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Stray Notes on Anoplura.

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1. *The Hosts of some Species described or recorded by Ferris.*

FERRIS (1920–1935) recorded a number of species of Anoplura from skins in the United States National Museum. Some of these skins had not been fully determined when Ferris wrote, and in one or two instances the names given by Ferris were evidently distorted. In response to my enquiry, Dr. Remington Kellogg, Curator of the Division of Mammals at the United States National Museum, has most kindly supplied me with further information about some of these skins, which I now put on record for the benefit of other students. The names are mostly in the form now given on the labels of the skins. This further information would hardly have been obtainable had not Ferris very wisely recorded the museum-numbers of the skins.

U.S.N.M. skin 16413, without data, was recorded by Ferris (p. 498 †) as *Arctocephalus* sp.; the louse recorded from it is an undescribed *Antarctophthirus*. The present

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† The page references given in this paper are to the consecutive pagination at the bottom of the pages in Ferris's work.

determination of the skin (whose number was incorrectly transcribed, being actually 16463) is *Arctocephalus falklandicus*.

U.S.N.M. 48477, "*Scutisorex* sp., Medjie," is *Scutisorex congicus* Thomas. Ferris (p. 192) records it as a host of *Polyplax reclinata* (Nitzsch) and, by a *lapsus calami*, states that the skin is in the American Museum of Natural History.

U.S.N.M. 63471, "*Pithecus* sp., Kashmir," is *Macaca mulatta*, the Rhesus monkey. This skin is mentioned by Ferris (p. 509) as a host of *Pedicinus longiceps* Piaget. It is convenient to deal here with other skins formerly determined as *Pithecus* sp., instead of in their numerical order. U.S.N.M. 114559, West Sumatra, is *Macaca mansalaris*; U.S.N.M. 104439, Chance Island, Mergui Archipelago, is *Macaca andamensis*; U.S.N.M. 104440, also from Chance Island, is *Macaca insulana*. The first two of these are given (Ferris, p. 509) as hosts of *Pedicinus longiceps* Piaget, and the last (as " 10440 "; see Ferris, p. 522) as a host of *Pedicinus eurygaster* (Burmeister).

U.S.N.M. 94164, "*Eligmodontia collisæ*, Goya, Argentina." Although this skin, which Ferris (p. 72) records as a host of *Hoplopleura hesperomydis* (Osborn), was fully determined, I asked Dr. Kellogg about it because Ellerman lists no species of this name. Dr. Kellogg kindly informs me that it is a specimen of *Hesperomys callosus callosus* (Rengger), and that the determination on the label is so scrawled that it would be easy to misread it.

U.S.N.M. 114084, "*Funambulus tristriatus tristriatus*, Colombo, Ceylon." I would not have questioned this name but for the fact that Ellerman records no form of *F. tristriatus* from Ceylon, but the skin turns out to be *Funambulus palmarum favonicus*. Ferris mentions it (p. 250) as a host of *Neohæmatopinus echinatus* (Neumann). He also (p. 26) describes *Enderleinellus platyspicatus* Ferris from " *Funambulus tristriatus*, Colombo, Ceylon "; although, in this latter instance, he fails to give the museum number, it is a safe assumption that the types of *E. platyspicatus* were collected from the same skin.

U.S.N.M. 124254, " *Tamiops* sp., Tenasserim, Telok Besar." This skin, from which Ferris (p. 114) obtained some of his specimens of *Hoplopleura erismata* Ferris, is a specimen of *Tamiops novemlineatus*.

U.S.N.M. 129396, "*Synaptomys* sp., Athabasca Landing, Canada." Ferris (p. 65) records obtaining *Hoplopleura acanthopus acanthopus* (Burmeister) from this skin of *Synaptomys borealis borealis*.

U.S.N.M. 194486, "*Sciurus* sp., Buena Vista, Bolivia." A specimen of *Urosciurus pyrrhonotus castus*. Ferris (p. 111) obtained specimens of *Hoplopleura sciuricola* Ferris from this skin.

U.S.N.M. 194500, "*Rhidipomys* sp., Rio San Miguel, Peru." Ferris (p. 73) obtained part of the type-series of *Hoplopleura angulata* Ferris from this skin, which is *Rhipidomys leucodactylus*.

U.S.N.M. 194544, "*Euneomys* sp., La Raya Pass, Peru." Ferris (p. 77) records *Hoplopleura affinis* (Burm.) from this skin, which is *Euneomys pictus*, now known as *Phyllotis* (*Auliscomys*) *pictus* (Thomas).

U.S.N.M. 194701, "*Oxymycterus* sp., Occabamba Pass, Peru." The determination of this skin is of special importance because Ferris (p. 122) obtained from it the types of *Hoplopleura oxymycteri* Ferris. It is *Oxymycterus paramensis*.

U.S.N.M. 198750, "*Phaiomys* sp., East Ladak, Kashmir.' This skin, type-host of *Hoplopleura phaiomydis* Ferris (p. 120), is *Phaiomys blythi*.

U.S.N.M. 199559, "*Rhinosciurus* sp., Hsing-lung-shan ; 65 miles north-east of Peking, China." This skin is not a *Rhinosciurus*, but *Tamiops vestitus*. In view of the discrepancy and the importance of this specimen, as the skin from which were obtained the types of *Hoplopleura distorta* Ferris, I made further enquiries from Dr. Kellogg. He took a great deal of trouble over the matter, and informs me that, not only do the data of U.S.N.M. 199559 correspond with those given by Ferris (p. 115), but at the time when Prof. Ferris examined the collection the only specimens of *Rhinosciurus* in the collection were numbered 104708, 104971, 104972, 113066, 114414, and possibly 171977. None of these numbers could possibly be confused with 199559, so that it seems certain that the data of the skin were correctly given by Ferris, but that the determination was entirely wrong. There is nothing to suggest how the mistake arose.

U.S.N.M. 201120, "*Crocidura* sp., Atchebal, Valley of Kashmir." Ferris (p. 192) recorded *Polyplax reclinata*

(Nitzsch) from this skin and figured the sternal and pleural plates of a female obtained from it (fig. 120, *C* and *G*, p. 190). These structures show considerable differences from the same plates of *P. reclinata* and the specimen figured has been made the type of *Polyplax deltoides* Fahrenholz (1938, p. 256). The skin is a specimen of *Suncus cæruleus* ssp.

2. *The types of* Pedicinus obtusus (*Rudow*).

Ferris (1920–1935, pp. 507, 510, 526) mentions a slide of *Pedicinus* received by him from the Hamburg Museum and labelled "*Semnopithecus maurus*, A. Poppe det. 1881/2." He points out the possibility that this slide contains the types of *Hæmatopinus obtusus* Rudow, because the host is the same and many of Rudow's types are in the Hamburg Museum. He refuses to recognise *obtusus*, however, on the grounds that there is no certainty that the specimens on the slide are Rudow's types, nor that the host was correctly determined *, and that there is the possibility that Rudow was dealing with some other species of *Pedicinus* (perhaps *P. eurygaster*), since Rudow's description is useless. The specimens on the Hamburg slide were found by Ferris to be inseparable from *Pedicinus longiceps* Piaget, which is in part from the same host (*Semnopithecus maurus* and *S. pruinosus* are both synonyms of *S. cristata*).

Ferris, rightly, does not regard the fact that the specimens on the Hamburg slide were determined by Poppe as any bar to their being Rudow's types, because Rudow left much of his material not labelled with the determination ; I agree with Ferris that there can be no certainty as to whether these specimens are the types of *obtusus*. But if they are not the types, then the types are lost, and I disagree entirely with the way in which Ferris treats Rudow's name. The correct procedure with regard to an insufficiently described species of which the types are lost is not to reject the name but to tie it down to a definite foundation by erecting neotypes for it. This is only common sense, for otherwise we would have to reject almost every name proposed for a louse prior to the middle of the 19th century, the types being almost invariably lost and the descriptions usually grossly

* This applies with equal force to the hosts of *Pedicinus longiceps* Piaget, which Ferris recognises.

insufficient by modern standards. Almost all writers recognise this principle by implication, for they use material from the same host to interpret the old names, though generally without regularising the position by erecting neotypes from such material. This failure to erect neotypes leaves the old names open to individual interpretation and consequent chaos, as is very well exemplified by the Mallophaga of the domestic goat, where the name *Trichodectes limbatus* Gervais has been applied by different authors to every one of the three species concerned (Hopkins, 1942, pp. 446–452).

In the case of *obtusus* we are unusually favourably placed for the erection of neotypes, because there is a distinct probability that the Hamburg specimens are part of Rudow's original type-series. I therefore formally designate the specimens on the slide seen by Ferris and labelled "*Semnopithecus maurus*, A. Poppe det. 1881/2," as neo-cotypes of *Hæmatopinus obtusus* Rudow, 1869; from these specimens lectotypes should be selected.

3. *The Hosts of the Genus* Ratemia.

The very peculiar genus *Ratemia* only includes one described species, *R. squamulata* (Neumann), which was described from three females collected at Dire-Daua, Abyssinia, " sans indication d'hôte " (Neumann, 1911, p. 402). Until the event recorded in the present note the genus had not been obtained again and the host remained unknown. It was, therefore, with gratified amazement that I found, in determining some Anoplura collected by myself in Uganda, that I had rediscovered *Ratemia*, my amazement being due to the fact that the host was so familiar an animal as the domestic ass or donkey, *Equus* (*Asinus*) *asinus* Linn.

The lice were obtained by dissolving the hair from the skin (kindly sent to me by Mr. T. R. F. Cox) of a donkey which died in March 1942 at Lira, Lango District, Uganda. Several hundreds of the lice were present, leaving no room for doubt that the ass was a genuine host of the parasite, and the series includes many specimens of the hitherto unknown male. I cannot distinguish the species from *Ratemia squamulata* (Neumann), but I have submitted a large part of the material to Dr. F. L. Werneck for further examination, and in the hope that he will eventually describe the male.

Confirmation of the natural occurrence of the genus *Ratemia* on the Equidæ is also available, for Mr. G. R. Cunningham van Someren later sent me the skin of a wild Burchell's zebra, *Equus* (*Hippotigris*) *burchelli böhmi* Matschie, shot in August 1943 on the Athi Plains, near Nairobi, Kenya, and from this skin, using the same technique, I obtained a further series of one male and fourteen females of *Ratemia*. These lice, also, have been submitted to Dr. Werneck.

Since *Ratemia* is now shown to occur on both ass and zebra, there seems every reason to expect that it will eventually be found to infest all the members of the Equidæ, and this raises the question of the host of Neumann's original material. It is not at all probable that this host was a zebra, because the most northerly members of this group, *Equus* (*Hippotigris*) *burchelli jallæ* (Camerano) and *Equus* (*Dolichohippus*) *g. grevyi* Oustalet, are not known to occur north of Lake Zwai, about 100 miles south-west of Dire-Daua. Asses and horses are, however, abundant in Abyssinia, and it was probably from a member of one of these two species that the types of *R. squamulata* were obtained.

4. *The Hosts of certain Seal-Lice.*

Ferris (1920–1935, pp. 476–480) regards all the names which have been applied to members of the genus *Echinophthirius* as being synonymical with *E. horridus* (von Olfers). In this opinion he may be right, but analogy with other genera suggests the possibility that it may prove necessary to divide the genus again into several species or subspecies. An essential preliminary to any such subdivision (which I do not myself intend to undertake) is to establish the type-hosts of the various names which have been used in the genus, especially as erroneous statements have been made about one of them.

The earliest name applied to a member of the genus is *Pediculus horridus* von Olfers (1816, p. 84); the host is definitely stated to have been *Phoca vitulina*. This is followed by *P. phocæ* Lucas (1834, Cl. ix. pl. 121, f. 12), from " phoque " and *P. setosus* Burmeister (1838, p. [6]), stated to be from *Phoca grœnlandica*; these two names must be considered together. According to Freund (1928), Gervais amplified the host-data of Lucas's material to *Phoca vitulina* from Paris Zoo and the types were still

in Paris when Freund wrote, but meanwhile Burmeister had assumed Lucas's " phoque " to be *P. grœnlandica* and named the louse *P. setosus*. The obvious assumption is that Burmeister had no material and merely renamed *P. phocæ* Lucas, which is supported by the fact that Burmeister gives no measurements as he does in practically all other instances. The point is not of great importance, because *Pediculus setosus* Burmeister 1838 is pre-occupied by *P. setosus* von Olfers 1816, the only really important fact being that *P. phocæ* Lucas is from *Phoca vitulina* and is therefore a synonym of *Echinophthirius horridus* (von Olfers).

Hæmatopinus annulatus Schilling (Gurlt, 1857, p. 281, and 1878, p. 187) from *Phoca hispisa*, can be ignored, because it is a *nomen nudum* and therefore has no standing in nomenclature. The next name in the genus is *Echinophthirius grœnlandicus* Becher (1886, p. 60), from *Phoca grœnlandica*, followed by *E. sericans* Meinert (1897, p. 177), from *Phoca grœnlandica* in Greenland. The only name which has been added since Ferris wrote is *Echinophthirius horridus baicalensis* Ass (1935, p. 25), from " Baikalrobbe " [*Phoca sibirica*].

On the assumption, therefore, that the forms of *Echinophthirius* found on different species of seals are distinguishable, the valid names are *E. horridus* (von Olfers) for the form on *Phoca vitulina*, *E. grœnlandicus* Becher for that on *P. grœnlandica*, and *E. h. baicalensis* Ass for that on *P. sibirica*.

References.

Ass. 1935. Trav. Sta. limnol. Lac Bajkal, vi. pp. 23–29.

Becher. 1886. " Insecten von Jan Mayen." Internat. Polarforsch. 1882–1883, Beobachtungs-Ergebnisse, iii. p. 60.

Burmeister. 1838. " Rhynchota Ordo I Tribus 1. Pediculina." Genera Insectorum, i. [pp. 1–8.]

Ellerman. 1940–41. ' The Families and Genera of Living Rodents.' London.

Ferris. 1920–1935. ' Contributions towards a Monograph of the Sucking Lice.' Stanford University Publication.

Freund. 1928. Tierwelt N.-u. Ostsee, Tl. xi. d. 36 pp.

Giebel. 1874. ' Insecta Epizoa.' Leipzic.

Gurlt. 1857. Archiv. Naturgesch. xxiii. pp. 276–304.

——. 1878. Archiv. Naturgesch. xliv. pp. 162 210.

Hopkins. 1942. Rev. Brasil. Biol. ii. pp. 439–453.

Lucas. 1834. Guerin's Mag. Zool. iv.

Meinert. 1897. Vidensk. Medd. naturh. Fore. Kbh. 1896. pp. 154–177.

Neumann. 1911. Arch. Parasit., Paris, xiv. pp. 401–404.

Olfers. 1816. ' De Vegetavis et Animatis Corporibus Animatis Reperiundis Commentarius.' Berlin. Part I. pp. 80–97.