These, with the Domerian, each contain on an average about ten hemeræ, the grouping being controlled by the dominance of ammonite families or phases thereof—thus, Domerian: Age of Amaltheids; Raasayan: Age of Deroceratidæ and Echioceratidæ. It is obvious that, with this increase in the number of hemeræ, the number of local non-sequences is greatly increased. Some comparative diagrams illustrate this.

One of the most interesting discoveries which has resulted, partly from the great thickness of Scottish strata investigated and collected from, partly from comparisons with other areas, is that the so-called '*armatum* Zone' of the English Midlands and that of the Radstock district, of Yorkshire and of the Scottish Isles, are not isochronous, but are separated by a time-interval which corresponds to a thickness of some 300 feet of deposit in the Scottish area. Thus, instead of the simple descending sequence

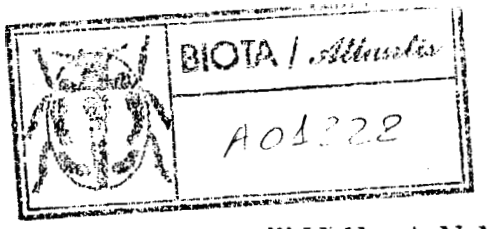
Deroceras armatum
Echioceras raricostatum,

there is this sequence ascertained:

An upper *Deroceras* horizon,
An upper *Echioceras* horizon in three distinct stages,
A lower *Deroceras* horizon,
A lower *Echioceras* horizon with some Armatoids;

and even now possibly this is not the end of the complication. This alternation of *Deroceras* and *Echioceras* involves a phenomenon which the Author calls 'faunal repetition,' and it is a reasonable supposition that this is not a solitary case—that is to say, doubt is at once thrown on the contemporaneity of other so-called 'zones' where they have been determined in different areas by the presence of certain species of a genus—the species admittedly not the same—or by the alleged presence of a single species on specific determination insufficiently rigid. The cases of zones determined on the *lucus a non lucendo* principle—the strata in correct intermediate position, but with the index zonal species conspicuously absent—seem especially to invite scepticism.

Three appendices are given—one, palæontological, containing descriptions of certain notable species, mostly new; another, historical, containing notes on certain ammonites described and figured by Wright in a paper published some years prior to the issue of his Monograph: it affords clues to the interpretation of his species, to the recognition of some of his missing types, to the identity of certain figures in Reynès's Monograph, and to the geographical distribution of species—a matter of particular importance in regard to faunal dissimilarity; the third, geological,—a communication by Mr. J. W. Tutcher, embodying his reading of the sequence in the lower part of the Lower Lias carried down to the base of the Hettangian.



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XXX.—*Descriptions of New* Pyralidæ *of the Subfamilies* Hydrocampinæ, Scopariinæ, *&c.* By Sir George F. Hampson, Bart., F.Z.S., &c.

[Concluded from p. 216.]

(1*s*) *Stenia fusalis*, sp. n.

Head, thorax, and abdomen white, the tegulæ cupreous brown in front, the shoulders black-brown, the rest of thorax with a slight cupreous tinge; antennæ ringed with dark brown; frons black-brown at sides; palpi black-brown, white at base and in front; pectus, legs, and ventral surface of abdomen white, the legs slightly tinged with cupreous, the fore tibiæ black in front. Fore wing pale red-brown with a cupreous gloss and thickly irrorated with dark brown, the costa darker towards base; an indistinct brown antemedial line, excurved to submedian fold and incurved at vein 1; a small white spot in middle of cell and a white discoidal bar; postmedial line indistinct, dark, excurved from discal fold to vein 2, then retracted to the cell, then oblique and excurved in submedian interspace; a terminal series of black points; cilia with a dark line near base. Hind wing white, the terminal area tinged with cupreous red-brown except towards tornus; a blackish discoidal point; postmedial line indistinct, dark, sinuous, bent outwards between veins 5 and 2, then retracted and excurved to inner margin; a terminal series of black bars; cilia tinged with red-brown at base and with dark line at middle to vein 2.

Ab. 1. Fore wing with the lines distinct.

Ab. 2. Fore wing whiter, slightly tinged with red-brown.

Hab. Colombia, Sierra del Libane (*H. H. Smith*), 3 ♂, 8 ♀ type. *Exp.* 26–28 mm.

Ab. 1. Much whiter; fore wing sparsely irrorated with iron-brown, slight subbasal dark spots below the cell and above inner margin, the antemedial line and marks in cell distinct, the post-medial line indistinct, slightly waved and hardly excurved at middle, the subterminal shade forming a distinct spot at middle of termen.

Hab. Philippines, Negros I. (*Whitehead*), 6 ♂ type. *Exp.* 16–20 mm.

(6) *Microglossa cupritincta*, sp. n.

♂. Head and thorax white tinged with cupreous brown and mixed with some black; abdomen white faintly tinged with red-brown; antennæ dark brown; frons with dark band; palpi, pectus, legs, and ventral surface of abdomen whitish suffused with red-brown. Fore wing white tinged with cupreous red-brown and irrorated with black; small black spots near base below the costa and cell; an antemedial patch of black scales on costa and obliquely placed spots formed by black scales below the cell and vein 1; a small black spot in middle of cell and irregular markings in and beyond the end of cell with a spot above them on costa; a pale curved postmedial line defined on each side by thicker black irroration; an incurved pale line from termen at discal fold to termen at submedian fold; cilia ochreous white with a maculate dark line at middle. Hind wing white faintly tinged with brown and with a slight brown terminal line except towards tornus.

Hab. Dutch N. Guinea, Mt. Goliath (*Meek*), 1 ♂ type. *Exp.* 18 mm.

(134) *Scoparia metacrossa*, sp. n.

Hind wing of male on upperside with fringe of downcurved hair from vein 3 above middle of vein 2 and tuft of hair from above middle of vein 1, a fovea surrounded by fringes of short hair on termen above vein 1.

♂. Head and thorax bright rufous; abdomen whitish suffused with rufous. Fore wing bright rufous mixed with some whitish except on terminal area which has a cupreous gloss; a dark red-brown antemedial line, oblique to median nervure, then inwardly oblique; a whitish annulus in middle of cell, incomplete above, some darker brown beyond it in end of cell; a slight inwardly oblique dark postmedial line from costa to vein 6; an oblique rather diffused dark line defined on outer side by whitish suffusion from apex to outer margin beyond middle; a rather maculate dark terminal line; cilia creamy white at base, rufous at tips. Hind wing whitish suffused with rufous, the fovea and slight fringes of hair on termen above vein 1 dark brown.

Hab. Dutch N. Guinea, Fak-fak (*Pratt*), 1 ♂ type. *Exp.* 16 mm.

(69 *a*) *Scoparia strigigramma*, sp. n.

♂. Head white faintly tinged with brown; thorax pale red-brown mixed with some whitish and black; abdomen whitish suffused with red-brown; antennæ pale brown; palpi dark brown, white above; pectus, legs, and ventral surface of abdomen whitish suffused with brown. Fore wing whitish tinged with red-brown and irrorated with black scales forming a diffused streak in sub-median fold to below end of cell; a slight diffused black spot in middle of cell and streak in end of cell; a postmedial series of minute black streaks, excurved below costa, then oblique; the veins towards apex slightly streaked with black; a terminal series of minute black spots. Hind wing glossy white faintly tinged with brown.

Hab. Peru, Aguakani (*Ockenden*), 1 ♂ type. *Exp.* 20 mm.

(75 *c*) *Scoparia atricuprea*, sp. n.

♂. Head and thorax black-brown with a cupreous gloss; abdomen white tinged with cupreous brown; palpi pure white below at base; pectus, legs, and ventral surface of abdomen cupreous brown mixed with whitish, the fore legs black-brown, the tarsi banded with white. Fore wing black-brown with a cupreous gloss and irrorated with bluish white scales; antemedial line white, excurved to median nervure, then incurved; a minute white spot in middle of cell and obscure band of blue-white irroration beyond it; postmedial line blue-white, interrupted at middle, excurved below costa and between veins 4 and 2 to near termen, slightly angled inwards at submedian fold; a blue-white subapical patch and series of dark cupreous brown spots before a slight waved white terminal line; cilia ochreous with a brown line near base and the tips brown towards apex. Hind wing white tinged with reddish brown especially on terminal area except towards tornus; cilia with a brown line near base.

Ab. 1. Fore wing with the medial area white irrorated with black-brown, a black spot on costa on outer side of antemedial line, spot in middle of cell and rather uncinate spot below the cell.

♀. Hind wing suffused with brown, the base, cell, and costal area to beyond the cell whiter.

Hab. Jamaica, 1 ♀; Colombia, Valparaiso (*H. H. Smith*), 1 ♂, Minca (*H. H. Smith*), 5 ♂ type. *Exp.* 16–20 mm.

(114 *a*) *Scoparia cæruleotincta*, sp. n.

♀. Head and thorax white very faintly tinged with blue, the thorax with a black band behind the tegulæ and some black on dorsum; antennæ cupreous brown slightly ringed with white, the basal joint with black point on inner side; palpi white, the 2nd

joint with oblique black fascia, the maxillary palpi ringed black and white; pectus, legs, and ventral surface of abdomen white mixed with blackish, the fore legs black with white band at extremity of tibiæ and bands on tarsi. Fore wing white very faintly tinged with blue; an obliquely curved black subbasal band; antemedial line black, forming a patch at costa and excurved between submedian fold and vein 1; orbicular represented by a curved black striga on its inner side and oblique black bar on outer; reniform black, figure-of-eight shaped, incomplete above and below; a black spot below middle of cell and some irroration on medial part of inner margin; postmedial line black, strong and slightly excurved towards costa, excurved at middle, then very oblique and slightly sinuous, a bar beyond it from costa and irregular patch from vein 3 to inner margin; a slight black spot on termen below apex, a conical patch at middle, then a terminal black line to vein 1; cilia white with a series of slight blackish spots near base and some brown at tips at apex. Hind wing white faintly tinged with brown, more strongly on terminal area except towards tornus; traces of a white postmedial line from costa to submedian fold, slightly excurved at middle; cilia white. Underside of fore wing brown, the inner margin white, the costa white towards apex with a slight dark subterminal spot; hind wing white, a slight brown discoidal spot, postmedial line from costa to vein 5 and minute black spot on termen at vein 5.

Hab. Canaries, Tenerife, Las Mercedes (*Walsingham*), 1 ♀ type. *Exp.* 18 mm.

(122 *a*) *Scoparia phæopalpia*, sp. n.

♂. Head, thorax, and abdomen white suffused with red-brown; antennæ brownish white ringed with dark brown; palpi very dark cupreous brown, pure white below towards base; pectus, legs, and ventral surface of abdomen white tinged with red-brown, the tarsi ringed with brown. Fore wing white slightly tinged with cupreous brown and sparsely irrorated with black-brown; a dark cupreous brown subbasal patch below the cell; two oblique black-brown antemedial lines, the outer with some black-brown beyond it in the cell; a black-brown spot in the cell towards extremity and a spot below the cell; some slight black-brown marks beyond the cell; postmedial line black-brown, strong towards costa, angled inwards below costa, excurved at middle, then oblique and indistinct; a subterminal black-brown spot on costa and slight mark angled inwards above inner margin; a terminal series of small black-brown spots, reduced to points below vein 4; cilia white with series of slight red-brown spots towards tips. Hind wing white with a faint rufous tinge especially on apical area.

Hab. Natal, Estcourt (*Hutchinson*), 2 ♂ type. *Exp.* 20 mm.

XXXI.—*On the Skull of* Tritylodon longævus, *Owen.*

By Dr. Branislav Petronievics.

[Plate X.]

Since Owen described in 1884, for the first time as mammalian, the skull of the single specimen of *Tritylodon* existing in the British Museum, several authors have re-examined his statements. Seeley, in 1888, declared *Tritylodon* to be a "bunotheroid Rodent"; but in 1894, after his discovery of *Gomphodontia*, he gave up this opinion and declared *Tritylodon* a "theriodont Reptile" or as "intermediate between Mammals and Theriodonts." R. Broom, in 1904, showed that the reasons of Seeley for the statement that *Tritylodon* was a reptile are not tenable. In 1910, after having studied the specimen, Broom established the presence of new sutures between bones which had been wholly overlooked by the earlier observers, and so reinforced his opinion that *Tritylodon* is a true mammalian.

Having examined the specimen at the end of last year while in London, I believe that some new sutures can be made out, and that the limits between the bones are somewhat different from those established by Broom. A new preparation of the specimen has also cleared up some controversial points.

Text-fig. 1 shows the upper view of the skull. The plainest suture is that separating on the left side for some distance the nasal from the maxillary. In the front part of this suture begins another, which is for the first time plainly to be seen only with a magnifying-glass (it lies just above a zig-zag crack). The prolongation of this latter suture on the right is not clearly indicated, but is probable. If so, the whole would separate the nasal from the frontal; but it is not impossible that the visible part separates the lacrimal from the nasal.

The sutures separating the prefrontal from the frontal and lacrimal are doubtful or not at all indicated. The right side is so damaged that only the suture bounding the maxillary is to be seen for some distance.

The septomaxillaries, first observed by Broom, are now, after the new preparation, plainly (comp. text-fig. 1 and the photograph of the nares in Pl. X. fig. 1) to be seen. They limit the nares laterally, cross them from below, and send a short joint process above, which seems to meet in the middle