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so much stronger than indicated by van der Wulp, there is no doubt that the present specimen is the same species, as the peculiar wing-characters cannot be mistaken. The generic characterization must be changed somewhat, however, especially as regards the presence of distinct vibrissæ.

Dexiidæ.

22. *Euantha dives*, Wd.

Euantha dives, Wd., v. d. Wulp, Biol. Centr.-Am., Dipt. ii. p. 249.

Two males, March 6 and 16, San Rafael. They differ from v. d. Wulp's description only as follows:—

Subtrigonal spot of cheeks brownish, not well defined. Coxæ reddish yellow. Tegulæ pale, with yellowish tinge.

Length $12\frac{1}{2}$ millim.

In v. d. Wulp's synoptic table of Dexiidæ, in the Biol. Centr.-Am., Dipt., he puts *Euantha* in section without costal spine on wings. *E. dives* certainly bears a spine on costa just before end of auxiliary vein. He also makes synopsis read for *Euantha* "wings unicolorous," which is evidently a typographical error. I am sorry to find that I inadvertently perpetuated these errors in my synopsis of Dexiidæ in Trans. Am. Ent. Soc. xix. p. 275. The table there given should be corrected in accordance with the above.

V.—*The Classification of Oribatidæ.*

By A. D. MICHAEL, F.L.S.

A PAPER by Dr. A. C. Oudemans has appeared in the Tijdschr. voor Entomologie entitled "List of Dutch Acari, Latr., first part Oribatei, Dug., with synonymical notes and other remarks." It is always a pleasure to acarologists to see a paper by Dr. Oudemans upon the creatures which they study, and more especially so when the paper is written in a language more familiar to most biologists than Dutch is. This paper is chiefly upon the Oribatidæ, and is, in many respects, very useful; but as it seeks to make numerous changes in the nomenclature of genera, species, anatomical parts, &c., and in classification, I shall probably be expected to answer it. This I will endeavour to do so far as I think the paper requires an answer.

Firstly, I may fairly congratulate Dr. Oudemans on his knowledge of the English language, in which the paper is written.

Lists of local fauna are very useful, and acarologists will be glad to have one of the Dutch species, which have not been before recorded; although we could scarcely anticipate that they would vary much from those of Germany and England, as the distribution of these minute beings is usually wide; but when, out of 68 species, 25 are inserted thus: "*Oribates* sp.," without a word of description or any figure, and three thus, "Gen.? sp.?" also without description or figure, I fear that the value of the list is considerably diminished.

Dr. Oudemans, in the title above quoted, does not state what value he intends his groups to have; but he calls "Acari" what I imagine he considers the order; the next lower group (which I suppose he considers the family) he names "Oribatei," and in his list he calls the next still lower group (which is apparently a subfamily) "Phthiracarea." These terminations do not appear quite consonant with modern classification. I imagine him to give the values stated to his groups because he calls those of equivalent values to his Phthiracarea "Nothrinæ" and "Oribatinæ." Why one subfamily should end in "-ea" and the others in "-inæ" is not stated. Doubtless Dugès, writing in 1834, did call his family "Oribatei," raising Latreille's genus *Oribata* (or *Oribates*) into a family: but Latreille did not call his group Acari, as in the heading of Dr. Oudemans's paper; he called it first "Acares" and afterwards "Acaridiæ," as correctly stated at p. 58; but there it is said, in reference to "Acares," "though this term has a French final syllable it is a *pure* Latin word" (the italics are mine), "it is the plural of the Latin *Acarus*." This somewhat surprises me; I was under the impression that "Acares" was the plural of the French word "Acare," and that the word, although derived through Latin, was from the Greek word for a Mite *ἄκαρι*, as used by Aristotle, and was founded upon *ἄκαρις*, uncuttable.

Dr. Oudemans says that *Phthiracarus*, Perty, should be substituted for the genus *Tritia*, Berlese, because both are founded on a *Hoplophora* with tridactyle claws and Perty's is the earlier. I by no means assert that *Tritia* is a necessary genus; I did not adopt it, and I am strongly of opinion that the distinction of monodactyle and tridactyle claws has almost entirely broken down as a means of differentiating genera in the Oribatidæ, although it is useful in identification. I believe that this is now the general opinion; but if Berlese's genus have any validity it arises from the remarkable fused and elongated genital and anal plates, so exceptional in the Oribatidæ, and not from the tridactyle

claw. Perty's species, judging from the drawings made by him and published by Claparède in 1868, had the ordinary genital and anal plates of *Hoplophora*, and no specimen of the Hoplophorinæ has ever been found by anyone else, that I am aware of, having the tridactyle claw and the ordinary genital and anal plates of *Hoplophora*. Perty, in defining his genus, includes two important characters which do not exist in any known species of Oribatidæ, viz., six-jointed legs and a sucking-mouth. Therefore if we adopt the genus *Phthiracarus* we adopt one founded upon erroneous anatomy, and of which there is not any known species. Claparède is probably right in supposing that Perty made mistakes about the tridactyle claw and in other matters: his species was probably *Hoplophora dasypus* (Dugès), an earlier species, misdescribed—it is therefore scarcely a satisfactory type for a family; and if we be forced to abandon the well-known name of *Hoplophora*, for which there are very strong arguments, but which every one is unwilling to do, it will be unfortunate.

Then Dr. Oudemans says that the genus "*Notaspis*" cannot stand because Hermann's name in 1804 is equivalent to Latreille's earlier name *Oribata* (or *Oribates*): but it is not certain that they quite covered the same ground; both were very large groups, practically intended to include what we now call the family, and they have been much subdivided. Latreille's group has been raised to a family, and his generic name preserved for one genus; but Hermann knew of many creatures not known to Latreille, and Nicolet is, I think, to be commended for preserving Hermann's name for a portion of these creatures contained in his group, taking the well-known *Notaspis bipilis* as his type.

Dr. Oudemans then states that *Oppia*, Koch, is founded on *Oppia glaucina*, Koch, a larval form, as a type. It is a larval form; but why is it Koch's type? Koch gives 5 species, of which 4 are adult; in his 'Uebersicht,' where he first describes the genus, he puts *O. nitens* at the head of his description and figures that species only. It is true that he used the name "*Oppia*" earlier, in his 'Deutschlands Crustaceen &c.,' without defining the genus: that book was published in fasciculi of loose sheets; both species were in the same fasciculus; the plate of *O. glaucina* was numbered 9, that of *O. nitens* 10; but is this to make the larval form the type? I do not think that the genus *Oppia* should stand, but that is because it is a part of the genus *Notaspis* as limited by Nicolet, and is ill-defined, other members of the same natural genus being spread by Koch over several genera mixed with quite different creatures.

Dr. Oudemans accuses Nicolet of "bungling" over the genus "*Cepheus*": what he did is certainly singular, but the result has to be considered. Dr. Oudemans says, "The name *Cepheus*, Nicolet, 1855, cannot be kept, as Koch used this name in 1836." This is quite true, but we do not attempt to preserve any genus *Cepheus* of Nicolet, nor did Nicolet propose to found any; we preserve Koch's. It is true that Nicolet divided Koch's genus and carried, or rather thought he carried, Koch's *Cepheus latus* to a new genus and called the creature *Tegeocranus cepheiformis*, which he described and figured excellently. It was certainly an odd proceeding; but, as I pointed out in my 'British Oribatidæ,' vol. ii. 1888, p. 340, although Nicolet thought that his species was the same, he was in error: *T. cepheiformis* was a new species, and *Cepheus latus*, Koch, was probably a synonym either of what is now called *Tegeocranus latus*, endeavouring to preserve Koch's specific name, or of *Cepheus tegeocranus* (Hermann), an earlier species. Nicolet named a new species *Cepheus latus*, which was very injudicious: but Koch's definition of the genus *Cepheus* is no description at all, and would not define any group whatever, and his type species is uncertain; it is therefore better to adopt Nicolet's clear definition of the genus, and some zoologists would call it "*Cepheus*, Nicolet." As the facts stand, therefore, it would seem that Nicolet's species may be good, particularly if the notes to rule 14 of the rules for the scientific naming of animals of the German Zoological Society be right. But *Cepheus latus*, Nic., is so like *Cepheus tegeocranus* (Herm.), that Koch would not have been likely to note the difference; thus *Cepheus latus*, Koch and Nicolet, may after all be identical, although Nicolet thought them different. It would be impossible to say for certain from Koch's description and figure.

Dr. Oudemans, like many other acarologists, suggests that the genus *Belba*, founded by Heyden, should take the place of the later genus *Damæus*, Koch. *Belba* was founded on *Notaspis corynopus* Hermann, as a type: Dr. Oudemans says, "I do not know this species by my own observation." Everyone else is in the same position, because probably no such creature as Hermann has figured and very shortly described ever existed; if it did it was not a member of any known genus of Oribatidæ, for it is described as having chelate tarsi. Hermann doubtless made some mistake; but if this error were eliminated the creature, if it were then a possible one, which is doubtful, would belong to the genus *Notaspis* rather than *Damæus*. Heyden, however, was not satisfied with the type; he defined the genus *Belba*, and his definition would carry it out of the Acarina altogether, if

not out of the Arthropoda—it is, “head, protothorax (*sic*), and metathorax separate.” I do not think it would be desirable to revive this genus.

Dr. Oudemans says that “the Oribatei wait for a thorough revision,” and he gives instances. He says that members of the genus *Nothrus* are said to have three claws, but that he has species with one. I think that the tridactyle claw as part of the definition of the genus has long been abandoned; he will find three monodactyle species described in my ‘British Oribatidæ’ in 1888. Then he says that “amongst the species of Koch belonging to the genus *Oribates* there are several of which the wing-like expansions are not movable and do not protect the legs.” Many of the pteromorphæ are only slightly flexible, very few are, strictly speaking, movable; but Koch’s species without them have been removed from the genus by, I think, all modern acarologists. Then he says that “many *Eremaeus* have no arched abdomen, but a hollow one”; he will find in my definition of the genus, in 1888, “*Notogaster* arched or concave in the centre.” Then there are some remarks about the similarity of the nymphs of *Leiosoma* and *Cepheus*, and he suggests that the genera should be joined. If he refer to my work so often quoted above he will find that they practically are joined, but I feel doubts whether they will not have to be separated again; and if Dr. Oudemans endeavours to classify the Oribatidæ by the hairs on the nymphs, I fear he will find that he must neglect important structural differences in the adults. Finally, Dr. Oudemans says, in effect, that the anterior portion of an *Acarus* cannot be called a cephalothorax because some of the creature’s legs are abdominal: I regret to say that I fail to appreciate the cogency of this argument.

It will be seen that the above remarks are written in the spirit that it is better not to make changes in well-known names unless it is unavoidable.

Now a few words as to the species in the list. There are 40 named species; of these three, viz. *Nothrus pallens*, Koch, *Zetes ephippiatus*, Koch, and *Zetes fuscomaculatus*, Koch, are founded upon immature (nymphal) forms. *Hoplophora lucida*, Koch, is one of the many synonyms of *Hoplophora dasypus*, Dugès. *H. nitens*, Nic., is stated to be equivalent to *H. dasypus*, Claparède, but not to *H. dasypus*, Dugès; but Claparède only quotes Dugès and does not use the name *dasypus* at all, he uses *contractilis*. No reason is given for saying that *H. nitens*, Nic., is not the same as *H. dasypus*, Dugès; Nicolet said it was, and I do not know of any reason for disagreeing with him. Five species of *Leiosoma* are

given; the specific names of three of them end in "-us": σῶμα, the body, is neuter; therefore these names should end in "-um." But at least two of the five, viz. *Zetes flavipes*, Koch, and *Oribates fuscus*, Koch, surely belong to the genus *Notaspis*, not *Leiostoma*: then one is stated to be *Leiostoma nitens*, Geoffr.; should not this be Gervais? In the next genus *Cepheus*, *Carabodes coriaceus*, Koch, is introduced; but I cannot see how it can be considered a *Cepheus*, no explanation is given. In the genus *Pelops*, *P. fuliginus*, Koch, is given instead of *P. lævigatus*, Nic.: this may be correct, for they are probably identical, and Koch's is the earlier name; but if so, Koch described this species three times—first as *Pelops acromios*, Herm., which it is not, then as *P. fuliginus*, and, finally, in all probability, as *P. hirsutus*: his figures and descriptions hardly render certain identification possible, and it would be far better, if it can be done, to preserve Nicolet's name, which has a good description and figure attached to it. In the genus *Oribata* (or *Oribates*) Dr. Oudemans adopts the masculine termination, but he leaves almost all the species in the feminine: thus he puts "*Oribates pallidula*, Koch," and *O. fuscomaculata*, Koch; but I do not think that Koch put adjective specific names in the feminine when his genus was masculine. *Oribata coleoptrata* (Linn.) is used instead of Hermann's well-known name of *alata*; but the species entirely relies on Hermann's drawing, and although it is customary to suppose that it may have been the *Acarus coleoptratus* of Linnæus, it is far too uncertain to adopt that name and drop Hermann's. Both *Oribates ovalis*, Koch, and *O. nitens*, Nic., are given; it is very doubtful if these be more than varieties.

It must not for a moment be supposed from these remarks that I underestimate the value of many of Dr. Oudemans's suggestions.

VI.—Contributions from the New Mexico Biological Station.

—III. The Bees of the Genus *Colletes* found in New Mexico. By T. D. A. COCKERELL.

A. Rather large forms of the type of *C. inæqualis*, with dark, often scarcely banded abdomen in ♀.

- (1) No dark hairs on thorax; a sharp straight transverse keel behind the enclosure at base of metathorax.

Colletes utilis, sp. n.

♀. Length 11 millim., anterior wing 7½ millim.

Stoutly built, black; the rather long pubescence of face,