

A new species of *Colpocephalum* Nitzsch (Mallophaga)

By THERESA CLAY
British Museum (Natural History)

SYNOPSIS

A new species of *Colpocephalum* is described from male specimens, and the characters of this and the related species, *C. scopinum*, are discussed.

FORTY-ONE males and 71 females of *Colpocephalum* from 18 individuals of *Scopus umbretta* Gmelin have been examined. Among the males there are two distinct types: in one (fig. 2), the tergites have a marginal row of numerous setae of varying lengths and several rows of submarginal setae of medium length; in the other (fig. 1), the tergites have a marginal row of long setae not exceeding 10 in number, which may be entirely absent on tergites VI, VII and VIII; on tergites II–VIII there are one or two irregular rows of minute setae and similar setae are also present on the dorsum of the last segment. There are also differences in the chaetotaxy of the sternites (figs. 1–2). The males with the dense abdominal chaetotaxy are, on the average, slightly larger but there is a considerable overlap (see Table I). Through the kindness of the Entomological Department of the Naturhistoriska Riksmuseet in Stockholm, it has been possible to examine the type material of *Colpocephalum scopinum* Mjöberg, 1910; this comprises two males, one female and seven nymphs. Both the males have the

TABLE I.—Measurements (in mm.) of *Colpocephalum smithi* and *C. scopinum*

Measurements of Males							
		<i>C. smithi</i>		<i>C. scopinum</i>			
		Length	Breadth	Length	Breadth		
Head ¹	.	0.36	0.39	0.39	0.40		
Head ²	.		0.52		0.55		
Prothorax	.		0.41		0.43		
Metathorax	.		0.55		0.59		
Abdomen.	.	1.24	0.72	1.44	0.71		
Total	.	2.08		2.32			
Genitalia	.	0.71		0.78			

Head Breadth at Temples (mm.)							
Male		Female					
		<i>C. smithi</i>	<i>C. scopinum</i>	A.	B.	C.	D.
Range	.	0.50–0.55	0.52–0.57	0.51–0.56	0.50–0.57	0.52–0.56	0.51–0.54
Mean	.	0.53	0.54	0.54	0.54	0.53	0.52
No. of specimens		14	23	24	23	8	9

Male Head Breadth at Preocular Enlargement (mm.)					
				Ratio H ² : H ¹	
		Range	Mean	Range	Mean
<i>C. smithi</i> (12)	.	0.37–0.39	0.39	0.71–0.76	0.73
<i>C. scopinum</i> (16)	.	0.38–0.41	0.40	0.69–0.75	0.73

Head¹, breadth of head at pre-ocular enlargement; Head², breadth at temples; A, 2 of 4 occipital setae long; B, at least one occipital seta long; C, occipital setae of intermediate lengths; D, all occipital setae short.

dense abdominal chaetotaxy shown in figure 2, and this type will hereafter be referred to as *scopinum*. Amongst the 71 females, no obvious differences could be found. Unfortunately the collecting data for many of the specimens are inadequate, but there are at least two instances (in the Hopkins collection) where both types of males were collected from one host individual.



FIG. 1.—*Colpocephalum smithi* sp. n., male, dorsal and ventral.

The question now arises whether this is a case of one species with dimorphic males or two species in which the females are not distinguishable. Amongst the *Colpocephalum* of the Ciconiiformes, two species are known to parasitise one host, but it is usual for them to differ to a greater extent than do the males parasitic on *Scopus*. However, *Hagedashia hagedash* is parasitised by two species of *Colpocephalum* (*C. subpenicillatum* Piaget and a species probably new) that are similar in size and shape of head. The males differ most markedly in the characters of the marginal setae of the

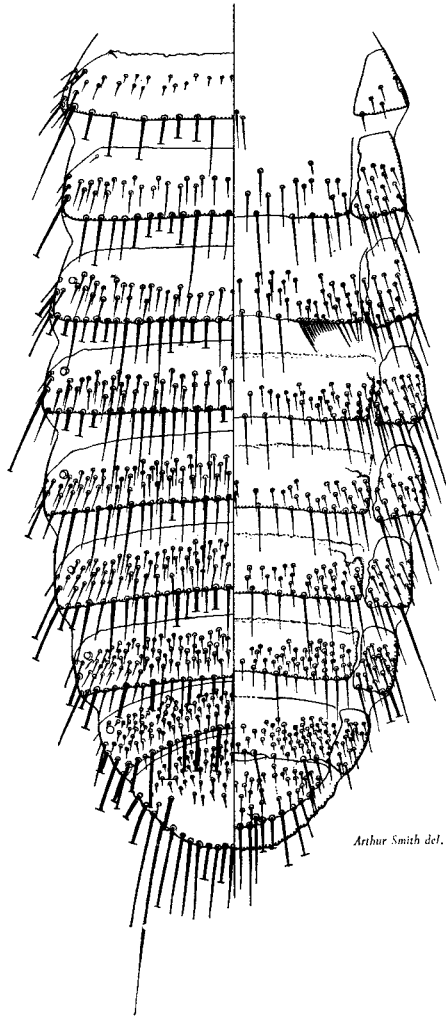


FIG. 2.—*Colpocephalum scopinum* Mjöberg, male abdomen, dorsal and ventral.

tergites and the females in the chaetotaxy of sternite II. As in the *Colpocephalum* from *Scopus*, there appear to be no constant differences in the male genitalia; the females of the new species are larger on the average than those of *subpenicillatum*, but there is some overlap in measurements.

The sex ratio varies considerably in collections of Mallophaga: in those of other species of *Colpocephalum* collected from members of the Ciconiiformes by the chloroform technique, it is usual to find a slight preponderance of females, although this is reversed in a few cases. If two species are represented in the material from *Scopus*, it is possible (but improbable) that there are no females belonging to the 15 non-

scopinum males, especially as the methods used in collecting some of the specimens is not known. Further, the fact that the *Colpocephalum* of *Scopus* may live inside the quill of the primaries (Paterson, 1954) might give a false indication of the sex ratio if those inside the quills had not been collected.

It is difficult to know where to start looking for characters that might show specific differences in the females, as there is often considerable individual variation in the chaetotaxy of the Menoponidae. Any characters in which the two males differ from each other, if also found in the females, might serve as a basis for comparison. The males differ in average size, but this does not help in separating any individual male

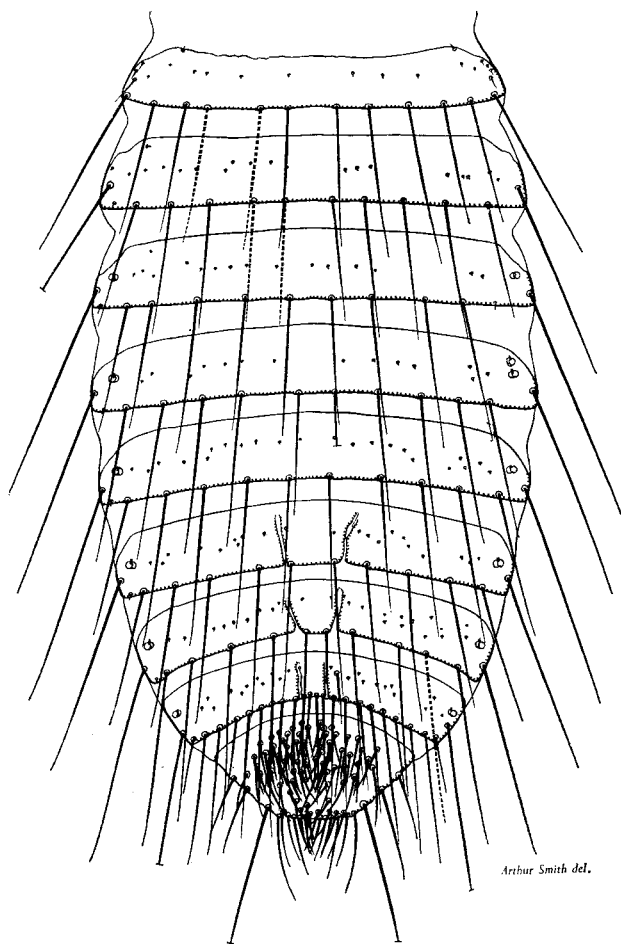


FIG. 3.—*Colpocephalum* from *Scopus umbretta*, female abdomen, dorsal.

and the same would probably apply to the females. An examination of the available males shows that in all the non-*scopinum* males (fig. 1) the 4 setae along the occipital margin of the head are short (fig. 5). In *scopinum* (fig. 2), 10 specimens have the two central setae long and stout, seven have at least one of the setae long, two have the central setae longer than the lateral ones but not as long as in figure 6, and five specimens have occipital setae as in the other type of male. In the females, 29 have the two medium setae long (fig. 6), 23 have at least one of the occipital setae long (fig. 7), eight have the setae intermediate in length and 11 have all the occipital setae short (fig. 5), as in the non-*scopinum* males. These eleven (two of which were not measured) were assumed for the purpose of comparison to belong to the non-*scopinum* males and

compared with females which had occipital setae as in the majority of *scopinum* males. None of the nine females (of the eleven with short setae) had a head breadth greater than 0.54 mm., mean 0.52 (range of other types of females : 0.50–0.57, mean : 0.54 mm., see also Table I). No characters could be found that were not also present in females with other patterns of occipital setae, but such characters might of course have been overlooked.

Amongst the males parasitic on *Scopus*, no intermediates between the two types have been found, as is the case in the populations of *Colpocephalum heterosoma* Piaget, 1880 (Clay, 1951 : 1159). Further, as already shown, the presence of two species of *Colpocephalum* on one host is known amongst the Ciconiiformes and the two males on *Scopus* show marked differences in chaetotaxy. This evidence suggests that the two males represent two species. The status of the available females cannot be decided until more material with adequate data has been collected.

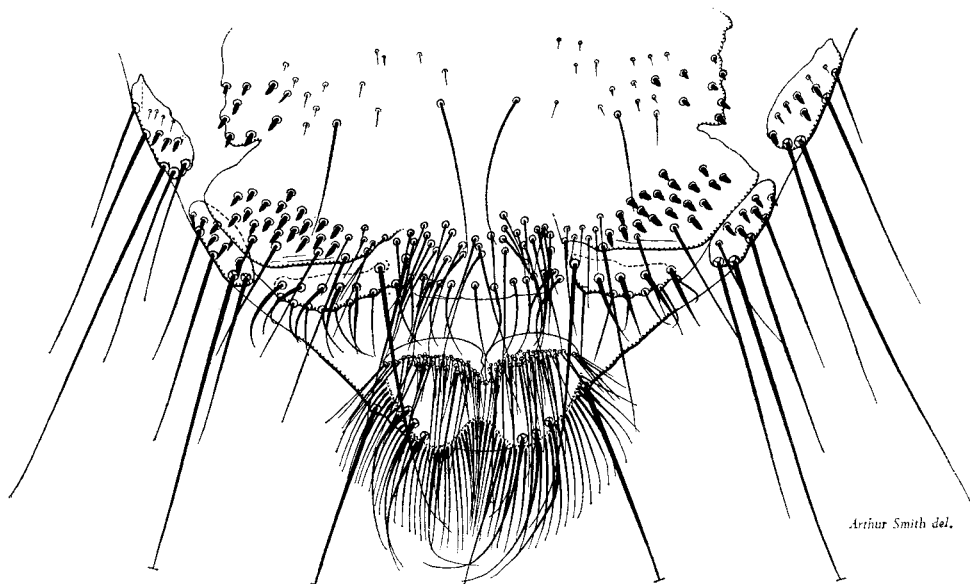


FIG. 4.—*Colpocephalum* from *Scopus umbretta*, terminal segments of female abdomen, ventral.

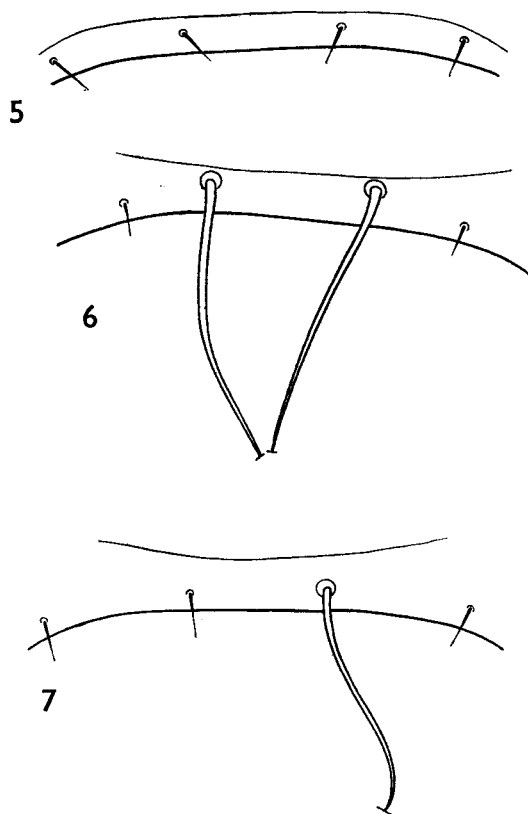
Colpocephalum smithi sp. n.

Type host: *Scopus umbretta* (Gmelin).

This species is most closely related to *Colpocephalum scopinum* Mjöberg, 1910, from which it is distinguished in the male by the chaetotaxy of the abdomen.

Male.—The characters of this species are shown in the excellent figure (fig. 1) drawn by Arthur Smith, after whom the species is named. Hypopharynx well developed. Marginal prothoracic setae (m.p.s.) show considerable variation: only 4 specimens out of the 15 examined show what can be considered as normal chaetotaxy (fig. 1) on both sides, although remainder of specimens usually show it on one side. The following variations have been seen: m.p.s. 1 may be missing, duplicated, or as long as 2; m.p.s. 2 may be missing or short and fine; m.p.s. 3 may be stout and spine-like and (in one specimen) elongated with what appears to be two setae arising from one alveolus; m.p.s. 4 and 7 show no variation in the specimens examined; m.p.s. 5 may be long and stout; m.p.s. 6 may be short and fine; m.p.s. 8 may be similar to 7 on one or both sides; in one specimen there is an extra short seta between 7 and 8 on one side. There is also considerable variation in number of long stout setae on margin of tergites: these numbers rarely symmetrical on the two sides, range on each side as follows: I, 1–5; II, 1–5; III, 2–5; IV, 1–5; V, 0–5; VI, 0–5; VII, 0–5; VIII, 0–5. Only one specimen had I–II and IV with one long seta on one side; the same specimen was also the only one with no long setae on one side of V and VI. At least 5 specimens had no long setae on at least one side of VII and VIII. Genitalia as shown in Plate I, figs. 1–3.

Material examined.—CAMEROONS: Cap Cameroun, 4 ♂ (*J. Mouchet*). BELGIAN CONGO: Ganza, 2 ♂, 7.vi.1949 (*Mission G. F. de Witte*), in Institut des Parcs Nationaux du Congo. NYASALAND: 1 ♂, xii.1879 (*R. Meinertzhagen*), in British Museum (Nat. Hist.). UGANDA: Kampala, 2 ♂, 6.x.1934 (*G. H. E. Hopkins*); Kampala, 3 ♂, 21.viii.1937 (*G. H. E. Hopkins*); Toro, 1 ♂, 29.vii.1941 (*G. H. E. Hopkins*); Toro, 1 ♂, 29.vii.1945 (*G. H. E. Hopkins*); all in B.M. (Nat. Hist.). ADEN: 1 ♂, xii.1948 (*R. Meinertzhagen*), in B.M. (Nat. Hist.). All these specimens are from the type host.



FIGS. 5-7.—*Colpocephalum* from *Scopus umbretta*. Occipital margin of female head, showing setae. Breadth at temples: (5) 0.52 mm.; (6) 0.56 mm.; (7) 0.55 mm.

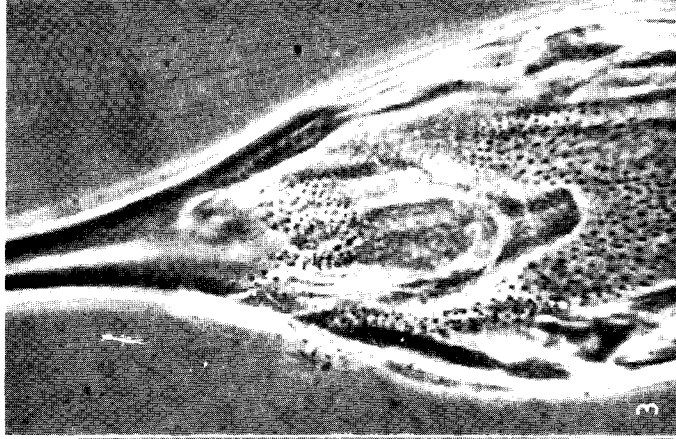
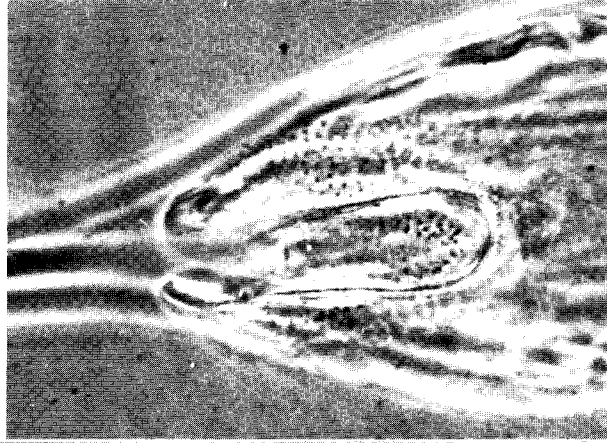
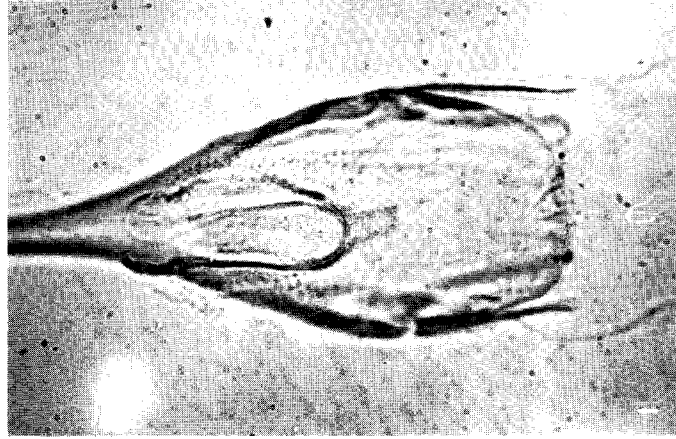
Holotype ♂ in the British Museum (Nat. Hist.), slide No. 684, from *Scopus umbretta* Gmelin, CAMEROONS: Cap Cameroun, (*J. Mouchet*). *Paratypes*; 14 ♂, with the data given above.

This species is named in honour of Mr. Arthur Smith, the entomological artist.

Lectotype of *Colpocephalum scopinum* Mjöberg, 1910, designated by the present writer; male in Naturhistoriska Riksmuseum in Stockholm on slide labelled lectotype from *Scopus umbretta*, Madagascar, 5.ii.1907 (*Kaudern*). *Paratypes*; 1 ♂ (in alcohol), 1 ♀ with host and locality as above. There are also 7 nymphs in alcohol.

REFERENCES

- CLAY, T., 1951, Systematic Notes on the Piaget Collections of Mallophaga. III. *Ann. Mag. nat. Hist.* (12) 4: 1159-1168.
PATTERSON, H. E., 1954, A New Record of the Quill-boring Habit in Mallophaga. *Ent. mon. Mag.* 90: 158.



Colpocephalum smithi sp.n. (phase contrast)

FIG. 1.—Male genitalia, basal part.

FIG. 2.—Male genitalia, sclerite in genital sac, dorsal.

FIG. 3.—Male genitalia, sclerite in genital sac, ventral.