

the spinelets form rather a fasciculus or bundle set on a rounded base; there are no glassy spines in connexion with these bundles, which, as they approach the tip of the arm, gradually diminish in size.

Along the middle line of each ray, and even as far as the centre of the disk, it is quite easy to detect the regular arrangement of the chief paxillæ. About twelve of these can be made out in each row; and they add much to the distinctness of the several rays.

In addition to this row of specially large and conspicuous paxillæ, two sets at least of smaller ones are to be made out on either side of each of them. Similarly the somewhat wide spaces between each of the more important paxillæ are occupied by smaller paxillæ. The rest of the abactinal surface, whether on the free portion of the rays or on the disk itself, is occupied by single spines, by spines a few together, or by papulæ; but none of the spines are either long or sharp.

The single madreporic plate, which is situated a little way from the centre of the disk, is of a moderate size and sufficiently easy of detection.

Ecuador. Coll. B.M.

The single specimen from which this description has been drawn up has been at least twenty-five years in spirit; it is of a creamy-yellow colour. It was collected by S. O. Goodridge, Esq., R.N., and formed part of the Haslar collection.

XVIII.—*Notes on Longicorn Coleoptera*.—*Revision of the Ærénicides and Amphionychides of Tropical America*.
By H. W. BATES, F.R.S., F.L.S.

WITH the exception of three genera—*Oberea*, *Tetraopes* (northern forms, spreading across the Mexican frontier partly into Central America), and *Phæa*—all the true Saperdinæ of Tropical America belong to Lacordaire's "groupes" Amphionychides and Ærénicides. These are distinguished from temperate and Old-World forms of *Saperda* not by any constant peculiarity of structure, but a combination of characters and the occurrence in many of the genera of special features not existing in any other groups of the subfamily. In these remarks it will be understood that I recombine the original *Saperdæ* and their allies with the *Phytæciæ*, placed in Lacordaire's system so wide apart, and form with them a subfamily Saperdinæ, equivalent to the true Lamiinæ, Niphoninæ, Acanthoderinæ, &c., and that I exclude the groups Calliides, Gryl-

licides, and Hébestolides of Lacordaire as foreign to the *Saperda* type. This seems to be the arrangement most in accordance with nature and with our present knowledge of this difficult and numerous group of Longicorns,—the division into tribes with simple and tribes with toothed claws breaking down completely in the genus *Glenea* (belonging to the true *Saperdæ*), of which we now know so many species (*Gl. lepida*, *cinerea*, *amboynica*, &c.) possessing toothed claws in the male, and the three “groupes” above mentioned, in spite of their toothed claws, receding completely from the *Saperda* type in many other points of structure. Lacordaire's elaborate classification of the Longicornia, in fact, fails here, as it does elsewhere, from his too close adherence to technical system, by which he unconsciously sacrificed natural affinity in striving to secure absolute definitions.

The Amphionychides and *Ærénicides* are closely allied to the *Phytæciides* of the Old World, having, like the typical species of that group, tarsal claws with very few exceptions bifid, *i. e.* their basal tooth pointed and as long or nearly as long as the stem of the claw. Some of the *Ærénicides* approach the *Phytæciæ* so closely that they are scarcely to be distinguished from them, having a similar structure of prosternum and similar unretracted head and notched middle tibiæ; but the gradation is so insensible between these and the rest, in which the middle tibiæ are simple and the prosternum contracted, with the head retracted* or resting in its lower part on the strongly exerted anterior haunches, that we are compelled, in spite of systematic reasons, to keep the whole of the forms together. In the Amphionychides there are no disparate elements; it may be said, indeed, that here the tropical American type of *Phytæcia* reaches its highest development, receding entirely from the Old-World type. The head is in all strongly retracted, the tibiæ simple, the antennæ, the shape, and clothing of the body different from the *Phytæciæ*, and the species branching out into a variety of beautiful and eccentric forms unlike those of any other *Saperdinæ*. In nearly all of them the elytra have a distinct raised rib or carina, separating the dorsal surface from the sides or *epipleuræ*, which latter are usually of great elevation. This is also a distinctive feature in *Gleneides*, the tropical division of the Old-World *Saperdæ*; and the two

* Lacordaire used the term “retractile” for this peculiar relation of head to prosternum; but the term is objectionable from its ambiguity, its obvious meaning being the power of withdrawal of the head within the thorax. I have myself used the word with this signification in the ‘*Biologia Centrali-Americana*,’ Coleoptera, vol. v.

groups Gleneides and Amphionychides may be therefore looked upon as to some extent representative forms.

The researches of entomological travellers during the twelve years that have elapsed since Lacordaire's classification was published have immensely increased the amount of material in these groups at the disposal of the student. The total number of species mentioned by Lacordaire was 83; in the list which terminates the present memoir I enumerate 220, including the new species which I here describe from my own collection; and there are doubtless many other species still undescribed in public and private museums. The new species do not furnish any fresh element rendering indispensable a modification of Lacordaire's division into two groups; but they bridge over the gap which divided them in the state of our knowledge at that time, so that neither the retracted head nor the carination of the elytra can now be said to afford reliable group-characters; in fact they are of little more than specific value in some of the genera. It is convenient, however, for the present to retain the two groups. Two of the genera, *Pretilia* and *Sphallonycha*, break the uniformity of the groups in the structure of the tarsal claws, having the basal tooth short and broad; but they cannot be withdrawn without necessitating the institution of two other groups for their reception, the two genera differing from each other greatly in the form of the elytra and head, although agreeing in the dentation of the claws. *Zenicomus* (Thomson) I remove from the Amphionychides, with which it agrees in none of its principal characters. It is in fact a member of the Calliides group, and is scarcely different generically from *Chereas*. On the other hand I include *Amillarus* (Thomson), which Lacordaire, overlooking its true affinities, placed in a widely different part of his system. The tarsal claws in this genus have undergone a remarkable modification of position, the long basal teeth being soldered to the stems of the claws and closely joined at the base, so that the claws have become "*divergents*" instead of "*divariqués*" as in the rest of the Saperdinæ. There can be no doubt, I think, that *Amillarus* is closely related to *Erana*, especially to such species as *E. dispar*, in which the sexes differ similarly in form and colour. Its longer prosternum and free head, however, necessitate our including it in the group *Ærenicides*.

*New Genera and Species.*Group 1. *ÆRENICIDES.**APHILESTHES.*

Corpus elongatum, robustum, lineare, subdepressum, dense breviter pilosum. Caput exsertum; oculi magni, convexi; frons brevissima et angusta, infra paullo retracta. Antennæ corpore multo breviores, a basi ad apicem subtus sparsim ciliatæ, articulo tertio cæteris haud longiore. Thorax valde transversus, medio rotundato-dilatatus. Elytra parallela, apice singulatim rotundata, paullulum convexa, absque carinis. Prosternum ante pedes vix elongatum, concavum, coxis conicis valde exsertis. Episterna metathoracica latiuscula, parallela. Tibiæ intermediæ fortiter emarginatæ.

The head is similar in shape to that of the typical *Ærenicæ*, the forehead being scarcely prolonged below the voluminous eyes. The mouth, however, is not so distant from the anterior haunches as in *Ærenica*, owing to the shorter and more concave anterior part of the prosternum and the long exserted coxæ. The terminal ventral segment in the female is very large, and broad at the apex, with an impressed central line.

Aphilesthes rustica.

Rufo-fusca, pube cinereo-flava dense vestita et breviter erecte pilosa; thorace lateribus late elytrisque marginibus anguste flavis; femoribus supra et geniculis rufo-testaceis.

Long. $8\frac{1}{2}$ lin. ♀.

Merida, Venezuela (*Göring*).

Antodyce juncea.

Linearis, gracillima, fusco-castanea, capite, thorace, antennis, vitta lata elytrorum marginali (longe post humerum subito incipiente et usque ad angulum suturalem continuata) melleo-flavis, elytris ante medium maculis duabus rotundatis (transversim positis) litureaque curvata fasciæformi ante apicem testaceo-albis; thorace angustissimo, dorso tuberoso, episterno vitta lata fusca; elytris apice obtuse rotundatis, dorso subtilissime punctulatis; pedibus fulvis, fusco-lineatis; ventre piloso; antennis gracilibus, pilosis.

Long. $4\frac{1}{2}$ lin. ♂.

Brazil.

Ærenica spissicornis.

Linearis, obscure fusca, tomentosa et breviter pilosa, thorace vittis angustis tribus elytrisque utrinque signaturis tribus (prima basali postice suturam versus curvata, secunda laterali-mediana arcuata tertiaque subapicali a sutura versus marginem obliquata) fusco-

cinereis; thorace breviter cylindrico, postice paullo angustato; elytris apice conjunctim subacuminatis, sed obtusis, sublineatim punctulatis; antennis corpore brevioribus, crassis, dense undique (subtus longius) pilosis, scapo quam articulus tertius paullo longiore.

Long. $5\frac{1}{2}$ – $7\frac{1}{2}$ lin. ♂ ♀.

Paraná, Brazil.

Similar in general colours to *Ærenica canescens* (Klug), but differing in the pale markings of the elytra being linear, forming on each three elongated and oblique or curved streaks, and also in the remarkably thickened antennæ. Although the scape is shorter than in the type species (*Æ. hirticornis*), it bears the same relative proportion to the other joints. The middle tibiæ are entire; in *Æ. canescens*, according to Klug's figure, they are notched.

Ærenica leucippe.

Robusta, ochraceo-fulva, subtiliter tomentosa, thorace vitta dorsali (postice dilatata), elytris macula ante medium elongata triangulari suturali communi, altera utrinque vittæformi ante apicem corporeque subtus vitta laterali cretaceis; thorace elongato, cylindrico, postice vix angustato; elytris apice acuminatis et utrinque longe spinosis, dorso sparsim subgrosse punctatis (punctis fuscis); antennis crassis, filiformibus, pilosis; scapo brevi, quam articulus tertius paullo brevior.

Long. 9 lin.

Paraná, Brazil.

Ærenica porosa.

Robustior elytrisque latioribus, atro-fusca, tomento subtili cinereo-ochraceo vestita; thorace cylindrico, scabroso-punctato; elytris apice rotundatis, angulo suturali producto acuto, dorso punctis magnis nitidis sublineatim impressis, interstitiis (versus basin) punctulatis; antennis haud pilosis, subtus sparsim breviter ciliatis; tarsis articulo unguiculari ut in *Æ. hirticorni* valde elongato, gracili, sed unguiculis ramo interiore multo brevior.

Long. $8\frac{1}{4}$ lin. ♀.

Venezuela.

APAGOMERA.

Corpus cylindricum, angustum. Caput post oculos dilatatum, subtus haud retractum, frons brevis. Thorax cylindricus, basi angustatus vel constrictus. Elytra parallela, apice conjunctim rotundata, absque carinis lateralibus. Antennæ filiformes, robustæ, longe ciliatæ. Coxæ anticæ minus exsertæ.

The type of this genus is *Saperda triangularis* of Germar. It differs from the allied genera *Erana* and *Essostrutha* in the

head being not retracted in repose, the prosternum in front of the anterior haunches being of considerable length, and the front of the head much shortened; the anterior coxæ differ also from the just-cited as well as all other genera allied to *Amphionycha* in being much less exerted and conical, the prosternum being in correlation wider between the sockets. In its robust filiform antennæ it agrees with *Essostrutha*.

Apagomera triangularis.

Apagomera triangularis, Germar, Ins. Spec. Nov. p. 493 (*Saperda triangularis*); Perty, Del. An. Art. Bras. t. 19. fig. 12.

Rio Janeiro, Brazil.

Apagomera suturella.

Cylindrica, gracilis, niger, griseo-pubescent; thorace fascia antica lateribusque flavis, linea dorsali et sutura elytrorum canis; corpore subtus vitta laterali fulva; thorace cylindrico subelongato, postice angustato; elytris subcrebre punctatis; antennis supra breviter pilosis, articulo tertio quam scapus paullo brevior et quam articulus quartus vix longior; tibiis intermediis distincte emarginatis.

Long. 4 lin. ♂.

Paraná, Brazil.

Although closely related to *A. triangularis* by the form of the head, prothorax, and prosternum, this species recedes in points of structure which might be regarded as generic, viz. the much shortened third antennal joint and the notched middle tibiæ.

Apagomera azurescens.

Robustior, cylindrica, nigra, pube tenui sericeo-grisea vestita, macula thoracis utrinque rotundata aurantiaca; capite (♀) subgloboso; thorace brevi, transverso, medio utrinque tuberoso; elytris subsparsim punctulatis; antennis articulis secundo ad quintum subtus dense et longe ciliatis.

Long. 5 lin. ♀.

Brazil.

The *Amphionycha azurescens* of Dejean's Catalogue. In the short and laterally tumid thorax this species differs greatly from the type of the genus.

EULACHNESIA.

Eulachnesia, Bates, Trans. Ent. Soc. 1872, p. 231.

This genus belongs to the *Ærenicides* by the non-retracted head, the lower part of which, in the typical species, is deci-

dedly remote from the anterior haunches; and the prosternal process is in correlation visible between the moderately exerted coxæ. The anterior part of the prosternum, however, is concave, showing an approach to the structure distinctive of the true *Amphionychides*; and the lateral carina of the elytra is more or less clearly indicated. These typical species are connected by insensible gradations with others which have the same form of elytra and antennæ, but the head much more strongly retracted, and well-developed elytral carinæ. There are therefore no constant characters separating the two groups.

Eulachnesia cobaltina.

Elongata, postice modice attenuata, nigra, pube vel squamulis tenuibus pallide viridi-cæruleis tecta, vertice vittis tribus, genis vitta utrinque lata (per thoracem continuata), thorace plaga dorsali antennisque nigris; genis (infra vittam nigram) prosternoque utrinque vitta alba, in elytrorum basi aurantiaco-fulva, postice oblique ducta; capite valde exserto, vertice prolongato; elytris ante apicem curvatim angustatis, apice sinuato-truncatis et bidentatis, dorso punctulatis, costulis duabus carinaque laterali haud elevatis; antennis utroque sexu corpore multo longioribus, filiformibus, robustis, infra usque ad apicem breviter ciliatis.

Long. 6-7 lin. ♂ ♀.

New Granada.

Much resembling *E. sapphira* in colours, but differing in many points of structure: the head is much more elongated and voluminous; the elytra taper in a gradual curve to the apex instead of rectilinearly; and the raised dorsal lines and carinæ are only feebly indicated by the limiting punctures; lastly, the antennæ have beneath a much shorter and less dense fringe of hairs. The male example before me has the elytra almost entirely fulvous, probably owing to the abrasion of the fine blue scales.

Eulachnesia calliste.

Longissima, postice gradatim valde attenuata, nigra, subtus aureo-pubescent, capite thoraceque vitta lata laterali flava, elytris dimidio basali testaceo-flavo, dimidio apicali violaceo-nigro polito, sutura flavo-pubescente, antennis, pedibus et metasterni episterno fulvis; capite longe exserto, vertice convexo; thorace dorso nitido, convexo; elytris apice sinuatim truncatis, angulis productis, versus basin lineatim punctatis, apice lævibus, carina laterali versus basin tantum elevata; antennis infra longe subdense ciliatis, articulo tertio longissimo.

Long. 8 lin. ♂.

Near Cuzco, Peru.

Eulachnesia æquatoria.

Elongata, linearis, subtus nigro-ænea, nitida, tenuiter cinereo-pubescens, capite thoraceque nigris velutinis (hoc disco subæneonitido), vertice vittis quatuor, genis utrinque una, thoraceque una laterali alteraque inferiore albis; elytris fulvo-rufis, subtiliter pubescentibus, macula magna communi submediana ænescentinigra; capite minus exserto, subtus paullo retracto; thorace cylindrico, medio paullulum dilatato, dorso convexo inæquali; elytris apice sinuatim truncatis utrinque bidentatis, dorso costulis utrinque duabus, interstitiis crebre punctulatis, carinis lateralibus utrinque duabus; antennis infra longe subdense ciliatis, articulo tertio longissimo.

Long. 6-7 lin. ♂ ♀.

Ecuador (*Buckley*).

Eulachnesia viridipennis.

Sublinearis, postice paullo angustata, viridi-ænea, subtus dense cinereo-pubescens, elytris sericeo-nitentibus, epipleuris violaceis marginibus aureo-pilosis, capite thoraceque supra nigris, vertice lineis duabus thoraceque utrinque una laterali flavis, fronte cinerea; antennis pedibusque fulvis, illis articulorum apicibus a tertio saturatoribus: capite modice exserto, quam thorax latiore, subtus vix retracto; thorace cylindrico, medio paullo dilatato; elytris apice sinuatim truncatis utrinque bidentatis, dorso sparsim punctulato, carina laterali obtusa sed distincta, apicem fere attingente; antennis longe ac minus dense ciliatis, articulo tertio longissimo.

Long. $5\frac{1}{2}$ lin. ♂.

Macas, Ecuador (*Buckley*).

Group 2. AMPHIONYCHIDES.

SPHALLONYCHA.

Corpus cylindricum, modice elongatum, erecte pilosum. Caput thorace multo latius, pone oculos prominulos gradatim angustatum, fronte convexa modice elongata, infra angustata, subretracta. Thorax relative magnus, elongatus, subcylindricus, medio paullo dilatatus, dorso tuberoso. Elytra parallela, apice sinuato-truncata, angulo suturali distincto, exteriore dentato; dorso sublineatim sparsim punctata, carina laterali subobtusa, carina accessoria distante, longiore. Tarsi breves, articulo quarto curto, unguiculis basi intus dilatatis subdentatis. Prosternum, coxæ anticæ, et antennæ ut in *Amphionychis* typicis.

A new genus, rendered necessary for *Amphionycha roseicollis* (Bates) on account of its departure from the group-

character in the form of the tarsal claws. On superficial observation the claws seem destitute of teeth, as in *Saperda*; but on close examination the thickened base of each is observed to be separated from the stem of the claw by a notch not far from the base, leaving a moderately acute basal tooth. The structure thus does not differ essentially from that of certain species of *Phytæcia*, e. g. *P. femoralis* (Muls.). In all other points of structure, however, *Sphallonycha* belongs strictly to the *Amphionycha* group, in which the peculiar form of the head and the relatively great length and tuberculation of the thorax would entitle it to generic distinction independently of the form of the claws.

There is great resemblance in general form, as well as in the dentation of the claws, between this genus and *Pretilia*; but the degree to which the head is retracted differs considerably in the two genera; and the elytra are destitute of carinæ in *Pretilia*, and distinctly carinate in *Sphallonycha*. Thus all the leading characters on which Lacordaire relied in his classification here break down utterly.

Sphallonycha roseicollis.

Sphallonycha roseicollis, Bates, Ann. & Mag. Nat. Hist. ser. 3, xvii. p. 430 (*Amphionycha roseicollis*).

Upper Amazons.

ALAMPYRIS.

Alampyrus, Bates in Godman and Salvin's *Biologia Centrali-Americana*, Coleoptera, v. p. 218.

In this genus, numerous in species in Mexico and Central America, the head is retracted nearly as in *Amphionycha*, but the exerted anterior haunches are scarcely so closely approximated. The majority have no trace of elytral carinæ; and in those where they are present they are obtuse and sometimes much abbreviated, with epipleuræ of slight elevation. The true position in the group is very difficult to fix.

Alampyrus planipennis.

Valde elongata, vix convexa, nigro-fusca, dense erecte pilosa, thoracis linea laterali indistincta, elytrorum sutura vittaque laterali albo-testaceis, marginibus albo-tomentosis; thorace sparsim, elytris crebre punctulatis absque carinis, lateribus post medium paullulum explanatis; palpis et femoribus testaceo-variis. ♂ abdomen nigrum; ♀ segmentis tertio et quarto utrinque pallide flavis tomentosis.

Long. 6-7 lin. ♂ ♀.

South Brazil.

Calocosmus janus.

Fusco-niger, subnitidus, pectore medio, abdomine femoribusque fulvo-testaceis; fronte vix convexa, pilosa, crebre punctata; thorace antice grosse sparsim punctato, limbo et postice plus minusve rufescente, cylindrico, lateribus medio obtusissime tuberculatis; elytris humeris prominulis, apice rotundatis, supra punctulatis.

Long. $5-5\frac{1}{2}$ lin. ♂ ♀.

Cuba.

Calocosmus semimarginatus.

Fulvus, subnitidus, tenuiter pubescens, sparsim setosus; elytris purpurascenti-nigris, basi, sutura et lateribus usque medium anguste fulvis; tibiis et tarsis antennisque nigris, harum articulis quarto et quinto basi fulvis; elytris subacute conjunctim rotundatis, sublineatim punctulatis, carinula laterali paullulum distincta.

Long. 4 lin. ♂.

Santiago, Cuba.

TETANOLA.

Corpus elongatum, postice gradatim acuminatum, sparsim setosum, vittis nudis politis. Caput (cum oculis) thorace ♂ ♀ haud latius, inter antennis depressum, fronte modice elongata, quadrata, infra retracta. Thorax cylindricus, prope basin paullulum contractus. Elytra valde elongata, postice acuminata, apice fere acuta, dorso planata, sparsim tenuiter lineato-punctata, carina laterali recta, obtusa, usque ad apicem continuata. Antennæ ♂ ♀ corpore breviores, sparsim ciliatæ.

The acuminate elytra and extension of the lateral carina (although as an obtuse ridge only) to the apex constitute the chief characters of this genus. The smooth and shining integumental stripes of the upper surface are also a peculiarity which distinguishes it from the *Amphionychæ*.

Tetanola polita.

Subtus fulva, tenuiter pubescens, lateribus nigro-fuscis; supra nigro-vel fusco-castanea, elytrorum basin versus rufo-castanea, polita, capite, vitta laterali prothoracis, elytrorum lineis tribus (suturali et laterali ad apicem conjunctis, interiore ante apicem desinente) flavis; thorace tomentoso, disco postice tuberculo polito; antennis cinereo-fuscis, scapo fulvo-nitido; pedibus fulvis, geniculis tarsisque nigris.

Long. $7\frac{1}{2}-8\frac{1}{2}$ lin. ♂ ♀.

Ecuador (*Buckley*).

OCHROMIMA.

Facies *Megalopi* (trib. *Phytophagorum*). Corpus breve, oblongum, postice angustatum, erecte pilosum. Caput latissimum, retractedum, inter oculos paullo depressum, fronte elongata sed infra valde

angustata, pilosa; ore parvo, mandibulis paullo exstantibus. Tubera antennifera longe barbata. Thorax trapezoidalis, a basi usque ad marginem anticum recte angustatum. Elytra convexa, apice conjunctim rotundata, carina laterali flexuosa, epipleuris altis. Antennæ corpore longiores, usque ad apicem longe ciliatæ.

This new genus is necessary for the reception of *Amphionycha megalopoides*, which differs in form and in some points of structure quite as much as *Chrysaperda* from the rest of the *Amphionychæ*. The only example at present known appears to be a male.

Ochromima megalopoides.

Ochromima megalopoides, Bates, Ann. & Mag. Nat. Hist. ser. 3, xvii. p. 427 (*Amphionycha megalopoides*).

Santarem, Amazons.

CHRYSAPERDA.

Corpus oblongum, convexum, erecte pilosum, nitidum, absque plagis tomentosis. Caput exsertum, inter antennis anguste depressum (tuberibus antenniferis elevatis), ♀ vertice valde convexo, fronte elongata, infra paullo dilatata, oculis parvis rotundatis. Thorax valde transversus, antice angustatus, medio transversim convexus. Elytra oblonga, medio angustata, ante apicem rotundato-dilatata, apice late truncata, angulo exteriori dentato, dorso planata, postice citius declivia, epipleuris altissimis (postice altioribus) carina laterali acutissima paullo curvata, supra declivatatem apicalem subito terminata. Antennæ corpore vix longiores, undique setosæ, scapo elongato gradatim clavato, articulo tertio longissimo, quarto ad sextum (præcipue in ♀) paullo incrassatis, apicalibus attenuatis.

Resembles species of the genus *Megalopus*, tribe Phytophaga. Most of the generic characters are but an exaggeration of what is seen in one or other of the species of *Amphionycha*; but in combination, as we find them here, they seem to warrant the institution of a separate genus.

Chrysaperda metallica.

Flava, vertice plaga magna (orbitam ocularem includente) nigra nitida; elytris (margine angusto laterali fasciaque latiore apicali flavis exceptis) cyaneis vel viridi-æneis, nitidis; antennis flavis, scapo basi et supra, articulis secundo et tertio (apice excepto) et septimo ad undecimum nigris; elytris subcrebre punctulatis.

Variat metasterno nigro-fusco, thorace supra rufo, antennarumque articulis primo ad tertium vix infuscatis.

Long. $4\frac{1}{4}$ – $5\frac{1}{4}$ lin. ♂ ♀.

Ecuador (*Buckley*), Chanchamayo, Peru (*Dr. Thamm*).

[To be continued.]