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THE STANFORD EXPEDITION TO BRAZIL, 1911.

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THE CLERIDÆ OF THE STANFORD EXPEDITION TO BRAZIL.

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Through the kindness of Mr. William M. Mann, the Cleridæ taken by him and his companion, Dr. Fred Baker, in the upper Rio Madeira Country have been placed in my hands for identification.

So far as I know, no species of Cleridæ has been recorded from the Rio Madeira Valley, hence, as might be expected, a goodly portion of the material submitted proves to be of species new to science.

Mr. Mann writes that "All the Cleridæ, with the exception of a *Necrobia* from Santarem, were taken on the upper Rio Madeira. Up to the time that I reached the Madeira, I had about come to the conclusion that there were no Cleridæ in Brazil. All the species taken, excepting *Necrobia*, were exceedingly active, some taking flight quite as readily as *Cicindela*." He has also supplied some extended information regarding localities, as follows:

1. Santarem, State of Pará. At mouth of Tapajos.
2. Itacoatiara, State of Amazonas. The town is situated on north bank of the Amazon, and about forty miles below the mouth of the Rio Madeira.
3. Porto Velho, Rio Madeira, State of Amazonas. This place is located 7 kilometers north of the old town, San Antonia, which is just below the lowest falls of the Rio Madeira.
4. Abuná, Brazil. Located on Rio Madeira, nearly opposite mouth of Rio Abuná.

Madeira-Mamoré R. R. Company's Camps.

These are along the railroad which is being built along the river. All are in the State of Matto Grosso.

5. Madeira-Mamoré R. R. Camp No. 39. On Rio Madeira, 284 kilometers from Porto Velho.

6. Madeira-Mamoré R. R. Camp No. 41. Located on Rio Madeira, 306 kilometers from Porto Velho.

7. Madeira-Mamoré R. R. Camp No. 43. On Rio Mamoré, 325 kilometers from Porto Velho.

1. *Enoclerus lugubris* Erichson. (Plate 6, fig. 1.)

Clerus lugubris Erich. Archiv für Naturgeschichte, XIII, 1847, p. 85.

Originally described from eastern Peru, it has since been recorded by Herr Sigm. Schenkling as occurring in Bolivia. This species was taken at Porto Velho, Camp 39 and Abuná, most of the specimens were, however, captured at the last named place.

The ante-apical, rounded, elytral maculation is in all the specimens a pale orange yellow; the color of this spot is given by Erichson as "albidis," Schenkling states that these spots are "bald weisslich, bald orange-gelb, selten blutrot," and adds "der Hinterleib rot, selten mit schwarzer Spitze, der Brust schwarz." All the specimens before me agree with the type as described in having the apical abdominal segments, in part at least, black, and the posterior femora pale at base.

2. *Enoclerus inimicus* sp. nov. (Plate 6, fig. 2.)

Niger, sat nitidus, subtiliter punctatus, prothorace margine antico griseo pubescente, elytris sub-violaceis, fasciis quattuor flavido-albis, prima et secunda obliquis parallelis, juxta suturam colligatis, tertia lata mediana, quarta obliqua arcuata ante apicem, pedibus nigris.—Long. 6-7.5 mm.

Rio Madeira, Brazil; Madeira-Mamoré R. R. Camp 39.

Moderately robust, rather shining, finely densely punctured, clothed with very fine, short, sparse, grayish pubescence with long erect black hairs intermixed. Head black, front sparsely clothed with long grayish pubescence. Antennæ black, basal joint beneath pale testaceous. Thorax black, broader than long, anterior margin densely clothed with grayish pubescence. Elytra dark violaceous, with four yellowish white fasciæ, the first two of which are basal, oblique and parallel (one starting before, the other behind the humeral umbone), not quite attaining but united near the suture by a backward prolongation of the anterior fasciæ, the third median,

rather broad, starting at the margin and extending slightly obliquely to near the suture, the fourth subapical, strongly oblique, arcuate and widely interrupted at the suture. Body beneath and legs black, more densely pubescent than the upper surface.

Allied to *E. ruficollis* var. *nigricollis* Schklg., and *E. subjunctus* var. *tristiculus* Schklg., but having quite different elytral markings and the anterior margin of prothorax clothed with a band of dense gray pubescence, the latter arranged exactly as in *E. hieroglyphicus* Gorb. A comparison with typical specimens of the last named species (taken by H. W. Bates at Ega) show *E. inimicus* to be a narrower, more convex, quite differently marked species.

3. *Enoclerus deliciolus* Gorham. (Plate 6, fig. 3.)

Clerus deliciolus Gorb. Cistula Entomologica, II, 1876, p. 82.

One specimen, Madeira-Mamoré R. R. Camp 41.

The type locality as given by Rev. Gorham is "Amazon." Schenkling records the species from Callanga, Peru, and states that the thorax is occasionally entirely black. In the individual at hand the head and thorax are bright red, while in the original description these parts are said to be "rusty red (in one example clouded with pitchy on the disc) clothed with a few dark colored setæ." These setæ are rather numerous and conspicuous in the fresh specimen and the tarsi are dark (pale in the type). The antennal club is peculiarly colored, being quite pale with the apical joint nearly white.

4. *Phyllobænus manni* sp. nov. (Plate 6, fig. 4.)

Flavus, nitidus, capite viridi-nigro, antice rufo, ruguloso, antennis rufo-piceis, articulis 1, 2, 8, 9, 10°, albidis, prothorace viridi-nigro, sparsim fortiter punctato, lateribus griseo-hirtis, elytris antice seriatim punctatis, maculis 6 nigro-violaceis guttis parvis albo-setosis ornatis, mesosterno nigro, pedibus flavis, femoribus posterioribus tibiisque extus nigro-maculatus.—Long. 6.5 mm.

Rio Madeira, Brazil; Madeira-Mamoré R. R. Camp No. 41.

A very distinct species, resembling *P. erythrocephalus* Gorb. somewhat in form, but with the body broader at the middle. Head very finely rugulose, occiput with a longitudinal finely impressed line. Thorax strongly convex, coarsely, sparsely punctate, densely so at sides and apex; flanks clothed with coarse, shaggy, gray hairs. Scutellum small, black. Elytra at base wider than the prothorax; sides broadly, evenly rounded from humeri to apex; basal half coarsely, seriatly punctate, scutellar region and apical half very finely punctate, nearly smooth; color

pale yellow, on each side two large, marginal, violet black maculations, one of which is post-humeral and very irregular in form, the other subapical and irregularly ovate, on suture at middle a transverse rhombus and anterior to and narrowly separated from this an elongate, anteriorly acuminate maculation extending nearly to the scutellum violet black; the maculations with very small spots of shining white hairs, the suture and apex rather densely clothed with similar hairs.

5. *Epiphœlus bakeri* sp. nov. (Plate 6, fig. 5.)

Epip. principi Gorh. *valde affinis.*

Capite prothoraceque tenuissime, fortiter punctulatis, nigris, nitidis, hoc lateribus albo-hirtis, elytris antice seriatim punctatis, nigris, basi testaceis, fascia mox pone mediana, sutura postice, maculaque magna communi ante apicem flavis, elytris ad suturam seriatim foveolatis, antennis fuscis, articulo basali flavo, corpore subtus (capite prothoraceque exceptis) pedibusque flavis.—Long. 5.7 mm.

Rio Madeira, Brazil; Madeira-Mamoré R. R. Camp 43.

Head black, sparsely, coarsely punctulate, the front densely, almost rugosely punctate. Antennæ fuscous, basal joint yellowish white. Thorax black, coarsely but very sparsely punctate; sides conspicuously clothed with long, dense, white hairs. Elytra black, basal fourth (except extreme flanks) testaceous; a submedian fascia (broad at the suture, narrow at the flanks), suture posteriorly and a large, common, ante-apical maculation, yellow; surface rather coarsely seriately punctate from base to fascia, behind which the puncturing is gradually finer, the outer rows longest and becoming obsolete at apical fourth; bordering suture each side a series of distinct, sparsely placed foveæ, these extending from the base to the apex; pubescence clothing the suture and the pale portions long, dense and whitish. Legs and body beneath (head and prosternum excepted) pale yellow, sparsely clothed with long, whitish pubescence.

Closely related to, but amply distinct from *E. princeps* Gorh., from which it may be distinguished by its much smaller size, its black head, the very sparsely punctate thorax, and the absence of a median, thoracic line of fine, ashy hairs, which at the sides likewise do not enclose "a denuded spot."

6. *Epiphœus iracundus* sp. nov. (Plate 7, fig. 1.)

Niger, subnitidus, capite prothoraceque subtilissime punctato-rugulosus, capite antice rufo, thoracis marginibus antico et postico pallide-testaceis, elytris a basi fere ad apicem usque subseriatim punctatis, macula basali magna, fasciisque duabus (prima mediana, secunda subapicali), angustatis, flavis, abdomine piceo, antice rufo, pedibus flavis.—Long. 3.5-5 mm.

Rio Madeira, Brazil; Madeira-Mamoré R. R. Camps No. 41 and 43. The type specimen from the first of these localities, a paratype from the last.

Head finely, densely, rugosely punctate, black, front red. Antennæ with joints 1, 6, 7, 8, and 11 yellowish white; joints 2, 3, 4, and 5 rufo-piceous; joints 9 and 10 fuscous. Thorax finely, rugosely punctate; color black, anterior and posterior margins pale testaceous. Elytra rather coarsely, very vaguely seriate-punctate; color black with a large, longitudinal maculation starting at the base (where it occupies all the space between scutellum and the humeri) and extending to basal fourth, a median and a subapical fascia, both of which are interrupted at the suture and do not attain the flanks, yellow. Abdomen piceous, two or three basal segments red. Legs yellow, sparsely pubescent.

To judge by the descriptions of *E. sexplagiatus* Kuw., and *E. parvulus* Schklg. (no specimens of either being available for comparison), the new species appears to be an intermediate form, but still entitled to specific rank. *E. iracundus* differs from both the above mentioned species in elytral sculpture, manner and form of the markings, and the color of the antennæ and the abdomen. From *E. sexplagiatus* it differs further in having the front and hind margins of the prothorax pale. In *E. parvulus* the hind legs are largely black, not entirely pale yellow as in the present species.

7. *Ichnea marginella* Klug. (Plate 7, fig. 2.)

Enoplum marginellum Klug. Clerii, 1842, p. 376. (*circumcincta* Chevr.; *enoplioides* Spin.; *pubescens* Spin.)

This is an extremely variable species and one of very wide distribution. The original types of the species came from Pará, Brazil; the species is now known from other places in that country (Jatahy, Amazon and Itaituba). There are also records showing it to occur in southern Peru (Vilcanota), French Guiana, Venezuela, Colombia, Nicaragua, Guatemala and Mexico.

Three specimens before me are all from Madeira-Mamoré R. R. Camp No. 43 and vary but little *inter se*. Two of the specimens are typical in every detail except that the scutellum is not "albium," but fuscous, being concolorous with the elytra. The other specimen has the vertex (as well as the front) of the head very white, the sutural margin of the elytra less distinctly bordered with pale color, the abdomen entirely pale yellow, and the tibiæ and tarsi totally fuscous.

8. *Ichnea sericea* Klug. (Plate 7, fig. 3.)

Enoplum sericeum Klug. Clerii, 1842, p. 373, pl. II, fig. 16.

Known only from "Brazil." Two specimens were sent, both of which are from Madeira-Mamoré R. R. Camp No. 41. Neither of the specimens differs in any way from the type as described.

9. *Ichnea humeralis* Spinola var. *irrita* nov. (Plate 7, fig. 4.)

Elongata, subnitida; elytris sub-violaceis, vittis duabus una laterali una discoidali ad basim confluentibus pallide flavis.—Long. 5.5–8.5 mm.

Rio Madeira, Brazil; Madeira-Mamoré R. R. Camps No. 41 and 43. Type and paratypes from the latter place.

Differs from the typical form in having the lateral margins of the elytra narrowly bordered with pale yellow, the pale margin usually extending to apical fifth, rarely reaching only to about the middle of the elytral length. Ground color of the elytra slightly variable, usually dark violet, some times nearly black, rarely with a distinct coppery luster.

Apparently an abundant species, to judge by the extensive series taken by the expedition. Singularly enough there is not a single example of the type form in the entire lot.

10. *Pyticera flavicollis* Gorham. (Plate 7, fig. 5.)

Pyticera flavicollis Gorh. Trans. Ent. Soc. Lond., 1877, p. 416.

The original types of this species were taken at Ega and Santarem, Brazil, by Mr. Henry W. Bates. Herr Sigm. Schenkling has since described a variety from Bolivia (Yungas de La Paz), to which he has given the name *suturalis*.

A single specimen of this rare and interesting species from Abuná, Brazil, was sent me. The specimen is 9.5 mm. in length, being somewhat larger than the types which are 6–8 mm. in length. The specimen in some ways nearly agrees with the variety *suturalis*, the length of which is given as 11 mm., and in which the suture of the elytra from scutellum to the middle is yellowish red. The specimen before me has the same part of a dull testaceous color, being not at all conspicuous and in feeble contrast with the black ground color. The head is uniformly yellowish red, the inflexed elytral margin, the coxæ and trochanters, the sides of abdomen wholly, and the basal segments in part, yellow. The legs black, with the exception of the front pair, which are rufo-piceous.

11. *Necrobia rufipes* DeGeer.

Clerus rufipes DeG. Mémoires pour servir à l' Histoire des Insectes, V, 1775, p. 165, pl. XV, fig. 4.

This cosmopolitan species was taken at Santarem, Itacoatiara, Porto Velho and Madeira-Mamoré R. R. Camp No. 39.

THE DEVELOPMENT OF THE MOUTHPARTS IN THE HOMOPTERA, WITH OBSERVATIONS ON THE EMBRYO OF *SIPHANTA*.

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THE REVOLUTION OF THE EMBRYO.

The following observations were undertaken to see whether the development of the head of a Homopteron was similar to that of a Heteropteron and to observe if the "mandibular plate" of certain authors was of mandibular origin or not. As certain early embryonic stages present features of interest we have included a short description of them.

The eggs of *Siphanta acuta* are long, cylindrical, flattened on the ventro-anterior surface where the micropylar area is situated, pointed at the anterior and rounded at the posterior end. The chorion of the eggshell bears the more or less hexagonal honey-comb impression of the follicle cells (epithelium) of the ovaries. The micropylar area appears to be a modification of this hexagonal pattern, where the (apparent) cell-walls are more crowded together and thus narrowed. The eggs are laid in batches of about 60 with the ventral surface uppermost, one overlapping the other so that, except the last layer, only the micropylar area is exposed. They are glued together with colleterial fluid and are difficult to get asunder without injury to the egg. The nymph, with the aid of an egg-burster, cuts a straight slit down the centre of the micropylar area to escape.

Twenty-four hours after the egg is laid, the blastoderm is distinct and a thickening along the *dorso-posterior* area indicates the primitive streak. At about the thirtieth hour the posterior end

WOLCOTT—BRAZILIAN CLERIDÆ.

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WOLCOTT—BRAZILIAN CLERIDÆ.

1. *Epiphlaus iracundus* sp. nov. 2. *Ichnea marginella* Klug. 3. *Ichnea sericea* Klug. 4. *Ichnea humeralis* Spin., var. *irrita* nov. 5. *Pyticera flavicollis* Gorh.