

MALLOPHAGA FROM BIRDS OF THE SOUTH
ATLANTIC.

BY VERNON L. KELLOGG,

STANFORD UNIVERSITY, CALIFORNIA.

A small but interesting collection of Mallophaga taken from birds, mostly strictly maritime, of the Tropical and South Atlantic in the vicinity of South Georgia, Fernando Noronha, Trinidad, and the Cape Verde Islands, has been put into my hands for determination by Mr. Chas. Schaeffer of the Central Museum of the Brooklyn Institute of Arts and Sciences. The birds were collected by Mr. Robert C. Murphy on his South Georgia Island Expedition in 1912-13 and determined by him. The numbers preceded by the initials "R. C. M.," which I have used in connection with the birds' names, indicate the collector's field numbers, each one referring to Mallophaga from a single bird specimen. Twenty-five species of birds represented by twenty-eight specimens make up the host list, and twenty species of Mallophaga, of which four are new, and are here described, compose the list of parasites.

Among the species of special interest, besides the four new ones, is especially to be noted the species named *Nirmus setosus* by Giebel in 1876 (Ann. Mag. Nat. Hist., Vol. 17, p. 388, and more fully described by him and figured in 1879 in Phil. Trans. Roy. Soc., Vol. 168, extra vol. pp. 253-254, pl. XIV, fig. 18). Giebel had six specimens, probably all females, collected from *Pelecanoides urinatrix* at Kerguelen Id. in 1874 by the famous English Transit of Venus Expedition of which the Rev. A. E. Eaton was naturalist. It was the collections made by Eaton on this expedition which yielded such a wealth of interesting aberrant new forms of insects and other animals and plants as to make the wild little volcanic island of Kerguelen, a famous one to all naturalists. A male specimen, in Mr. Murphy's collection, of this curious Mallophagan from its equally curious host (*Pelecanoides*) reveals it to be a *Lipeurus* and not a *Nirmus*, and as the

species named *setosus* is already preoccupied in the genus *Lipeurus* I have had to find a new name for the species. I am calling it *Lipeurus catoni*.

In this connection it may also be noted that the figures of Giebel's *Docophorus dentatus* from *Diomedea exulans* on Pl. XIV of this same volume (168, extra vol.) of the 'Transactions of the Royal Society, are plainly made from specimens of the well known albatross parasite *Eurymetopus taurus*. The figure marked 16♂ is of a female *E. taurus* and that marked 16♀ is of an immature specimen, probably male. Also the figure 17 of the same plate illustrating his species *Nirmus angulicollis* from *Diomedea exulans*, looks suspiciously like a female *Lipeurus*, and is, I am inclined to think, the same species described by Kuwana and myself in 1900 (Proc. Acad. Nat. Sci., Philadelphia, Vol. 23, pp. 155-156, pl. VII, fig. 3) as *Lipeurus macilhennyi*, from a single female taken from *Diomedea nigripes*, collected at Pt. Barrow, Alaska. If so, the species becomes *Lipeurus angulicollis* Giebel.

The determinations and descriptions of the parasites of the South Georgia Expedition with their host records follow and are followed in turn by a host list with accredited parasites.

DOCOPHORUS LARI N. var. PARVA Piaget.

Four specimens of this small form of the widely distributed and abundant parasite of gulls, taken from *Larus dominicanus* (South Georgia Id.; R. C. M., 1718).

DOCOPHORUS ATLANTICUS sp. nov.

Males and females from *Stercorarius crepidatus* (North Tropical Atlantic; R. C. M., 1279, 1298), and from *Sterna paradisea* (South Atlantic; R. C. M., 1398). This well marked new *Docophorus* from terns is a form somewhat between *D. pustulosus* and *D. laricola*, with an emarginate clypeus but one not deeply and sharply emarginated as in *laricola*. Its male lacks the characteristic genital folds of the male *pustulosus*. It most closely resembles *D. snyderi* Kellogg & Paine, described in 1910 (Ent. News, Vol. 21, pp. 124-125, 2 figs.) from *Sterna lunata* (Laysan Id. Pacific

Ocean). Indeed it is not at all certain that I should describe the present specimens as representing a new species. But as I examine groups of specimens of the two lots I can easily and surely distinguish them as of two distinct forms. The Atlantic specimens are regularly larger, darker, with more pronounced markings, more produced anterior part of head, more strongly angulated metathorax and less angulated prothorax. The arrangement of the hairs and prickles of the lateral margins of the head is different, the male genitalia are not identical, etc., etc. But it is all very difficult and wearying, this constant attempt to give limits to a species; this constant attempt to conventionalize unconventional Nature.

Male, length 2.3 mm., width .99 mm., head, length .82 mm., width .82 mm.; head and prothorax dark golden brown, metathorax and abdomen pitchy brown. Head with produced clypeus, with narrow clear anterior margin with shallow rounding emargination; signature distinct with posterior point unusually produced, acute and blackish; only two short prickles on either side of clypeus; antennæ with 2nd segment as long as 3rd and 4th together; temporal and occipital region broad; four inconspicuous hairs on each postero-lateral temporal margin and a longish hair from each eye; occipital bands fairly distinct.

Prothorax flatly rounded behind, metathorax sharply angulated; posterior margin of metathorax with conspicuous series of pustulated hairs. Abdomen about as broad as long, and with series of pustulated hairs along posterior margin of each segment, as shown in fig. 1; pleura of abdomen projecting laterally so as to give the lateral margins of the abdomen almost a serrate appearance; transverse blotches blackish brown, covering the whole dorsal surface and thus giving the dorsum of the whole abdomen a continuous blackish or pitchy brown color.

Female, length 2.4 mm., width 1.06 mm.; head, length .82, width .82; dorsum of first abdominal segment entirely covered by the transverse blotches, blotches of 2nd segment not quite meeting at middle, and of 3rd, 4th and 5th more widely separated, of 6th about as wide apart as of 2nd, and of 7th, 8th and 9th entirely covering the dorsum of each segment.

DOCOPHORUS VIRIDICOLA sp. nov.

One male specimen from *Numenius* sp. (Cape Verde Ids.; R. C. M., 1265), having some points of resemblance with *D. cephaloxus* Denny. Rudow has described two species of *Docophorus* from *Numenius*, which no one can recognize from his descriptions. Johnston and Harrison have also described (1912) two species of *Docophorus* from *Numenius*

variegatus from the Kermadec Ids. One of these, *numenicola*, described from two females, must be very much like my *D. fuliginosus* from *Charadrius squatarola* (New Mall. II, pp. 80-82, pl. III, fig. 2, 1896). To the other, *armatus*, I can almost assign my present specimen, and perhaps ought to. But my specimen is decidedly larger than the type male, the clypeus is squarely truncate instead of flatly convex, the metathorax is distinctly though flatly angulated behind instead of being rounded, and the transverse blotches on the dorsum of the abdomen cover practically the whole surface. A comparison of the types, however, might readily throw the two species together.

Male, length 2.09 mm.; width .97; head, length .76 mm., width .79 mm.; head, thorax and legs dark golden brown with dark brown markings, abdomen blackish brown with the small whitish pustulations at bases of the many hairs showing rather distinctly.

Head a little wider than long, with a few short prickle hairs on each lateral margin in front of the trabeculae, and with two longish and two or three short hairs on each temporal margin; the antennal and occipital bands are distinctly indicated and plainly separated by a clear line; the clypeal signature is distinct with short, acute, dark brown point.

Prothorax short and broad, with lateral margins only slightly diverging and bordered with dark brown; a single hair in each postero-lateral angle. Metathorax broad and not long, with the posterior margin obtusely but distinctly angulated (a little sharper than shown in figure) at the middle; a series of nine pustulated hairs along the posterior margin on each side of the median angle; a V-shaped dark brown marking on the disc of the dorsum with its two lines not parallel with the posterior margin of the segment but meeting at a sharper angle in the middle.

Abdomen short and broad (as broad as long) and almost wholly covered by the dark brown transverse blotches; series of pustulated hairs occur along the posterior margins of the segments to the number and of the character shown by fig. 2.

DOCOPHORUS PERSPICUUS sp. nov.

Two specimens, one male and one female, of this extraordinary white-bodied, black-banded new *Docophorus*, were taken from *Corvus* (*corone* ?) (Cape Verde Ids.; R. C. M., 1263). It is like nothing else, not even any of the several other strongly marked Corvine *Docophori*. Its milky white ground color and sharp blackish markings are indeed approached by the typical Corvine-infesting *Docophori*, but

its white-and-blackness are really quite different from that of *D. atratus* or similar typical species of the crows, and its minute trabeculæ, in particular, set it apart from all these species.

Female, length 2.7 mm.; width 1.59 mm.; head, length .88 mm., width 1. mm.; ground color milky white, with strong blackish brown bands on head and blotches on thorax, legs and abdomen, but the abdominal blotches small and fading out on the posterior segments.

Head with margins forming almost an equilateral triangle but with base (occipital margin) longer than the sides (lateral margins), and with the anterior angle abruptly but not widely truncate; a few small prickle-hairs in front of clypeal suture, a longish hair from each eye and three not very long hairs on each temporal margin; trabeculæ very small; antennæ small; a pair of very well marked blackish brown occipital bands continued as antennal bands, running forward to the clypeal sutures, these bands of even width and sharp distinctness throughout their length; even beyond the sutures two small blotches may be looked on as continuations of these bands.

Prothorax very short and with flatly rounded posterior margin without blotches. Metathorax rather of shape of prothorax but larger and with the curving outlines more marked; its posterior margin is flatly rounded and bears an obscure series of short fine hairs, about seven on each side of the middle; there are also two short weak hairs in each lateral angle; a dark blotch in each antero-lateral angle; legs with small blackish semi-annular markings at tip of each femur.

Abdomen short and broad, not hairy, although there are series of inconspicuous weak hairs along the posterior margins of the dorsal surface of the segments; segments 1 to 6 each have a narrow, elongate diagonal lateral blotch enclosing or adjacent to the spiracle on each side, these blotches growing less in size and conspicuousness from the first segment backward; genital blotches, on the ventral surface, consisting simply of three very small but distinct flecks, one lying between the other two as if guarded by them.

Male, length 2.33 mm.; width, 1.27 mm.; head, length, .82 mm., width .97 mm.; the lesser size is especially noticeable in the abdomen; the lateral blotches of the abdomen are larger and are distinct on all the segments; the genitalia of unusual form, the parameres being short, thick and far apart.

NIRMUS TRIANGULATUS Nitzsch, var. ALPHA. var. nov.

Males and females from *Megalestris antarctica* (South Tropical Atlantic; R. C. M., 1362) and from *Oceanodroma leucorhoa* (North Tropical Atlantic; R. C. M., 1299).

The new variety of this *Nirmus* of various gulls and terns has a head less narrowed at the front and broader in proportion to its length than in the species type.

LIPEURUS DENSUS Kellogg.

One adult female and one young male of this species from *Diomedea exulans* (South Atlantic; R. C. M., 1380). The species was described by me in 1896 from specimens from *Diomedea albatrus*, coast of California, U. S. A.

LIPEURUS DIVERSUS Kellogg.

Specimens from *Diomedea melanophrys* (South Atlantic; R. C. M., 1406), *Æstrelata mollis* (South Atlantic; R. C. M., 1396, 1943), *Æstrelata incerta* (South Atlantic; R. C. M., 1390), *Puffinus cinereus* (South Atlantic; R. C. M., 1394), *Puffinus anglorum* (South Atlantic; R. C. M., 1381) and *Sterna paradisica* (South Atlantic; R. C. M., 1398).

LIPEURUS GRANDIS Piaget.

Males and females from *Megalestris antarctica* (South Tropical Atlantic; R. C. M., 1362). The species was described from specimens from *Procellaria pelagica*, and I have (with Chapman) described specimens of probably the same species from *Stercorarius* and *Puffinus* from the coast of California as a new species called *L. laculatus* (New Mall. III, pp. 93-95, pl. VII, fig. 1, 1899).

LIPEURUS GAINI Neumann.

Males and females from *Diomedea melanophrys* (South Atlantic; R. C. M., 1406), *Ossifraga gigantea* (South Atlantic; R. C. M., 1383) and *Thalassogeron chlororhynchus* (South Atlantic; R. C. M., 1405). The species was described by Neumann from specimens of *Ossifraga gigantea* taken at Petermann's Id. in 1909 by Charcot's Second French Antarctic Expedition.

LIPEURUS CELER Kellogg

One male and one female from *Priocella glacialoides* (South Georgia Id.). The species was described by me originally from *Fulmarus glacialis*, coast of California, U. S. A. In both of the specimens the head is more flattened on the clypeal front than in the type of *celer*.

LIPEURUS FULIGINOSUS Taschenberg.

Males and females from *Ossifraga gigantea* (South Atlantic; R. C. M., 1383), *Puffinus cinereus* (South Atlantic;

R. C. M., 1394), *Æstrelata mollis* (South Atlantic; R. C. M., 1396, 1943), *Æstrelata incerta* (South Atlantic; R. C. M., 1390), *Thalassogeron chlororhynchus* (South Atlantic; R. C. M., 1405), *Majaqueus æquinocialis* (South Atlantic; R. C. M., 1382) *Sterna paradisica* (South Atlantic; R. C. M., 1398). The species was described by Taschenberg from *Diomedea exulans* and *D. chlororhyncha*, and is much like Giebel's *Lipeurus clypeatus* from *Pachyptila cœrulea*.

LIPEURUS GURLTI Taschenberg.

Males and females from *Daption capensis* (South Atlantic; R. C. M., 1384). This species was described by Taschenberg from the same host, and has also been recorded by Neumann from the same host.

LIPEURUS GRACILICORNIS Piaget var. MINOR Kellogg.

Specimens from *Fregata ariel* (Trinidad Islet, South Atlantic; R. C. M., 1887) and *Phaethon lepturus* (Fernando Noronha Id. South Atlantic; R. C. M., 1358).

LIPEURUS EATONI Kellogg nom. nov.

Three females and one male of this curious *Lipeurus* which was diagnosed by Giebel in 1876 (Am. Mag. Nat. Hist., Vol. XVII, p. 388) and fully described by him in 1879 (Phil. Trans. Roy. Soc., Vol. 168, extra volume, pp. 253-254, Pl. XIV, fig. 18) as *Nirmus setosus*, are in Mr. Murphy's collection. Giebel's descriptions were made from six specimens, two of them immature, taken from the diving petrel, *Pelecanoides urinatrix*, on Oct. 14, 1874, at Observatory Bay, Kerguelen Id., by members of the English Transit of Venus Expedition of which Rev. A. E. Eaton was naturalist. Probably all of Giebel's specimens were females, which led him to describe the species as a *Nirmus* instead of assigning it to *Lipeurus* where it certainly belongs, if no new genus is erected for it. The secondary sex differences of the antennæ are revealed by the male specimen now in my hands. But they are differences much less than shown by most *Lipeuri*, consisting only of an enlargement of the first (especially) and third segments, without the presence of a projecting process on either of them. Perhaps, therefore, the species ought not to be put with the *Lipeuri* but most certainly it

cannot go with the *Nirmi*. As *setosus* is already preoccupied in the genus *Lipeurus*, I am renaming the species *eatonii*. Of the specimens in Mr. Murphy's collection two females and the male were taken from *Pelecanoides urinatrix* (South Georgia Island; R. C. M., 1877) and one female from *Oceanodroma leucorhoa* (North Tropical Atlantic; R. C. M., 1903).

EURYMETOPUS TAURUS Dufour.

Males and females from *Diomedea exulans* (South Atlantic; R. C. M., 1380) and *Æstrelata mollis* (South Atlantic; R. C. M., 1943).

EURYMETOPUS MURPHYI sp. nov.

It is more than high time to stop referring all the species of *Eurymetopus* to the single species *taurus*. From my own specimens and from letters from my correspondents, especially the Rev. James Waterston of the Shetland Islands (Scotland) I am sure that there are three or four obviously distinct species in this group of characteristic albatross and Procellariiform parasites. In the present collection one of these other species is present, and I describe it herewith. In this connection I wish to note that the species of *Eurymetopus* recorded by me in New Mallophaga I, pp. 135-137, 1896, as taken from specimens of the short-tailed albatross, *Diomedea albatrus*, and the Pacific fulmar, *Fulmarus glacialis* (all bird specimens from the Bay of Monterey, California) and ascribed with some doubt to *Eurymetopus taurus* Nitzsch (I pointed out differences in size and other details at that time) are undoubtedly not *taurus*, but are of an undescribed species which I now propose to call *pacificus*. In New Mallophaga I, I figured (Pl. XI, figs. 3, 4, 5 and 6) an adult female, a very young female, an immature but fully grown male, and the head of an adult male. These figures, together with my measurements showing the characteristic smaller size of the new species, and my reference to the signature, together with the host references and the remark which I may at present add, that the terminal segments of both male and female differ conspicuously (as shown in my figures) from the conditions in *taurus*, may sufficiently diagnose the new species, *E. pacificus*, for the moment. I shall take early opportunity to publish a full description.

One male and several females of the well marked new species of *Eurymetopus* which I describe herewith were taken by Mr. Murphy from *Diomedea melanophrys* (South Atlantic; R. C. M., 1406) *Ossifraga gigantea* (South Atlantic; R. C. M., 1383), and *Thalassogeron chlororhynchus* (South Atlantic; R. C. M., 1405). The differences by which it can readily be distinguished from *E. taurus*, are its smaller size (but larger than *E. pacificus*), its different proportions as regards length and breadth of whole body and the various parts, head, thorax and abdomen, the new species being everywhere more slender, that is, less broad in proportion to its length, its narrow, longer signature, and the less pronounced modification of the antennæ of its male. However, this modification (i. e. the difference between the female and male antennæ) is well marked enough to be immediately noticeable. Rev. James Waterston of the Shetland Ids., informs me that he has specimens of a *Eurymetopus* in which the antennæ of the male are wholly "simple," i. e. without any sign of appendage on, or expansion of unusual extension of any of the segments beyond what is shown in the female. From my rather large collection of *Eurymetopus* material, representing specimens from various albatrosses, petrels and allied birds from various oceans, I can pick out at first inspection, examples of at least three species, namely *E. taurus* N. (type species of the genus) coming from Atlantic and Indian Ocean albatrosses, *E. pacificus* Kellogg, from Pacific and Arctic albatrosses, and *E. murphyi* Kellogg, from South Atlantic hosts.

Female, length 3.9 mm.; width 1.67 mm.; head, length 1.21 mm., width 1.18; narrow-bodied form, with the secondary sex differences of the male antennæ much less pronounced than in *E. taurus* and also less than in *E. pacificus*, but still very obvious.

Head not quite as wide as long (the head is one-fifth wider than long in *taurus*, and very slightly wider than long in *pacificus*) with signature longer than wide, being of elongate shield shape instead of broad and short shield shape as in *taurus*; the clear area all around the signature is very well distinguished and wider than in *taurus*; antennæ simple (i. e. no unusual extension of 2nd segment and angulation of 3rd segment as in *taurus*.)

Pro- and meta-thorax together longer than broad (the meta-thorax in *taurus* is as broad as the length of pro- and meta-thorax taken together); middle of posterior margin of metathorax strongly angulated on the abdomen, and only slight indication of backward projecting

points from the lateral angles (in *taurus* these are distinct and the posterior margin of the metathorax is only flatly angulated on the abdomen, being indeed nearly straight).

Abdomen slenderer than in *taurus*, and with the lateral transverse blotches more widely separated on the middle of the dorsum of segments three to six than in *taurus*, where they nearly meet on all the segments; ventral genital blotch not so wide as in *taurus*, this arriving not merely from the greater slenderness of the abdomen, but also from the fact that the blotch does not reach laterally so near the edge of the segments involved as in *taurus*.

Male, length 3.12 mm.; width 1.3 mm.; head, length .94 mm., width .94 mm.; the antennæ with 2nd segment much longer than in female, being longer than 3rd, 4th and 5th together, but the antennal differences are markedly less than in *taurus*.

LEMBOBOTHRIUM GIGANTEUM Nitzsch

An adult male and young from *Neophron percnopterus* (Cape Verde Ids.; R. C. M., 1263).

COLPOCEPHALUM SUBÆQUALE Nitzsch

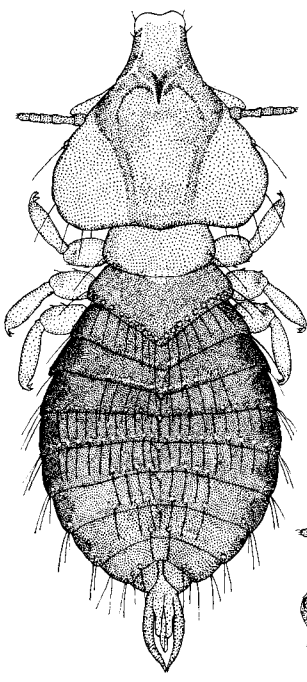
Several males from *Corvus (corone?)* (Cape Verde Ids.; R. C. M., 1264).

ANCISTRONA GIGAS Piaget.

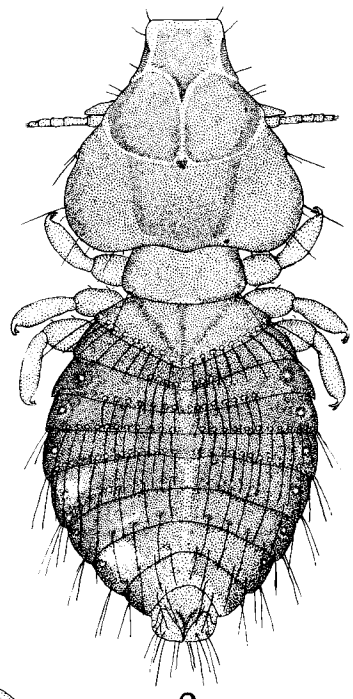
Males and females from *Daption capensis* (South Atlantic; R. C. M., 1414), *Æstrelata mollis* (South Atlantic; R. C. M., 1396) and *Æstrelata incerta* (South Atlantic; R. C. M., 1390). *Daption capensis* is the host from which Westwood described (in 1874) the type, and only other species (*procellariæ* Westwood) referred to this genus. The measurements recorded by him are so much smaller than those shown by the single female specimen of the genus that Piaget later had from a *Procellaria glacialis*, and Westwood's description was otherwise so brief, that Piaget was constrained to establish a new species for his specimen. Now, however, that I have taken *gigas* (my specimens are fully as large as Piaget's type) from the original host of *procellariæ*, I think it very likely that the two species are but one. If so, Westwood's name has priority.

MENOPON MESOLEUCUM Nitzsch.

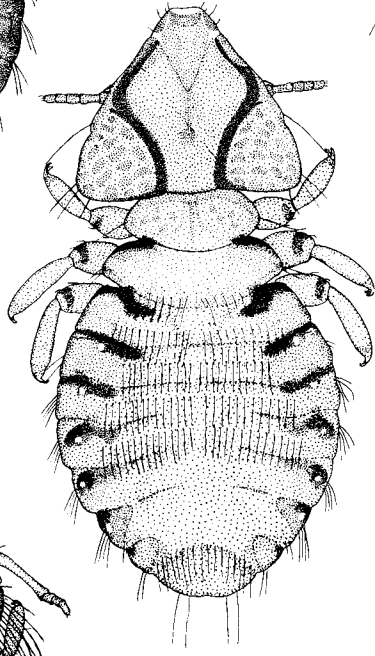
One male from *Corvus (corone?)* (Cape Verde Ids.; R. C. M., 1264).



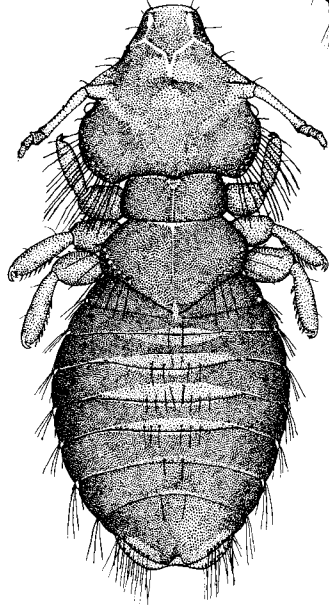
1



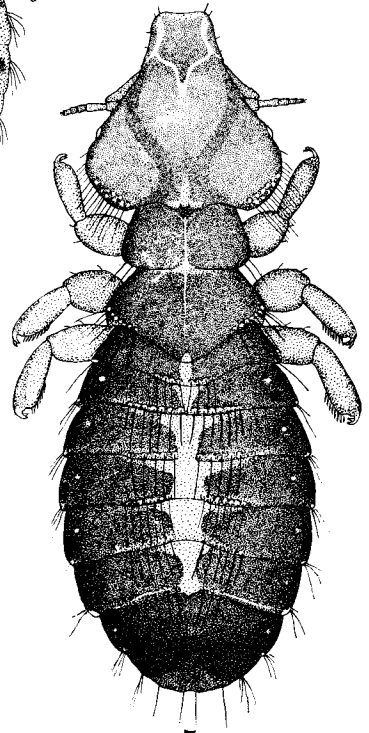
2



3



4



5

1. *DOCOPHORUS ATLANTICUS* ♂.

2. *DOCOPHORUS VIRIDICOLA* ♂.

Mallophaga from Birds of the South Atlantic.

BY VERNON L. KELLOGG.

Extracted from A REPORT
on the

SOUTH GEORGIA EXPEDITION

SCIENCE BULLETIN OF THE MUSEUM
OF

THE BROOKLYN INSTITUTE OF ARTS AND SCIENCES

VOL. 2, No. 4, pp. 41-102.

November 5, 1914
