Siphunculata of the Genus *Haematopinus* Leach infesting Equidae, with a Description of a New Subspecies of *Haematopinus asini* (L.) from a Zebra.

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(With 1 Plate and 2 figures in the text.)

Introduction.

Two species of the genus *Haematopinus* are known to infest members of the Equidae, *H. asini* (L.) is recorded from *Equus asinus* L., *E. caballus* L. and *E. burchelli* (Gray), while *H. acuticeps* Ferris (1933) is recorded only from *E. burchelli*. The species *H. asini*, as determined by Ferris (1933), includes, in addition to the form found on *Equus asinus*, two or possibly three others previously described as separate species and recorded from other Equidae. The species which Ferris considered synonymous with *H. asini* are *H. macrocephalus* (Burmeister) (1838) from *E. caballus*, *H. minor* Fahrenholz (1916*b*) from *E. burchelli*, and *H. elegans* Fahrenholz (1915) without an adequate indication of the host. Ferris was undoubtedly correct in his view that the morphological distinction between these forms is insufficient to warrant their recognition as separate species, though he omitted to mention that perfectly clear differences in head-shape appear to characterize each of them. Yet another form has now been recorded from *E. burchelli granti* De Winton agreeing in almost every detail with *H. asini* except head-shape. For reasons which will be apparent elsewhere, it is desirable that this new louse shall be formally recognized as distinct from those already described. It is here proposed to treat *H. macrocephalus*, *H. minor* and the new form from the zebra as subspecies of *H. asini*. In view of the limited material available for study, however, it is not possible to be certain that these forms are not covered by a range of structural variation in *H. asini* which might be apparent were an extended series examined. This is not thought to be probable, however, as each type appears to be associated either with a definite species of *Equus* or, in the case of those two recorded from *E. burchelli granti*, to have been found coexistent on the same host. The second species of *Haematopinus* from Equidae, *H. acuticeps*, is undoubtedly valid and separate from *H. asini*.

Haematopinus asini asini (L.).

As described by Ferris (1933). The form of the head is here shown in Plate I, *C*. In length, the head varies from about 0·75–0·87 mm., the specimen photographed being one of head length near the upper limit. The sternal plate and the male genital plate are given in fig. 1, *a–c*.

Type host *Equus asinus* L. The material examined comprised 1 ♂ and 1♀ from *E. asinus*, Lango District, Uganda, taken March 1942, and 4 ♂♂ and 4 ♀♀ from *E. asinus*, Kano, Northern Nigeria, taken in 1931.

Haematopinus asini macrocephalus (Burmeister) (1838) *.

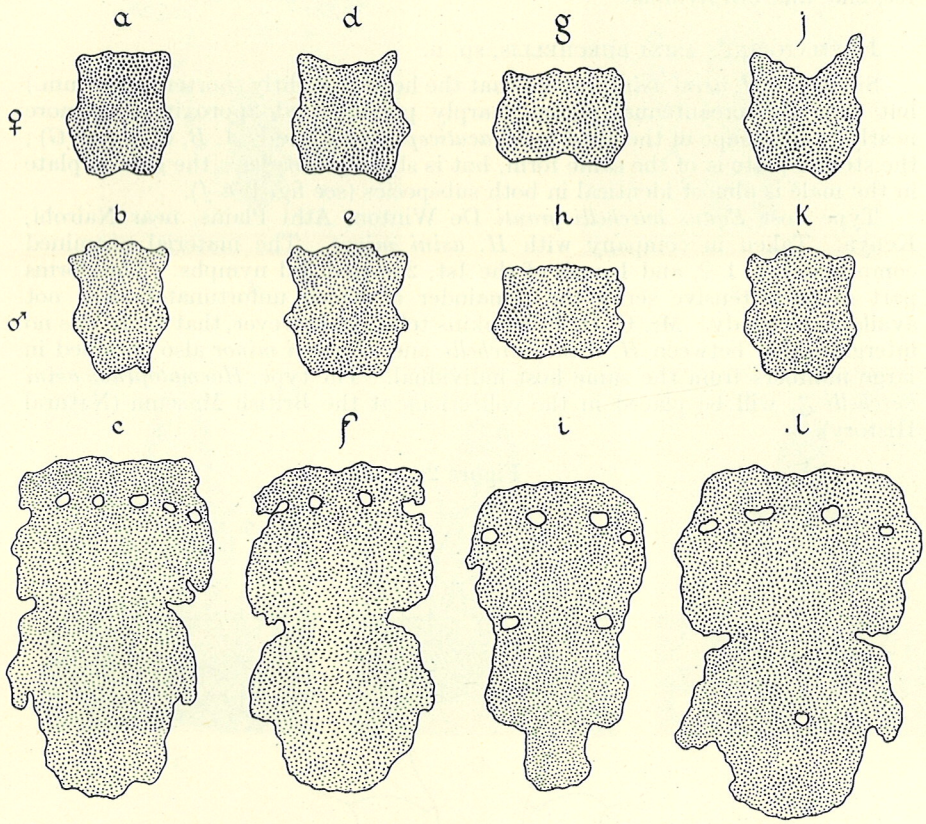
Similar to *H. asini asini* except that the head is appreciably longer (0·95–1·10 mm.) and slightly broader, particularly in the preantennal region

* See also Fahrenholz (1916*a*).

(see Plate I, *C* and *F*). The specimen photographed is one whose head length is at the lower limit for comparison with the figure of *H. asini asini*. The genital plate of the male is broader, but of the same general form as that of *H. asini asini* (see fig. 1, *c* and *l*). The differences between *H. asini asini* and *H. asini macrocephalus* are such as may well be found at a later date to fall within the range of normal variation.

Type host *Equus caballus* L. The material examined comprised 1 ♂ and 1 ♀

Figure 1.



a–c, *Haematopinus asini asini*, sternal plate of ♀ and ♂ and genital plate of ♂ respectively; *d–f*, *H. asini burchelli*, sternal plate of ♀ and ♂ and genital plate of ♂ respectively; *g–i*, *H. asini minor*, sternal plate of ♀ and ♂ and genital plate of ♂ respectively; *j–l*, *H. asini macrocephalus*, sternal plate of ♀ and ♂ and genital plate of ♂ respectively.

from *E. caballus*, Onderstepoort, S. Africa, taken September 1912, 1 ♂ and 10 ♀♀ from *E. caballus*, Grahamstown, S. Africa, taken June 1920, 2 ♀♀ from *E. caballus*, Dollard, Saskatchewan, Canada, taken April 1933, and 8 ♀♀ from *E. caballus*, Tallaght, Co. Dublin, Ireland, taken November 1939. It is worthy of note that the specimens from Canada and Ireland possessed heads of length near the upper limit of the range given, whereas those from Africa were near the lower limit.

HAEMATOPINUS ASINI MINOR Fahrenholz (1916 *b*).

Similar to *H. asini asini* except that the head, although as broad, is considerably shorter (*c.* 0·67 mm.) (see Plate I, *C* and *D*) ; the sternal plate is of the same form, but distinctly shorter and broader (see fig. 1, *a*, *b* and *g*, *h*) ; the genital plate of the male is slightly smaller and is reduced in the posterior region (see fig. 1, *c* and *i*).

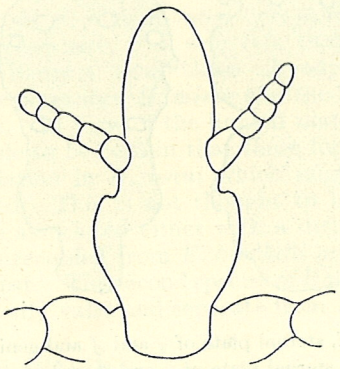
Type host *Equus burchelli* (Gray). Fahrenholz (1916 *b*) gives no indication of locality. The material described here is from *E. burchelli granti* De Winton, Athi Plains, near Nairobi, Kenya, and comprised 1 ♂, 1 ♀ and 1 each of the 1st, 2nd, and 3rd nymphs.

HAEMATOPINUS ASINI BURCHELLIS, sp. n.

Similar to *H. asini asini*, except that the head is slightly shorter (*c.* 0·8 mm.) but with the preantennal region sharply pointed and approximating more nearly to the shape of the head in *H. acuticeps* (see Plate I, *A*, *B*, *C*, *E* and *G*) ; the sternal plate is of the same form, but is slightly broader ; the genital plate in the male is almost identical in both subspecies (see fig. 1, *a–f*).

Type host *Equus burchelli granti* De Winton, Athi Plains, near Nairobi, Kenya. Taken in company with *H. asini minor*. The material examined comprised 1 ♂, 1 ♀, and 1 each of the 1st, 2nd and 3rd nymphs. This forms part of an extensive series the remainder of which unfortunately was not available for study. Mr. G. H. E. Hopkins tells me, however, that there was no intergradation between *H. asini burchelli* and *H. asini minor* also obtained in large numbers from the same host individual. The type, *Haematopinus asini burchelli* ♂, will be placed in the collections at the British Museum (Natural History).

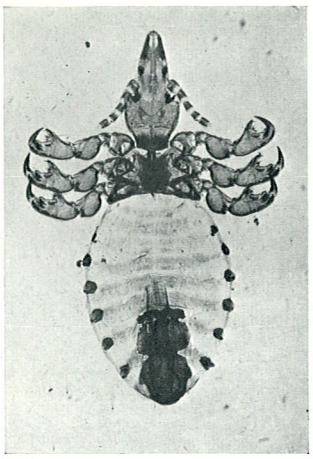
Figure 2.



Outline of the head of *Haematopinus elegans* (after Fahrenholz).

HAEMATOPINUS ASINI ELEGANS Fahrenholz (1915).

The form described by Fahrenholz (1915) as *Haematopinus elegans* may possibly be yet another subspecies of *H. asini* near to *H. asini macrocephalus*. The length of the head is given as 0·91–0·93 mm. and its shape, taken from Fahrenholz's photograph of the louse, is shown in fig. 2. The head is very similar to that of *H. asini macrocephalus*, but appears to be broader and more rounded at the apex. The sternal plate conforms to the type given for *H. asini asini* and *H. asini macrocephalus*. Fahrenholz states that the louse is from Gobabis, South-west Africa, "zur Gattung *Equus* gehören." It is of interest to note that the only wild *Equus* likely to occur at Gobabis, according to Mr. G. H. E. Hopkins, is *E. burchelli antiquorum* (Hamilton Smith).



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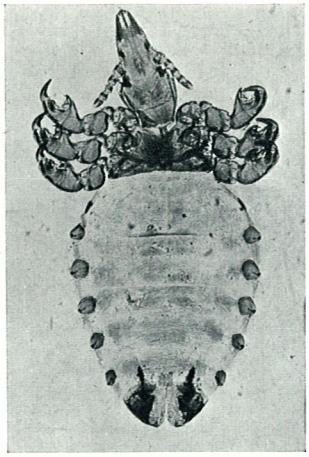

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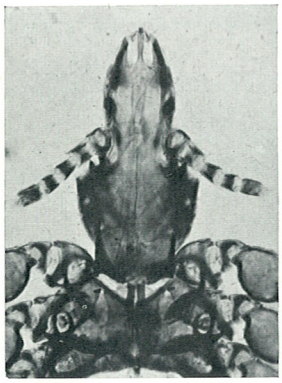
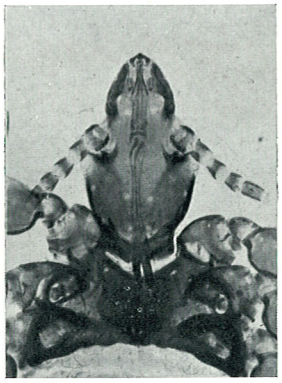


C



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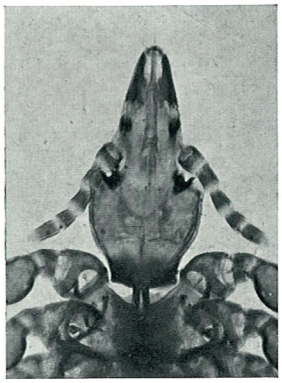

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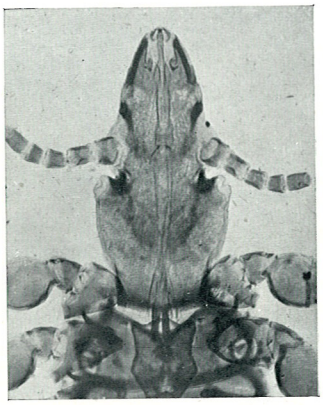
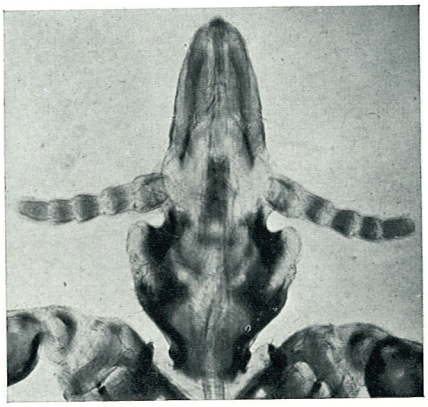


F



G

Siphunculata of the Genus *Hæmatopinus* Leach infesting Equidæ.

HAEMATOPINUS ACUTICEPS Ferris.

The specimen figured here (see Plate I, *G*) is a female from the type lot. Two other females taken from the same host, Shinyanga, Tanganyika Territory, have also been seen. The male of *H. acuticeps* is unknown.

Type host *Equus burchelli muansae* (Matschie), Mpwapwa, Tanganyika Territory.

HOST RELATIONSHIPS.

In considering this series of forms of *Haematopinus asini*, it is clear that we are dealing with a case of incipient speciation progressing along lines of evolution similar to those of the hosts. The two most closely related subspecies, if indeed they can yet be considered to have reached that degree of separation, are *H. asini asini* and *H. asini macrocephalus* from *Equus asinus* and *E. caballus* respectively, hosts which themselves are still capable of hybridization. As might be expected, *H. asini minor* and *H. asini burchelli*, both from *Equus burchelli granti* and occurring on the same individuals, are more distinct from one another, as it is presumed they do not interbreed, than either is from *H. asini asini* and neither is as close to that form as *H. asini macrocephalus*. Here again, the relationships of the parasites reflect the closer affinity which exists between the ass and the horse than between either of these and the zebra. It should be noted that the common zebra is exceptional in possessing at least three distinct lice of the genus *Haematopinus*.

The author is indebted to Mr. G. H. E. Hopkins for placing at his disposal all the material on which this study is based.

EXPLANATION OF THE PLATE.

PLATE I.

Siphunculata of the Genus *Haematopinus* Leach infesting Equidae.

A, *Haematopinus asini burchelli* ♂; B, *H. asini burchelli* ♀; C, head of *H. asini asini*; D, head of *H. asini minor*; E, head of *H. asini burchelli*; F, head of *H. asini macrocephalus*; G, head of *H. acuticeps*.

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