

- Fig. 9. Posterior antenna of ditto.  $\times 400$ .  
 10. Anterior foot-jaw of ditto.  $\times 400$ .  
 11. Posterior foot-jaw of ditto.  $\times 400$ .

## PLATE XIII.

- Fig. 1. *Cymbasoma rigidum*, n. sp., female.  $\times 250$ .  
 2. Anterior antenna of ditto.  $\times 400$ .  
 3. First swimming-foot of ditto.  $\times 400$ .  
 4. Abdomen of ditto, with attached ova and caudal appendages.  
 5. First pair of swimming-feet of *Acontiphorus angulatus*.  $\times 400$ .  
 6. Fifth foot of ditto.  $\times 400$ .

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 Descriptions of some Genera and Species of *Galerucinae*.

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[Read 2nd February, 1888.]

THE examination of some extensive genera of *Galerucinae*—*Haplosonyx*, *Cerotoma*, and others—in which the anterior acetabula are described as closed or entire, has convinced me that the views expressed by myself in the Ent. Month. Mag. vol. xxiii. p. 268 are correct. In any long series of individuals belonging to these various genera I have almost invariably found some species in which, whilst certain specimens have the acetabula closed, others have them open, in some instances these opposite states occurring on the different sides of the same individual. This is strikingly the case in *Cerotoma* and *Monolepta*. Under such circumstances it must, I think, be conceded that the state of the acetabula cannot be regarded as a primary, even if it can be retained as a secondary character. It becomes therefore necessary to discover some other and more stable means by which to divide the *Galerucinae* into primary sections. This, I venture to suggest, will be found in the form and structure of the hinder portion of the prosternum. In a large number of genera, for instance *Haplosonyx*, *Enidea*, and numerous others, the prosternum, as in the Chrysomelidæ and the earlier groups of the Phytophaga, is produced just before its base into a distinct lobe or process, the sides of the lobe (in cases where the acetabula are closed) being connected with the apices of the epimera, whilst the hinder margin of the lobe is free, and usually applied to the anterior surface of the mesosternum. In a second large section of the family, represented by *Galeruca*, *Aulacophora*, &c., this subbasal lobe is entirely absent, the prosternum being connected without

break with the hinder margin of the antepectus, or true hinder border of the under surface of the thorax.

In this group the acetabula are sometimes closed by the prolongation of the epimera across the base of the prosternum to meet in the median line, as in *Galeruca* and *Menippus*. On the presence or absence of the subbasal lobe, I would divide the family into two primary groups, taking as secondary ones those derived from the spines at the apices of the tibiæ, the bifid or appendiculated claws, and from the relative length of the elytral epipleuræ. My object in making these remarks is to justify the use of characters drawn from the form of this basal lobe as a diagnostic character in the new genera described in the present paper.

Of the genera mentioned or described below, the first five have the prosternum lobed; in the rest the lobe is obsolete.

#### GENUS CHARIDEA.

*Corpus* elongatum, modice convexum. *Caput* exsertum, *oculis* rotundatis; *encarpis* elongatis, pyriformibus; *antennis* filiformibus; *palpis maxillaribus* articulo ultimo ovato. *Thorax* transversus, convexus, disco calloso. *Scutellum* trigonatum. *Elytra* parallela, modice transversim convexa, punctato-striata, interspatiis interdum costatis; *epipleuris* fere ad apicem extensis. *Pedes* robusti, simplices; *tibiis* apice muticis; *metatarsi* articulo basali ad duos sequentes fere æquilongus. *Prosternum* inter coxas distincte visum, ante basin lobatum; *acetabulis* anticis integris aut paullo apertis.

Type *Charidea punctato-striata*, Motsch.

This genus may be known from *Galerucella*, in which the typical species was placed by Motschulsky, by the lobed base of the prosternum; it ought to stand near *Enidea*, but is separated from that genus by the punctate-striate and costate elytra, and by the non-incrassate palpi.

Although the two species placed by me in this genus differ in one having closed, the other open acetabula, they agree so entirely in all other characters that I have no hesitation in placing them under the same generic head.

1. CHARIDEA PUNCTATO-STRIATA, *Motsch. Etud. Ent.* ix. p. 25 (sub *Galeruca*).

*Galeruca* multicostata, *Jacoby, Proc. Zool. Soc.* November 1885, p. 146, tab. xlvi. fig. 7.

*Hab.* Japan.

In this species the anterior acetabula are slightly open.

2. *CHARIDEA FORTUNEI*. Elongata, picea, nitida, antennis nigris, supra subnitida, pube suberecta grisea sparse vestita; thorace elytrisque sanguineis; thorace quam longo paullo latiore, fortiter punctato, disci medio bicalloso, callis lævibus; elytris parallelis, transversim convexis, fortiter punctato-striatis, utrisque bicostatis. Long.  $2\frac{3}{4}$  lin.

*Hab.* Northern China; collected by the late Mr. Fortune.

Head clothed with griseous hairs; vertex convex, separated from the front by a deep transverse groove; encarpæ contiguous, pyriform, longer than broad, extending downwards as far as the insertion of the antennæ, interantennal space excavated; lower portion of clypeus transversely excavated; antennæ nearly as long as the body, moderately robust, filiform, the second joint short, the third nearly twice its length, the fourth and succeeding ones each equal in length to the third. Thorax broader than long; sides straight and nearly parallel from the base to beyond the middle, thence slightly rounded and obliquely converging towards the apex, the anterior angle obtuse, the hinder one acute; upper surface moderately convex, coarsely and strongly punctured; on the disk are two large, slightly raised smooth callosities, separated from each other by a narrow groove, but bounded at the base, apex, and the outer margin by a deep irregular sulcation; surface of disk more or less stained with piceous. Elytra rather broader than the thorax, parallel on the sides, transversely convex, not excavated below the basilar space; each elytron with twelve rows of large, deeply impressed punctures; the fourth interspace at its base, the fifth and ninth for nearly their whole length, confluent at their apices, strongly costate; upper portions of the tenth and eleventh interspaces subcostate.

This species may be known from *C. punctato-striata* by the pubescence on the upper surface of the body, by the strongly raised costæ on the elytra, and by the piceous colour of the head, under surface, and legs. The anterior acetabula in this insect are entirely closed.

#### Genus *PLATYXANTHA*, *Baly*.

1. *PLATYXANTHA CLYPEATA*. Elongata, parallela, dorso deplanata, flava, nitida, thorace, mandibulis apice oculisque nigris; thorace transverso, lateribus e basi ad ultra medium rectis, paullo divergentibus, hinc apicem versus convergentibus; disco modice convexo, lævi, utrinque fovea parva, plus minusve distincta, impresso; elytris parallelis, ad latera convexis, dorso deplanatis, tenuiter confuse punctatis;

nigris, plaga magna communi, subquadrata, prope medium posita, flava. Long. 4 lin.

Var. A. Elytris flavis, basi et ad apicem piceo-tinctis.

Var. B. Elytris totis flavis.

*Mas.* Labro leviter incrassato, margine antico bilobato; clypei dimidio antico transversim excavato, margine antico medio bidentato; abdominis segmento anali trilobato, lobo intermedio fere plano, transversim quadrato.

*Fem.* Labro non incrassato, margine antico leviter sinuato; clypei disco antico non excavato, margine antico inerui; abdominis segmento anali apice extremo obtuso.

*Hab.* Andaman Islands.

Antennæ equal to the body in length, filiform in both sexes, rather more robust in the ♂; the basal joint slightly thickened, subclavate, the second very short, moniliform, the third and following ones each equal in length to the basal joint; maxillary palpi with the third joint obconic, not distinctly thickened in the ♂, the apical joint conic, acute; lower disk of the clypeus in the ♂ transversely concave, its anterior margin armed in the middle with two small acute teeth; lower disk in the ♀, its anterior border excepted, thickened, its lower edge unarmed. Thorax more than half as broad again as long; sides straight and diverging from the base to beyond the middle, thence rounded and converging towards the apex, the anterior and posterior angles each armed with an obtuse tooth; upper surface moderately convex, impunctate; disk impressed on each side with a small, more or less distinct fovea. Scutellum large, trigonate. Elytra broader than the thorax, parallel; upper surface convex on the sides, flattened along the suture, finely and irregularly punctured; interspaces (when seen under a deep lens) closely covered with minute punctures.

The above insect differs from the typical species in having the antennæ in the ♂ entirely filiform.

#### Genus CENIDEA, *Baly*.

1. CENIDEA CÆRULEIPENNIS. Oblongo-ovata, postice ampliata, rufo-testacea, nitida, antennis (articulo basali excepto) flavis, elytris metallico-cæruleis; thorace profunde transversim excavato; elytris oblongis, infra basin transversim depressis, tenuiter punctatis. Long.  $3\frac{3}{4}$  lin.

*Fem.* Clypeo transversim sulcato.

*Hab.* Siam.

Antennæ very slender, filiform, equal to the body in length, the second joint very short, the third and fourth each equal in length to the first; front impressed just above the encarpæ with a deep fovea; encarpæ thickened, trigonate; clypeus concave, transversely sulcate. Thorax nearly twice as broad as long; sides straight and slightly diverging from the base to beyond the middle, thence obliquely rounded to the apex; anterior angles slightly produced, obliquely truncate, the hinder ones acute; upper surface convex, very minutely punctured; disk impressed with a broad transverse excavation, which terminates at some distance from the lateral margin, but is more deeply excavated at each end. Elytra oblong, convex, transversely excavated below the basilar space, and again obsolete on the outer disk about its middle, the humeral callus thickened; surface finely punctured.

2. *CENIDEA JACOBYI*. Anguste oblonga, postice paullo ampliata, convexa, nigra, nitida, labro antennisque flavis aut fulvis, pectore abdomineque rufo-piceis; thorace transversim sulcato, sulco utrinque fortiter foveolato; elytris oblongis, infra basin transversim excavatis, fere impunctatis, rufis, apice plus minusve nigris. Long. 4-4½ lin.

*Mas.* Clypeo transversim concavo; labro ampliato, concavo; abdominis segmento anali trilobato, lobo intermedio ad apicem leviter excavato.

*Fem.* Clypeo transversim sulcato; labro paullo incrassato.

Var. A. Labro nigro aut nigro-piceo; elytris totis nigris.

*Hab.* Penang; Malacca; Borneo, Sarawak; Sumatra (*Wallace*).

Antennæ slender, equal to the body in length, and clothed with erect hairs in the ♂, rather shorter in the ♀; clypeus in the ♂ transversely trigonate, concave; labrum in the same sex dilated, rather deeply concave; clypeus in the ♀ deeply sulcate transversely, the labrum thickened. Thorax rather more than one half broader than long; sides straight and slightly diverging from the base to beyond the middle, thence converging to the apex; disk deeply excavated transversely, the sulcation terminating some distance within the lateral margin, more deeply excavated at each end. Elytra oblong, convex, transversely excavated below the basilar space, very minutely punctured, the punctures only visible under a lens.

3. *CENIDEA PALLIPES*, *Fabr. Syst. El.* i. p. 479.—Subelongata, postice vix ampliata, rufo-testacea, nitida, oculis, elytrorum apice, abdomine pedibusque posticis (tarsis sordide fulvis exceptis) nigris; antennis labroque flavis; thorace transverso, disco sat profunde transversim sulcato, sulco utrinque magis fortiter excavato; elytris oblongis, infra basin leviter transversim depressis, tenuiter punctatis. Long.  $3\frac{1}{2}$  lin.

*Mas.* Facie inferiore profunde excavata, clypeo utrinque spinis duabus elongatis armato; labro ampliato, trilobato, lobis retrorsum spectantibus, duobus externis compressis, trigonatis, intermedio lineariformi; abdominis segmento anali utrinque emarginato.

*Fem.* Clypeo transversim concavo.

*Hab.* Sumatra (*Sir Stamford Raffles*).

Maxillary palpi in the ♂ with the third joint strongly thickened and enlarged; the fourth short, nearly buried in the third; clypeus in the ♂ deeply excavated, quadrispinose; the upper pair of spines acute, the lower two incurved, clothed with coarse hairs; labrum in the same sex thickened, its hinder margin trilobate, the outer lobes trigonate, acute, the middle one narrow, obtuse; clypeus in the ♀ transversely sulcate; antennæ filiform in both sexes. Thorax twice as broad as long; sides straight and diverging from the base nearly to the apex; disk finely but remotely punctured, transversely excavated, the sulcation more deeply impressed on each side, abbreviated before reaching the lateral margin. Elytra finely punctured.

This insect in v. Harold's Catalogue stands as a variety of *Haplosomya sumatræ*.

#### Genus CYNORTA, *Baly*.

1. *CYNORTA OCELLATA*. Anguste elongata, parallela, flava, subnitida, oculis nigris; thorace quam longo paullo latiore, disco trifoveolato; elytris parallelis, longitudinaliter costatis, interspatiis subseriatim punctatis. Long.  $2\frac{1}{4}$ – $2\frac{1}{2}$  lin.

*Mas.* Facie inferiore profunde excavata, quadrituberculata, tuberculis duobus posticis conicis, duobus anticis compressis.

*Hab.* Malacca, Singapore (*Wallace*).

Eyes large, black; antennæ very slender, filiform, slightly exceeding the body in length; third joint equal in length to the first, slightly longer than the fourth; lower face deeply excavated in the ♂, armed with four tubercles—two, one on each side, immediately below the insertion of the antenna, conic, and two compressed, placed above the anterior margin of the clypeus,

one on each side near the outer border. Thorax about one half broader than long; sides straight and slightly diverging from the base nearly to the apex; anterior angle slightly produced, obtuse, hinder angle armed with an obtuse lateral tooth; upper surface impressed with a large, shallow, trilobate fovea, which covers nearly the whole central disk. Elytra parallel, convex; each elytron with seven or eight distinct longitudinal costæ, their interspaces finely punctured.

I possess two specimens of this species, both belonging to the ♂ sex.

2. *CYNORTA APICIPENNIS*. Subfiliformis, parallela, flava, oculis, elytris apice nigris; thorace quam longo vix latiore, disco leviter trifoveolato; elytris elevato-costatis, interspatiis punctatis. Long. 3 lin.

*Fem.?* Antennis longitudine corporem paullo superantibus; clypeo excavato, concavo.

*Hab.* Sarawak (*Wallace*).

Narrowly elongate, parallel. Head strongly exerted; clypeus concave, smooth; maxillary palpi robust, the upper two joints conjointly ovate; antennæ slender, filiform, longer than the body. Thorax rather broader than long; sides slightly diverging and sinuate from the base to beyond the middle, thence converging towards the apex; upper surface impunctate, impressed with a large shallow trifid excavation, which covers a considerable portion of the surface. Elytra parallel, subcylindrical; each with eight or nine longitudinal costæ, their interspaces distinctly punctate. The abdomen in the only specimen before me is shrivelled, so that I am unable to decide with certainty as to its sex, but from the non dilated basal joint of the anterior tarsus I believe it to be a female.

3. *CYNORTA FACIALIS*. Subfiliformis, parallela, flava, oculis elytris apice nigris, abdominis apice nigro-piceo; thorace quam longo vix latiore, disco lævi, pone medium bifoveolato; elytris parallelis, leviter elevato-costatis, interspatiis distincte punctatis. Long.  $2\frac{1}{2}$  lin.

*Mas.* Clypei dimidio postico trigonato, flavo, medio fovea rotundata impresso; dimidio antico depresso, transversim concavo.

*Hab.* Sarawak: a single specimen (*Wallace*).

Clypeus with its upper half not depressed, trigonate, its surface plane, impressed in the middle with a small round fovea; the lower half strongly depressed and separated from the upper

portion by a sutural line, its surface transversely concave; antennæ filiform (the five upper joints in the solitary specimen under examination broken off). Thorax scarcely broader than long; sides slightly diverging and slightly sinuate from the base to beyond the middle, thence rounded and converging towards the apex; upper surface convex, smooth, impunctate, hinder disk impressed on each side with a large shallow fovea. Elytra parallel, subcylindrical; each with eight or nine slightly elevated costæ, the interspaces distinctly punctured.

The peculiar formation of the clypeus in this species closely resembles that of the same segment in *Cheiloxena*. As the peculiarity in the present instance is, however, probably only sexual, the removal of the insect from the genus in which I have placed it will not be justified until the other sex is known.

#### GENUS MONOLEPTA, *Erichson*.

This natural group, founded by Erichson in 1843 on an African species, *M. pauperata*, has been subsequently divided by Chapuis, myself, and others into smaller generic groups, on characters derived chiefly from the open or closed state of the anterior acetabula and on the length of the epipleuræ. I have already stated my reasons for considering the first of these characters to be in a great measure unsatisfactory, and at any rate one not to be depended on by which to divide the *Galerucinæ* into primary sections. In *Monolepta* (taken as a whole) the lateral angles of the subbasal lobe of the prosternum are well developed, and in the great majority of species join the apices of the epimera to close the anterior acetabula; in some instances, however (*Luperodes alboplagiatus*, &c.), the epimera are abbreviated before reaching the sides of the lobe, and consequently the acetabula remain distinctly open; in a third set (*Ochralea*) the acetabula are found to be both closed and widely open in the same species, every intermediate stage occurring between the two extremes\*.

The second, of great value when well defined and when really terminating at a given point, as in *Aulacophora* and other genera,

\* In *Luperodes præustus* and *L. discrepens*, two insects which differ from the rest of the genus in their oblong, not ovate form, the sides of the subbasal lobe are not produced, the lobe itself being either narrowly wedge-shaped or noduliform; the epimera are also much abbreviated, leaving the acetabula broadly open. These species should, I think, be retained in *Luperodes*.



fails in the present group for the following reason. In many species of *Monolepta* (including the typical one) the elytral epipleura gradually narrows towards the apex and extends backwards for nearly the whole length of the outer margin of the elytron; in others, the epipleura apparently ends at or about the middle of the margin; on examination, however, it will be seen that it does not terminate at that point, but although much narrowed extends to a greater or less extent along the hinder margin. The point at which the contraction takes place also varies greatly, so that I have thought it well to place all the species here described in *Monolepta*.

1. *MONOLEPTA HÆMORRHOIDALIS*, *Fabr. Syst. El.* i. p. 490; *Oliv. Ent.* vi. p. 629, t. 3. fig. 33.—Anguste ovata, postice paullo ampliata, convexa, flava aut rufo-flava, nitida, antennarum articulis intermediis et apicalibus nigris aut nigro-piceis; thorace quam longo distincte latiore, convexo, lævi; elytris convexis, nigris, apice plus minusve sanguineis. Long.  $2\frac{1}{2}$ –3 lin.

*Mus.* Elytro utroque ante medium fovea magna subrotundata, margine incrassata munito.

*Hab.* Australia; New Guinea, Mysol, Sulu Islands.

Antennæ filiform, the third joint about one half longer than the second; the three lower joints flavous, the eighth, ninth, and tenth, together with the basal portion of the eleventh, flavous; the upper portion of this last, together with the fourth to the seventh, black, or nigro-piceous. Thorax about one fourth broader than long; sides rounded, nearly straight and slightly diverging behind the middle, anterior angle armed with an obtuse tubercle; disk convex, smooth. Elytra oval, convex, slightly excavated below the basilar space in the ♀, minutely punctured; black, the apical portion to a greater or less extent bright sanguineous; each elytron in the ♂ is impressed with a large rotundate-ovate fovea placed on the anterior disk about halfway between the outer margin and the suture, and extending downwards to a little below the median line. Elytral epipleuræ extending below the middle. Anterior acetabula closed.

I possess two specimens of this species (both males) from Australia, the original locality given by Fabricius and Olivier, one, if not both, having formed part of the collection made during the voyage of the 'Coquille.' In these specimens the sanguineous coloration of the elytra is confined to the extreme apex, but in those from the Malay Archipelago, collected by Mr. Wallace,

the red colour covers nearly the whole hinder disk, in some individuals even extending upwards beyond the median line.

2. *MONOLEPTA CUMINGII*. Anguste ovata, postice paullo ampliata, convexa, rufo flava, nitida, antennarum articulis intermediis ultimique apice, tibiis tarsisque nigris; thorace quam longo vix dimidio latiore, subcylindrico, disco paullo deplanato; elytris minute punctatis, nigris, utrisque macula parva basali dimidioque postico sanguineis. Long. 3 lin.

*Mas.* Elytro utroque callo subhumerali, hoc medio fovea rotundata, profunde impresso, instructo.

*Hab.* Philippine Islands, Manilla.

Encarpæ and lower face pale flavous. Antennæ filiform, the third joint twice the length of the second; the three lower ones rufo-flavous, the fourth to the seventh black; the four outer joints, the black apex of the apical one excepted, white. Thorax nearly one half broader than long; sides straight and very slightly diverging from the base to beyond the middle, thence slightly converging to the apex, the hinder angle acute, the anterior one slightly produced into an obtuse tubercle; disk subcylindrical, very minutely punctured, the puncturing only visible under a strong lens. Elytra convex, not excavated below the basilar space, finely and rather closely punctured. Each elytron in the ♂ with a large subhumeral callus, in the centre of which is a round fovea.

The narrow subcylindrical thorax in both sexes will at once separate the present species from its allies; the ♂ also may be at once known by the small size and different shape of the elytral fovea.

3. *MONOLEPTA FOVEICOLLIS*. Ovata, postice ampliata, convexa, flava, nitida, pedibus rufo-testaceis, antennarum articulis intermediis nigris; thorace transverso, disci medio transversim excavato; elytris tenuiter punctatis, nigris, apice sanguineis. Long.  $3\frac{1}{4}$  lin.

*Mas.* Elytro utroque fovea magna ovata, disco externo ante medium posita, profunde impresso.

*Hab.* Batchian (*Wallace*): a single specimen.

Antennæ filiform, the third joint nearly one half longer than the second; the fourth to the seventh black, the rest flavous. Thorax nearly twice as broad as long; sides obliquely diverging from the base to the middle, thence rounded and converging to the apex, apical angle produced into a flattened obtuse tubercle; disk

transversely convex, very minutely punctured, its middle third with a broad but shallow transverse depression, which is rather more deeply excavated on either side of the median line. Elytra convex, not excavated below the basilar space, minutely but not closely punctured; outer disk of each elytron in the ♂ with a large oval fovea, which commences at some little distance below the humeral callus and extends downwards as far as the middle line. Elytral epipleuræ extending for a short distance below the middle. Anterior acetabula closed.

4. *MONOLEPTA TERMINATA*, *Guér. Voy. de la Coquille*, ii. *Zool.* p. 149. —Anguste ovata, postice paullo ampliata, convexa, rufo-testacea, nitida, tibiis tarsisque nigris aut nigro-piceis, antennis pallide flavis, articulo ultimo nigro; thorace quam longo latiore, convexo, lævi; elytris convexis, tenuiter punctatis; nigris, apice sanguineis. Long.  $2\frac{1}{2}$ –3 lin.

*Mas.* Elytro utroque ante median fovea magna subovata male definita, extus late sed leviter elevato-marginata, fundo leviter excavata, impresso.

*Hab.* Java (*Guérin*), Borneo, Sumatra (*Wallace, Raffles*).

Antennæ filiform, the third joint one half longer than the second; pale flavous; the terminal and occasionally the upper half of the penultimate joints more or less stained with black. Thorax about one fourth broader than long; sides nearly straight and diverging from the base to the middle, thence rounded and converging towards the apex, the anterior angles thickened and produced, obtuse, hinder angles acute; hinder margin obtusely rounded; disk convex, smooth, impunctate. Elytra oval, convex, finely but not very closely punctured; on the anterior disk of each elytron in the ♂ (the only sex known to me) is a large, very shallow and ill-defined excavation, the outer and hinder edges of which are broadly but slightly thickened.

5. *MONOLEPTA WALLACEI*. Late ovata, postice paullo ampliata convexa, sanguinea, nitida, tibiis tarsisque piceo tinctis, antennis pallide flavis, basi flavo-testaceis, articulis duobus ultimis nigris, abdomine flavo-rufo; thorace quam longo latiore, convexo, lævi; elytris convexis, minute punctatis, nigris, apice sanguineis. Long. 3– $3\frac{1}{2}$  lin.

*Mas.* Elytro utroque fovea magna subhumerali profunde excavata, limbo incrassata impresso.

*Hab.* Celebes (*Wallace*).

Antennæ filiform, nearly equal to the body in length in the ♂, the third joint nearly twice as long as the second; pale flavous, the two lower joints flavo-testaceous, the two upper ones black. Thorax about one third broader than long; sides obliquely diverging and obsolete sinuate from the base to the middle, thence rounded and converging to the apex, anterior angle produced into an obtuse tubercle, the hinder angle slightly produced, acute; disk convex, smooth, impunctate. Elytra convex, very minutely punctured; each elytron in the ♂ with a large ovate, deeply excavated fovea, placed on the outer disk immediately below the humeral callus and extending nearly to the middle, its entire margin strongly thickened.

I possess five specimens of the above insect collected by Mr. Wallace in Celebes: the broader form, together with the position of the elytral fovea, will at once separate it from the allied species; the elytral epipleuræ are also less abruptly narrowed below the middle than in the other similarly-coloured specific forms.

The five species described above are usually confounded in collections under the name of *hæmorrhoidalis* or *terminata*: the structural differences, however, at once separate them.

The following short Table will assist in distinguishing the species described above:—

1. Thorax impressed in the centre with a transverse fovea.  
*foveicollis.*
2. Thorax not transversely sulcate.
  - a. Thorax only slightly broader than long .. *Cumingii.*
  - aa. Thorax distinctly broader than long.
    - b. Thorax one half broader than long .... *hæmorrhoidalis.*
    - bb. Thorax one third broader than long.
      - c. Elytra oblong-ovate ..... *terminata.*
      - cc. Elytra broadly ovate ..... *Wallacei.*

6. *MONOLEPTA VERTICALIS.* Anguste ovata, postice paullo ampliata, convexa, nigro-picea, nitida, capite, antennis basi, thorace pedibusque anticis pallide flavis, pedibus posticis quatuor piceo-fulvis; capitis vertice fovea rotundata magna impresso; thorace transverso, convexo, lævi; elytris tenuiter punctatis, utrisque maculis duabus, una infra basin, altera prope apicem, flavis, ornatis. Long. 2 lin.

Var. A. Elytris pallide flavis, utrisque limbo fasciaque prope medium nigro-piceis, pedibus fulvis.

Var. B. Elytris fere totis flavis.

*Hab.* Malay Archipelago, Batchian, Aru and Sulu Islands (*Wallace*).

Vertex impunctate, impressed with a large round fovea; antennæ three fourths the length of the body, second joint short, the third slightly longer, four or five lower joints flavous or fulvous, the rest nigro-piceous. Thorax nearly twice as broad as long; sides rounded, the anterior and posterior angles produced, subacute; disk transversely convex, smooth, impunctate. Elytra oblong-ovate, very slightly dilated posteriorly, convex, not depressed below the basilar space, remotely impressed with fine punctures, their interspaces very minutely punctured. Abdominal segments in some specimens narrowly edged with flavous.

The outer margins of the flavous spots on the elytra are ill-defined, being more or less stained with piceous.

#### GENUS PARAULACA.

*Corpus* oblongum, convexum, postice paullo ampliatus. *Caput* exsertum; *antennis* filiformibus. *Thorax* transversus, dorso transversim sulcatus. *Elytra* convexa, confuse vel subseriato-punctata; *epipleuris* fere ad apicem extensis. *Pedes* simplices; *tibiis* apice spina brevi, armatis; *unguiculis* appendiculatis. *Prosternum* inter coxas elevatum, basi non lobatum; *acetabulis* anticis apertis.

Type *Paraulaca* (*Aulacophora*) *angulicollis*, Motsch.

The above genus differs solely from *Pseudocophora* in having appendiculate instead of bifid claws; occupying the same relative position to that genus that *Diacantha* does to *Aulacophora*. In both genera the prosternum is not lobed at its base, and the apices of the epimera are free, not closing the acetabula.

#### GENUS PSEUDOCOPHORA, *Jacoby, Notes Leyd. Mus.* vi. p. 69.

The males of the present genus (so far as they are yet known) have a deep sutural fovea placed immediately below the basilar space on the elytra; this fovea, the edges of which are thickened, is armed with two or four raised tubercles or teeth; the number and shape of these teeth, taken in conjunction with the form and

sculpture of the median lobe of the anal segment of the abdomen, afford good diagnostic characters for the separation of the males of the various species.

Specimens of all of the species described in the present paper are contained in my collection. *P. bicolor*, Jacoby, Proc. Zool. Soc. 1887, p. 111, from Ceylon, is unknown to me.

The following Table will assist the student in working out the species described below.

TABLE I. (*Males*).

- A. Elytral fovea quadridentate.
  - a. Median lobe of the trilobate anal segment of the abdomen plane.
    - b. Hinder half of the elytra (the outer margin excepted) rufo-fulvous . . . . . 1. *Buquetii*.
    - bb. Hinder half of elytra entirely black . . . . . 2. *distincta*.
  - aa. Median lobe of anal segment of abdomen more or less concave.
    - b. Median lobe slightly concave . . . . . 3. *Erichsoni*.
    - bb. Median lobe deeply excavated.
      - c. Elytral fovea with the anterior pair of teeth bifid.
        - 4. *ambusta*.
      - cc. Elytral fovea with the anterior pair of teeth simple.
        - 5. *Wallacei*.
- B. Elytral fovea bidentate.
  - a. Median lobe of anal segment of abdomen plane.
    - b. Breast and abdomen black . . . . . 6. *uniplagiata*.
    - bb. Breast and abdomen flavous . . . . . 7. *flaveola*.
  - aa. Median lobe of anal segment concave . . . . . 8. *brunnea*.

TABLE II. (*Females*).

- A. Pygidium entire.
  - a. Apex of anal segment of abdomen deeply and narrowly incised . . . . . 9. *pectoralis*.
  - aa. Apex of anal segment narrowly angulate-emarginate.
    - 1. *Buquetii*.
  - aaa. Apex of anal segment broadly subangulate-emarginate.
    - 3. *Erichsoni*.

- B. Apical margin of pygidium more or less deeply emarginate.  
*a.* Apex of pygidium faintly emarginate . . . . 10. *perplexa*.  
*aa.* Apex of pygidium trifid, the middle lobe elongate, its  
 apical surface tuberculate . . . . . 8. *brunnea*.  
*aaa.* Apex of pygidium trifid, the middle lobe only slightly  
 produced . . . . . 4. *ambusta*.

1. PSEUDOCOPHORA BUQUETII, Guér.

*Galeruca* Buquetii, Guér. *Voy. Coquille*, 1830, p. 143.

Oblongo-ovata, postice paullo ampliata, convexa, rufo-fulva aut fulva, pectore, abdomine pedibusque posticis quatuor nigris, antennis pallide flavis; thorace profunde transversim sulcato; elytris postice ampliatis, convexis, infra basin in ♀ leviter transversim depressis, distincte subseriato-punctatis, punctis pone medium minus fortiter impressis, confuse dispositis; rufis, basi late limboque externo nigris. Long.  $2\frac{3}{4}$ –3 lin.

*Mas.* Elytris infra basin fovea magna communi, fundo quadridentata instructis; abdominis segmento anali trilobato, lobo intermedio plano.

*Fem.* Abdominis segmento anali apice rotundato, medio abrupte angulato-emarginato.

*Hab.* Java.

Antennæ pale flavous; eyes prominent, black. Thorax nearly twice as broad as long; sides nearly straight and diverging from the base to beyond the middle, thence obliquely converging to the apex, anterior angle with an obtuse oblique tubercle; disk deeply sulcate transversely, the sulcation usually entire, rarely interrupted in the middle. Elytra oblong, dilated posteriorly, convex, slightly depressed in the ♀ below the basilar space, distinctly subseriate-punctate, the spaces between the rows of punctures more or less distinctly thickened; the punctures on the hinder disk finer and arranged without order. In the ♂ below the basilar space is a large common fovea, surrounded by a thickened margin, its surface armed with two pairs of teeth, the anterior pair thickened at the base, their apices deflexed and posteriorly produced, the hinder one flattened, truncate, and abruptly deflexed towards the suture; these teeth in some specimens are concolorous with the surface of the fovea, in others they are more or less fulvous; the anterior pair in some instances are obsoletely bifid.

2. *PSEUDOCOPHORA DISTINCTA*. Late ovata, postice paullo ampliata, convexa, nitida, subtus nigra, pedibus anticis piceo-fulvis; supra piceo-fulva, antennis (basi exceptis) pallide flavis, elytrorum dimidio postico et (*in mare*) fovea subbasali nigris; thorace profunde transversim sulcato; elytris subseriatim punctatis. Long. 3 lin.

*Mas.* Elytris fovea magna subbasali, fundo quadridentata instructis; abdominis segmento anali trilobato, lobo intermedio plano.

*Hab.* Borneo (*Wallace*): a single specimen.

Antennæ slender, filiform, three fourths the length of the body, pale yellow, the two lower joints piceo-rufous. Thorax nearly twice as broad as long; sides obliquely diverging and slightly sinuate from the base to beyond the middle, thence obliquely converging to the apex; disk deeply excavated transversely just behind the middle, the sulcation interrupted on the median line. Elytra dilated from the base towards the apex, the latter broadly rounded; above convex, substriate-punctate on the anterior disk, irregularly punctured behind the middle; immediately below the basilar space in the male (the only sex known to me) is a large common fovea, surrounded by a thickened margin, its surface armed with four teeth, the anterior pair acute, their apices slightly deflexed, the hinder pair flattened, truncate and abruptly deflexed towards the suture.

This species is closely allied to *P. Buquetii*; in addition, however, to its different coloration, it is much broader than that insect.

### 3. *PSEUDOCOPHORA ERICHSONI*.

*Pseudocophora Buquetii*, *Jacoby, Notes Leyd. Mus. vi. p. 69 (pars)*.

Ovata, postice ampliata, convexa, nigra, nitida, capite, thorace scutelloque fulvis aut rufo-fulvis, antennis pallide flavis, pedibus anticis piceis; thorace quam longo plus dimidio latiore, sat profunde transversim sulcato; elytris distincte subseriatim punctatis, punctis apicem versus confusis, fere obsoletis; flavo-fulvis, dimidio antico apiceque extremo nigris. Long. 3-3¼ lin.

*Mas.* Elytris infra basin fovea magna communi quadridentata, dentibus duobus anticis obtusis, duobusque posticis conicis; abdominis segmento anali trilobato, lobo intermedio leviter concavo, apice rotundato.

*Fem.* Abdominis segmento anali apice emarginato.

*Hab.* Sumatra.

Antennæ filiform, the third and fourth joints nearly equal in length in both sexes, pale flavous, the basal joint fulvous, the



three apical ones stained with piceous. Thorax more than one half broader than long; sides very slightly diverging and sinuate from the base to beyond the middle, thence converging towards the apex, the hinder angles subacute, the anterior ones slightly produced, obtuse; disk transversely sulcate immediately behind the middle, the sulcation strongly impressed during its whole length. Elytra oblong, dilated posteriorly, convex, distinctly and rather strongly punctured, the puncturing nearly obsolete towards the apex; the punctures on the anterior half of the inner disk irregularly arranged in double rows.

The above species was confounded by Jacoby with *Buquetii*, Guér., on which he founded the genus; although similar in coloration to that insect, it is well separated by the structural characters in both sexes.

4. PSEUDOCOPHORA AMBUSTA, *Erichs. Nov. Act. Leopold. Carol.* xv. 1834, *Suppl.* i. p. 272.—Oblongo-ovata, postice paullo ampliata, convexa, fulva aut flava, antennis pallide flavis; pectore, abdomine, pedibus posticis quatuor elytrorumque limbo externo nigris; thorace transversim sulcato; elytris subseriato-punctatis, nigro-limbatis. Long.  $2\frac{1}{2}$  lin.

*Mas.* Elytris infra basin fovea magna, nigra, margine elevata, fundo quadridentata, dentibus duobus anticis bifidis; abdominis segmento anali trilobato, lobo intermedio concavo.

*Fem.* Abdominis pygidio apice trifido, lobo intermedio elongato tuberculo conico instructo; segmento anali medio concavo-emarginato.

Var. A. ♂. Elytrorum limbo externo nigro obsolete.

*Hab.* Type, Luzon (*Erichson*); var. A, Celebes (*Wallace*).

Antennæ pale flavous, the third joint twice the length of the second, rather longer than the fourth. Thorax twice as broad as long; sides slightly diverging and rather strongly sinuate from the base to beyond the middle, thence obliquely converging to the apex, the anterior angles slightly excurved; disk transversely sulcate, the sulcation interrupted in the middle part of its course. Elytra similar in form to those of *P. Buquetii*; their surface less strongly punctured, the subcostate interspaces being absent. The males may be known by the anterior pair of teeth on the subbasal fovea being distinctly bifid, not single as in the other species of the genus; the hinder pair are formed as in *P. Buquetii*.

5. PSEUDOCOPHORA WALLACEI. Oblongo-ovata, postice paullo ampliata, convexa, fulva, nitida, pectore pedibusque nigris, antennis nigro-piceis; thorace transversim sulcato; elytris oblongis, postice paullo ampliatis, convexis, subseriatim punctatis, punctis apicem versus confusis. Long.  $2\frac{3}{4}$  lin.

*Mas.* Elytris infra basin fovea magna, elevato-marginata, fundo quadridentata, dentibus duobus anticis simplicibus; abdominis segmento anali trilobato, lobo intermedio basi concavo-excavato.

*Hab.* Bouru (*Wallace*).

Antennæ nigro-piceous. Thorax nearly twice as broad as long; sides slightly converging and slightly sinuate from the base to far beyond the middle, thence slightly converging to the apex, the anterior angle acute; disk deeply sulcate transversely, the sulcation less deeply excavated on the median line. Elytra convex, subseriate-punctate anteriorly, irregularly punctured behind the middle; elytral fovea in the ♂ (the only sex known to me) quadridentate; the anterior pair of teeth simple, the posterior pair compressed, incurved.

6. PSEUDOCOPHORA UNIPLAGIATA, *Jacoby, Notes Leyden Mus.* vi. p. 214.—Oblongo-ovata, postice paullo ampliata, convexa, fulva, nitida, pectore, abdomine pedibusque posticis quatuor elytrorumque fovea subbasali nigris, antennis pallide flavis; thorace profunde transversim sulcato; elytris distincte subseriato, pone medium confuse punctatis. Long.  $2\frac{1}{2}$ –3 lin.

*Mas.* Elytris infra basin fovea magna communi nigra, elevato-marginata, antice bituberculata instructis; abdominis segmento anali trilobato, lobo intermedio oblongo, profunde excavato.

*Hab.* Sumatra; Siam.

Similar to *P. brunnea*, the elytra more strongly punctured, the anal segment of abdomen of an entirely different form.

7. PSEUDOCOPHORA FLAVEOLA. Ovata, postice ampliata, flava, nitida, thorace transversim sulcato; elytris tenuiter punctatis. Long.  $2\frac{1}{4}$  lin.

*Mas.* Elytris infra basin fovea magna communi antice bituberculata, tuberculis obtusis, contiguis; abdominis segmento anali trilobato, lobo intermedio plano, apice late rotundato.

*Hab.* Andaman Islands.

Antennæ filiform; eyes black. Thorax transverse; sides from the base to far beyond the middle nearly straight, diverging, then obliquely converging towards the apex; disk transversely sulcate, nearly impunctate. Elytra broadly oblong, dilated

posteriorly, convex, impressed below the base in the ♂ with a large common fovea, the anterior margin of which is furnished with two obtuse tubercles, placed one on each sutural margin immediately below the scutellum; general surface of elytra minutely and remotely punctured.

The ♀ of this species is unknown to me.

8. *PSEUDOCOPHORA BRUNNEA*, *Baly, Journ. Linn. Soc.* vol. xx. p. 26.

Oblongo-ovata, postice paullo ampliata, convexa, fulva, nitida, pectore, abdomine pedibusque posticis quatuor nigris; elytrorum limbo externo et (*in mare*) fovea magna subbasali nigris; thorace profunde transversim sulcato; elytris substriato pone medium confuse punctatis. Long. 3 lin.

*Mas.* Elytris infra basin fovea magna communi, elevato-marginata, antice bituberculata instructis; abdominis apice trilobato, lobo intermedio plano.

*Fem.* Pygidii apice trifido, lobo intermedio elongato, tuberculo acuto instructo; segmento anali late emarginato.

*Hab.* Malacca; Celebes.

Thorax nearly twice as broad as long; sides nearly straight and very slightly diverging from the base to beyond the middle, thence slightly converging to the apex; disk deeply sulcate transversely, the sulcation rather less deeply impressed on the median line. Elytra sculptured as in *P. Wallacei*, differing in the number of teeth on the subbasal fovea; in the present species, as in the preceding two, the anterior margin of the fovea is armed with two obtuse tubercles, the hinder pair being obsolete.

The male of the present species differs from the same sex of *P. uniplagiata*, Jac., in the form and sculpturing of the anal segment of the abdomen; in *P. brunnea* the median lobe is subquadrate and plane, in *P. uniplagiata* it is oblong and deeply concave. The coloration of the insect closely resembles that of the typical form of *P. ambusta*, Erichs.

*Females of which the Males are unknown to me.*

9. *PSEUDOCOPHORA PECTORALIS*. Ovata, postice ampliata, convexa, flava, nitida, pectore abdomineque (hujus apice excepto) nigris; thorace transverso, disco transversim sulcato; elytris convexis, infra basin non excavatis, distincte punctatis, punctis hic illic subseriatim dispositis. Long. 2½ lin.

*Fem.* Abdominis segmento anali apice profunde emarginato.

*Hab.* Assam: a single specimen.

Antennæ filiform; eyes black. Thorax nearly twice as broad as long; sides nearly straight, diverging from the base to beyond the middle, thence obliquely converging towards the apex; disk smooth, nearly impunctate, impressed just behind the middle with a transverse groove. Elytra rather strongly punctured.

10. PSEUDOCOPHORA PERPLEXA. Ovata, postice paullo ampliata, convexa, piceo-fulva, nitida, metapectore, abdomine pedibusque posticis quatuor nigris, antennis, tibiis tarsisque anticis pallide flavis; thorace sat profunde transversim sulcato; elytris tenuiter punctatis. Long.  $3\frac{1}{4}$  lin.

*Fem.* Abdominis pygidio apice leviter angulato-emarginato; segmento anali apice obtuso, obsolete sinuato.

*Hab.* Philippine Islands.

Antennæ yellowish white. Thorax nearly twice as broad as long; sides slightly diverging and sinuate from the base to beyond the middle, thence converging towards the apex, the hinder angle acute, the anterior slightly produced, obtuse; upper surface transversely convex, deeply sulcate transversely immediately behind the middle, the sulcation nearly as deeply impressed in its median portion as on its sides; disk smooth, impressed with a few distant punctures on the sides. Elytra oblong, slightly dilated posteriorly, convex, finely but distinctly punctured.

The present insect closely resembles the same sex of *P. ambusta*, var. A; but the entirely different form of the pygidium in the two species at once separates them.

#### GENUS AULACOPHORA, Chev.

The first six species here described have simple antennæ in both sexes; in the last eight the antennæ in the males have the third to the sixth joints compressed, and more or less thickened and dilated; the females of this section appear to be much rarer in collections than the other sex, and only in a few cases are known to me. The following Table gives the differential characters of the males of this latter group:—

## TABLE.

- I. Vertex and front on each side with an elevated ridge.
1. Frontal ridges transverse . . . . . 8. *palliata*.
  2. Frontal ridges oblique.
    - a. Elytra black . . . . . 7. *orientalis*.
    - aa. Elytra flavous, with black markings . . 11. *bipartita*.
  3. Frontal ridges perpendicular.
    - b. Elytra black . . . . . 9. *frontalis*.
    - bb. Elytra flavous, with black markings . . 10. *fraudulenta*.
- II. Vertex and front without elevated ridges.
1. Elytra flavous, with black markings.
    - a. Antennæ with their outer half black . . . . . 12. *Olivieri*.
    - aa. Antennæ flavous . . . . . 13. *occipitalis*.
  2. Elytra black . . . . . 14. *laevifrons*.

1. AULACOPHORA ANALIS, *Weber*.

*Galeruca analis*, *Weber*, *Obs. Ent.* p. 55, 1810; *Fabr. Syst. El.* i. p. 482.

Subelongata, postice paullo ampliata, flava, nitida, thorace transverso, vix pone medium transversim sulcato; elytris infra basin obsolete depressis, tenuissime punctatis, opacis, utrisque plaga magna humerali, ad basin et ad marginem anteriorem adfixa, alteraque pone medium, subrotundata, sæpe ad marginem extensa, nigris aut cæruleo-nigris. Long.  $3\frac{1}{2}$ -4 lin.

A. "Abdominis ano et margine, tibiis tarsisque nigrescentibus."

B. Pygidio, abdomine, tibiis tarsisque nigris.

C. Abdomine pygidioque flavis, hoc sæpe nigro-piceo tincto, tibiis tarsisque ut in B.

*Mas.* Abdominis segmento anali trilobato, lobo intermedio quadrato-oblongo, disco leviter concavo, medio elevato-vittato.

*Fem.* Abdominis segmento anali apice obtuso, medio obsolete emarginato.

*Hab.* Samatra, Celebes, Sulu Islands, Philippines.

Antennæ slender, filiform in both sexes; the third joint rather longer than any of the following ones. Thorax rather more than one half broader than long; sides nearly straight and parallel, sometimes slightly diverging from the base to the middle, very slightly converging towards the apex anteriorly; disk smooth, impunctate, impressed immediately behind the middle with a

deep transverse groove. Elytra narrowly oblong, slightly dilated posteriorly; convex, very faintly excavated on the suture below the basilar space, opaque, very minutely punctured.

*A. analis*, Weber, agrees very closely in general form with *A. bicolor* of the same author; the structural differences, however, in the anal segments of the abdomen in both sexes, although slight, are apparently constant, and sufficient to separate the two insects; *A. analis* is also smaller than the other species.

2. *AULACOPHORA WILSONI*. Anguste oblonga, postice ampliata, convexa, nitida, subtus nigra, prothorace pedibusque anticis flavis, his plus minusve picco tinctis; supra flava, antennis (basi exceptis) scutelloque nigris; thorace transversim sulcato, sulco fere recto, medio magis fortiter excavato; elytris tenuiter punctatis. Long.  $3\frac{1}{2}$  lin.

*Mas.* Abdominis segmento anali trilobato, lobo intermedio profunde concavo; pygidii apice obtuso.

*Fem.* Abdominis segmento anali apice concavo-emarginato, incisuræ margine leviter deflexo.

*Hab.* Australia, Melbourne.

Antennæ moderately robust, filiform, the first joint, together with the basal portions of the second and third, fulvous; labrum nigro-piceous; eyes black. Thorax with its sides nearly straight and only very slightly diverging from the base to beyond the middle, thence obliquely converging towards the apex; disk transversely sulcate, the sulcation straight, rather more deeply excavated in the middle. Elytra oblong, dilated posteriorly, convex, obsoletely depressed below the basilar space, the latter sometimes obsoletely thickened; the surface minutely punctured.

In addition to other structural differences, the sculpturing of the thorax will distinguish the above insect from *A. nigroscutata*, which species it closely resembles in coloration.

3. *AULACOPHORA PERROUDI*. Elongato-oblonga, postice paullo ampliata, convexa, flava, nitida, antennis (basi exceptis), pectore abdomineque nigris, tibiis tarsisque nigro-piceis; thorace transversim sulcato, sulco medio fere obsoleto; elytris infra basin leviter excavatis, tenuiter sed distincte punctatis. Long. 4 lin.

*Fem.* Abdominis segmento anali rotundato, utrinque sinuato.

*Hab.* New Caledonia.

Eyes and antennæ black, the latter with the two lower joints

flavous. Thorax twice as broad as long; sides diverging and slightly sinuate from the base to beyond the middle, thence rounded and converging to the apex; lateral margin strongly reflexed; disk transversely sulcate, the sulcation strongly excavated on each side, nearly obsolete on the middle disk. Elytra narrowly oblong, slightly dilated posteriorly, slightly but distinctly excavated below the basilar space, finely punctured.

I only know a single specimen (a ♀); it is at once to be known from its allies by the interrupted sulcation on the thorax. This species is the one to which, in a note to the second Table in my former paper on *Aulacophora*, I have alluded to as *palustris*, Perroud; that species belongs (as I have subsequently ascertained) to the genus *Monolepta*.

4. AULACOPHORA ARGYROGASTER, *Montrouz. Ann. Soc. Ent. France*, 1861, p. 299.—Anguste oblonga, postice paullo ampliata, convexa, sordide flava, subnitida; ore, antennis (basi exceptis) corporeque inferiore (pedibus anticis anoque exceptis) nigris aut nigro-piceis, abdomine sparse argenteo-sericeo; thorace sat profunde transversim sulcato; elytris subopacis, tenuiter punctatis. Long.  $3\frac{1}{2}$  lin.

*Mas.* Abdominis segmento anali trilobato, lobo intermedio profunde concavo; pygidii apice extremo obtuso.

*Fem.* Abdominis segmento anali late concavo-emarginato; pygidii apice acuto.

*Hab.* New Caledonia.

Antennæ filiform, basal joint in the ♂ slightly thickened and compressed, clavate; the third, fourth, and fifth nearly equal in length in both sexes. Thorax nearly twice as broad as long; sides nearly parallel and slightly sinuate from the base to beyond the middle, thence rounded and converging towards the apex; upper surface very minutely punctured, the puncturing coarser on the sides; disk impressed across the middle with a deep transverse sulcation, which in the ♂ is broader and more deeply excavated in the middle, the anterior margin of the dilated portion being thickened and obsoletely bituberculate; in the ♀ the anterior margin of the sulcation (which is of nearly equal depth and breadth throughout) is not thickened nor tuberculate. Elytra oblong, not distinctly excavated below the basilar space, minutely punctured.

The peculiar sculpture of the thorax in the ♂ and the acute

apex of the pygidium and sculpture of the anal segment of the abdomen in the ♀, conjointly with the coloration of the under surface, will separate this species from its congeners.

5. *AULACOPHORA AUSTRO-CALEDONICA*, *Montrouz. Ann. Soc. Ent. France*, 1861, p. 299.—Subelongata, postice paullo ampliata, convexa, flava, nitida, verticis maculis duabus, pectore abdomineque nigris, hoc basi et ad latera pallide piceo; thorace transversim sulcato, sulco fere recto; elytris nitidis, utrisque plagis magnis duabus, una basali ad suturam abbreviata, altera pone medium positus, nigris. Long.  $2\frac{1}{4}$ –3 lin.

*Mas.* Antennis filiformibus, robustis; abdominis segmento anali trilobato, lobo intermedio oblongo, profunde concavo.

*Fem.* Abdominis segmento anali lateribus rectis, oblique convergentibus, apice extremo obtuso.

*Hab.* New Caledonia, Balade.

Vertex with two large black patches, separated in the middle by a narrow flavous line; antennæ filiform in both sexes, more robust in the ♂ than in the other sex, the joints slightly stained with piceous. Thorax more than one half broader than long; its sides sinuate and slightly diverging from the base to the middle, slightly produced immediately before the latter, thence rounded and converging to the apex; disk impressed across the middle with a deep transverse groove. Elytra oblong, very slightly dilated posteriorly, minutely punctured.

This species closely resembles *A. occipitalis* in the coloration of its head and underside; the antennæ, however, of the ♂ of *austro-caledonica* are simple, not dilated as described by Mr. Jacoby (*Annal. del Mus. Civic. Stor. Nat. Gen.* 1886, vol. iv. p. 53); the male assigned by him to the present insect belongs to another species nearly allied to, if not identical with, *A. occipitalis*. I possess both sexes of *austro-caledonica* from New Caledonia.

6. *AULACOPHORA LEWISII*, *Baly, Journ. Linn. Soc.* vol. xx. p. 24.—

*Mas.* Antennis robustis, ad apicem paullo attenuatis, abdomine nigro aut piceo-nigro, apice extremo piceo-fulvo; segmento anali trilobato, lobo intermedio longitudinaliter sulcato.

*Fem.* Abdominis segmento anali apice utrinque leviter sinuato.

Var. A. Corpore subtus toto glabro.

*Hab.* India and China (type and var. A); Malay Archipelago (var. A).



The specimen from which I originally drew up the diagnosis of this species (a ♀) had been carded, and the apex of the abdomen was so obscured by gum that I described it as entire; since then I have had the opportunity of examining many specimens of both sexes, and find that the apex of the female anal segment is distinctly, although slightly, sinuate on each side.

7. *AULACOPHORA ORIENTALIS*, *Hornst. Schrift. Berl. Ges.* viii. 1788, p. 5, t. 1. fig. 3.—Anguste oblonga, postice paullo ampliata, convexa, rufo-fulva, nitida, antennis flavis, oculis elytrisque nigris; thorace transverso, disco transversim sulcato, elytris convexis, infra basin leviter transversim depresso, tenuiter punctatis. Long. 3 lin.

*Mas.* Capitis vertice utrinque creta elevata, oblique posita, instructo; antennarum articulis tertio, quarto quintoque incrassatis, difformibus; abdominis segmento anali lobo intermedio oblongo-quadrato, plano aut leviter concavo.

Var. A, ♂. Antennis, tibiis tarsisque nigro-piceis.

*Hab.* Java, New Guinea, Dorey, Ceram, Gilolo; var. A, New Guinea (*Wallace*).

Vertex in the ♂ with an elevated ridge, placed obliquely on each side just above the eye and running inwards to nearly meet its fellow in the median line; antennæ in the ♂ with the basal joint thickened, slightly curved, clavate, its outer edge subcarinate; second joint small, the third thickened and subclavate, its apex truncate; the fourth and fifth also thickened, dilated laterally, subtrigonal, each shorter than the third; the apex of the fourth obliquely truncate, its anterior and outer angle produced, acute or subacute; the fifth with its outer surface deeply concave, the anterior angles of the concavity acute. Thorax nearly twice as broad as long; sides nearly straight and parallel from the base to beyond the middle; upper surface transversely sulcate immediately behind the middle, rather coarsely punctured on the sides in front. Elytra slightly convex, faintly depressed below the basilar space, finely punctured.

8. *AULACOPHORA PALLIATA*, *Schaller, Abhandl. Hall. Ges.* i. 1783, p. 279; *Fabr. Mant.* i. 1787, p. 87; *Oliv. Ent.* vi. p. 625, t. 2. fig. 25, a-b.—Anguste oblonga, postice ampliata, convexa, fulvo-rufa,

nitida, elytris nigris; thorace transversim sulcato, ad latera punctato. Long.  $3\frac{1}{2}$  lin.

*Mas.* Capitis vertice utrinque creta crassa transversa instructo; antennarum articulis tertio, quarto quintoque ampliatis, difformibus; abdominis segmento anali lobo intermedio quadrato-oblongo, leviter concavo.

*Hab.* India; Malay Archipelago.

Front on each side in the ♂ with a strongly thickened transverse ridge; antennæ in the same sex with the basal joint thickened, slightly curved, the second very small, the third and two following ones thickened and laterally dilated, the third slightly longer than broad, trigonate, its outer and upper angle slightly produced, acute, the fourth very slightly shorter than the third, quadrangular, its upper and outer angle broadly and obliquely truncate; the fifth shorter than either of the preceding two, subtrigonate, its outer surface longitudinally concave, the outer and upper angle of the concavity bidentate. Thorax nearly twice as broad as long; sides nearly straight and parallel from the base to beyond the middle, thence obliquely converging towards the apex; disk transversely sulcate just below the middle, coarsely punctured on the sides in front. Elytra oblong, slightly dilated posteriorly; convex, slightly impressed below the basilar space, finely punctured.

9. *AULACOPHORA FRONTALIS*. Anguste oblonga, postice paullo ampliata, flavo-fulva, nitida, antennis pallide flavis, elytris nigris; thorace transversim sulcato, remote punctato, punctis ad latera subcerebre dispositis; elytris infra basin transversim excavatis, tenuiter punctatis. Long.  $2\frac{1}{2}$  lin.

*Mas.* Capitis fronte bisulcato, utrinque inter sulcum et oculum tuberculo oblongo, dorso compresso et intus curvato, instructo; antennarum articulis tertio, quarto quintoque ampliatis; abdominis segmento anali trilobato, lobo intermedio quadrato-oblongo, leviter concavo.

*Hab.* Borneo, Saravak (*Wallace*).

Front and vertex longitudinally bisulcate; placed longitudinally on each side between the sulcation and the eye is an oblong protuberance, the upper edge of which is compressed and incurved; front separated from the encarpæ by a deep transverse groove; antennæ in the ♂ with the basal joint thickened, slightly curved, its lower surface deeply emarginate, the third and two

following joints thickened and dilated, trigonate, the third nearly twice as broad as long, its outer edge strongly compressed, carinate, the fourth and fifth nearly equal in length, each rather shorter than the third, the upper and outer angle of the fifth emarginate, bidentate. Thorax rather more than one half broader than long; sides nearly straight from the base to the middle, thence slightly rounded and converging towards the apex; disk transversely sulcate immediately behind the middle, very distantly and minutely punctured, the puncturing rather closer on the sides. Elytra oblong, dilated posteriorly, convex, transversely excavated below the basilar space, finely punctured.

The three similarly coloured species described above are readily separated in the male sex by the position and form of the frontal tubercles. The females are not known to me.

10. AULACOPHORA FRAUDULENTA, *Jacoby, Annal. del Musco Civ. di Storia Natur. di Genova*, vol. iv. p. 52 (1886).—Anguste oblonga, postice ampliata, convexa, flava, nitida, antennis extrorsum infuscatis; oculis, metasterno elytris que nigris, his fascia lata prope medium flava. Long. 3 lin.

*Mas.* Capitis fronte, utrinque prope oculum tuberculo oblongo magno, longitudinaliter posito, instructo; antennarum articulis tertio, quarto quintoque ampliatis, trigonatis; abdominis segmento anali trilobato, lobo intermedio oblongo-quadrato, apice bilobato, disco leviter longitudinaliter concavo.

*Hab.* New Guinea.

Front on each side in the ♂ with a strongly raised oblong tubercle, placed longitudinally close to the inner margin of the eye, apex of the tuberosity torulose, slightly incurved; antennæ in the same sex with the basal joint thickened, its outer edge concave-emarginate; the third and two following joints dilated, trigonate, the third and fifth equal in length and breadth, the fourth longer than either of the two others, but less broadly dilated; in the specimen before me, sent by Mr. Jacoby, the outer half of the antennæ is stained with fuscous (the author describes these organs as entirely flavous)\*. Thorax nearly

\* The ♀ of this insect is unknown to me, the specimen sent by Mr. Jacoby as belonging to that sex proving to be the ♂ of a similarly coloured species having simple antennæ.

twice as broad as long; sides nearly straight and slightly diverging from the base to beyond the middle, thence rounded and converging towards the apex; disk impressed just behind the middle with a transverse sulcation; surface finely and remotely punctured, the punctures more crowded on the sides in front. Elytra convex, faintly excavated on the suture below the basilar space, finely punctured.

11. *AULACOPHORA BIPARTITA*. Anguste oblongo-ovata, postice paullo ampliata, convexa, flava, subnitida, vertice, oculis, thoracis dimidio antico, metapectore abdomineque nigris; thorace transversim sulcato, sulco medio minus fortiter impresso, disco interdum ante basin maculis parvis male definitis nigro-piceis, instructo; elytris oblongis, postice paullo ampliatis, suberebre punctatis, obsolete longitudinaliter sulcatis; utrisque plagis duabus magnis, una basali, unaque vix pone medium, nigris. Long. 3 lin.

*Mas.* Capitis vertice utrinque creta oblique posita instructo; antennarum articulis tertio, quarto quintoque compressis, triangulariter dilatatis; abdominis segmento anali trilobato, lobo intermedio concavo.

*Fem.* Antennis simplicibus; abdominis segmento anali apice obtuso.

Var. A, ♀. Capite toto flavo, thorace utrinque ante medium plaga magna nigra instructo; elytrorum plaga infra medium obsoleta.

*Hab.* Flores; Sarawak (*Wallace*). Var. A, Java.

Clypeus in the ♂ with a narrow, rather strongly raised longitudinal ridge; front just above the encarpæ with a deeply impressed fovea; obliquely placed on each side just within the eye is a broad slightly raised elongated ridge; eyes in the ♂ large, prominent. Antennæ with the third and following two joints compressed, triangularly dilated, the third less broadly so than the two others; third and fourth equal in length, the fifth rather shorter. Thorax transverse; sides slightly diverging and sinuate from the base to beyond the middle, thence obliquely rounded and converging to the apex; upper surface minutely punctured, impressed immediately behind the middle with a deep transverse groove. Elytra oblong, slightly dilated towards the apex; convex, distinctly and rather closely punctured; disk of each elytron with five or six faint longitudinal sulcations.

## 12. AULACOPHORA OLIVIERI.

*Galeruca analis*, Oliv. *Ent.* vi.

Oblongo-ovata, convexa, flava, nitida, labro, antennis (basi exceptis), mesosterno, abdominis apice, tibiis tarsisque nigro-piceis aut nigris; thorace quam longo fere duplo latiore, transversim sulcato, sulco medio minus fortiter impresso; elytris tenuiter punctatis, utrisque plaga magna basali, ad suturam abbreviata, altera pone medium, ad marginem plerumque adfixa, apiceque nigris. Long. 3-3½ lin.

*Mas.* Antennarum articulis tertio, quarto quintoque incrassatis; abdominis segmento anali trilobato, lobo intermedio longitudinaliter sulcato.

*Fem.* Antennis filiformibus; abdominis segmento anali apice rotundato.

*Hab.* Australia, Hunter's River, Rockhampton, Paroo River.

Front impressed immediately above the encarpæ with a small fovea; antennæ robust, the third, fourth, and fifth joints in the ♂ thickened, the third nearly twice as long as broad, obconic, the fourth and fifth each shorter than the third, laterally dilated, trigonate; antennæ in the ♀ simple, filiform; the five lower joints in the ♂, the three or four basal ones in the ♀, flavous or fulvous, more or less stained with piceous, the remaining joints in each sex nigro-piceous or black. Thorax nearly twice as broad as long; sides slightly diverging and slightly sinuate from the base to just beyond the middle, thence rounded and converging to the apex; upper surface remotely and minutely punctured, transversely sulcate immediately behind the middle, the sulcation rather less deeply impressed on the middle disk. Elytra oblong, slightly dilated posteriorly, convex, minutely punctured, the basilar space obsolete thickened. Tibiæ and tarsi black, the basal portion of the former sometimes flavous.

This species usually stands in collections as *A. analis*, Weber; it is very constant in pattern and coloration, and differs from the author's description of *analis* in the dark antennæ, in the black apices of the elytra, and in the similarly coloured mesosternum. Its locality is also entirely different, all the specimens that I have seen having been brought from Australia; whereas Weber gives Sumatra as the habitat of his insect.

13. AULACOPHORA OCCIPITALIS. Subelongata, postice paullo ampliata, convexa, flava, nitida, oculis, verticis plagis duabus, pectore abdomineque nigris; thorace prope medium transversim sulcato;

elytris infra basin leviter transversim excavatis, utrisque plaga basali subquadrata, ad suturam et ad marginem abbreviata alteraque pone medium subrotundata, nigris. Long. 3 lin.

*Mas.* Antennarum articulis tertio, quarto quintoque compressis et dilatatis; abdominis segmento anali trilobato, lobo intermedio oblongo, profunde concavo.

*Hab.* New Guinea, Dorey; Bouru (*Wallace*).

Vertex with two large black patches, divided in the median line by a flavous line; antennæ with the third, fourth, and fifth joints compressed and dilated in the ♂; the third twice as long as broad, narrowly cuneiform, the fourth shorter and more strongly dilated than the third, trigonate, its antero-external angle produced, very acute; the fifth still shorter than the fourth, subtrigonate. Thorax about one half as broad again as long; sides sinuate, subparallel, slightly produced just beyond the middle, thence obliquely converging towards the apex; disk impressed across the middle with a deep sulcation. Elytra faintly excavated below the basilar space, nitidous.

The ♂ of *A. occipitalis* differs from the same sex of *A. fraudulenta*, Jac., in the absence of the frontal tubercles, and in the different length and shape of the dilated joints of the antennæ, also in the black patches on the vertex, and in the black breast and abdomen. The females of both species are unknown to me.

14. AULACOPHORA LÆVIFRONS. Anguste oblonga, postice ampliata, rufo-fulva, nitida, antennis flavis, tibiis (basi exceptis) tarsisque piceis aut nigro-piceis, elytris tenuiter punctatis, nigris; thorace vix pone medium transversim sulcato, sulco profunde impresso, paullo infra marginem lateralem abbreviato. Long. 3 lin.

*Mas.* Capitis vertice non tuberculato; antennarum articulis tertio, quarto quintoque incrassatis et ampliatis, difformibus.

*Fem.* Antennis filiformibus, abdominis segmento anali apice obtuse truncato.

Var. A, ♀. Tibiis tarsisque rufo-fulvis.

*Hab.* Java; Singapore (*Wallace*).

Vertex and front smooth, not tuberculate, the latter impressed just above the encarpæ with a deep fovea; antennæ in the ♂ with the basal joint slightly thickened, subclavate, the third joint slightly thickened, obconic; the fourth equal in length to the preceding one, rather strongly thickened, slightly compressed, noduliform,

the fifth shorter than either of the preceding two, broader than long, trigonate, its antero-external angle slightly produced, acute. Thorax more than one half as broad again as long; sides nearly straight and diverging from the base to beyond the middle, thence obliquely converging towards the apex; disk deeply transversely sulcate immediately behind the middle, the sulcation more deeply impressed on each side, abbreviated just within the lateral margin; surface very finely and remotely punctured, the punctures more crowded on the sides in front. Elytra oblong, dilated posteriorly; convex, transversely excavated below the basilar space, finely punctured.

The abdomen of the ♂ in the only specimen known to me is not fully developed; I am therefore unable to give the form of the median lobe of the anal segment of the abdomen.

#### Genus LEPTOXENA.

*Corpus* angustum, elongatum, convexum. *Caput* exsertum; *antennis* filiformibus, extrorsum leviter incrassatis et paullo compressis; *oculis* integris; *palpis maxillaribus* ovatis, articulo ultimo acuto. *Thorax* transversus, transversim convexus. *Elytra* subcylindrica; *epipleuris* a basi ad angulum posticum extensis. *Pedes* robusti; *tibiis* inermibus; *unguiculis* bifidis, dente interno brevioribus; *femoribus tibiisque* posticis in ♂ incrassatis; *tarsis* posticis articulo basali ad duos sequentes fere æquilongis. *Prosternum* basi non lobatum; *acetabulis* anticis fere clausis, *epimeris* anticis cum antepectoris margine postico intime connexis.

*Leptoxena* is allied to *Galerucella*, but may be separated from that genus by its narrower form, thickened hinder legs in the ♂, and by the anterior epimera being continuous with the hinder border of the antepectus for their whole length, whereas in *Galerucella* their apices are free.

LEPTOXENA EXIMEA. Anguste elongata, parallela, transversim convexa, fusco-fulva, subnitida, thoracis punctis duobus, antennis (basi exceptis) abdomineque nigris; thorace transverso, lateribus late rotundatis, antice sinuatis; disco nitido, leviter transversim convexo, utrinque leviter excavato; elytris fere parallelis, subcylindricis, infra basin non excavatis, fortiter et irregulariter punctatis, vittis nonnullis, leviter elevatis instructis, interstitiis reticulatis. Long. 5 lin.

*Mas.* Abdominis segmento anali apice angulatum inciso; femoribus tibiisque posticis incrassatis, his extrorsum ante apicem sinuatis.

*Fem.* Abdominis segmento anali integro; pedibus posticis non incrassatis.

*Hab.* Andaman Islands (Calcutta Museum and my own collection).

Head strongly exserted, vertex swollen; antennæ with the first joint curved, clavate, the second and third short, nearly equal, the fourth as long as the preceding two united, these three joints cylindrical, the fifth and following ones compressed, the five upper ones being thickened and moderately dilated; the six upper joints black. Thorax nearly three times as broad as long; sides broadly rounded, sinuate before the middle, the hinder angles obsolete; disk transversely convex, slightly but broadly depressed and excavated on each side; nitidous, the central third, the median line excepted, rather closely punctured, sides impunctate; on each side, but at some distance from the outer margin, is a round black or nigropiceous spot. Scutellum clothed with sericeous hairs. Elytra rather broader than the thorax, parallel on the sides; upper surface transversely convex, not depressed or excavated below the basilar space; closely and strongly punctured, the interspaces subelevate-reticulate; each elytron with seven or eight slightly raised longitudinal costæ, those on the outer disk more distant and less defined.

I possess both sexes of this species from the Andaman Islands; I have also received it, without locality, from the Calcutta Museum.

#### *List of Species.*

<i>Charidea</i> (n. g.) <i>punctato-striata</i> (Motsch.)	Japan.
— <i>Fortunei</i> .....	Northern China.
<i>Platyxantha clypeata</i> .....	Andaman Islands.
<i>Enidea cæruleipennis</i> .....	Siam.
— <i>Jacobyi</i> .....	Borneo.
— <i>pallipes</i> (Fabr.) .....	Sumatra.
<i>Cynorta ocellata</i> . . . . .	Malacca.
— <i>apicipennis</i> .....	Sarawak.
— <i>facialis</i> .....	„
<i>Monolepta hæmorrhoidalis</i> (Fabr.) .....	Australia; New Guinea.
— <i>Cuningii</i> .....	Manilla.



<i>Monolepta foveicollis</i> .....	Batchian.
— <i>terminata</i> , Guér. ....	Java.
— <i>Wallacei</i> .....	Celebes.
— <i>verticalis</i> .....	Batchian.
<i>Paraulaca</i> (n. g.) <i>angulicollis</i> (Motsch.).	
<i>Pseudocophora Buquetii</i> (Guér.) .....	Java.
— <i>distincta</i> .....	Borneo.
— <i>Erichsoni</i> .....	Sumatra.
— <i>ambusta</i> (Erichs.) .....	Luzon.
— <i>Wallacei</i> .....	Bouru.
— <i>uniplagiata</i> , Jacoby .....	Sumatra.
— <i>flaveola</i> .....	Andaman Islands.
— <i>brunnea</i> .....	Malacca.
— <i>pectoralis</i> .....	Assam.
— <i>perplexa</i> .....	Manilla.
<i>Aulacophora analis</i> (Weber).....	Sumatra.
— <i>Wilsoni</i> .....	Melbourne.
— <i>Perroudi</i> .....	N. Caledonia.
— <i>argyrogaster</i> (Montrouzier).. .....	”
— <i>austro-caledonica</i> (Montrouzier) ...	”
— <i>Lewisii</i> .....	China, &c.
— <i>orientalis</i> (Hornst.) .....	Java.
— <i>palliata</i> (Schaller) .....	India.
— <i>frontalis</i> .....	Borneo.
— <i>fraudulenta</i> , Jacoby.....	N. Guinea.
— <i>bipartita</i> .....	Flores.
— <i>Olivieri</i> .....	Australia.
— <i>occipitalis</i> .....	N. Guinea.
— <i>lævifrons</i> .....	Java.
<i>Leptoxena</i> (n. g.) <i>eximea</i> .....	Andaman Islands.