

XIV.—A List of Anoplura obtained in the Forth Area.

By William Evans, F.R.S.E.

(Read 24th March 1913. Received 29th September 1913.)

LAST year I laid before this Society a list of Mallophaga (Biting Lice) taken in the Forth Area, which has been published in the *Proceedings* (vol. xviii. pp. 265-276). I now submit a list of the Anoplura—the true or sucking lice—that have come under my notice. I rather regret, especially as there are so few of the latter, not having dealt with the two groups in the same paper; but in keeping them apart, I was guided by the widely different systematic positions assigned to them in the “Cambridge Natural History,” the one being there placed along with the Neuroptera, the other with the Hemiptera or bugs. The terms “biting” and “sucking” indicate what has been supposed to represent a fundamental difference between them, but the recent researches of Mr Eric Mjöberg, not to mention the work of others who have touched on the point, do not lend support to this view. His studies, he states,¹ lead him to the conclusion that the Anoplura in their whole organisation present external as well as internal similarities with the Mallophaga, and must have been derived from a common ancestral form. He recognises the moderately near relationship of the Mallophaga to the Psocids, a section of the Neuroptera. The classification of the Anoplura along with the Hemiptera—never more than a doubtful step—would therefore seem to be no longer tenable.

There are doubtless a few other species, besides the thirteen here recorded, to be found in the district were they diligently sought for. *Hæmatopinus* (*Hoplopleura*) *acanthopus* must, one would think, occur on Field and Bank Voles of which we have plenty; yet I have looked for it on a number of occasions without success. In these days of “Economic” Science, the geographical distribution of parasites, as well as their range in the matter of host, is bound to receive more attention than formerly. While the Mallophaga are to be found on mammals as well as birds (their chief hosts), the Anoplura are confined to the former.

Fam. *Hæmatopinidæ*.(= Genus *Hæmatopinus*, Leach.²)

Polyplax spinulosa (Burm.)—In May last I found this species in some numbers on a Brown Rat (*Mus norvegicus* = *decumanus*) at Dalmeny, Linlithgowshire;

¹ Studien über Mallophagen und Anopluren, *Arkiv för Zoologi*, Stockholm; Band 6, No. 13, 1910, p. 262. I had not seen this paper when I drew up my list of Mallophaga.

² The old genus *Hæmatopinus* was split up by Enderlein in 1904 (*Zool. Anzeiger*) into several genera. These Prof. Neumann treats as sub-genera, inserting them in brackets between *Hæmatopinus* and the specific names, thus: *Hæmatopinus* (*Polyplax*) *spinulosus*, Burm., etc.

I had previously looked for it on several occasions without success. Specimens from the same host were exhibited at a meeting of the Edinburgh Naturalists' Field Club by the late James Simpson (*Transactions*, i, 23); no locality is mentioned, but I have no doubt they were got in this neighbourhood. The Rev. James Waterston tells me he obtained it from rats killed at Kirkcaldy in Oct. and Nov. 1909.¹

Polyplax serrata (Burm.)—Specimens of a very small louse taken from mice (*Mus musculus*) in Edinburgh have been kindly given to me by Dr J. H. Ashworth. Presumably they are the *Hæmatopinus serratus* of Burmeister (from the House Mouse), though his description is insufficient to establish this with certainty. Mr Waterston, who has obtained the same species and its eggs on house mice in Shetland, writes me that in 1905 he met with similar small louse eggs on a mouse in Edinburgh. Prof. Neumann, to whom I have submitted specimens, does not recognise the species. A *Hæmatopinus* from a mouse was included in Simpson's exhibit mentioned above.

Polyplax sphærocephala (Burm.)?—In March 1896 I noticed a number of lice on a Squirrel (*Sciurus vulgaris*) captured in a wood near Currie. Unfortunately I did not preserve any of them, but I have little doubt they were this species.

Polyplax ventricosa (Denny)—*Hæmatopinus ventricosus*, Denny, "Monogr. Anopl. Brit."—From Wild Rabbit (*Lepus cuniculus*), Dunipace, Stirlingshire, March 1910, and Tynninghame, East Lothian, April 1910; a good many on each occasion. Enderlein placed this species in his genus *Hæmodipsus*, but Neumann has shown² that it really possesses the characteristics of a *Polyplax*.

Hæmodipsus lyriocephalus (Burm.)—*Hæmatopinus lyriocephalus*, Denny's Monograph.—Several from Brown Hare (*Lepus europæus*), Tynninghame, April 1910.

Linognathus piliferus (Burm.)—*Hæmatopinus piliferus*, Denny's Monograph.—Common on Dogs (*Canis familiaris*): Edinburgh, February 1906; Dirlerton, East Lothian, Nov. 1909; etc.

Linognathus ovillus (Neum.)—*Hæmatopinus ovillus*, Neumann, *Revue vétérinaire*, Aug. 1907, pp. 520-524.—From Black-faced Sheep (*Ovis aries*, var.), Crosswood Hill, Pentlands, Midlothian, April 1906, May 1907, and April 1912. Mr W. F. Little, to whom I am indebted for bringing this interesting novelty to my notice (see my paper in *Ann. Scot. Nat. Hist.*, Oct. 1907, p. 225), tells me that every year it occurs in numbers on the faces and cheeks of a few of the sheep on the hill. In April last, however, he obtained some for me from the legs also of one of the sheep, and they are in no way different from those from the face. I mention this, as a totally different species (*H. pedalis*) has been described by Osborn from the legs of sheep in North America. When I first obtained *ovillus* it was undescribed, though Prof. Neumann had shortly before received it from New Zealand. It seems to me to fall into Enderlein's genus *Linognathus*.

Hæmatopinus eurysternus (Nitzsch)—From Cows (*Bos taurus*, ♀), Crosswood, Pentlands, Nov. 1905, and March 1906, and Hunter's Tryst, near Edinburgh, May 1906.

Hæmatopinus suis (Linn.)—From Pigs (*Sus scrofa*), Newbattle, 1904, and Swanston, Midlothian, April 1906; Dunipace, Aug. 1911; Tynninghame, July 1912; etc.

Fam. Pediculidæ.

Pediculus capitis, Leach, and **Pediculus vestimenti**, Leach—On Man, the former chiefly on children. Both forms are still too common. "Verminous cases" are

¹ Mr Waterston has also an undetermined *Polyplax* ♂ from a *Mus sylvaticus* captured at Colinton in 1905.

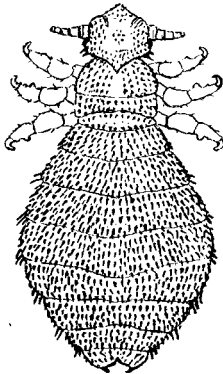
² *Archives de Parasitologie*, 1909, p. 527.

not difficult to find in the city slums, but they are by no means confined to these, as the medical inspection of school children in town and country has shown.

Phthirus inguinalis, Leach—On Man. Though much less frequent than the above, this also, medical men in Edinburgh tell me, is still not so uncommon as one would like to think.

Fam. **Echinophthiriidæ.**

Echinophthirus phocæ (Lucas)—A Common Seal (*Phoca vitulina*) shot on the Isle of May by one of the lighthouse staff (W. Mouat), in Jan. 1913, was terribly infested with this interesting species. On a small piece of its skin (from in front



E. phocæ, ♀, × 16.

of shoulder) which was sent me I found them in hundreds—43 were taken off one square inch—and every hair had one or more eggs attached to it.¹ I am not aware of any published record of *E. phocæ* from the British Isles, but I understand the Rev. James Waterston has recently obtained it in Shetland.² Its thick coating of stiff hairs no doubt serves to retain a supply of air for respiration while its host is under water.

¹ The egg of this species is figured by Mjöberg (*loc. cit.*, p. 259).

² Mr Waterston has since recorded this occurrence in *Ent. Mo. Mag* for May 1913, p. 113.

With the Writer's Comp
REPRINT FROM THE

PROCEEDINGS

OF THE

ROYAL PHYSICAL SOCIETY OF EDINBURGH

SESSION 1912—1913.

VOL. XIX.—No. 4.

**A LIST OF ANOPLURA OBTAINED
IN THE FORTH AREA.**

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EDINBURGH:

PUBLISHED BY ROBERT GRANT & SON, 107 PRINCES STREET.

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Price Sixpence.