

## XII. Stray Notes on Mallophaga.—V.

By G. H. E. HOPKINS, M.A.\*

19. A new subspecies of *Pseudolipeurus*.

Piaget (1880, p. 329, pl. 28, fig. 3) described and figured *Lipeurus longipes* from a male found on a skin of *Tinamus obsoletus* in Leyden Museum. Carriker (1936, p. 72, pl. 3, fig. 2) redescribed what he took to be the same form from *Crypturellus obsoletus punensis* from Peru and Bolivia, though noting that Piaget's type was probably from the Brazilian form of the host (*C. o. obsoletus*) and might prove slightly different; he placed the species in his new genus *Pseudolipeurus*. Clay (1937, p. 133) compared Piaget's type with Carriker's figure and found that in the type the hyaline frontal margin is bilobed, whereas Carriker's figure shows it entire. She was unable to decide whether the difference should be considered subspecific owing to the absence of adequate material.

I recently received from Professor F. Plaumann a collection of Mallophaga taken from *Crypturellus o. obsoletus* (Temm.) in southern Brazil, which included a good series of *Pseudolipeurus longipes* (Piaget). All these specimens have the frontal margin bilobed as in Piaget's type, and Miss Clay kindly compared one of the males with Piaget's type for me and found it identical. Meanwhile, Mr. Carriker has most kindly sent me two males and two females, comprising the whole of the material from which he redescribed the species except the single male from Calabatea, Rio Coroico, Bolivia, which is no longer in his possession. In all these specimens the hyaline frontal margin is practically straight, but in all of them it has a somewhat folded and collapsed appearance, so that I am unable to satisfy myself that the apparent absence of the two lobes is genuine. But there are other differences between the two forms, some of which appear to be constant, which convince me that they are subspecifically distinct.

The most important difference is in the form of the male genitalia: the chitinous bars which strengthen the basal plate converge distally distinctly more strongly in Piaget's

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form, the parameres are decidedly stouter and more strongly bent than in the material from *C. o. punensis*, but the most striking difference is that the endomerale plate (of the same type in both forms) is proportionately very much shorter in the material from *C. o. punensis* than in true *longipes*; in the former it is little more than twice as long as broad and occupies slightly more than a half (seven-thirteenths) of the longitudinal space between the parameres, whereas in true *longipes* it is rather more than three times as long as broad and occupies nearly three-quarters (nine-thirteenths) of this space. Carriker has drawn attention (1936, p. 72) to the fact that in his form the head is decidedly narrower in the male than in the female, and that the female is much larger than the male; neither of these observations is true of *l. longipes*, in which the sexes are of almost exactly the same size and the cervical index is 1.33 in both sexes. The two pairs from *C. o. punensis* are by no means uniform in either of these respects, and I am not convinced that we are not dealing with three subspecies instead of two, but in the absence of more material it is safer to consider the two pairs from this host to be of one form; in each pair the head is narrower in the male than in the female and the female, is much the larger insect. In the pair from Bolivia the cervical index is 1.5 in the male and 1.3 in the female, and the total length is 1.95 mm. in the male and 2.03 mm. in the female; in the Peruvian pair the cervical index is 1.3 in the male and 1.25 in the female, and the total length is 2.20 mm. in the male and 2.61 in the female. In true *longipes* the cervical index is 1.33 in both sexes, and the difference in total length is trivial (male 2.37 mm.; female 2.47).

I have much pleasure in naming Mr. Carriker's form *Pseudolipeurus longipes carrikeri*, ssp. n. The holotype male and allotype female (on one slide) are from *Crypturellus obsoletus punensis* (Chubb), Sandillani, Dept. La Paz, Bolivia, 25th November, 1934, and have been returned to Mr. Carriker. The pair of paratypes, which Mr. Carriker has very generously permitted me to retain, are from the same host, La Oroya, Peru, 6th and 12th June, 1931. All the specimens were collected by Mr. Carriker.

The fact that my males from *C. o. obsoletus* agree perfectly with Piaget's type strongly supports the sugges-

tion that the type of *Pseudolipeurus l. longipes* (Piaget) came from the nominotypical form of the host.

It will be noted that my measurements do not agree with those published by Carriker, although taken from the same material. My measurements were taken by measuring the projected image of the specimen with a rule, obtained by projecting a stage micrometer at the same distance from the projector and tracing the image on paper. Possibly Carriker's measurements were made from a camera-lucida drawing. Vint (1939, p. 301) has shown that the difficulty, when drawing with a camera-lucida, of keeping the pencil on the outline of the object (and not just within it) may result in a very considerable error, amounting to as much as 65 per cent. in the case of red blood corpuscles, and if Carriker's measurements were made thus the discrepancy would be accounted for.

20. "Stray Notes on Mallophaga."—III.  
Some Corrections.

Owing to the great distance between writer and publisher of these notes, made more hampering by war-conditions, errors which creep in are liable to escape uncorrected.

In Part III. (Hopkins, 1941) the following small corrections should be made:—

P. 44. The type-locality of *Boricola chorleyi* Hopk. is Patongo, not Potango.

P. 45, line 28. The reference should be Hopkins, 1940, p. 418.

P. 46, line 40. For "correctly" read "incorrectly."

21. *The Host of Turacœca scleroderma* (Ewing).

*Turacœca scleroderma* was originally described (Ewing, 1930, p. 127), as a *Colpocephalum*, from a single male collected on *Musophaga rossæ* in the Ituri Forest. Thompson (1938, p. 352, figs. a, c, d, e, pl. xii, figs. 1, 2) figured the species and transferred it to *Turacœca*, but as his determination was made only from the description and his material came from *Corythæola cristata*, there was room for doubt as to its correctness.

I therefore submitted one of the males used by Thompson for his figures to Dr. Ewing, with a request that he would compare it with the type. He has kindly made the required comparison, and writes "the two are found to agree in all specific details. They are undoubtedly the same."

In view of the result of the comparison of my specimen with the type, there can be no further doubt of the correctness of Thompson's determination. I have examined *Turacœca* from a very considerable number of specimens of *Corythæola cristata*, and find that all of them are *T. scleroderma*; on the other hand, the *Turacœca* from a number of specimens of *Musophaga violacea rossæ* are all *T. bedfordi* Thompson, or possibly a subspecies of this. There can therefore be no doubt that the type of *T. scleroderma* was a straggler, and that the true host is *Corythæola cristata* (Vieillot), a common bird in the Ituri Forest.

The description of *Colpocephalum subrotundum* Giebel (1874, p. 266) agrees excellently with *Turacœca*, and it seems to me practically certain that the species belongs to this genus. Giebel gives no indication of the number of specimens from which it was described, but states that the type (or types) was found on a dry skin of *Musophaga v. violacea*. It is possible that *T. bedfordi* Thompson is a synonym of *Turacœca subrotunda* (Giebel), but it would be most unsafe to make this assumption until the type of the latter can be examined, lest *T. subrotunda*, like *T. scleroderma*, should prove to be a straggler.

22. *The Identity of Nirmus oculatus Rudow*.

Rudow (1870, p. 465) described a *Nirmus oculatus*, from *Bubo virginianus*, which no subsequent author appears to have made any attempt to identify: Osborn (1896, p. 219) described a *Docophorus bubonis* from the same host. Having recently received for determination some specimens of Owl-Philopteri from *B. virginianus subarcticus*, and having determined them as *Strigiphilus bubonis* (Osborn)\*, it occurred to me to look up the description of *N. oculatus*. Allowing for the vagueness of all Rudow's descriptions and for the fact that his

\* I agree with Clay and Meinertzhagen in thinking that *Eustrigiphilus* cannot be maintained as a distinct genus.

figures of "Grösse" mean nothing (Hopkins, 1940, p. 418), the description fits my specimens excellently, except that the abdomen is stated to be mainly brown (evidently owing to the crop being full of feather-debris) and trabeculae are stated to be absent. With this one exception the description of the head is quite good, and fits my specimens a good deal better than most of Rudow's descriptions fit the species for which they are intended. But in *bubonis* the trabeculoid processes are very small and do not project, as in many species, but form a continuation of the general outline of the head. Given carelessness of the sort that is rightly attributed to Rudow, they could very easily be overlooked.

There is no reasonable doubt that the two descriptions refer to the same species, and *Strigiphilus bubonis* (Osborn) must in future be known as *S. oculus* (Rudow). It would obviously be desirable to erect a neotype for *S. oculus*, but I am unable to do this as my material is from *Bubo v. subarcticus*, whereas it is most probable that Rudow's specimens came from *B. v. virginianus*.

### 23. Some Notes on Synonymy.

In the past, far too many names have been sunk as synonyms on altogether insufficient evidence, and in particular without the author having examined material from the type-host, all discrepancies between the material under examination and the description being put down to inaccuracy on the part of the original describer. Piaget was particularly fond of accusing both Denny and Giebel of inaccuracy, no doubt often justly, but in other cases almost certainly owing to the fact that his material (from a different host) was not conspecific with theirs. The result has been endless confusion in the nomenclature, for in a number of cases the species described by Denny, Giebel, and Piaget respectively under the same name are not conspecific (in some cases not even congeneric). Nor is this all: the premature sinking of a name as a synonym has frequently been the cause of the unnecessary renaming of a species: Taschenberg's unfounded belief that *Ardeicola fissomaculata* (Giebel), of which he had not seen specimens, was the same as *A. ciconiæ* (Linn.)=*A. versicolor* (Nitzsch) was the direct cause, in all probability, of Piaget's description of the

same form as *L. genitalis*; the mistake persisted many years and Harrison, as late as 1916, listed *fissomaculata* as a synonym of *ciconiæ* and *genitalis* as a good species.

There was some justification for this mode of procedure before the discovery of the systematic importance of the genitalia in Mallophaga, and while none of the important collections was in a state to allow of critical examination of the specimens\*. But even to-day we find authors sinking names as synonyms without having seen material from the type-host. It seems to the writer that one of the first requirements in the clearing up of the chaos in which the systematics of the Mallophaga wallow, is to regard difference of host as *prima facie* evidence that two insects are not conspecific, and to investigate the possibility that names referring to similar insects from the same species of host may refer to the same species of Mallophaga.

It is obvious that the ideal method is direct comparison of the types, but this is seldom possible except in the cases of species described by Denny and Piaget, both of whose collections are, for the most part, in the British Museum. The next most satisfactory method is the comparison of modern specimens with the types of both the old names. Through the kind co-operation of Miss Clay and Dr. Kéler, I was able to establish a few synonymies by this method before the war caused all types to be inaccessible, the material used for comparison being in all cases from the type-host and being compared with Denny's or Piaget's types by Miss Clay and with Nitzsch's or Giebel's types by Dr. Kéler. Since the war the only available method has been to compare material from the type-host with the descriptions and figures.

A few synonymies in the genus *Nirmus* Nitzsch *nec* Hermann are given below, the cases in which material has been compared with the actual types being indicated by an asterisk:—

*Nirmus euprepes* Kellogg and Chapman, 1902=*Quadriceps strepsilaris* (Denny), 1842.

*Nirmus gloriosus* Kellogg and Kuwana, 1902=*Quadriceps birostris* (Giebel), 1874.

\* Nitzsch's material was nearly all in alcohol, Denny's was mounted dry on cards and Piaget's was mounted in a very unsatisfactory medium.

*Nirmus ochropygus* \* Nitzsch, 1866 = *Quadriceps hamatopi* \* (Denny), 1842.

*Degeriella oliveri* Johnston and Harrison, 1912 = *Lunaceps phropi* (Denny), 1842.

*Nirmus opisthotomus* Kellogg, 1910 = *Quadriceps hemichrous* \* (Nitzsch), 1866.

*Nirmus subcingulatus* Nitzsch, 1866 = *Quadriceps strepsilaris* (Denny), 1842.

*Nirmus vanelli* Denny, 1842, nec Schrank 1803 = *Quadriceps hospes* (Nitzsch), 1866.

In the last-named case *vanelli* Schrank was described as a *Pediculus*, and Denny's name would be valid but for the fact that Schrank's species is also apparently a *Quadriceps*. It is strange that Giebel did not spot the identity of *vanelli* Denny and *hospes*, for the species is a most characteristic one. Denny's figure is quite good and the description of *hospes* agrees perfectly with my specimens. The reason is probably his completely erroneous statement (1874 p. 168) that Denny described the species from *Tringa cinerea*.

To sort out names which have been wrongly relegated to synonymy is even more important than to get rid of superfluous names applying to the same insect, because these erroneous synonymies cause infinite confusion. The names mentioned below have been considered synonymous, but the species are perfectly distinct if the male genitalia are examined. The basis of comparison has been material which agrees with the original description, from the type-host. In the case of several hosts being mentioned, I have assumed the first on the list to be the type-host. I have not succeeded in seeing material from *Totanus erythropus*, and have had to use material from *T. totanus* to represent *Quadriceps furrus*: it is extremely improbable that my specimens are really *furrus*.

*Quadriceps fissus* (Burmeister), from *Charadrius hiaticula*, has been considered by most authors to be the same as *Quadriceps bicuspis* (Nitzsch), from *Charadrius dubius curonicus* (= *C. minor*): they are distinct both in male genitalia and in shape of head. Harrison (1916, pp. 109, 113) sank both to *hiaticulae* "Müller in O. Fabricius." *Pediculus hiaticulae* Müller is a *nomen nudum*, and in my

opinion *Quadriceps hiaticulae* (O. Fabricius) represents the very narrow species, found on *Charadrius hiaticula*, which Waterson (1915, p. 35) discussed at some length as *Nirmus* sp., without being able to find a satisfactory name for it.

Another group of *Quadriceps* in which much confusion has resulted from unjustified lumping is that found on the *Tringinae*. The earliest name for any member of this group is *Quadriceps furrus* (Burmeister), from *Totanus erythropus* (= *T. maculatus*) and several other hosts, and *Q. obscurus* (Burmeister), from *Tringa glareola* and other hosts, followed by *Q. ochropi* (Denny), on *Tringa ochropus*, *Q. similis* (Giebel), on *T. nebularius* (= *T. glottis*) and *Q. naumanni* (Giebel) on "*Totanus gilvipes*." Piaget sank all these names to *furrus*, and this name has subsequently served for the whole group except the few described since Piaget's time. I hope to publish figures of the genitalia of members of the group in the near future, meanwhile it will be sufficient to mention that, with the possible exception of *naumanni*, whose host "*T. gilvipes*" seems to be unknown to ornithologists, all the names mentioned refer to perfectly distinct species.

#### 24. *The host of Stachiella ovalis* (Bedford).

When Bedford described *S. ovalis* (1928, p. 841) he gave *Pœcilogale albimucha* as the host, but the following year (1929, p. 514) he recorded two lots of the species from *Ictonyx striatus*, and later I collected a third lot from a subspecies of *I. striatus* in Kigezi district, Uganda. In recording these latter, Bedford (1936, p. 49) remarked "In view of the fact that *T. ovalis* has been found three times on *Ictonyx striatus* and a new species on *Pœcilogale doggetti*, I feel convinced that the host from which the type-specimens of *ovalis* were collected was misidentified." The evidence with regard to the Kigezi material was not entirely satisfactory, for the two hosts were collected at the same place and time by Africans, and there was a possibility that the two species of parasites had been wrongly attributed to the two species of hosts. Further evidence was, therefore, desirable.

On a recent visit to Kigezi I collected one specimen of *Ictonyx striatus* ssp. and ten of *Pœcilogale albimucha doggetti*. I removed the parasites myself, and found

*Stachiella ugandensis* (Bedford) on every *Pacilogale* and a short series of *S. ovalis* (Bedford) on the *Ictonyx*. Bedford's belief that his original host-record for *S. ovalis* was a misidentification is, therefore, fully confirmed.

25. *A New Name for Goniodes setosus* Piaget, 1880, p. 263

*Goniodes setosus* Piaget (1880, p. 263, pl. xxi, fig. 9) is invalidated by *Goniodes minor* var. *setosa* Piaget (1880, p. 257). The former is a *Strongylocotes*, and I rename it *Strongylocotes setifer*. The type is the specimen in the British Museum selected by Clay (1940, p. 429) as lecto-type of *G. setosus*.

26. *The Identity of Goniodes rotundus* Rudow.

Clay (1941, p. 129) remarks of *Goniodes rotundus* Rudow that "It does not appear from the description that this species is conspecific with *diversus*." There is every justification for this view, yet I believe that she has not fully realised the exceptional carelessness and peculiar methods of Rudow, especially as exemplified in his 'Beitrag,' and that the opinion is incorrect.

Lacking material of any of the species concerned, I have compared Rudow's description of *rotundus* with his description of *diversus*, and both with Taschenberg's figure of *Virgula eximia* (Rudow), which Taschenberg considered to be the same as *diversus* and which must be assumed to be very similar. There are points in the description of *diversus* which make me fully share Clay's opinion that it is probably not the same as *V. eximia*.

The description of *rotundus*, like all those in the 'Beitrag,' is practically meaningless, and it consists of only 52 words. Of the very few characters given by Rudow, I have found none that are seriously at variance with his description of *diversus*, and three (the only ones which are of the slightest value) correspond closely with his description of the latter species. He states that the abdomen of *rotundus* is "fast kreisrund" and that of *diversus* is "eiförmig, Breite zur Länge wie 2 zu 2." The abdomen of *rotundus* is further stated to be "gelbgerändert mit dahinter liegender breiter brauner binde," while that of *diversus* is "Grundfarbe gelb, jedes Segment mit gelbem Randflecke, darunter eine spitzeckige nach oben gewendete

gekrümmte rothbraune Zeichnung." This might very well be an expanded and less careless version of his earlier description. In *rotundus* the abdomen of the female has at the apex "2 stumpfen, mässig grossen höckern," while the apex of the abdomen of *diversus* is "fast gerade mit rundem Ausschnitte in der Mitte," which (though it sounds so different) is merely another way of saying the same thing. Comparison of the descriptions given in 1869 and in 1870 of species which are admittedly the same will show much more serious discrepancies in many cases than are to be found in this instance.

But there is also another argument in favour of the two descriptions referring to the same insect, though one which, to the best of my belief, has not previously been employed. Of the 65 species of Mallophaga described by Rudow in the 'Beitrag,' all but 10 are described again under the same names in the two papers published in 1870, invariably without the smallest indication that they had been described previously. It seems reasonable, therefore, that we should expect to find the exceptions dealt with in one form or another, and actually the exceptions are very informative: *Nirmus acutifrons* has been transferred to *Lipeurus*; *L. alchatae* is now in *Nirmus* and includes *N. paradoxus*, for we find that *alchatae*, which in 1869 only had *Pterocles alchata* as a host, now has *Syrhaptus paradoxus* in addition, these two hosts being those recorded for *N. paradoxus* in 1869; *Nirmus quadrangularis* is absent under this name but is described as *N. bipunctatus*, the reason for the change of name being completely obscure; *Goniocotes ocellatus* has had its name altered to *G. dentatus*, again for no obvious reason; *Docophorus crassipes* is missing, doubtless because Rudow had discovered the prior use of the name by Burmeister, and I am unable to trace the specimens unless they are included in the notes on specimens from *Rhynchotus rufescens*, which Rudow discusses under *Goniocotes dilatatus* and which certainly represent the suppressed *G. rotundatus* and may perhaps represent *D. crassiceps* as well; *Lipeurus cinereus* is described as *L. nyrocæ*, doubtless because of the existence of *L. cinereus* Nitzsch; *Goniodes rotundus* is the species under discussion, which I suggest has been renamed *G. diversus*. Thus of the entire 65 species only

*Lipuncus lepidotus* (and possibly *D. crassipes*) is now accounted for, and it seems reasonable to suppose that Rudow had meanwhile decided that this was not a valid species. These facts establish a very high degree of probability that, if we find a species described in the 'Beitrag' and omitted in the papers of 1870, it is to be looked for in the latter papers under a different name but with the same host-record.

From the correspondences in the descriptions and from the fact that *G. rotundus* never appears again in any of Rudow's papers, or indeed, in those of any other author before 1916 (except that Piaget, 1880, p. 284, mentions it as a synonym of *diversus*), I am completely convinced that *G. diversus* is merely an unnecessary and unacknowledged *nomen novum* for *rotundus*, that the type is the specimen in the Halle collection which had been relabelled *diversus*, and that the species must be known as *Virgula rotunda* (Rudow).

It is distasteful to criticize the work of a dead man in this destructive fashion, but a full understanding of Rudow's methods is essential to any real attempt to recognize the species which he described. Once his methods are understood, the fact that the species described in the 'Beitrag' are redescribed in 1870 is of great value, because the later descriptions are much fuller and not so careless as those in the 'Beitrag.' That his practice of redescribing species without reference to any prior description is not confined to species described in the 'Beitrag' (in which case it might be used as an argument that Rudow did not consider the 'Beitrag' to constitute a technical publication), is shown by the instance of *Acidoproctus rostratus*, which he described no less than three times (1866, p. 465, 1869, p. 46 and 1870, p. 141).

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XIII.—A Review of the Genus *Zaus* Goodsir, and a Description of Two Species of *Laophonte Philippi* (Copepoda, Harpacticoida). By A. G. NICHOLLS, University of Western Australia.

IN an account of the marine Harpacticoids from the River St. Lawrence (Nicholls, 1939) a new species of *Zaus* was described, which is now regarded as synonymous with *Z. avelii* Poppe. In the light of further knowledge other changes in this genus are proposed.

In the same paper (p. 303) reference was made to two species of *Laophonte* which were found in the collections but not identified. Since then a revision of this genus has been made (Nicholls, 1941) and these two species, which differ from any known species, have been described briefly and included in the keys. The full descriptions and figures of these species are given below.

A list of errata in the account already referred to is also included.

## Zaus Goodsir, 1845.

When identifying the single specimen of this genus which occurred in the collections from Trois Pistoles, two species were overlooked: *Z. contractus* Thomson, 1883, and *Z. avelii* Poppe, 1884. The latter has also been described and illustrated by Sars (1909) and by Willey (1923) and, having since seen these and Poppe's original description, I have little hesitation in referring both *Z. caruleus* Campbell (1929) and *Z. intermedius* Nicholls (1939) to *Z. avelii* Poppe.

In the genus *Zaus*, apart from the segmentation of the first endopod, the shape and armature of the fifth leg