that Fewkes meant to express his belief in Ludwig's homology between the *adambulacrals* of a Starfish and the *ambulacrals* of the Sea-urchin. But if this be the case the only plates in the Urchin to which the name adambulacrals can properly be applied are those generally known as ambulacrals. Why, then, does Fewkes repeatedly use it for the interambulacrals? He implies that other authors have done so before him, but gives no references; and, so far as I can make out, there are none to be found.

This is not the first occasion on which I have had to comment on the looseness of Fewkes's Echinoderm terminology and the confusion resulting therefrom. It is much to be regretted that when he took up a branch of zoology different from that in which he has gained a well-merited reputation he did not make himself better acquainted with its nomenclature, and thus enable his readers properly to appreciate the value of his observations and of the conclusions which he has drawn from them *. As it is, however, one is constantly perplexed by his vague and inaccurate use of terms which were clearly defined by Müller and have since had a very definite meaning for nearly all students of Echinoderms.

II. — *Notes on some West-Indian Longicorn Coleoptera, with Descriptions of new Genera and Species.* By C. J. Gahan, M.A.

These notes chiefly refer to genera and species of Lacordaire's group Solenopterinæ, and may, to some extent, be regarded as a revision of that group. Outside of the Solenopterinæ the following genera and species are referred to or described:—

Stenodontes Chevrolati, sp. n.
—— damicornis, *Linn.*
—— exsertus, *Oliv.*
—— capra, *Dej.*
—— lævigatus, *Beauv.*
Mallodon bituberculatum, *Beauv.*
Elaphidion mutatum, sp. n.
—— tomentosum, *Chevr.*
Hormathus, g. n. (Ibidioninæ).
—— cinctellus, sp. n.
Phryneta verrucosa, *Drury* = P. melanoptera, *Thoms.*

Stenodontes Chevrolati, sp. n.

S. damicorni verisimilis, sed differt capite subtus valde rugoso-punctato; elytris nitidis, vix punctulatis.

Hab. Cuba.

* Compare Hérouard, *loc. cit.*

From *S. damicornis*, Linn., this species may be readily distinguished by the almost entire absence of punctuation from the elytra, as well as by the stronger and rugose punctuation of the underside of the head. In size, general form, and in the structure of the mandibles it agrees closely with *S. damicornis*.

The species was described by Chevrolat (Ann. Soc. Ent. de France, 1862, p. 273) under the name *S. damicornis*, Linn.—a very excusable error considering that the descriptions and figures of the latter species given by the older authors are equally applicable to the present species.

I am satisfied that the *S. damicornis* of Linnæus is correctly determined in the British Museum collection, as all the specimens are from Jamaica—the locality ascribed to it by Linnæus and Drury—and agree with a specimen so named in the Banksian collection. In all these specimens the elytra are scarcely glossy and are very finely and rather closely punctulate. The underside of the head is strongly enough, but not rugosely, punctured. In the fully-developed males the dorsal ridge of the mandible disappears gradually in front; in the males of *S. Chevrolati* this disappearance of the dorsal ridge is more abrupt.

From *S. exsertus*, Oliv., the males of *S. Chevrolati* may be distinguished by the strong inner tooth on each of the mandibles near its apex, and by the somewhat coarser punctuation of the underside of the head. I am unable to give characters which shall sufficiently distinguish the females of these two species. Locality and the character of the punctuation of the underside of the head may perhaps serve as helps. The specimens of *S. Chevrolati* in the British Museum collection are from Cuba, with the exception of one (a female) from the Bahamas; those of *S. exsertus* are from St. Domingo.

It is highly probable that the *S. capra* of Dejean and the *S. lævigatus* of Beauvois, both from St. Domingo, are forms of minor development of *S. exsertus*. The only differences I can detect relate to size and to the form of the mandibles, the latter in *S. capra* and *S. lævigatus* approaching more to the female form.

Mallodon bituberculatum, Beauv.

Judging from the figure and description of this species it seems to me that it is the female of *Mallodon maxillosum*, Drury.

Solenopterinæ.

Prosternodes scutellatus, sp. n.

Capite nigro, punctato; prothorace dorso in medio nigro, nitido, sparsim punctato et longitudinaliter sulcato; scutello pube sericea albo-flavescente dense obtecto; elytris basi nigrescentibus, deinde ferrugineis, omnino creberrime punctatis, marginibus apicalibus leviter denticulatis; episternis metathoracis, fascia obliqua metasterni utrinque, et vitta longitudinali abdominis utrinque, pube albo-flavescente sericea dense obtectis; pedibus nigrescentibus, punctatis; tarsis supra rufo-brunneis.

♂. Prothorace supra versus latera et subtus (medio excepto) minute confertissimeque punctato, marginibus lateralibus antice rotundato-curvatis; antennis corpore paullo brevioribus, articulis 4 apicalibus subtus sparsim villosis; tibiis anterioribus subtus versus apicem dense fulvo-villosis.

Long. 22–35 mm.

♀. Prothorace supra sparsim punctato, marginibus lateralibus subrectis, angulis anticis dentatis.

Long. 26 mm.

Hab. St. Domingo. British Museum collection and collection of Mr. Fry.

♂. Disk of the prothorax with two distinct, obtuse, longitudinal elevations, leaving a channel between; these elevations, the included channel, and a narrow oblique fascia on each side just anterior to the postero-lateral spine are all glossy and sparsely punctured; the rest of the surface of the pronotum is dull and finely and very closely punctured; the anterior margin of the prothorax is provided with a yellowish-white silky fringe. Scutellum somewhat semicircular and clothed with a dense yellowish-white silky pubescence. The elytra, at the base blackish, are for the rest of their extent of a reddish-ferruginous colour, and are entirely covered with closely-placed and rather strong punctures; the apical margins are faintly denticulate. A thick yellowish-white silky pubescence clothes the anterior coxæ and sides of the mesosternum, and forms a fascia on each of the metathoracic epimera, an oblique fascia on each side of the metasternum, and a longitudinal fascia on each side of the abdomen. The V-shaped figure thus formed on each side of the metathorax encloses a highly polished and impunctate space on the side of the metasternum. The middle regions of the sterna and abdomen are nitid and sparsely punctured. The abdomen is of a chestnut-brown colour. The legs are blackish and rather thickly punctured. The anterior tibiæ are furnished with a rather dense villosity underneath towards their distal end;

the anterior tarsi have a somewhat similar villosity on their posterior border. The antennæ, not much shorter than the body, are flattened below and slightly convex above; they are strongly enough punctured, with the punctures on joints three to seven chiefly confined to the lateral borders; the last four joints are somewhat villose underneath. The prosternal process is slightly emarginate behind.

Before seeing the female, which is in Mr. Fry's collection, I had placed this species in *Solenoptera*; but as the female has the sides of the prothorax nearly straight, with the anterior angles laterally produced or toothed, the species seems better placed in *Prosternodes*.

A distinct species from St. Domingo, to which Chevrolat had given the manuscript name *dominicensis*, somewhat resembles the preceding. The single male specimen in the collection is in too bad a condition for detailed description; but the chief points of difference may be mentioned:—Smaller (length 20 millim.). Antennæ relatively shorter, scarcely reaching to the middle of the elytra. Lateral margins of the prothorax less regularly crenulate. (Scutellum?) Episterna of metathorax and sides of the abdomen with a less dense *greyish* pubescence. Metasternum without oblique fasciæ.

Solenoptera, Serv.

That Chevrolat did not fully appreciate the chief differences between his genus *Elateropsis* and the genus *Solenoptera* of Serville is shown by the fact that he included in the former a true species of *Solenoptera*, viz. *S. sulcicollis*, Thoms. The scutellum in this species is as broad as it is long and somewhat rounded behind. In the male the pronotum is finely and very closely punctured towards the sides—a sexual character to be met with in all the species of *Solenoptera*, and, as far as I know, not occurring in the genus *Elateropsis*.

Lacordaire has passed unnoticed this sexual character, but has pointed out the form of the scutellum as of considerable importance in distinguishing the two genera.

Solenoptera bilineata, Fabr. (*Prionus*), Syst. Ent. p. 163, has been omitted from Gemminger and Harold's Catalogue. The specimens of this species in the British Museum collection are ticketed Guadeloupe and Santa Cruz.

Solenoptera subcanaliculata, White, appears to be synonymous with *S. canaliculata*, Fabr. Fabricius's description applies exactly to the type of White's species. It is, however, probable that authors have included more than one variety under the Fabrician name. Olivier has figured and

described a species with brown elytra, though the Fabrician description reads "elytra subscabra, nigra." I cannot find Olivier's type in the collection of Banks, where it is stated to have been. The *S. asteria*, Buq., of Dejean's Catalogue is a very distinct variety from Martinique and Guadeloupe, and answers fairly well to Olivier's description and figure of *S. canaliculata*. The specimens of *S. subcanaliculata*, White, in the British Museum bear no indication of locality; but two specimens in Mr. Fry's collection are ticketed Trinidad.

In the footnote below* will be found described an interesting new species of *Solenoptera* from Colombia. The description is taken from a single male specimen in Mr. Fry's collection.

Elateropsis, Chevr.

In describing Cuban species of this genus Chevrolat has again erroneously made use of Linnean and Fabrician names. Under the name *E. lineata* he has mixed up two distinct species—one the true *lineata* of Linnæus and Fabricius, the other the following:—

Elateropsis punctata, sp. n., ♀.

E. lineatæ similis, sed differt elytris sat fortiter et dense punctatis.

Hab. Cuba.

* *Solenoptera intermedia*, sp. n.

♂. Obscure ferruginea; elytris brunneo-testaceis, marginibus lateralibus pallidioribus; capite dense punctato, tenuissime griseo-pubescente; prothorace medio dorsi fere plano, nitido, valde rugoso-punctato, versus latera et subtus (medio excepto) minute confertissimeque punctato; scutello elytrisque valde rugoso-punctatis; corpore subtus fortiter sat denseque punctato, episternis meso- meta-thoracisque pube albo-sericea dense obtectis; pedibus subscabroso-punctatis; antennis punctatis, dimidium corporis nec attingentibus.

Long. 33; lat. ad humeros 11, ad medium prothoracis 12 mm.

Hab. Colombia. In the collection of Mr. Alexander Fry.

The prothorax in this species is but very slightly depressed and almost flat along the middle of the disk; its width across the middle is slightly greater than that of the elytra; from the middle it is narrowed, with a rounded curve on each side up to the anterior border; the margins are very faintly crenulate on the anterior half; the constriction on each side at the base is deep but short, so that the postero-lateral angles are at a small distance from the shoulders of the elytra. Though undoubtedly belonging to the genus *Solenoptera*, the species is shown, by the characters here given, to be somewhat intermediate between the latter genus and the Central-American genus *Holonotus*, Thoms. In colour and form it somewhat resembles *S. Thomæ*, Linn., but may be easily distinguished by the characters given above.

Resembles very much *E. lineata*, Linn., but has the two longitudinal ridges on the disk of the prothorax more flattened and more strongly punctured, and has the elytra strongly enough and rather closely punctured, the punctures being distinctly visible to the naked eye.

In *E. lineata*, Linn., the elytra are glossier and almost impunctate, the punctures being distant and so minute as to be scarcely visible except with the aid of a lens. In some specimens of *lineata* the elytra are very feebly coriaceous.

Chevrolat seems to have regarded the specific differences here given as sexual; but in this he was evidently mistaken, for the British Museum collection (including that of Chevrolat) does not contain a single male of either species, unless the view to be referred to further on can be accepted as correct.

Elateropsis rugosa, sp. n., ♀.

E. lineatæ similis, sed minor; elytris rugoso-punctatis; antennis fusco-ferrugineis.

Hab. — ?

A single female example represents this species in the British Museum collection. In form and style of marking it resembles the preceding, but is sufficiently distinguished by the strong rugose punctuation of the disk of the prothorax and of the elytra. The antennæ are dark ferruginous towards the base, fuscous towards the apex.

A smaller (male) specimen, of a similar style of sculpture, devoid of pubescent bands or markings and with black antennæ, may possibly prove to be the male of this species. It also bears no indication of locality.

Elateropsis fuliginosa, Fabr., ♂.

In the males of this species the elytra are nitid, smooth (excepting a feeble rugosity towards the base), and are remotely and minutely punctulate.

These remarks also apply to *E. subpunctata*, Chevr., and, with the types of the two species before me, I am unable to discover any difference between them except one of size. *E. subpunctata* must, I think, be regarded as identical with, or at most as a small variety of, *fuliginosa*, Fabr. It must be remembered that Chevrolat in describing *subpunctata* compared it, not with the true *fuliginosa* of Fabr., but with *fuliginosa*, Chevr.—quite a distinct species, to which may be

restored the following name, previously made use of by Chevrolat in manuscript :—

Elateropsis scabrosa, sp. n.

=*E. fuliginosus*, Chevr. (nec Fabr.), Ann. Soc. Ent. de France, 1862, p. 271.
=*Solenoptera scabrosa*, White, Cat. Brit. Mus. Longicornia, i. p. 53.

Nigra, subopaca ; palpis, antennis pedibusque rufo-fulvis ; prothorace dorso et elytris crebre subrugosoque punctatis.
Long. 23–31 mm.

Hab. Cuba, ♂ and ♀ .

The females of this species are strongly and coarsely punctured on the disk of the prothorax and on the elytra. The antennæ do not reach quite to the middle of the elytra, and their last joint is short, scarcely, if anything, longer than the preceding joint.

The males are slightly less strongly sculptured ; their antennæ reach beyond the middle of the elytra, and have the last joint distinctly longer than the preceding.

I have already mentioned that all the specimens of *E. lineata* and *E. punctata* in the British Museum collection are females. All the specimens of *E. fuliginosa*, Fabr., and *E. subpunctata*, Chevr., are, on the other hand, males. From these facts I have been led to suspect that *E. fuliginosa*, Fabr., is the male of *E. lineata*, Linn. ; and this suspicion has been strengthened by finding that all the white-striped specimens of *Elateropsis* in the collection of Mr. Alexander Fry, who very kindly sent me the whole of his Solenopterinæ for examination, are also females, while the unstriped glossy specimens referable to *fuliginosa* and *subpunctata* are males. I have thus seen altogether twenty-two specimens, all females, of the three white-banded species mentioned above, and eleven specimens, all males, of *E. fuliginosa*, Fabr., and its questionable variety *E. subpunctata*, Chevr.

If it is proved to be the case that the white bands in the species of this genus are confined to the females, then it is very likely that some of the less strongly punctured specimens which I now regard as males of *E. scabrosa* are really males of *E. punctata*.

In *E. ebenina*, Chevr., there is no marked sexual difference, the males having the antennæ slightly longer than in the females, with the last joint relatively somewhat longer.

The described specimen of *E. venusta*, Chevr., is a female, and not a male as stated by Chevrolat in his description.

Elateropsis reticulata, sp. n.

♀. Nigro-fusca, opaca; capite dense punctato, tenuissime griseo-pubescente; prothorace fortiter rugoso-punctato, vitta obsoleta utrinque fulvo-pubescente; scutello punctato; elytris fortissime creberrimeque punctatis, castaneo-fuscis, versus latera et ad apicem rufo-castaneis, marginibus apicalibus distincte denticulatis; corpore subtus sparsim punctato; episternis mesothoracis, plaga triangulari mesothoracis utrinque et maculis quatuor abdominis utrinque fulvo-pubescentibus; segmento ultimo abdominis apice leviter emarginato; antennis dimidium elytrorum vix attingentibus, rufo-ferrugineis, versus apicem suf-fuscis, pedibus rufis, sparsim punctatis.

Long. 17, lat. 6 mm.

Hab. Cuba. In the collection of Mr. Alexander Fry.

The prothorax is convex above, with a very feeble channel or depression along the middle of the disk; on each side, in the unique specimen, there are traces of a fulvous pubescent vitta. The elytra are covered with a very strong, close, and reticulate punctuation.

This species most nearly resembles *E. 5-notata*, Chevr., but differs by its brownish elytra, its somewhat reddish antennæ, and reddish legs, by the triangular fulvous patch on each side of the metathorax, and finally by its punctuation.

E. 5-notata, Chevr., has the antennæ and legs black, the elytra almost entirely black. The prothorax is strongly and rather thickly, but not rugosely, punctured. The elytra in the type specimen are unfortunately much deformed, one being shorter than the other, and both being raised in places into large gall-like protuberances. Throughout their greater extent they are covered with intricate ridges. The body underneath is black, with here and there a faint greyish pubescence; the mesothoracic episterna are covered with a thick whitish pubescence.

The (*Prionus*) *vittatus* of Olivier, which the authors of the Munich Catalogue have placed in the genus *Elateropsis*, more probably belongs to the genus *Derancistrus*, Serv., and is possibly the male of *D. elegans*, Beauv.

HARMOSTERNUS, gen. nov.

Head excavated in the middle in front; the excavation continuous with a rather broad and shallow channel above.

Maxillary palpi much longer than the labial, their last joint securiform; the last joint of the labial suboblong. Antennæ reaching beyond the middle of the elytra, with the joints from the third slightly dilated towards their apices and each provided with one or two poriferous pits. Prothorax about as long as broad, and furnished on each side with two spines —one just behind the middle, the other between this and the anterior border; with the margin cut away obliquely in front of the anterior spine and sinuate between the two spines, as well as behind the submedian spine. Scutellum broader than long, slightly emarginate in the middle behind. Elytra very slightly and gradually narrowed towards the posterior extremity, each provided at the suture and at the extremity of the lateral margin with a small tooth; the apical margin between these teeth very feebly denticulate. Prosternal process truncate behind and very closely applied against the anterior border of the mesosternal process; the latter with a triangular emargination behind which receives the anterior termination of the metasternum.

This genus is perhaps most nearly related to *Elateropsis*, from which it differs by the bispinose margins of the prothorax, the posteriorly truncate and non-emarginate prosternum, and the short and broad scutellum.

Harmosternus anthracinus, sp. n.

♂. Niger; palpis femoribusque rufis; capite punctato; prothorace dorso inæquali, valde subrugosoque punctato; scutello subconcavo, sparsim punctato; elytris valde crebreque punctatis, punctis versus basin majoribus; tibiis tarsisque castaneo-fuscis; abdomine nigro, nitido, sparsissime punctato; antennis nigris, sparsim punctatis.

Long. 24, lat. 8 mm.

Hab. Cuba. In the collection of Mr. Alexander Fry.

Coal-black, with the palpi and femora reddish, the tibiæ and tarsi dark chestnut; slightly nitid on the middle of the prothorax and elytra. Prothorax uneven on the disk, strongly and somewhat rugosely punctured above, sparsely punctured underneath, with a space on the side just under the anterior half of the lateral margin more minutely and very closely punctured. Scutellum slightly concave from side to side, sparsely punctured. Elytra very strongly and closely punctured, with the punctures increasing in size and less closely packed towards the base. Abdomen very glossy and very sparsely punctured.

Elaphidion mutatum, sp. n.

Elaphidion tomentosum ♀, Chevr.

Castaneum, pube grisea dense obtectum, prothorace dorso quinque tuberculis—tuberculo medio cariniformi, tuberculis duobus posticis obsoletis; elytris basi dense punctatis, punctis pone medium evanescentibus, singulis elytris humero et plaga dorsali prope medium subnudis, castaneis, apicibus singulis bispinosis; antennis articulis 3° et 4° uni-, 5°–10^{m} bispinosis.

Hab. Cuba, Florida.

Under the name *Elaphidion tomentosum* Chevrolat included two very distinct species. The females which he has described are the females of the present species, the male of which I saw in the possession of Dr. Horn when he was last on a visit to England. Two female specimens from St. Domingo, which are undoubtedly the females of *E. tomentosum*, are in the British Museum collection. Except in the much shorter antennæ these two present no differences of importance from the male. Like the male they have the prosternum truncated and vertical behind. In *E. mutatum* the prosternum is feebly arched and almost flattened behind, the species therefore belonging to the *Hypermallus* section of the genus. The spines at the apices of the joints of the antennæ do not stop with the seventh joint, as Chevrolat's description seems to imply, but, gradually becoming smaller, are met with up to the tenth joint. Dr. Horn's male specimen, which was from Keys, Florida, differed from the females only in having slightly longer and slenderer antennæ and in having the apical border of the last abdominal ventral segment pointed in the middle and sinuate towards the sides. In the female this segment is rather sharply rounded at the apex.

E. tomentosum, Chevr., bears a very strong resemblance to *E. mucronatum*, Say, but is to be distinguished by the much less close punctuation of the elytra and of the sides of the prothorax.

HORMATHUS, gen. nov.

This genus is formed for an interesting little species from St. Domingo belonging to the *Ibidion* group. It has the characters which Lacordaire has given for the genus *Cycnidolon*, with the following differences and additions:—Fifth joint of the antennæ, in addition to the third and fourth, strongly thickened, none of the joints carinated. Prothorax very slightly constricted in front of the middle. Elytra with

their apices rounded and unarmed. Intermediate and posterior femora end in short rounded processes, and may be said to be unarmed. The femora have each a short carina on each side near their distal extremity. The antennæ in the male are but very little longer than the body. The body is almost wholly glabrous and furnished with some widely scattered long hairs.

From *Phormesium*, to which the genus is perhaps even more closely allied, it differs by the carinated tibiæ, the rounded apices of the elytra, and the two additional swollen joints of the antennæ in the male.

Hormathus cinctellus, sp. n.

Ibidion cinctellum, Chevr., MS.

Niger, nitidus; capite punctato; prothorace dorso leviter tri-tuberculato; elytris chalybeato-cyaneis, vix punctatis, singulis ad medium fascia transversa, nec suturam nec marginem attingente, flavescenti-alba; pedibus nigris, basi pedunculatis; antennis fuscis, (♂) corpore vix longioribus, articulis tertio ad quintum valde incrassatis, (♀) corpore multo brevioribus.

Long. 5½–7 mm.

Hab. St. Domingo.

Head rather thickly punctured. Prothorax and elytra destitute of punctures, excepting the pits from which the few long scattered hairs come off. Elytra steel-blue, glossy, with purplish tints; each with an ivory-like transverse spot or fascia at about the middle of its length. Antennæ with the scape punctured, with, in the male, the third joint much longer and thicker than the scape and attenuate at its base, the fourth joint short, ovate, the fifth longer than the fourth, fusiform, the sixth and following joints normal, each about equal in length to the fifth. Body underneath glabrous, excepting a faint silvery-grey pubescence on the lateral pieces of the mesothorax and on the postero-lateral angles of the metasternum.

Phryneta verrucosa.

Lamia verrucosa, Drury, Exotic Insects, vol. i. p. 90, pl. xl. fig. 3.
Lamia sternutator, Fabr. Syst. Eleuth. ii. p. 293.
Phryneta melanoptera, Thoms. Rev. et Mag. de Zoologie, 1878, p. 65.

This interesting species appears to have been omitted from Gemminger and Harold's Catalogue. The genus to which it belongs is peculiarly an African one; but the present species

was said by Drury and Fabricius to come from Barbadoes, a locality which the recent acquisition of some fine specimens to the British Museum collection proves to have been quite correct. M. Thomson, however, in redescribing the species under the name *Phryneta melanoptera*, ignored the fact that his specimen was ticketed Grenada, and assigned to the species the vague locality "Africa merid." M. René Oberthür, in whose possession Thomson's collection now is, has, at my request, compared Thomson's type of *melanoptera* with Drury's figure and description of *verrucosa*, and has assured me that the two species are undoubtedly identical. The species has not, so far as I know, been recorded from Africa, except, inaccurately, in the case just cited. Its presence in the Antilles can only be explained on the assumption that it was at one time transported from Africa.

In Mr. Fry's collection I have seen specimens from Trinidad and Barbadoes.

III.—*On the Ova of* Gobius. By Ernest W. L. Holt, St. Andrews Marine Laboratory.

[Plate II.]

On the 13th May, 1890, a dead shell of *Lutraria elliptica* was kindly given to me by Miss Traill, of St. Andrews, who had found it the previous day cast ashore on the West Sands, and whilst removing the sand with boiling water had detected certain foreign bodies adhering to it. This lady subsequently gave me two shells of *Solen siliqua*, collected on the same occasion, with similar bodies attached.

On examining the shell of *Lutraria*, the two valves of which were still united by the ligament, it was found that the inner surface of the left valve was entirely covered, save for a narrow margin, by a number of little whitish bodies.

The valves of both the razor-shells were widely open, and on the inner surface of the valves in each specimen a subcircular patch of similar bodies (about 2 inches in diameter) occurred.

The whitish bodies, on being submitted to the microscope, proved to be the ova of some Teleostean, and, from certain peculiarities of structure, are conjectured to be those of a goby, probably *Gobius minutus*, by Professor M'Intosh, who has kindly asked me to undertake their description.

The egg is elongated, its long diameter varying from 1·14