EXPLANATION OF PLATE VIII.

- Fig. 1. Xuthia siccana. 1 a, trophi.
 - " 2. Gempylodes macer.
 - " 3. Bupala pullata.
 - " 4. Caprodes asper.
 - " 5. Hyberis Wallacei.
 - " 6. Cebia rugosa. 6 a, trophi.
- Fig. 7. Eba cerylonoides.
 - 8. Atyscus argutus.
 - 9. Ithris decisa.
 - ., 10. Minthea dentata.
 - , 11. Metopiestes erosus.
 - ,, 12. Trophi of Hyberis araneiformis.

XIII.—An attempt at a Classification of the Eumolpidæ. By J. S. Balt.

MANY of the families belonging to the great tribe of Phytophagous insects are in such a confused and unarranged state as doubtless to deter many persons from their study; they contain, however, equally with those better known and more commonly studied, numberless beautiful and striking forms, which will quite as amply repay patient investigation. Hoping to draw the attention of other entomologists to the study of these beautiful insects, I shall attempt, in the present series of papers, to draw up diagnostic characters of the numerous genera belonging to the Eumolpida, a group of Phytophaga in which (with the exception, perhaps, of the Gallerucidæ) less has been done than any other. The possession of a very large collection of my own, together with the power of access to the cabinet of the Rev. H. Clark, who now possesses the fine collections formerly belonging to MM. Chevrolat and Thomson of Paris, in addition to those collected by himself in Brazil, places a vast store of materials within my reach, the whole probably comprising, with few exceptions, all the known species. With the exception of a small number of genera formed by Fabricius, Laporte, and other entomologists, and also a few more recently established by myself in the first volume of this Journal, scarcely anything has been done to reduce the group into order or arrangement—all the large collections that I have had the opportunity of examining having had their species (nearly all undescribed) placed at random under one or other of the uncharacterized genera created by Chevrolat and Dejean in the 3rd edition of the Catalogue published by the latter, a single genus often containing insects belonging to four or five others, and, on the other hand, the species belonging to the same genus scattered about and placed under eight or ten different generic names, no two collections agreeing either in their nomenclature or arrangement.

The Eumolpidæ are most nearly allied to the true Chrysomelidæ, vol. 11.

and indeed, although their facies is so distinct that (with one or two exceptions) the merest tyro in entomology could easily separate the two families, still I know not any one set of characters by which they can be rigidly divided from each other. Lacordaire, in his 'Mon. des Phytoph.' tom. i. p. l, mentions the bilobed third joint of the tarsus, taken in connexion with the toothed claw, as being the distinctive mark of the Eumolpidæ; these characters, however, exist conjointly in Gastrophysa and several allied genera of Chrysomelidæ. Dr. Stål (Mon. des Chrysom. de l'Amér. p. 4) points out the more or less globular anterior coxe in the Eumolpide in contradistinction to the transverse anterior coxe of the true Chrysomelidse as separating the two groups. I myself, about the same time (Journ. of Entom. tom. i. p. 24), mentioned another character by which I thought the two groups might be separated, viz. the form of the anterior episternum *, this part of the body being always transverse in the Chrysomelidæ, and more or less quadrate or wedgeshaped in the Eumolpidæ; but on close investigation I find that these two characters, viz. the forms of the coxe and episterna, mutually depend on each other: thus with a transverse coxa the episternum is confined to the upper edge of the cotyloid cavity, and is necessarily transverse; with a subglobular coxa, on the other hand, the episternum is produced downwards, halfway along the outer border of the coxa, forming the anterior half of the outer as well as the whole of the upper edge of the cotyloid cavity. These distinctive characters have a much wider application than those mentioned by Lacordaire, the only exception, as far as my present knowledge extends, being in the genus Euryope, which, although a true Eumolpidous form, and agreeing in all other characters with that group, possesses the episterna and coxe of a Chrysomelidous insect, thus appearing to unite the two families.

The Eumolpidæ may be characterized thus:-

Body rotundate, oblong or elongate, more or less cylindrical, generally glabrous above, at other times clothed with hairs or scales, which are usually adpressed. Head either moderately exserted or more or less deeply buried in the anterior cavity of the thorax; face perpendicular; antennæ simple, rarely shorter than the head and thorax, seldom exceeding the body in length, filiform or subfiliform, rarely incressate; eyes notched or entire, distant; mentum short, transverse, frequently bent upwards into the head, its anterior margin usually emarginate. ligula corneous; terminal joints of palpi generally ovate, rarely clavate.

^{*} This part was formerly named by me the antero-lateral process of the antepectus.

Thorax usually narrower than the elytra, occasionally equal in width, or even broader, convex or subcylindrical, in the latter case with the lateral margin frequently obsolete. Scutellum always distinct. Elytra usually broader than the thorax, humeral callus rarely prominent, inflexed border generally oblique, sometimes horizontal, upper surface punctate-striate or irregularly punctured. Legs moderate in length or elongate, the anterior pair being generally rather longer and stouter than the others; anterior coxe subglobular or (Euryope) transverse, separated by a distinct prosternum; thighs more less incrassate, sometimes armed with a tooth beneath; tibise usually simple, occasionally notched at their apex, rarely armed with a spine on their outer or inner edges; third joints of tarsi always bifid; claws appendiculated, toothed or bifid. Prosternum elongate-oblong or wedge-shaped, sometimes transverse; mesosternum variable in shape, its surface oblique, the apex being always directed backwards.

The great majority are of brilliant metallic colours, the few non-metallic species being usually of a dull or sombre hue. They are for the most part of moderate or small size, a few only ranking with *Doryphora* and the larger Phytophaga. They are principally inhabitants of the warmer parts of the globe, diminishing both in number and beauty in colder latitudes. South America may perhaps be considered their great metropolis; I shall not here, however, enter into their geographical distribution, preferring to make short remarks on this subject under each subfamily or genus.

Little or nothing is known of their habits; but Mr. Bates, who has brought a large collection of these insects (now in my possession) from the Amazons, has kindly favoured me with some notes on the species collected by himself, which I insert entire in his own words.

"The Eumolpidæ of the equatorial parts of South America form a very conspicuous part of the insect fauna of those countries, not only from the number of their species and diversity of their forms, but from the great abundance in which they appear—in other words, the number of their individuals. In this latter respect they are exceeded (in the order Coleoptera) only by the Curculionidæ and the Gallerucidæ. The exposed situations in which they are found, namely, on the leaves of trees, and the brightness of their colours, also contribute to make them prominent objects in a woodland ramble. It is worthy of remark, that the closely allied subfamily Chrysomelidæ is far inferior in numbers of individuals and species and diversity of forms in the forests of the Amazons to the Eumolpidæ, whilst in Europe the reverse is the case. Thus the Chryso-

melidæ which I collected numbered only 55 species, belonging to 4 genera; whereas the Eumolpidæ reached the large figure of 250 species, comprising a large number of genera. In Europe this proportion is more than reversed; for the Chrysomelidæ number 236 species (11 genera), whilst the Eumolpidæ are represented only by 18 species (7 genera). The causes of this difference may perhaps lie in the circumstance that the Chrysomelidæ feed principally on shrubs, which form a large proportion of European vegetation, but constitute a subordinate feature in the equatorial forests, whilst the Eumolpidæ live on trees, whose proportion to the shrubby vegetation is immeasurably greater in the tropical forests than in Europe. Little can be said regarding the habits of the Eumolpidæ, all the species being very similar in their modes of life. A large number of them, however, seem confined to certain trees; and it is possible that considerable diversity might be found, were the food plants of each kind well ascertained, and their development from the egg to the perfect state carefully traced. Many of the larger metallic species are found only on arborescent Solanaceæ, or plants of the Potato order, which grow in all waste places and neglected gardens in the suburbs of towns and villages. All are gregarious in their habits, like the true Chrysomelidæ; and although they are not so obese in habit and slow in movement as those insects, they seem to make quite as little use as these of their power of locomotion. As they do not generally feign death and drop to the ground on the approach of danger, like the Clythridæ and many of the Chrysomelidæ, and have not the strange disguises of the Chlamydæ, or the tenacity of grasp on foliage of the Cassididæ and Hispidæ, or the nimble flight of the Megalopidæ, the reason of their existence in such large numbers in situations exposed to the depredations of birds and lizards may perhaps lie in their having some passive means of defence of which we are at present ignorant."

I propose breaking up the family into a number of subfamilies, founded rather on natural affinity than on technical characters.

Division I. Anterior episterna variable in shape, always prolonged backwards along the outer edge of the anterior coxæ.

Subfamily I. ADOXINÆ.

Body oblong or elongate, subcylindrical, non-metallic, clothed above with hairs or scales. Thorax commonly subcylindrical; its lateral margin usually obsolete, more rarely indicated by a faint ridge or irregular teeth; its lateral surface generally forming the segment of a circle with

the disk*; anterior episternum rarely well-defined. Antenna filiform or subfiliform; thighs usually armed beneath; four posterior tibia for the most part simple, very rarely notched conjointly at their apex; claus (Aulexis excepted) bifid.

These insects are of moderate or small size, non-metallic, and of sombre hue, being either fuscous or black, and clothed commonly with concolorous hairs or scales; they form (one or two aberrant genera excepted) a very natural group. The subfamily is difficult to define in words, the most striking character in the great majority being the very cylindrical thorax, together with the absence of its lateral border. Although not numerous in species, they break up into a number of small genera, separated on apparently slight but nevertheless (according to my views) well-defined characters, viz. the nature of the pubescence, the form of the pro- and meso-sterna, the toothing of the thighs, &c. The species are spread over a considerable portion of the globe, being found in Europe, Asia (from Japan to the Malay archipelago), North and South America. Adoxus, the typical form of the group, characterized by Kirby in his 'Faun. Bor.-Amer.' on Eumolpus vitis, Fabr., an insect found both in North America and middle Europe, is the only genus belonging to the latter quarter of the world. Asia contains the following:-Neculla and Trichotheca, India; Aoria, China, Siam, and Malacca; Adoxus, the same, and also Japan; Nephrella, Ceylon; Lypesthes, Japan and China; Leprotes, Hongkong; Demotina, China, Ceylon, and the Malay archipelago; and Aulacolepis, Siam and Sumatra; together with the six following, peculiar to the Malay archipelago itself: viz., Aulexis, Piomera, Metaxis, Apolepis, to Borneo; Stasimus, to Singapore; and Lepina, to Sumatra, Java, and Pulo Penang. In North America are found (in addition to Adoxus) Xanthonia and Fidia. South America contains an equal number of species with the last, belonging to the genera Habrophora and Brevicolaspis—the former being natives of Peru and the Upper Amazons, the latter of Brazil. Africa and Australia have not (as far as my present knowledge goes) any representatives of the group.

Table of Genera.

A. Body clothed above with hairs or fine hair-like scales.

^{*} Aulacolepis is an exception, and forms, with its distinctly margined thorax, a passage between this tribe and the Heteraspine.

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b. Eyes entire or obsoletely sinuate.
c. Anterior edge of epistome unarmed.
d. Mesosternum bifurcate, transverse 2. Aoria.
dd. Mesosternum entire or simply notched.
e. Elytra tuberculate
es. Elytra not tuberculate.
f. Anterior pair of thighs enlarged and
compressed, armed beneath with an
acute tooth
ff. Anterior pair of thighs of normal size.
g. Thorax slightly transverse and flattened above 5. Xanthonia.
g g. Thorax regularly cylindrical above.
h. Thighs toothed beneath.
 i. Body elongate, clothed above with silky hairs 6. Lypesthes.
ii. Body oblong, clothed with scale-like hairs 7. Neculla.
h. h. Thighs simple 8. Fidia.
cc. Anterior edge of epistome armed with two flattened
teeth 9. Aulexis.
b b. Eyes distinctly notched.
 Eyes distinctly notched, elongate, reniform.
k. Thighs armed with a stout tooth10. Brevicolaspis.
k k. Thighs simple11. Nephrella.
jj. Eyes distinctly notched, ovate or rotundate12. Habrophora.
B. Body clothed with regular scales.
a. Prosternum not separated from the episternum by a sutural groove.
b. Anterior pair of thighs strongly incrassate; epi- stome transverse
bb. Anterior and posterior pairs of thighs both thickened
and nearly equal, middle pair slender; epistome
wedge-shaped
b b b. Anterior pair of thighs of normal size.
c. Apex of tibiæ simple
cc. Apex of one or both pairs of hinder tibiæ notched.
d. Scales more or less adpressed, flat, or only slightly curved; epistome trans-
verse
dd. Scales suberect, strongly curved; their
apex produced into a slender thread- like process.
e. Episternum inflexed, its surface looking directly downwards .17. Hemiplatys.
e e. Episternum lateral 18. Apolepis.
a. Prosternum separated from the episternum by a deep groove.
f. Scales slender, of normal size
ff. Scales large, longitudinally concave

Genus Adoxus, Kirby.

Bromius, Chevr., Redtenb.

Body oblong, subcylindrical, clothed above and beneath with adpressed hairs. Head moderately exserted, perpendicular; antennæ subfiliform, robust, first joint incrassate, second rather shorter than the first, subincrassate, ovate, the third equal in length to the second, the fourth somewhat longer; eyes subprominent, entire; terminal joint of palpi ovate; mentum with its anterior margin concave. Thorax subcylindrical, its lateral border entirely obsolete. Elytra much broader than the thorax, closely punctured. Legs stout; thighs moderately thickened, unarmed beneath; basal joint of tarsi scarcely shorter than the two following united; claws bifid. Prostermum transverse, its anterior margin separated from the episternum by a deep groove. Mesostermum transverse, its apex truncate or obsoletely concave.

Type, Adoxus vitis, Linn. Europe and North America.

The presence of the sutural groove between the prosternum and episternum at once separates this genus from all its congeners.

Two well-known species, vitis and obscurus, are natives of middle and southern Europe; the first is also found in Canada and the upper portion of the United States. A third species, undescribed, has been taken by Mr. A. Adams in Japan.

Genus Aoria, Baly.

Body oblong, subcylindrical, closely covered above and beneath with adpressed silky hairs. Head exserted, perpendicular; antennæ subfiliform, moderately robust, first joint incrassate, second nearly one half shorter than the first, ovate, third thickened towards the extremity, longer than the second, but shorter than the fourth; eyes entire, prominent; mentum with its anterior border deeply concave; terminal joints of palpi ovate, narrowed and acuminate towards the apex. Thorax subcylindrical, its lateral border entirely obsolete. Elytra much broader than the thorax, surface closely punctured, sometimes impressed with longitudinal strise. Legs moderately robust; thighs subincrassate, unarmed beneath; basal joint of tarsi nearly equal in length to the following two united; claus bifid. Prosternum transverse, its anterior margin continuous with that of the episternum. Mesosternum transverse or transverse-quadrate, its apex bifurcate.

Type, Aoria nigripes, Baly, huj. op. i. p. 28 (Adoxus). China; Siam; and Malacca.

This genus closely resembles Adoxus; the absence of the sutural groove between the prosternum and its episternum will, without the least difficulty, separate the two. The species, three in number, are Asiatic; two have a wide range, being found in Malacca, Siam, and also China; the third has as yet been only sent from Siam.

Genus Stasimus, Baly.

Body oblong, subcylindrical, covered above with rigid subcrect hairs, beneath with scale-like hairs. Head exserted, perpendicular, oblong; antennæ half the length of the body, first joint incrassate, second moderately incrassate, rather shorter than the first, third and three following each equal in length to the second, slender, seventh and succeeding joints moderately incrassate, the seventh pyriform, eighth, ninth, and tenth moniliform, the eleventh ovate; eyes entire; anterior edge of mentum angulate-emarginate; terminal joint of maxillary palpi lanceolate-ovate. Thorax gibbous in front, its lateral margin obsolete. Elytra deeply punctured, interspaces thickened and elevated here and there into irregular tubercles. Legs moderately robust; four anterior thighs armed beneath with a short tooth; basal joint of tarsi scarcely longer than the second; claws bifid. Prosternum subquadrate, dilated posteriorly; its anterior margin continuous with that of the episternum. Mesosternum subquadrate, its apex dilated, obtuse.

Type, Stasimus rugosus, Baly. Singapore.

Stasimus may be separated from all other allied forms by its gibbous thorax, tuberculate elytra, and peculiar antennæ. The single species forming the genus is a native of Singapore.

Stasimus rugosus, Baly.

S. oblong, subcylindrical, opake, fuscous; head rugose, closely covered with subcrect paler hairs; thorax rugose, strongly gibbous in front; elytra deeply punctured, the puncturing arranged in irregular strise, interspaces thickened and elevated at distant intervals into irregular wart-like tubercles, the largest of which is placed near the suture, just below the basilar space.—Long 2½ lin.

Hab. Singapore. Collected by Mr. A. R. Wallace.

Epistome transverse, triangular, its surface rugose. Thorax rather broader than long, narrowing towards the apex, its lateral margin entirely obsolete, the anterior angle only indicated by an obtuse tooth; anterior half of disk occupied by a strongly raised gibbosity, behind which on either side is a broad but ill-defined oblique excavation; whole surface closely covered with suberect pale hairs. Elytra less closely but more deeply punctured than the thorax, more sparingly clothed with hairs, the tubercles ill-defined, with the exception of one or two near the suture; shoulders prominent.

Genus Trichotheca, Baly. Journ. of Entom. i. p. 26 (1860).

Body subelongate, clothed above and beneath with suberect hairs; antenna nearly equal in length to the body, filiform, scarcely thickened towards their apex, first joint incrassate, second shorter, ovate, third and following two slender filiform, elongate, nearly equal, the third and

fifth, however, being each somewhat shorter than the fourth, the sixth and seventh each also rather shorter than the fifth, equal, the eighth and following joints again shorter, nearly equal, the eleventh acute, six terminal joints slightly thickened; anterior edge of labrum emarginate. Eyes prominent, their inner margin obsoletely sinuate; mentum with its anterior border angularly notched; terminal joint of palpi ovate, attenuated towards the apex. Thorax subcylindrical, side margin obsolete, sides narrowed at base and apex, causing the middle portion to form an ill-defined angle. Legs subclongate; anterior pair of thighs strongly increaseate and flattened, armed beneath with a stout tooth, the two hinder pairs less thickened, also armed beneath with a smaller tooth. Type, Trichotheca hirta, Baly (huj. op. i. p. 26). Northern India.

The alender filiform antennæ and the peculiar form of the anterior thighs, together with the silky pubescence, separate this genus from all others.

Genus Xanthonia, Baly.

Body oblong, subcylindrical, covered with fine hairs or hair-like scales. Head exserted, perpendicular; antennæ rather more than half the length of the body, slender, subfiliform, first joint incressate, second moderately thickened, shorter than the first, third and three following nearly equal, alender, each longer than the basal one, remaining joints scarcely shorter than the preceding, slightly thickened; eyes entire; mentum with its anterior margin concave; terminal joint of maxillary palpi ovate-acuminate; epistome often not separated from the face by a sutural line, its anterior margin truncate. Thorax subcylindrical, transverse, its upper surface slightly flattened, the lateral border obsolete. Elutra much broader than the thorax, their sides parallel, their surface closely punctured, the punctures generally arranged in striæ. Legs moderate; thighs slightly thickened, sometimes armed beneath with a small tooth; tibiæ simple; basal joint of tarsi shorter than the following two; classes bifid, the inner tooth incurved. Prosternum oblong-elongate, its anterior margin continuous with that of the episternum. Mesosternum oblong. Type, Xanthonia Stevensi, Baly. Canada.

The shape of the thorax divides the present genus from Neculla, the nearest allied form.

Three species are known to me from North America, and one from Brazil.

Xanthonia Stevensi, Baly.

X. oblong, subcylindrical, fulvous, subnitidous, covered with fine concolorous hairs, eyes and apex of jaws black.—Long 1½ lin.

Hab. Canada.

Head short, subrotundate, closely punctured; epistome concave, face impressed with a longitudinal groove. Thorax transverse, nearly twice as broad as long, sides regularly rotundate-ampliate; surface entirely

covered with large round shallow punctures, above somewhat flattened, slightly constricted in front, impressed on either side the disk with a large shallow fovea. Elytra much broader than the thorax, four times its length, sides parallel, apex regularly rounded, surface closely punctured, the punctures confused near the suture, arranged in strise on the disk. Thighs unarmed.

Genus Lypesthes, Baly.

Body subelongate, subcylindrical, clothed above and beneath with fine suberect lines. Head exserted, perpendicular; antenae slender filiform, first joint incrassate, the second shorter than the third, five terminal joints slightly thicker than the preceding, with the exception of the first; eyes prominent, entire; mentum with its anterior margin concave; apical joint of palpi ovate, attenuated towards the apex, the latter obtuse. Thorax subcylindrical, lateral margin obsolete. Elytra broader than the thorax, sides parallel, upper surface coarsely punctured. Legs slender, subclongate; thighs moderately incrassate, armed beneath with a stout tooth; claws bifid. Prosternum subclongate, its anterior margin continuous with that of the episternum, the latter ill-defined, wedge-shaped. Mesosternum oblong.

The type of this genus is Fidia atra, Motsch., from Japan; it has also been found in Northern China by Fortune. I know only one species belonging to the genus.

In form, and in the possession of long slender antennæ, Lypesthes closely resembles Fidia and Leprotes; from the former of these it is distinguished by its toothed thighs, from the latter by the nature of its pubescence.

Genus NECULLA, Baly.

Body oblong, subcylindrical, clothed above and beneath with subdepressed scale-like hairs. Head exserted, perpendicular; antennae
moderately robust, subfiliform, first joint increasate, second obovate,
equal in length to the third, the latter shorter than the fourth; eyes
prominent, entire; mentum with its anterior margin deeply concave;
terminal joint of palpi ovate, attenuate towards the apex. Thorax
subcylindrical; side margin obsolete in front, indicated on the hinder
half by a faint ridge. Elytra much broader than the thorax, coarsely
punctured. Legs stout; thighs moderately increasate, armed beneath by
a short stout tooth; basal joint of tarsi much shorter than the two
following united; claus bifid. Prosternum subclongate, gradually increasing in width posteriorly; its anterior margin continuous with that
of the episternum. Mesosternum quadrate-oblong, its apex obtusely
angled.

Type, Neculla pollinaria, Baly, huj. op. i. p. 28 (Adoxus). India.

In form this genus closely resembles Aoria, from which the

toothed thighs and oblong mesosternum separate it without difficulty. The single species was sent to me, from Bombay, by Dr. Ezra Downes.

Genus Fidia, Dej.

Body subelongate or elongate, subcylindrical, covered above and beneath with fine subcrect or depressed hairs, mingled occasionally with rows of narrow scale-like hairs. Head exserted, perpendicular; antennæ slender filiform, slightly thickened at their apex, first joint incressate, second short, ovate, subincrassate, three following joints each about twice the length of the second, nearly equal, filiform, five terminal joints sometimes alightly thickened; eyes prominent, entire; mentum with its anterior margin broadly concave; terminal joint of palpi ovate, attenuate towards the apex, the latter acute. Thorax cylindrical, lateral border obsolete. Elytra much broader than the thorax, punctatestriate. Legs slender, subelongate; thighs moderately thickened, unarmed beneath; apex of front pair of tibiæ straight, basal joint of tarsi shorter than, or equal to, the two following united; claus bifid, the inner tooth much shorter than the outer one. Prosternum oblongquadrate or oblong-elongate, its anterior margin continuous with the episternum. Mesosternum transverse, quadrate or oblong-quadrate, its apex truncate.

Type, Fidia lurida, Dej.

The long slender legs, with unarmed thighs, divide this genus from its allies with entire eyes, the latter character separating it from *Habrophora*.

Two species, one from the United States, the other from Mexico, are known to me.

Genus Aulexis, Baly.

Body elongate, subcylindrical, clothed above and beneath with subcrect Head exserted, face perpendicular; anterior margin of epistome furnished with two acute flattened teeth, which partially cover the upper surface of the labrum; antenna subfiliform, clothed with coarse hairs, basal joint incrassate, second half the length of the first, subincressate, third shorter than the fourth, which joint is rather longer than the first, the following joints each rather shorter than the fourth, subequal; eyes prominent, ovate, their inner margin slightly sinuate; anterior margin of mentum concave; terminal joint of palpi slender, Thorax subcylindrical in front, flattened and more or less transversely excavated on the hinder half of the disk, lateral border obsolete, rarely visible at the base, its place supplied in the middle by three or four scute teeth. Elytra rather broader than the thorax, their sides parallel. Legs moderate, stout; thighs subincrassate, unarmed beneath; basal joint of tarsi shorter than the following two; claws toothed at the base. Prosternum narrow elongate, its anterior margin continuous with that of the episternum. Mesosternum narrow, its apex dilated, trilobate.

Type, Aulexis nigricollis, Baly. Borneo.

This genus appears at first sight one of the most aberrant in the tribe, the peculiar form of the thorax giving it quite a different facies to the other genera; it agrees, however, in all its essential characters, the only exception being the toothed claws.

Aulexis nigricollis, Baly.

A. elongate, parallel, rufo-fuscous, subnitidous, covered with long silky subdepressed fulvous hairs; thorax and upper portion of head black, sides of the former armed with three acute teeth; antennæ and legs fulvous.—Long 2½ lin.

Hab. Sarawak; Borneo.

Head triangular, lower portion of face rufo-fuscous, sutural line dividing the face from the epistome obsolete, the epistome itself excavated on either side, the depressed portions being deeply punctured and separated by a raised longitudinal ridge; upper portion of head deeply punctured; antennæ slender, more than two-thirds the length of the body. Thorax subquadrate, its anterior edge rufo-fuscous, its surface deeply and somewhat closely punctured, the transverse excavation on the hinder disk forming the segment of a circle. Elytra broader than the thorax, three times its length, sides parallel, their surface irregularly punctured, the punctures being more crowded than on the thorax.

Genus Brevicolaspis, Laporte.

Body oblong-elongate, subcylindrical, covered with adpressed scale-like Head exserted, perpendicular; antennæ equal to or longer than the body, filiform, moderately robust, basal joint incrassate, second short, three or four following equal, each rather longer than the first, the rest somewhat shorter, nearly equal, slightly thickened; eyes reniform, slightly prominent; epistome not separated from the face by a sutural line, its anterior margin produced, deeply notched, and forming two flattened acute teeth; mentum with its anterior margin concave; apical joint of maxillary palpi lanceolate. Thorax subcylindrical above, sides rounded, narrowed towards the apex, lateral border indicated by a distinctly raised line. Elytra broader than the thorax, parallel, their apex broadly rounded, their surface irregularly punctured. Legs robust; thighs moderately thickened, anterior pair thicker than the rest, all armed beneath with a strong tooth; tibic curved inwards, anterior pair thickened towards the apex, intermediate pair with their apex deeply notched; claws bifid. Prosternum oblong-quadrate, its anterior margin continuous with that of the episternum. Mesosternum subquadrate.

Type, Brevicolaspis pilosa, Laporte. Brazil.

This genus has so many distinctive characters that it cannot possibly be confounded with *Nephrella*, the only other possessing reniform eyes.

The species are all natives of Brazil.

Genus Nephrella, Baly.

Body elongate, subcylindrical, covered above and beneath with coarse adpressed hairs. Head exserted, perpendicular; antennæ moderately robust, subfiliform, first joint incrassate, second shorter than the first, subincrassate, third half as long again as the second, fourth and two following each rather longer than the third, equal, seventh to the eleventh shorter, subequal; eyes large, elongate, reniform, subprominent; mentum with its anterior margin concave; terminal joint of maxillary palpi ovate, of the labial lanceolate. Thorax subcylindrical, lateral border obsolete. Elytra broader than the thorax, parallel, closely punctured. Legs short, moderately robust; thighs subincrassate, unarmed beneath; the hinder pair much shorter than the abdomen; basal joint of tarsi rather shorter than the two following united; claws bifid. Prosternum narrow, elongate, its anterior margin continuous with that of the episternum. Mesosternum subelongate, its apical half dilated, the apex itself truncate.

Type, Nephrella elongata, Baly. Ceylon.

The narrow elongate body, conjoined with the reniform eyes, serve to distinguish *Nephrella* from its congeners. The genus only contains a single species, peculiar to Ceylon.

Nephrella elongata, Baly.

N. elongate, parallel, subcylindrical, dark fuscous, subnitidous, clothed with coarse bright fulvous hairs; stomata, abdomen and legs fulvous, tibiæ piceous; antennæ black, their base fulvous; breast and base of abdomen pale piceous.—Long 2? lin.

Hab. Ceylon.

Head and thorax closely covered with coarse adpressed hairs; thorax cylindrical, rather broader than long, its sides nearly straight, surface not very deeply punctured. Elytra finely punctured, their surface indistinctly wrinkled, clothed with similar hairs to those of the head and thorax. Abdomen more sparingly covered with hairs than the rest of the body.

Genus HABROPHORA, Erichs. Consp. Faun. Peruv. p. 163.

Body elongate or subelongate, subcylindrical, clothed above and beneath with adpressed hairs. Head strongly exserted, face perpendicular; antennæ slender, filiform, nearly equal to the body in length, first joint

incressate, second short, third twice the length of the first, slender, filiform, fourth to the seventh each nearly equal in size and length to the third, the eighth to the tenth shorter, equal or slightly decreasing in length, the eleventh still shorter, ovate-acute; eyes prominent, their inner edge distinctly emarginate; mentum with its anterior margin broadly concave; terminal joint of palpi lanceolate. Thorax subcylindrical, somewhat flattened above, lateral border marked by an indistinct ridge, which is entirely obsolete in front. Elutra broader than the thorax, sides parallel, their upper surface, together with that of the thorax and scutellum, very closely covered with adpressed hairs. Legs slender, elongate; thighs very slightly thickened, unarmed beneath; apex of front pair of tibiæ straight; basal joint of tarsi in the two anterior pair of legs shorter than the following two joints united, in the hinder pair nearly equal in length to the three remaining joints. Prosternum narrow, elongate, its basal end dilated, anterior margin continuous with that of the episternum. Mesosternum nearly oblong, its apex obtusely rounded.

Type, Habrophora lateralis, Erichs. Peru.

The notched eyes at once separate the *Habrophora* from *Fidia*, the only genus with which it can be confounded; the typical species is a native of Peru. Mr. Bates has brought four or five others (all undescribed) from the Upper Amazons.

Genus PIOMERA, Baly.

Body elongate, subcylindrical, clothed above and on the legs with adpressed scales. Head exserted, perpendicular; antennæ slender, subfiliform, basal joint incrassate, second short, ovate, subincrassate, third and remaining joints subequal, each rather longer than the basal one, the third and following three joints alender, filiform, the rest slightly thickened; eyes very prominent, rotundate, entire; epistome raised, short, transverse; mentum angularly notched; terminal joint of palpi ovate. Thorax subcylindrical, its lateral border obsolete. Elytra much broader than the thorax, sides parallel, surface deeply punctate-striate. Legs stout; anterior thighs very strongly, the others moderately increassate, all armed beneath with a stout tooth; anterior tibiae thickened near the apex; basal joint of tarsi rather shorter than the two following united; claws bifid, the inner tooth much shorter than the other. Prosternum oblong, its anterior margin continuous with that of the Mesosternum transverse quadrate, its apex obtuse. Body episternum. beneath nearly glabrous.

Type, Piomera brachialis, Baly. Borneo.

The very large anterior thighs form a good character to distinguish *Piomera* from the other scaly genera; the short transverse epistome separates it from *Metaxis*. The genus contains only a single species.

Piomera brachialis, Baly.

P. elongate, subcylindrical, fulvous, subnitidous, covered with pale fulvous curved adpressed scales; thorax rugose-punctate; elytra deeply punctate-striate, scales on their surface arranged in irregular patches.—Long 11 lin.

Hab. Borneo. Collected by Mr. Wallace.

Head short, triangular, upper portion of face and vertex covered with adpressed scales; antennæ two-thirds the length of the body, pale fulvous, their outer half fuscous. Thorax rather longer than broad, cylindrical, narrowed at base and apex, middle portion above thickened. Elytra oblong, much broader than the thorax, sides parallel, apex regularly rounded, surface closely and deeply punctured, the punctures arranged in irregular strise, interspaces on the outer disk subcostate. Anterior thighs greatly swollen, inner edge of anterior tibise obliquely cut towards their apex.

Genus METAXIS, Baly.

Body oblong, subcylindrical, clothed above with regular scales, intermixed on the elytra with short rigid erect hairs. Head moderately exserted, perpendicular; antennæ slender, filiform, nearly equal to the body in length, first joint incressate, second very short, moderately thickened, third slender, equal in length to the two preceding united, the rest each nearly equal in length to the third, the four or five terminal joints being very slightly shorter and thickened; eyes entire, prominent; epistome triangular, wedge-shaped; mentum angulate-emarginate; terminal joint of maxillary palpi narrow, lanceolate-ovate. Thorax subcylindrical, its lateral border obsolete. Elytra much broader than the thorax, deeply punctate-striate, surface covered with regular adpressed scales, mingled with which are a few rigid erect hairs. Legs moderate in length; thighs toothed beneath, incrassate, the intermediate pair being much less thickened than the first and third, which are nearly equal; intermediate pair of tibic notched at their apex; clave bifid. Prosternum elongate, broad, somewhat wedge-shaped, its anterior margin continuous with that of the episternum. Mesosternum oblong.

Type, Metaxis sellata, Baly. Borneo.

This genus is distinguished from *Piomera* by the form of its epistome, and also by its mesofemora—these latter, although somewhat thickened, being more slender than either the pro- or meta-femora, which are nearly equal in size.

Metaxis sellata, Baly.

M. oblong, subcylindrical, fulvo-fuscous, closely covered with concolorous scales, apex of antennæ and an oblong patch on the elytra, extending

from their base for half their length, dark fuscous; eyes black.—Long. 1? lin.

Hab. Sarawak; Borneo. Collected by Mr. Wallace.

Head closely punctured, and covered with adpressed scales; jaws dark fuscous. Thorax scarcely broader than long, somewhat flattened above, closely covered with scales, sides slightly rounded, narrowed in front, lateral border obsolete, all the angles armed with a short obtuse tooth. Elytra much broader than the thorax, nearly three times its length, their sides parallel; surface deeply punctate-striate, closely covered with scales, which are arranged in small irregular patches; intermingled with the scales are a few erect rigid fuscous hairs; piceous space more sparingly clothed with scales, which are concolorous with the patch itself.

Genus LEPROTES, Baly.

Body elongate, subcylindrical, clothed above and beneath with adpressed Head exserted, perpendicular; antennæ filiform, scarcely thickened at their extremity, basal joint incrassate, the second shorter than the first, subincrassate, third and four following joints each nearly twice the length of the second, equal, eighth to the eleventh each rather shorter than the preceding, subequal; eyes prominent, entire; mentum with its anterior border feebly excavated, concave; terminal joint of maxillary palpi ovate, attenuated towards the apex, the same joint in the labial palpi more slender, also ovate. Thorax subcylindrical, its lateral border obsolete. Elytra much broader than the thorax, sides parallel, surface deeply punctured, covered with adpressed scales, sparingly mingled with which are a few rigid erect hairs. Legs subelongate; thighs moderately thickened, armed beneath with a stout tooth; basal joint of tarsi rather shorter than the following two united; claws bifid. Prosternum narrowly oblong, its anterior margin continuous with that of the epimera. Mesosternum quadrate oblong, its apex obtuse.

Type, Leprotes gracilicornis, Baly, huj. op. i. p. 285 (Adoxus). Hongkong.

The slender legs, simple tibiæ, regularly cylindrical thorax, without trace of raised lateral border, the flattened scales, and long slender filiform antennæ—these characters taken together distinguish the genus from all congeneric forms.

I know only a single species, from Hongkong, brought to this country by Mr. Bowring.

Genus Demotina, Baly.

Body oblong, subcylindrical, covered above and beneath with small adpressed scales. Head exserted, perpendicular; antennæ either alender and filiform, or rather more robust, subfiliform, basal joint ovate, incrassate, second shorter than the first, the rest somewhat variable, the four

or five terminal joints rather shorter and often slightly thickened; eyes prominent, entire; mentum emarginate; terminal joint of palpi ovate; epistome transverse, quadr- or pent-angulate. Thorax transversely convex, lateral border either obsolete or replaced by a single row of teeth. Scutellum semi-ovate. Elytra oblong, closely punctured. Legs moderate in length; thighs moderately thickened, armed with a tooth beneath; four hinder tibie, or often only the intermediate pair, notched at their apex; claws bifid. Prosternum oblong or oblong-quadrate, its anterior margin continuous with that of the episternum. Mesosternum oblong-quadrate.

Type, Demotina Bowringii, Baly. China; Hongkong.

The insects placed by me in the present genus divide themselves in two groups, viz. one in which the antennæ are slender and filiform, and a second where the same organs are somewhat shorter and more robust, being at the same time slightly thickened towards their extremity. The notched tibiæ separate the genus from Leprotes; the form of the scales, together with the wedge-shaped epistome, from Apolepis. The species have a wide range, from Japan to the Malay Archipelago, by far the greatest number being inhabitants of the latter, some of them being found in the Celebes and other islands to the east of Borneo.

Demotina scutellata, Baly.

D. oblong, subcylindrical; disk of thorax depressed, dark fuscous, subnitidous, covered with pale fulvous, narrowly ovate, adpressed scales; scutellum, sides of thorax beneath, and epipleuræ closely covered with white scales; antennæ slender, filiform, their apex piceous.—Long 2‡ lin.

Hab. Northern China.

Head triangular, rugose-punctate, covered with adpressed scales; labrum fulvous; eyes large, black. Thorax one-half broader at the base than long, flattened on the disk, rugose-punctate, covered on the head with adpressed scales, lateral border obsolete, sides rounded posteriorly, narrowed from their middle to the apex. Elytra deeply punctate-striate, covered with adpressed scales; scattered here and there over the disk of each elytron are five or six small patches of white scales.

Demotina Bowringii, Baly.

D. oblong, subcylindrical, fusco-fulvous, subnitidous, covered with adpressed pale fulvous scales; elytra deeply punctate-striate, each elytron with four or five small black spots, three or four of which form an oblique fascia on the disk; thorax (its front edge excepted) and breast piceous; eyes black; antennæ subfiliform.—Long 1½ lin.

Hab. Hongkong. Collected by Mr. Bowring.

Epistome bright fulvous; face closely covered with adpressed fulvous vol. II.

scales. Thorax rather broader than long, sides rounded, narrowed at base and apex, lateral border obsolete, its place occupied by a few nearly obsolete teeth; disk transversely flattened, forming an indistinct angle with the side portion of the thorax, closely punctured. Elytra broader than the thorax, nearly three times its length, sides parallel, surface deeply and closely punctured, the punctures arranged in strise on the inner half near the suture, confused on the outer disk near the lateral border, interspaces irregularly raised and thickened.

Genus Hemiplatus, Baly.

Body subelongate, subcylindrical, opake, covered above with long, strongly curved, subcrect scales, the apical half of which is narrowed and thread-Head deeply buried in the thorax, perpendicular; antennæ subfiliform, shorter than half the body, basal joint incrassate, second shorter than the first, moderately incressate, four following joints each rather shorter than the second, nearly equal both in size and length, the sixth alone being rather shorter than the preceding, seventh to the eleventh gradually but slightly increasing in thickness; eyes entire; epistome transverse, its hinder border forming the segment of a circle; mentum with its anterior margin concave; terminal joint of maxillary palpi slender, ovate, its apex attenuate. Thorax subcylindrical, the sides strongly deflexed, and produced in front downwards as far as the middle of the eyes, their hinder portion deeply excavated near the base to receive the profemora; front edge of disk produced anteriorly, and concealing the head from above. Elytra broader than the thorax, parallel, their surface irregular, deeply punctured. Legs robust; thighs armed beneath with a stout tooth; clause bifid. Prostermum transverse quadrate, its anterior margin continuous with that of the episternum; episternum wedge-shaped, strongly incurved, its surface horizontal, and forming nearly a right angle with the side of the thorax. Mesosternum transverse.

Type, Hemiplatys Pascoci, Baly. Cambodia.

Hemiplatys is separated from Apolepis, its nearest ally, by the peculiar position of the anterior episterna.

Hemiplatys Pascoei, Baly.

H. subelongate, subcylindrical, opake, piceous, covered above with long, subcrect, strongly curved scales; surface of thorax irregular, remotely punctured, the broader scales on the disk intermingled with slender hair-like scales; elytra deeply punctured, interspaces thickened and elevated, almost tuberculate on the sides; disk with five or six tufts of large, rigid, erect, black scales, the apices of which are, as usual, prolonged into a slender thread.—Long 1½ lin.

Hab. Cambodia. Collected by the late M. Mouhot.

Epistome coarsely and closely punctured; forehead nearly smooth in the middle, the sides more closely punctured, its scales more alender than those on the thorax; antennæ scarcely longer than the thorax, pale fuscous, their outer half piceous; eyes and jaws black, lower extremity of the latter produced, angular. Thorax as broad as long, the produced anterior edge (when viewed laterally) appearing to form a hood to the head. Body beneath submittidous, the scales narrower than on the upper surface, those on the breast and abdomen less erect and very alender.

Genus Apolepis, Baly.

Body oblong, subcylindrical, covered with stout, subcrect, strongly curved scales similar in form to those in Apolepis. Head perpendicular, nearly buried in the thorax; epistome wedge-shaped; antennæ subfiliform, basal joint incrassate, second moderately thickened, equal in length to the first, third scarcely equal to the second, slender, all the others up to the tenth nearly equal in length to the second, the eleventh rather longer, all from the seventh upwards thickened; eyes rotundate, entire, prominent, surrounded by a narrow orbital groove; mentum with its anterior edge angulate; terminal joint of maxillary palpi ovate, attenuate towards the apex. Thorax subcylindrical, somewhat more convex above, sides rounded, side margin replaced by a single row of fine teeth. Elytra deeply punctate-striate, covered with similar scales to those of the rest of the body, here, however, arranged in parallel longitudinal rows. Legs moderately robust; thighs armed beneath with a short tooth; anterior tibiae slightly incurved, intermediate pair notched at their apex; basal joint of tarsi equal in length to the second; claws bifid. Prosternum transverse, its anterior edge continuous with that of the episternum, the episternum itself produced in Mesosternum transverse quadrate, its apex obtusely angled. Type, Apolepis Wallacei, Baly. Borneo.

The only genus with which Apolepis can be confounded is Demotina; from this the wedge-shaped epistome and strongly curved scales will divide it.

The only species known to me was sent from Borneo by Mr. Wallace.

Apolepis aspera, Baly.

A. oblong, subcylindrical, piceous, subnitidous, covered with suberect, strongly curved, concolorous scales.—Long 1½ lin.
Hab. Borneo (Sarawak).

Head closely covered with scales. Thorax coarsely punctured. Elytra punctate-striate, the interspaces somewhat thickened.

Genus LEPINA, Baly.

Body oblong, subcylindrical, clothed with narrow curved scales. Head short, deeply immersed in the thorax, perpendicular; mouth concealed by the anterior edge of the prosternum; antennæ subfiliform, five terminal joints thickened, first and second joints nearly equal in length,

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the former strongly, the latter moderately incressate, the second and two following nearly equal, moderately slender, the seventh equal in length to the sixth, obconic, the next three submoniliform, the eleventh as long as the seventh, ovate; epistome wedge-shaped; eyes entire. Thorax broader than long, subcylindrical above, side margin distinct; surface of disk covered with curved scales. Elutra punctate-striate, surface covered with subdepressed scales, arranged, as in Apolepis, in parallel rows. Legs moderately robust; hinder thighs armed beneath with a small tooth; basal joint of tarsi scarcely longer than the second; claus bifid. Prosternum subelongate, separated from the episternum by a broad sutural groove, its front edge somewhat produced and concealing the mouth. Mesosternum subquadrate, its apex slightly dilated, trilobate.

Type, Lepina inconspicua, Baly. Pulo Penang.

This genus is also found in Sumatra. The form of the scales at once divides Lepina from Aulacolepis; in habit it agrees closely with Apolepis, but the sutural groove between the prosternum and the episternum separates it from that genus.

Lepina inconspicua, Baly.

L. oblong, subcylindrical, rufo-piceous, subnitidous, covered with subcrect, narrow, curved scales; thorax (its anterior border excepted), base of thighs, knees, and outer half of antennæ dark nigro-piceous.--Long 1 lin.

Hab. Pulo Penang. Collected by Mr. Bowring.

This insect bears a strong resemblance to Apolepis aspera; in addition, however, to the structural characters, the scales covering its surface are much narrower, less rigid, and less erect, those on the thorax being almost adpressed. Thorax coarsely punctured. Elytra punctate-striate near the suture, puncturing confused on the disk, scales arranged as in Apolepis.

Genus Aulacolepis.

Body oblong, subcylindrical, clothed with large, broad, rigid, adpressed or subcrect curved scales, surface of the scales longitudinally concave. Head short, perpendicular, more deeply immersed in the thorax than in the other genera of the group; antenna scarcely longer than the head and thorax, their basal half slender, their outer portion moderately incrassate, basal joint thickened, second moderately thickened, two-thirds the length of the first, third and three following joints each about equal in length to the first, each slightly decreasing in length, also slightly thickened at their apex, four following joints moderately thickened, nearly equal, submoniliform, the eleventh rather longer, ovate; eyes entire; mentum angulate-emarginate; last joint of maxillary palpi ovate. Thorax transverse, subcylindrical in front, gibbous and strongly tuberculate on the disk, lateral border distinct and strongly produced, its outer edge sometimes minutely toothed. Elytra much broader than the thorax, their sides subparallel, indistinctly narrowed behind, their surface rugose-punctate, covered with adpressed curved scales, intermixed with which are tufts of suberect similar scales. Legs robust; thighs armed beneath with a short stout tooth; tibiæ curved; claws bifid. Prosternum transverse quadrate, separated from the episternum by a deep groove; episternum scapulariform. Mesosternum short, transverse, its apex concave.

Type, Aulacolepis Mouhoti, Baly. Siam.

A second species is found in Sumatra. This genus is strikingly different in habit from the rest of the tribe, and, with the strongly produced lateral border of its thorax, appears at first sight to belong to a different group; in all its other characters, however, it agrees so closely with the *Adoxina* that I have retained it amongst them, considering it as a transition form, and placing it at the end of the other genera.

Aulacolepis Mouhoti, Baly.

A. broadly oblong, subcylindrical, black, subnitidous, closely covered with large, curved, concave, fulvo-fuscous scales; disk of thorax elevated into two large parallel conical tubercles; intermixed with the fulvo-fuscous scales on the elytra are (more particularly towards their apex) small patches of numerous black or white similar scales; each elytron is also furnished on the disk with about seven tufts of rigid, erect, black scales.

—Long 3 lin.

Hab. Siam. Collected by the late M. Mouhot.

Head short, subrotundate; antennæ scarcely exceeding the thorax in length, fusco-fulvous. Thorax a third broader than long, the posterior four-fifths of the lateral border strongly produced, the anterior fifth ill-defined, the outer edge armed with minute teeth; surface of disk deeply punctured, two small patches of scales on the anterior border, together with a somewhat longer patch immediately behind each of the conical protuberances on the disk, black. Elytra deeply punctured.

[To be continued.]

A MERE dry list of names seems but meagre fare to offer to the readers of the 'Journal of Entomology,' especially if the subject is one which hitherto has attracted, alas! but little attention, and the names themselves are for the most part MS. Let me explain,

XIV.—Catalogue of Halticidæ; being a continuation of the British Museum Catalogue, Part i. 1860. By the Rev. Hamlet Clark, M.A., F.L.S.