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A REVISION OF THE AMERICAN SPECIES OF *PERIPATUS*.

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One of the most fascinating groups of existing organisms is that commonly referred to under the somewhat general term of "Peripatus." Not only do these animals offer most instructive data for morphological and phylogenetical speculation, but they also possess a most absorbing interest for those who inquire into the mysteries of zoögeography, especially from the palæogeographical side.

It is only within recent years that the knowledge of the various forms included in Guilding's old genus *Peripatus* has been brought to a point where it furnishes adequate data for the zoögeographer.

In the latest and most comprehensive work on the subject, the well known and most excellent monograph by Professor E. L. Bouvier (Annales des sciences naturelles, 9e série, tome 2, p. 1–383, pl. I–XIII, nov. 1905–jan. 1906; tome 5, p. 61–318, mars–juin 1907) the following classification for the fifty recognized species is proposed:

FAMILY PERIPATIDÆ.

Genera, *Peripatus* (divided into three sections, Andean forms, 12 species; Caribbean forms, 17 species; African forms, 1 species); *Eoperipatus* (3 species).

FAMILY PERIPATOPSIDÆ.

Genera, *Paraperipatus* (1 species); *Peripatopsis* (6 species); *Opisthopatus* (2 species); *Peripatoides* (4 species); *Ooperipatus* (4 species).

Evans in 1901 grouped the five genera of the Peripatopsidæ into three subfamilies, Peripatoidinæ (*Peripatoides*, *Ooperipatus* and *Opisthopatus*),

Paraperipatinæ (*Paraperipatus*) and Peripatopsinæ (*Peripatopsis*); but Professor Bouvier is inclined to admit only two subfamilies, one including *Peripatoides* and *Ooperipatus* as its first and *Opisthopatus* as its second section, the other including *Paraperipatus* as its first and *Peripatopsis* as its second section.

While by this arrangement one gets a very good idea of the interrelationships of the Old World forms, the disposition of the American species is not quite so satisfactory. The genus *Peripatus* as understood by Professor Bouvier, including as it does thirty diverse species ranging throughout tropical America, is unwieldy and does not lend itself readily to the solution of problems in zoögeography.

But Professor Bouvier has indicated a number of lines along which the genus *Peripatus* naturally falls into smaller units, and these smaller units are found to agree in their distribution as well as in their systematic unity with accepted genera belonging to other classes of animals.

It seems advisable, therefore, to recognize these smaller units as in reality of generic rank.

Mesoperipatus Evans.

Genotype.—Peripatus tholloni Bouvier, 1898.

Diagnosis.—The anal glands of the males open in front of the anus in a common groove; there are three pedal papillæ, two anterior and one posterior; the creeping pad has three bands; the nephridial tubercles of the fourth and fifth legs are situated beyond the third band of the creeping pad.

Distribution.—French Congo.

Included Species.—Mesoperipatus tholloni (Bouvier).

Oroperipatus Cockerell.

Genotype.—Peripatus lankesteri Bouvier, 1899.

Diagnosis.—The anal glands open in front of the anus by two distinct orifices; there are from four to seven pedal papillæ; the creeping pad has at least four bands; the nephridial tubercles of the fourth and fifth legs are included in the third band of the creeping pad.

Distribution.—Pacific watershed of tropical America, from Tepic, Mexico, southward to Sorata, Bolivia.

Included Species.—

O. balzani (Camerano)
O. belli (Bouvier)
O. cameranoi (Bouvier)
O. corradoi (Camerano)
O. eiseni (Wheeler)
O. equadoriensis (Bouvier)
O. goudoti (Bouvier)
O. intermedius (Bouvier)
O. lankesteri (Bouvier)
O. quitensis (Schmarda)
O. soratanus (Bouvier)
O. tuberculatus (Bouvier).

The genus *Peripatus* as restricted by the removal of the two genera described above may to advantage be divided into the following subgenera:

Plicatoperipatus subgen. nov.

Genotype.—Peripatus jamaicensis Grabham and Cockerell, 1892.

Diagnosis.—The dorsal transverse folds number twenty-four to each segment, and are always very indistinct as a result of the numerous and irregular anastomosings of the furrows which separate them; the primary papillæ of the back are small and subequal; accessory papillæ are rare or absent; crural tubercles occur on the two pregenital pairs of legs in the male.

Distribution.—Known only from the island of Jamaica.

Included Species.—Plicatoperipatus jamaicensis (Grabham and Cockerell).

Macroperipatus subgen. nov.

Genotype.—Peripatus torquatus von Kennel, 1883.

Diagnosis.—The dorsal transverse folds number twelve to each segment, and are separated by continuous furrows except between the legs where some of them ordinarily bifurcate; the primary papillæ of the back have quadrangular bases, being separated by grooves parallel to the longitudinal axis of the body; the accessory tubercles are ordinarily small and few in number; crural tubercles are present on the two pregenital pairs of legs (at least in *M. perrieri*).

Distribution.—Rio de Janeiro, Brazil, French and British Guiana, and Trinidad, westward to Panama, and northward to Vera Cruz, Mexico.

Included Species.—

M. geayi (Bouvier). *M. ohausi* (Bouvier)
M. guianensis (Evans) *M. perrieri* (Bouvier)
M. torquatus (von Kennel).

Peripatus *sensu stricto.*

Genotype.—Peripatus juliformis Guilding, 1825.

Distribution.—West Indian islands of Jamaica, Porto Rico, Vieques, St. Thomas, Antigua, Guadeloupe, Dominica and St. Vincent; Venezuela, from La Guayra and Caracas westward to Puerto Cabello and Tovar (near Mérida).

Included Species.—

P. antiguensis Bouvier *P. dominicæ* Pollard
P. bavayi Bouvier *P. juanensis* Bouvier
P. brölemanni Bouvier *P. juliformis* Guilding
P. danicus Bouvier *P. sedgwicki* Bouvier
P. swainsonæ Cockerell.

Epiperipatus subgen. nov.

Genotype.—Peripatus edwardsii Blanchard, 1847.

Diagnosis.—The dorsal folds number twelve to each segment, and are separated by continuous furrows except between the legs where some of them ordinarily bifurcate; the primary papillæ of the back have more or less rounded bases; the accessory papillæ are very diversely developed;

the primary papillæ of the dorsal surface are all of the same type; in medium sized and large specimens they intergrade through all stages, while in small specimens certain ones are markedly prominent, these papillæ are very near together, but it is not rare to find between them accessory papillæ; crural tubercles occur on the legs of the two pregenital pairs in the males.

Distribution.—Santarem, Brazil, French, Dutch and British Guiana, Trinidad and Grenada, westward to Central America, ranging northward to Nicaragua, and possibly to British Honduras.

Included Species.—

E. barbouri (Brues)
E. biolleyi (Bouvier)
E. brasiliensis (Bouvier)
E. edwardsii (Blanchard)
E. evansi (Bouvier)
E. imthurmi (Sclater)
E. isthmicola (Bouvier)
E. nicaraguensis (Bouvier)
E. simoni (Bouvier)
E. trinidadensis (Sedgwick).

The American species of *Opisthopatus* appears to be sufficiently different from the African to warrant generic recognition, and I therefore propose for its reception the genus

Metaperipatus gen. nov.

Genotype.—*Peripatus blainvillei* Blanchard, 1847.

Diagnosis.—Nineteen to twenty-one pairs of legs, those of the posterior pair much reduced though always indicated; median band of the creeping pad very large; three pedal papillæ, one anterior, one posterior, and one dorsal; coxal vesicles much reduced or absent; no crural glands; endogenous eggs, measuring less than 100 μ; embryos united in groups of very different ages, but in each group all are at the same developmental stage.

Distribution.—Chile.

Included Species.—*Metaperipatus blainvillei* (Blanchard).

Classification.

The following arrangement is proposed for the genera belonging to this class:

Family PERIPATIDÆ Evans, 1902.

Subfamily Peripatinæ Evans (emended).

Included Genera.—*Mesoperipatus* Evans, 1901; *Oroperipatus* Cockerell, 1908; *Peripatus* Guilding, 1825 (with the subgenera *Plicatoperipatus* nov.; *Macroperipatus* nov.; *Peripatus* s. s.; and *Epiperipatus*).

Subfamily Eoperipatinæ nov.

Included Genus.—*Eoperipatus* Evans, 1901.

Family PERIPATOPSIDÆ Bouvier, 1904.

Subfamily Peripatoidinæ Evans, 1901.

Section I.

Included Genera.—Peripatoides Pocock, 1894; *Ooperipatus* Dendy, 1900; *Symperipatus* Cockerell, 1913.*

Section II.

Included Genera.—Opisthopatus Purcell, 1899; *Metaperipatus* nov.

Subfamily Peripatopsinæ Evans, 1901.

Section I.

Included Genus.—Paraperipatus Willey, 1898.

Section II.

Included Genus.—Peripatopsis Pocock, 1894.

* A NOTE ON THE AUSTRALIAN PERIPATOPSIDÆ.

Several years ago I came to the conclusion (Science, vol. 27, No. 694, Apr. 17, 1908, p. 620) that *Ooperipatus oviparus* Dendy deserved a distinctive generic name, and that the *O. insignis* of Bouvier (Annales des sciences naturelles, 9e série, tome 5, 1907, p. 267) from Tasmania could not retain the name assigned to it, the original *insignis* having been a different animal.

At the request of Mr. A. H. Clark I now give the new names considered necessary in this connection: (1) **Symperipatus,** gen. nov., for *Symperipatus oviparus* (*Peripatus oviparus*) Dendy; (2) **Ooperipatus spenceri,** nom. nov., for the species described by Bouvier under the name of *Ooperipatus insignis.*—T. D. A. Cockerell.