    * Dr. C. G. Seligman: The Melanesians of British New Guinea (Kaiva Kuku), 1910, p. 299

[^6]:    * The meaning of " Semese" in Papuan dialect is " Warrior."

[^7]:    * Spencer \& Gillen: The Native Tribes of Central Australia, 1899, chap. v.; also Across Australia, 1912, vol. 1, p. 208.
    $\dagger$ W. E. Roth: Ethological Studies among the North-West-Central Queensland Aborigines, p. 129, Brisbane, 1897.

[^8]:    * W. E. Roth: North Queensland Ethnograplly, Bulletin No. 11; Records of the Australian Museum, vol. vii., No. 2, 1908.
    $\dagger$ Dr. Seligman: The Melanesians of British New Guinea, 1910, p. 592.

[^9]:    * Edge-Partington: Ethnographical Album of the Pacific Islands, third series, August, 1898.

    Note.-In using the terms "obverse" and 'reverse,' it is understood that the obverse side is the one figured.-R.H.H.

[^10]:    * Edge-Partington: Ethnological Album of the Pacific Islands, third series, August, 1898, p. 73.

[^11]:    * Ramsay, Proc. Linn. Soc. N.S.W. (2) i (1886), f. 158.
    $\dagger$ Boulenger, Aun. \& Mag. N. H. (5) xix, 1887, p. 171.

[^12]:    * Horn Expedition, Part 1I. (Lucas \& Frost), 1896, p. 147.
    $\dagger$ Proc. Lin, Soc. N.S.W., 1894, vol. 9, p. 715, pl. 50.

[^13]:    * P.Z.S., 1863., p 59, \& 1877, p. 129.

[^14]:    * De Vis, Annails Queensland Museum, No. 10, 1911, p. 25.

    Peters, Mon. Berl. Ac., 1867, p. 710.
    Boulenger, B.M.G. Snakes, iii, 1896, p: 331.

[^15]:    * Günther, Cat. Batr. Brit. Mus., 1858, 1st ed., p. 34.
    $\dagger$ Boulenger, Proc. Linn. Soc. N. S. Wales (2), v., 1891, p. 593.

[^16]:    * Doria, Ann. Mus. Civ. Genova, vi., 1874, p. 355, pl. xii., fig. K.

[^17]:    * Werner, Zool. anz., xxiv., 1901, p. 102.
    $\dagger$ Vogt, Sitz. Ges. nat. Freunde, 1911, p. 425.
    $\ddagger$ Mehély, Termész. Füzetek., xxiv., 1901, p. 225.
    § Boulenger, Proc. Zool. Soc., 1898, p. 480, pl. xxxviii., fig. 4.
    D

[^18]:    * Not having access to the work in which Steindachner published his description of Parapriacanthus I am unable to say whether he was the first author to associate Kurtus and Pempheris under tho family name Kurtido, but such is possibly tho case.

[^19]:    * In another haul the Endeavour sccured specimens of the same fish on the occan slope betweon Port Stephens and Neweastle at a depth of from 22 to 60 fathoms, but obviously it would be unwise to insist on the higher figure, sinco the inference is, that a fish, which occurs at a depth of onc or two fathoms in Port Jackson, would more probably bo taken near the inshore end of the drift in the sams district.
    $\dagger$ In this conncotion it is worthy of note that the family is not mentioned in Goode \& Bean's standard work "Occanic Ichthyology," nor doos it occur $n$ the Challenger, H:rendelle, Blake, Albatross, and Investigator Reports. It is only on coastwise trawlers, such as the Endeavour and Thetis, that this family appears.
    $\ddagger$ Even this specics Snyder has ascociated with the Japancse P. umbra in a genus Catalufa, which, however, I am unable to recognise as distinct.

[^20]:    * The presence of a persistent preumatic duct to the air-bladder and the position of the ventral fins fully justifins the exclusion of Bathyclupers from the Pempherida, as insisted on by Amorican ichthyologists. The samo characteris also exclude it from the Berycomorphi. With regard to the subjugular and degenerato ventrals of Buthyclupea it is worth noting that, although the anal is similarly advanced in Leptobrama, the ventrals retain their normal position below the pectorals, as woll as their nominal devolopment; this should be a strong point in favor of the separation of tho two families. Since writing the above Regan (Ann. \& Mag. Nat. Hist. (8) xii, 1913, p. 117) has followed Gill (in Goode \& Bean, Ocoan. Ichth., 1895, p. 199) in recognizing the Bathy-lupeidoe as a distinct family, but dissociates them wholly from the Berycoidei, placing them among the Pcrcoidea near Lactarius.
    + It is due to the researches of Mr. McCulloch that $I$ am privileged to record for the first time the identity of Neopempleris with Leptobrama. Under dato 10-v-13 he writes-" Neopempheris ramsayi = Leptobrama mülleri Steind., who figures it beautifully in Denk, Ak. Wiss. Wien, xli, 1870 , $1 \mathrm{l} . \mathrm{iii}$, fig. I. Mis figure right be mads from Ramsay's specimen, it agrees so well." Also -_" I lave a large specimen nearly 300 millian. frem Fremantle." I herein, therefore, tender my tharks to Mr. McCulloch for so courteously placing beforo me the e new facts in time for inclusion in my paper, since his own "Note on Leptobrama . . . will not bo published until after your Memoirs."

[^21]:    * All the species mentioned in this list are liable to occur on some part of the Australian or Tasmanian Coasts.
    $\dagger$ Both these species are included in the list of West Australian Fishes published by Mr. Malcolm Fraser in 1903 , but further information is requisite before these records can bo accepted.
    $\ddagger$ The species printed in italies have not as yet been recorded from Australian Seas.

[^22]:    * Ann. Queensl. Mus., Ns. 10, 1911, p. 45.
    $\dagger$ Ann. \& Mag. Nat. Hist. (8) xii, 1913, p. 135.

[^23]:    * Trans. Roy. Soc. South Australia, xxvi, 1902, p. 267.

[^24]:    * Sitzb. Akad. Wien, liii, 1866, p. 456.
    † "Families and Subfamilies of Fishes," Mem. Nat. Acad. Sci. Washington, vi, p. 136. $\ddagger$ Study of Fishes, p. 537.
    $\oint$ Cambridge Nat. Hist., Fish., 1904, p. 709.
    || In Lankester's Troatise on Zoology, pt. ix, 1909, p. 458.
    I Castenau (ibid. 1) states that Richardson's type "was brought from Tasmania," and the statement has doubtless influenced subsequent authors in their treatment of the species. There is, however, no justification whatever for this assertion, since Richardson distinctly gives tho locality as above. Günther, in his list of the specimens in the British Museum (1862), refers to what is possibly the type in the following terms:-
    a. Skin, in spirits. Australia. From Mr. Gould's collection.

[^25]:    * In Richardson's figure the rays are depicted as reaching well beyond the base of the caudal.

[^26]:    * i.e. the Bass (Percalates colonorum).
    + This restricted Tasmanian distribution was first noticed by Mr. Morton Allport, who, in May, 1867, read a paper hefore the Royal Society of Tasmania "Ont the Local Distribation of some "Tasmauian Animals" (1'roe. Roy. Soc. Thas. 1867, Yp, 9 to 13), in which the following paragraph occurs (p, 10) "The large fresh-mater fish known to northern colonists as the "Black-Fish,' and the great rivar" Crayfish, abound in streams flotring' to the northern and western coasts, and aro wating in those flowing to the castern and southerm."
    $\ddagger$ Since writing this maragraph 1 find that Woods annourcement was forestalled by the Report of the Rojal (Ammission on the Fisheries of New South Wales, 1880, in which the following passage oceurs:-"The 'black-fish' (Gadopsis marmoratus) is a remarkable-looking fish, which is found in all these rivers [i.c., those of the Murray River system]; it is a mudfish, and is seldom caught except by the emptying or drying-up of a waterhole. It is said to be good, and to attain a length of $161 / 2$ inches.' My comment, appended above to Woods' record, is equally applicable in this case.

[^27]:    * I have not yet seen it here, but have good evidence of its occurrence.-D.G.S.

[^28]:    * Palæmon sp.

[^29]:    * I am indebted for the scientific bames to my colleague, Mr. H. Hacker.

[^30]:    * Proc. Linn. Soc. N. S. Wales, xxviii., pp. 876 to 883.

[^31]:    * In one example the first short spine is missing.

[^32]:    * I am unable to accept Forskal's Abudefduf, both because of its manifest barbarity, and because I cannot helieve that a writer so enlightened, and so far in intellectuelity beyond his immediate colleagues, ever intended that it should be used generically; but rather employed it as astop-gap until ho should decide on a more suitable name, similarly as other Arabian vernacular names were used by him. (See Jordan \& Snyder, Proc. U. S. Nat. Mus., xxiv, 1902, pp. 606-7). I am authorized to state that Mr. MeCulloch is in perfect agreement with me on this point.

[^33]:    * The Moreton Bay Telcgraph Station has just lately been removed from Bulwer to Cowan Cowan, and I seize this opportunity to wish Mr. and Mrs. Palmer all happiness and. succoss in their now home, which will, let us hope, prove as fertile a collecting ground as that which they have now left.

[^34]:    * Hist. Nat. Poiss., v, 1830, p. 463.
    $\dagger$ Ausl. Fisch., pl. cexiii, fig. 3.
    $\ddagger$ Brit. Mus. Catal. Fish., iv, 1862, p. 41.

[^35]:    * Woodward—Ann. Mag. Nat. His., ser. 6, xiv (1894), p. 444, plate x, fige. 1, la.
    $\dagger$ Records Aus. Mus., vol. vi, pt. i, p. 5 (i905) plates i \& ii.

[^36]:    * Zittel-Textbook of Palæontology, vol. ii, 1902, p. 95.

[^37]:    * The insects mentioned in this paper are exhibited in the Insect Court at the Queensland Museum.

[^38]:    * Proc. Zool. Soc. Lond. 1908, p. 467.

[^39]:    * Bull. Agricultural Exp. Stat. IIawaii, i, p. 202.

[^40]:    * See Vol. I, Memoirs of the Queensland Museum, pp. 66-116.

[^41]:    * Magnification of this and other species as previously.

[^42]:    * See Vol. I, Memoirs of the Queensland Museum, pp. 117-175.

[^43]:    * This and following specimens magnified with $\frac{2}{3}$ inch objective, l-inch optic, Bausch and Lomb.

[^44]:    * Cosmocomoidca renani and C. grotiusi belong here.

[^45]:    * The type male of this species has the first joint of the hind tarsus distinctly shorter and the hind femm black at tip (as regards the female type).

[^46]:    * See Vol. I, Memoirs of the Queersland Museum, Ip. 176-189.

[^47]:    * Contribution No. 15, Entomological Laboratory, Bureau of Sugar Experiment Stations, Bundaberg, Queensland.

[^48]:    * This is a mistake ; sulci take the place of lateral carine. Hind tibial spur stout.

[^49]:    * Scutum with a complete median sulcus; axila advariced cephalad of scutum; propodeum very short ; the abdomen broadly ovate; parapsidal furrows slort, distinct; venation and antennay as in Amestocharis. Horismenoides new genus (type: II. sulfureiventris new species). The genotype is metallic purple, the legs and abdomen sulphur yellow, the wings hyaline, the body highly polished; tunicle 2 purple. Jelson, N.Q.

[^50]:    * Entedonella n.g. (type : E. magnifica Gir. \& Dodd n.sp.). Propodeum with a median carina only, thecarina bounded by sulci; postmarginal vein very short. The genotype is metallic purple, the scape and legs. golden yellow, the body umbilicately punctate. Victoria.

[^51]:    * Zaommomyielia new genus (typ3: Zaommomyix oculata Girault). The funicle is but 2-jointed; in Zacmmomyia it is 3-jointed.

[^52]:    * hometimes ns long as or a little longer than the stigmal

    L

[^53]:    * This genus belongs to the Llachertini, allied with Atoposoma Masi.

[^54]:    * For other species, see pp. 262-264.

[^55]:    * For other specios, see p. 170.

[^56]:    * Elsewhere I give reasons for ronsidering this group the same as the Taneostigmini of the Encyrtidir. The group must form a subituily of the Encyrtidie.

[^57]:    * Fore wing lightly dusky under all of marginal vein, margin to margin. piceipes new species \{Nelson $\mathbb{N} Q$.:

[^58]:    * Epitetrastichus.

[^59]:    * See p. 241, footnote.

[^60]:    * Xanther, p. 205.

[^61]:    * This genus is probably founded unon erroncous observation and is probably Trichaporoidella. A second specimen has been seen of the genotype.

[^62]:    * The thoracic grooves are distinct sulci and not to be confused with impressions due to shrivelling ; those of the scutum and scutellum are alike.

[^63]:    * Eulophoscotolinx Girault; see D. 265.
    t The tribe scems to be characterised by the great variation in the number of grooves or sulci on the

[^64]:    * But the groores join around the margin. The genus is hemiptarserine.

[^65]:    * For treatment of the genus, see pp. 166-163.

[^66]:    * Tetrastichini.

[^67]:    * Pronodeum sometimes with a distinct med ai carina. Ascotolin. is misplaced. Pseudiglyphus Girault o mitted by mistake; it is characterized by the short scutum and the much advanced axilise.

[^68]:    * Tetrastichini.

[^69]:    * Euplectromorpha.

[^70]:    * If these diagnoses disagree with the descriptions, they are to be held as corrective.

[^71]:    * This table is intended for the student unfamiliar with the snbfamilies but it should be used with caution since exceptions are occasionally met with ; if the main characters fail, use composites.

[^72]:    " Sp. 1. Peri. Saleius. Mas. Viridis aeneo-varius, abdomen-atrum, pedes fulvi, femora viridiu, alce limpidoe.
    "'Viridis aeneo-varius; abdomen atrum; pedes fulvi; coxæ virides; femora viridia; ungues et pulvilli fusci; alæ limpidæ; squamulæ piceæ; nervi proalis fusci, metalis fusci. (Corp. long. lin. 4/5; alar. lin. $11 / 2$.)
    "March; King George's Sound, Australia."

[^73]:    * Contribution No. 16, Entomological Laboratory, Bureau of Sugar Experiment Stations, Bundaberg, Queensland.

[^74]:    * Not true ring-joints but gracluating in size with the funicle joints.

[^75]:    * The second species of Melanosomella Girault which belongs here. Colocybella Giranlt belongs here: see p. 313 .

[^76]:    * Contribution No. 17, Entomological Laboratory, Buraau of Sugar Experiment Stations, Bundaberg, Queensland.

[^77]:    

[^78]:    * Propodeum also with a not very distinct cross carina.

