Chapter XVII

Mallophaga

By PER BRINCK

The late Mr. G. A. H. BEDFORD contributed greatly to our knowledge of South African Mallophaga. Most of the data have been given or summarized in A Synoptic Check-List and Host-List of the Ectoparasites on South African Mammalia, Aves, and Reptilia (1932) to which has been added a First Supplement (1936). In his lists BEDFORD included all records of permanent ectoparasites found on South African mammals, birds, and reptiles but he also included records of such parasites of migratory birds. Therefore, the lists appear very full until it is realized that "where the parasite has been collected in this country the locality has been given" (1932, p. 225), i.e. when there is no South African record BEDFORD did not know the species from this country. And there are many species without locality records. So far as I have been able to state BEDFORD enumerated 212 species of South African Mallophaga in his lists. Further 11 species have been added in some subsequent papers (1939 a and b). Finally, various authors have added to the list of South African Mallophaga in revisions or stray notes all of which I have not tried to trace.

There are about 800 species of birds and about 265 species of mammals recorded from Southern Africa. Evidently, we know only small part of their lice. As a fairly large number of the birds on the South African list are migrants from the North, there is no doubt that many of the Mallophaga that are to be found on birds examined in Southern Africa have been described off the same species in other countries. But from the indigenous species of birds there are certainly many species of Mallophaga still to be described. The same applies to the South African mammals among which especially the Hyracoidea have been found to have a most interesting ectoparasitic fauna.

The present expedition made only a small collection of mammals and birds, so there are few samples of Mallophaga in the material. Another collection has been included, however. In the Natural History Museum, Göteborg, there has been for some decades a fairly rich collection of South African bird lice which were brought together by Mr. H. SKOOG in 1912–1913. SKOOG was a skilled bird collector who identified his material very carefully. Also there are very few stragglers and no samples referred to improbable hosts among the material which has been definitely determined.

H. SKOOG's travelling has been dealt with in the first volume of this series (Chapt. I, p. 56). Most of the time was spent in the southern Cape province but he also stayed at Port Alexander in S.W. Angola where he hunted for sea birds. The material from this part of the expedition has also been included below as it originates from birds

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which occur all along the western coast as migrants from the North or inhabit western bird islands.

Miss THERESA CLAY in the British Museum, N.H., agreed to look through the material and make necessary comparisons with specimens from the type hosts in the collection of the museum. I am greatly indebted to Miss CLAY for her invaluable assistance at the identification of the material and for her most important advice for my further work—after she had left the writing of a report on the material to me. She also submitted to me slides of certain species for comparison with the new bird lice. Dr. G. TIMMERMANN has very kindly identified some of the species of Charadriiformes, most of them belonging to genera which he has revised recently.

There is a certain number of species of genera which need revision before it is possible to identify the species with certainty. Further there are single specimens of some species which seem to be new. This material has not been included in the list. The rest, altogether 72 species, is dealt with below.

The collectors have not been given in the list: all samples from 1912–1913 have been brought together by H. SKOOG; those from 1950–1951 by the members of the Swedish S. African Expedition.

Mr. SKOOG's material is in the Naturhistoriska Museet, Göteborg. Duplicate slides of some species have been deposited in the British Museum, N.H., and in the Zoology Institute, Ent. Dept., Lund. The samples from 1950–1951 are in Lund.

There is no adequate comprehensive classification of the Mallophaga. Below the families have been arranged according to HOPKINS & CLAY (1952, p. 12–13) and the genera and species have been listed in an alphabetical arrangement. Further, I have accepted the nomenclature of this very useful publication. The names of the birds are according to PETERS' Check List of the Birds of the World, so far as edited (I–VII, 1931–1951). When different, SKOOG's names have been inserted between brackets as they are found on the labels in the vials and on the bird specimens from which the parasites have been collected (in the Göteborg Museum).

I have not tried to give any summarized data on the geographical distribution of the species. Literature is crowded with records of bird lice occurring on many different host species or even genera but much of this information is due to misidentification of the host or the parasite—or even both of them.

Finally, I have given a host list of the species in the present material.

List of species

AMBLYCERA

Family MENOPONIDAE

Actornitophilus ochraceus (NITZSCH, 1818) sensu TIMMERMANN, 1954

S.W. Angola: Port Alexander, 20.11. 1912. Several examples taken off *Squatarola squatarola* (L.) (*S. helvetica*). — Port Alexander 23.10. 1912. Many specimens collected off *Charadrius venustus rufocinctus* REICHENOW, an Ethiopian wader. —

The type host is *Pluvialis apricaria* (LINNÉ) (an arctic breeder which migrates to winter quarters chiefly in the countries surrounding the Mediterranean Sea).

A. grandiceps (PIAGET, 1880)

Cape Prov.: Dyer I, 15.1. 1913. 8 examples off *Haematopus ostralegus moquini* BONAPARTE (*H. moquini*). The type host *H. ostralegus* is very wide-spread; ssp. *moquini* occurs along the coasts and islands of South Africa from Walfish Bay to Natal.

A. hoplopteri (MJÖBERG, 1910)

S.W. Africa: Kaokoveld, Orupembe (Anabib), about 100 miles W Ohopoho. 9.6. 1951. 1 specimen taken off *Stephanibyx coronatus* (BODDAERT), a wide-spread African wader (from Abyssinia and southwards). Type host is a related species, viz. *Hoplopterus spinosus* (LINNÉ).

A. pustulosus (PIAGET, 1880)

S.W. Angola: Port Alexander, Coroca river. 13.10. 1912. 1 specimen taken off *Philomachus pugnax* (LINNÉ). This is the type host (breeding in Europe and Asia and wintering in Africa south to the Cape province).

A. umbrinus (BURMEISTER, 1838) sensu TIMMERMANN, 1954

S.W. Angola: Port Alexander. Many examples on 2 specimens of *Erolia testacea* (PALLAS) (*Ancylochilus subarquata* GÜLDENST.) (20.10. 1912), the type host, and 10 specimens taken off *Erolia minuta* (LEISLER) (23.10. 1912). Both host species are arctic breeders wintering i.a. in Africa south to the Cape. — Port Alexander. 23.10. 1912. Many examples taken off 6 specimens of *Crocethia alba* (PALLAS) (*Calidris arenaria*). This is an arctic breeder, migrant to S. Africa.

The population from *Crocethia alba* has been described as *A. albus* EMERSON. 1948, and that from *Erolia minuta* as *A. trilobatus* (GIEBEL, 1874), but they are probably not distinguishable from *A. umbrinus* (vide TIMMERMANN, Ann. Mag. Nat. Hist., ser. 12, vol. 7, p. 829, 1954).

A. uniseriatus (PIAGET, 1880)

S.W. Angola: Port Alexander. 23.9. 1912. Many examples off *Recurvirostra avosetta* L., the type host. Although mainly a migrant to Southern Africa, there are populations breeding in this country.

Austromenopon pachypus (PIAGET, 1888)

S.W. Angola: Port Alexander. 2.11. 1912. Several examples off 4 specimens of *Thalasseus sandvicensis* (LATHAM), a European tern wintering i.a. along the coasts of western Africa south to the Cape (*Sterna cantiaca*). — **Cape Prov.:** Dyer I. 10.1. 1913. Many examples off 2 specimens of *Thalasseus b. bergii* (LICHTENSTEIN), occurring along the coasts of southern Africa and Madagascar. — The type host of *A. pachypus* is *Sterna hirundo* L. It is possible that the above specimens may prove to be a subspecies of *pachypus* but this cannot be decided as there is very little material available from the type host.

There are further species of *Austromenopon* collected off *Sterna spp.* in the material but they cannot be identified at present.

Colpocephalum cucullare GIEBEL, 1874

Cape Prov.: Franskraal, 4 miles SE of Gansbaai. 24.5. 1912. Many examples from 2 specimens of *Sagittarius serpentarius* (MILLER), an Ethiopian bird of prey. This is the type host.

C. heterosoma PIAGET, 1880

S.W. Angola: Port Alexander. 24.7. 1912. Many examples from 2 specimens of *Phoenicopterus antiquorum* TEMMINCK (*Ph. rosus* PALL.). This is the type host which breeds in S. Africa.

C. salimalii CLAY, 1951

S.W. Angola: Port Alexander. 24.7. 1912. Many examples taken off 2 specimens of *Phoenicopterus antiquorum* TEMMINCK (*Ph. roseus* PALL.) together with the previous species. *Ph. antiquorum* is the type host.

C. semicinctum RUDOW, 1866

Basutoland: Quthing. 15.3. 1951: many specimens taken off *Corvus* (*Corvultur*) *albicollis* (LATHAM). 17.3. 1951: several specimens collected from *Corvus albus* MÜLLER. — **S.W. Angola:** Port Alexander. 12.7. 1912. Many examples from 2 specimens of *Corvus albus* MÜLLER. This Ethiopian crow is the type host.

C. clayellum n. sp.

(Figs. 1, 2)

Basutoland: Mokhotlong. 10.4. 1951. 6 ♂♂ + 2 ♀♀ off *Geronticus calvus* (BODDAERT), the Bald Ibis, which is restricted to mountain regions in Basutoland and in the southeast of the Union of South Africa. — **Natal:** Pietermaritzburg. Oct. 1945. Short series off *Geronticus calvus* (BODDAERT). Leg. R. F. LAWRENCE. These paratypes are in the Natal Museum and the British Museum, N.H.

Holotype and allotype: ♂ + ♀ from Mokhotlong.

Chaetotaxy and general shape: vide fig. 1.

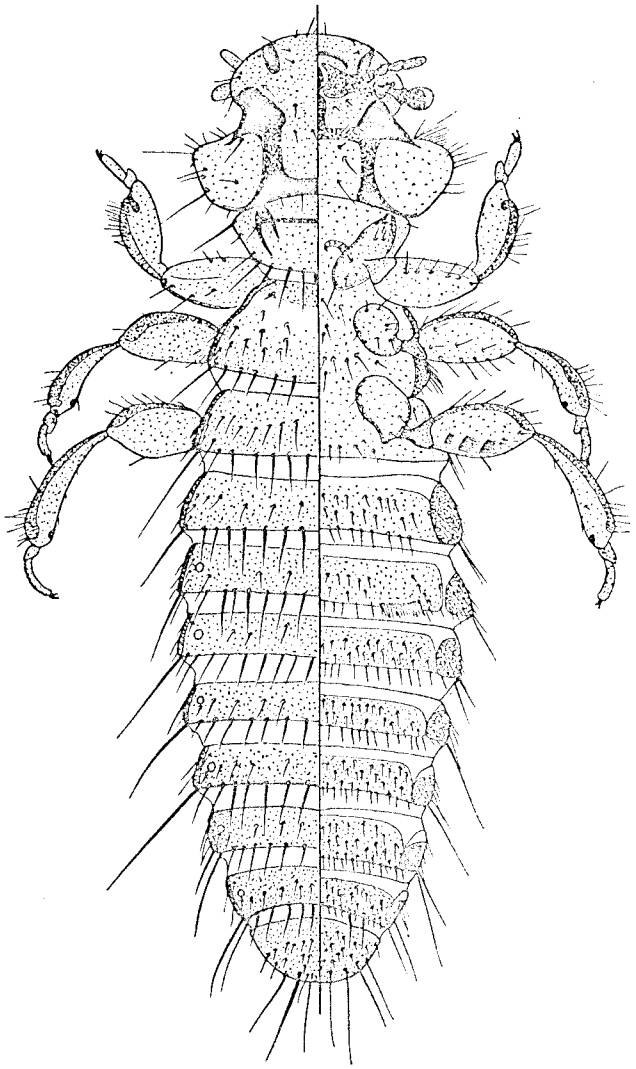

Fig. 1. *Colpocephalum clayellum* n. sp. Male. (Orig.)

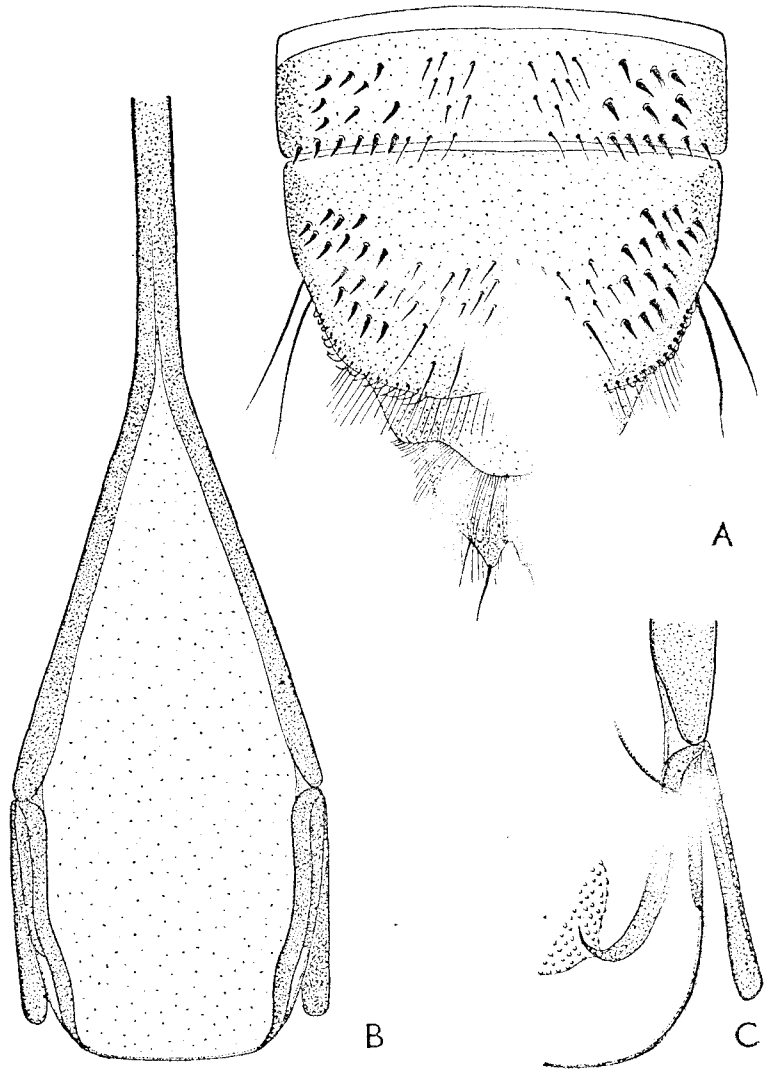

Fig. 2. *Colpocephalum clayellum* n. sp. — A. Apex of female abdomen, ventral view. — B. Sclerotized skeleton of male copulatory organ, dorsal view. — C. Left side of apex of male copulatory organ. Sclerotized bars separated. Ventral view. (Orig.)

Head with the general arrangement of sclerotized bands typical of the genus. The number and arrangement of the larger setae seems to be very constant. Anterior margin hyaline, medially slightly concave. Thorax as shown in fig. 1. The sternal plates are fairly weakly sclerotized and hence there is some variation in the shape of these plates. There is a slight variation in the number of setae along the posterior margin of the thoracal nota: there may be plus or minus one of what is shown in fig. 1. In the female the arrangement of the setae is the same as in the male, but the number is usually slightly larger; in the posterior pronotal row 7–8, posterior mesonotal row 8–9 and posterior metanotal row 10–11. The number of setae in the femoral combs varies a good deal: I (inner row) ♂ 6–8, ♀ 5–7; II (median row) ♂ 9–11, ♀ 8–9; III (outer row) ♂ 7–10, ♀ 7–9. — The abdominal tergal and sternal plates are uniform, somewhat weaker sclerotized towards the middle. The number of setae in the rows along the posterior margin is somewhat variable: there may be plus or minus two each side, compared to fig. 1. In the females the setae are arranged similarly in most segments, although there are usually 2–4 setae more in each row than in the males. The terminal female ventral segments have short thorns (vide fig. 2A). The number of setae in the abdominal bristle-comb varies from 13 to 16 in males as well as females.

The male genitalia are illustrated in fig. 2B–C. The apical part each side consists f three pieces: an external, ventral part supporting the ventral cover of the genital pparatus, a central part attached to the preputial sac, and a dorsal part supporting he dorsal cover of the genital apparatus. — Terminal part of female abdomen: ide fig. 2A.

C. clayella is related to *C. leptopygos* NITZSCH from *Plegadis falcinellus* (L.). Miss CLAY has kindly lent me specimens of *leptopygos* off the typical host for comparison from Ireland and Uganda). The species differs in several respects. The preantennal part of the head is much more protruding than in *clayella*. Prothorax with few stout setae along the posterior margin; female mesonotum with only scattered minute seta in the disc; female metanotum without discal setae which are also lacking in the abdominal terga. In the male the pleuronota and the abdominal terga are provided with rows of very small setae. Abdominal comb with 16–19 setae. The shaft of the male copulatory organ is much broader in *leptopygos*, and in the female the terminal abdominal valves have two strong subterminal setae, not one terminal plus 3 lateral) as in *clayella*.

Measurements: vide table 1.

TABLE 1. Measurements in millimetres of *Colpocephalum clayellum* nov. and *C. leptopygos* NITZSCH

	Colpocephalum clayellum (Basutoland)		*Colpocephalum leptopygos* (Uganda)	
	♂ type	♀ type	♂	♀
Length of head	0.37	0.39	0.37	0.38
Breadth of head	0.49	0.53	0.48	0.44
Breadth of prothorax . . .	0.34	0.38	0.33	0.33
Breadth of mesothorax . . .	0.44	0.53	0.43	0.45
Breadth of metathorax . . .	0.48	0.64	0.47	0.52
Length of male copulatory org.	0.69	—	0.68	—
Appr. greatest breadth of abdomen	0.53	0.70	0.54	0.65
Appr. length of body . . .	1.85	2.3	1.97	2.2

Eidmaniella brevipalpis (PIAGET, 1880)

Cape Prov.: Dyer I. 7.1. 1913. Many examples collected from 2 specimens of *Phalacrocorax carbo lucidus* (LICHTENSTEIN), an Ethiopian race of the holarctic type host, *Ph. carbo carbo* (L.).

E. pellucida (RUDOW, 1869)

Cape Prov.: Franskraal, 4 miles SE of Gansbaai, Hydra Bay. 27.1. 1913. Many examples from 2 specimens of *Phalacrocorax capensis* (SPARRMAN). This is the type host, occurring along the coasts of South Africa north to the Congo and Natal.

E. pustulosa (NITZSCH, 1866)

Cape Prov.: Saldanha Bay, Malagas I. 20.2. 1951. Several specimens from the neck of *Morus capensis* (LICHTENSTEIN), the Cape gannet, breeding on islands off the coast of Southern Africa. Type host is the holarctic *Morus bassanus* (L.).

Kurodaia subpachygaster (PIAGET, 1880)

Cape Prov.: Swartmodder, 50 miles NW Upington. 20.11. 1950. 6 specimens from *Tyto alba affinis* (BLYTH). There are some further specimens from the same host collected by H. O. BACKLUND in the Tanganyika Territory, Rukwa, Tumba, 17.10. 1951. Type host: European *Tyto alba* (SCOPOLI).

Myrsidea hopkinsi BEDFORD, 1939

(Fig. 3B)

Basutoland: Quthing. 15.3. 1951. Several specimens from *Corvus albicollis* LATHAM, the Cape Raven (type host).

M. obovata (PIAGET, 1880)

S.W. Angola: Port Alexander. 12.7. 1912. Several examples from 2 specimens of *Corvus albus* MÜLLER (*C. scapulatus* DAUDIN), a wide-spread Ethiopian species which is the type host.

M. bedfordi nov. (*sjoestedti* BEDFORD 1939 nec KELLOGG 1910)

(Figs. 3C, 4)

S.W. Angola: Port Alexander. 12.7. 1912. Several specimens from *Corvus albus* MÜLLER (*C. scapulatus* DAUDIN), the type host.

It is rather peculiar that the genus *Myrsidea* has radiated into a number of species occurring on the few Ethiopian crows. The species are modified in various ways so that at least one of the sexes (usually the female) is easily recognized. The metanotum may be enlarged (*bedfordi*, *sjoestedti* and *ptilostomi*) and the anterior abdominal tergites may be modified which is especially obvious in *M. sjoestedti* (♀) and *bedfordi* (♀) in which they are reduced into lateral sclerites.

In 1939, BEDFORD when dealing with the Menoponidae identified a species from *Corvus albus* and *C. albicollis* as *Myrsidea sjoestedti*. *M.* (*Colpocephalum*) *sjoestedti* was described by KELLOGG in 1910 (p. 50, pl. 7, fig. 7). KELLOGG's description and figure differ in some respects from BEDFORD's detailed figure, however, so an examination of the typical material was undertaken. The female type (on a slide) and a paratype (in alcohol) of *M. sjoestedti* are kept in the Swedish Riksmuseum, Stockholm, and they were kindly lent me by Professor O. LUNDBLAD. The type was remounted so that it might be properly examined. It was found that *M. sjoestedti*

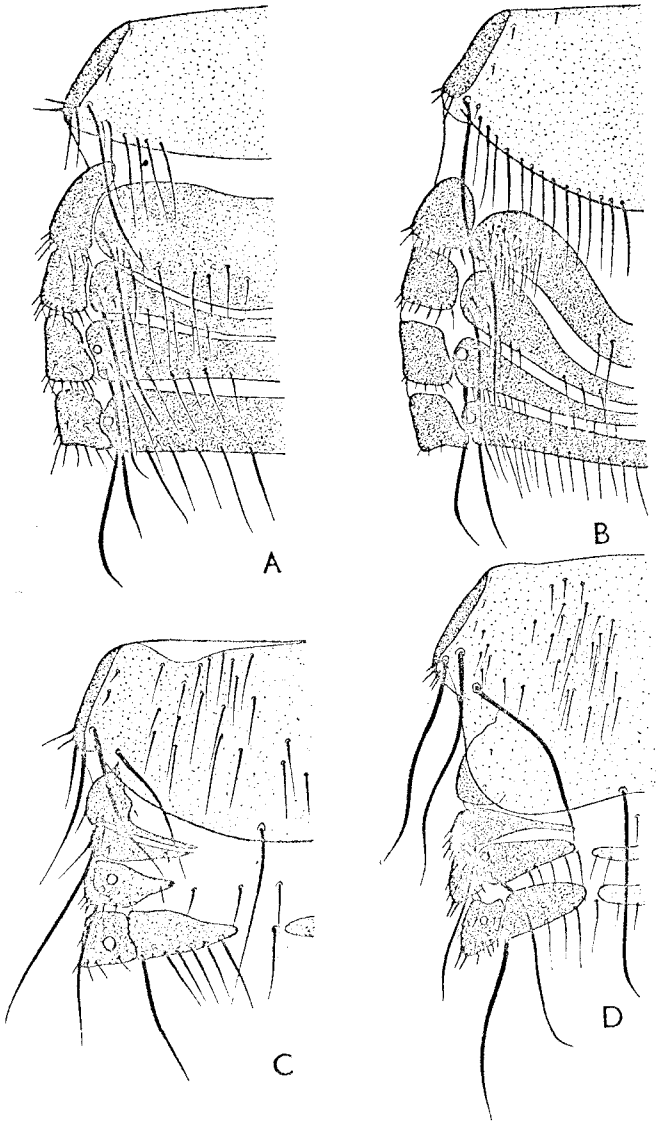

Fig. 3. Left parts of metanotum and the four anterior abdominal terga of females of A. *Myrsidea subanaspila* BEDFORD (S.W. Angola: Port Alexander, off *Corvus albus*). B. *M. hopkinsi* BEDFORD (Basutoland: Quthing, off *Corvus albicollis*). C. *M. bedfordi* n. sp. (S.W. Angola: Port Alexander, off *Corvus albus*), and D. *M. sjoestedti* KELLOG (typus) (Tanganyika: Kilimanjaro, off *Corvus albicollis*). Dorsal view. (Orig.)

BEDFORD is certainly not identical with *sjoestedti* KELLOGG although they are fairly closely related. For *sjoestedti* BEDFORD I propose the name of *bedfordi* nov.

In the present material the species of *Myrsidea* collected from South African crows are mixed up in the various samples. This has made the identification of certain types of males impossible. It is probable that they should be referred to *M. bedfordi*

—*sjoestedti*—*hopkinsi* but also *ptilostomi* might be taken in consideration—as well as possible unknown species— and therefore I have decided not to try to refer these males to certain species. Further collecting may reveal their identity. The females are easily characterized, however.

In fig. 3A–D, I have illustrated the left parts of the dorsum of *M. subanaspila* BEDFORD (A), *hopkinsi* BEDFORD (B), *bedfordi* nov. (C) and *sjoestedti* (KELLOGG) (D). The first mentioned two species have complete anterior abdominal tergites and a more or less well developed row of stout hairs along the posterior margin of the metanotum. *M. bedfordi* and *sjoestedti* have reduced anterior tergites and a strongly reduced row of hairs along the posterior metanotal margin. In *sjoestedti* the metanotum is much more produced hindwards than in *bedfordi* and further the first abdominal tergum is more reduced.

The measurements of *M. bedfordi* are very near those of *M. sjoestedti*, although the breadths of mesothorax and metathorax are distinctly larger, as seen from the following table:

TABLE 2. Measurements in millimetres of *Myrsidea sjoestedti* (KELLOGG) and *M. bedfordi* nov.

	Myrsidea sjoestedti		*Myrsidea bedfordi*	
	Typus (from Tang. Terr.)	Specimen from S.W. Angola	Typus from S.W. Angola	Other specimen from same sample
Length of head	0.49	0.52	0.52	0.54
Breadth of head	0.76	0.78	0.75	0.75
Breadth of prothorax	0.52	0.52	0.49	0.52
Breadth of mesothorax	0.71	0.71	0.62	0.66
Breadth of metathorax	0.90	0.87	0.78	0.80
Appr. greatest breadth of abdomen	0.8	0.78	0.8	0.8
Appr. length of body	2.45	2.6	2.4	2.5

Further details are shown in fig. 4.

M. sjoestedti (KELLOGG, 1910)

(Fig. 3A)

S.W. Angola: Port Alexander. 12.7. 1912. Several specimens taken off *Corvus albus* MÜLLER, the type host.

M. subanaspila BEDFORD, 1939

(Fig. 3D)

S.W. Angola: Port Alexander. 12.7. 1912. Several specimens taken off *Corvus albus* MÜLLER, the type host. — **Basutoland:** Quthing. 17.3. 1951. Several specimens from *Corvus albus* MÜLLER.

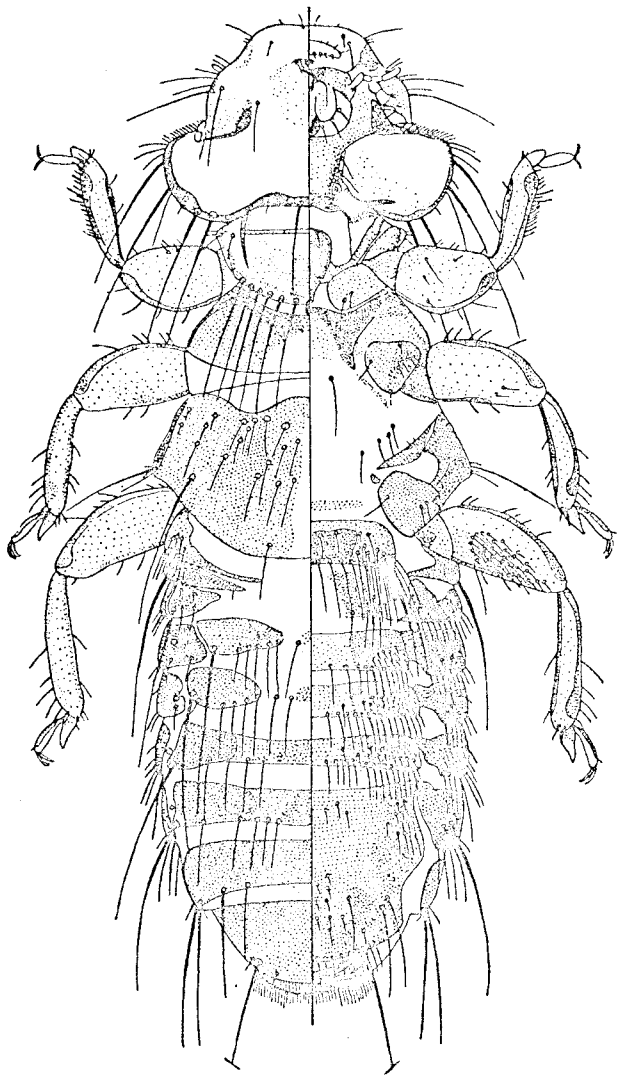

Fig. 4. *Myrsidea bedfordi* nov. ♀ (after Bedford, 1939).

Procellariphaga ?affinis (Piaget, 1890)

Cape Prov.: Cape Infanta. 24.4. 1912. 9 specimens off *Diomedea m. melanophris* Temminck. *P. affinis* has been described from *D. exulans* L. but there are only females available of this species of bird lice. The above specimens are all males so their identity cannot be decided on with certainty.

Pseudomenopon pilosum (Scopoli, 1763)

Cape Prov.: Franskraal, 4 miles SE of Gansbaai. 21.12. 1912. 7 specimens from *Gallinula chloropus brachyptera* (C. L. Brehm), an Ethiopian race of the well known waterhen. Type host is *Fulica atra* (L.).

Psittacomenopon war (Eichler, 1947)

S.W. Africa: Kaokoveld, Sanitatas, 85 miles WSW of Ohopoho. 16.6. 1951. 6 specimens taken off *Agapornis roseicollis* (Vielliot) which is the type host. This is a love-bird distributed from the Orange River northwards to Benguela.

Trinoton femoratum Piaget, 1880

S.W. Angola: Port Alexander. 18.7. 1912. 1 specimen taken off *Phoenicopterus antiquorum* Temminck (*P. roseus* Pall.) which breeds in South Africa. This is the type host.

Family LAEMOBOTHRIIDAE

Laemobothrion tinnunculi (L.)

Basutoland: Mamathes, 5 miles ENE of Teyateyaneng. 29.3. 1951. 6 specimens taken off *Falco tinnunculus rupicolus* Daudin. — Maseru. 27.3. 1951. 1 specimen off the same species. Type host is the European *F. t. tinnunculus* L.

ISCHNOCERA

Family PHILOPTERIDAE

Anaticola phoenicopteri (Coinde, 1859)

S.W. Angola: Port Alexander. 24.7. 1912. Several examples taken off 2 specimens of *Phoenicopterus antiquorum* Temminck (*Ph. roseus*). This is the type host. — Same locality. 10.10. 1912. Several examples from 3 specimens of *Phoeniconaias minor* (Geoffr.), the Lesser Flamingo, which breeds in Southern and Eastern Africa.

Anatoecus pygaspis (Nitzsch, 1866)

S.W. Angola: Port Alexander. 24.7. 1912. Several examples taken off *Phoenicopterus antiquorum* Temminck (*Ph. roseus* Pall.). This is the type host. — Same locality. 10.10. 1912. Many examples collected from 3 specimens of *Phoeniconaias minor* (Geoffr.).

Ardeicola geronticorum n. sp.

(Figs. 5, 6)

Basutoland: Mokhotlong. 10.4. 1951. 1 male (holotype) from *Geronticus calvus* (Boddaert), the Bald Ibis, which is peculiar to Basutoland and mountain regions in the south-east of the Union of South Africa. — **Natal**: Pietermaritzburg. October, 1945. Short series (allotype + paratypes in the Natal Museum, paratypes in the British Museum, N.H.). Leg. R. F. Lawrence.

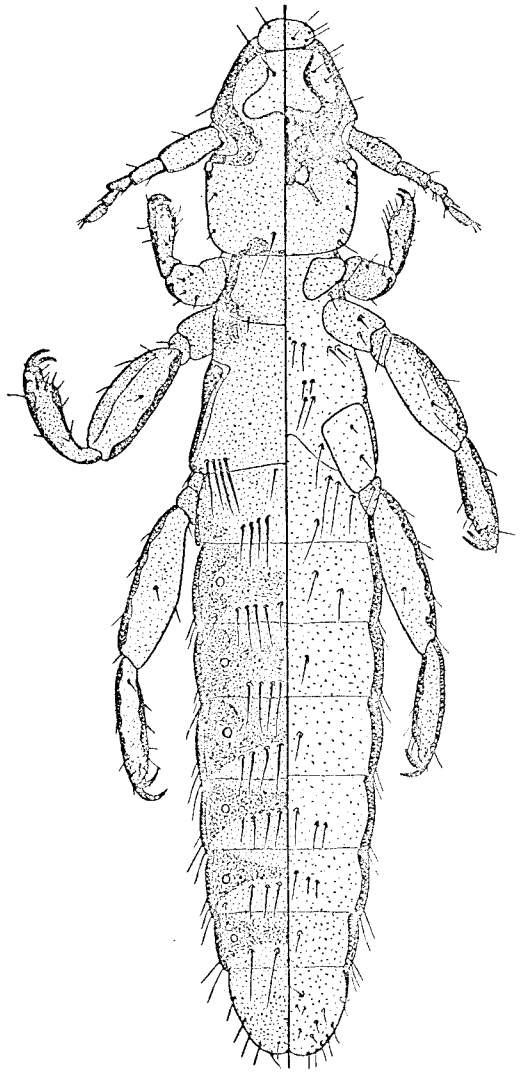

Fig. 5. *Ardeicola geronticorum* n. sp. Male.

In the British Museum, N.H., the species is represented also from *Geronticus eremita* (L.).

In 1912, NEUMANN described a *Lipeurus gracilis* which was later re-named *L. exilis* (1913) because of *L. gracilis* PACKARD, 1870. The host was given as *Comatibis comata*, i.e. *Geronticus eremita* (L.). NEUMANN's description proves that *L. exilis* is not that species of *Ardeicola* which has later been taken off both the species of *Geronticus*, so it is probable that the single female on which his description is based, was a straggler. The true *Ardeicola* from *Geronticus* will be described below as *geronticorum* n. sp., based mainly on material which has very kindly been placed at my disposal by Miss CLAY.

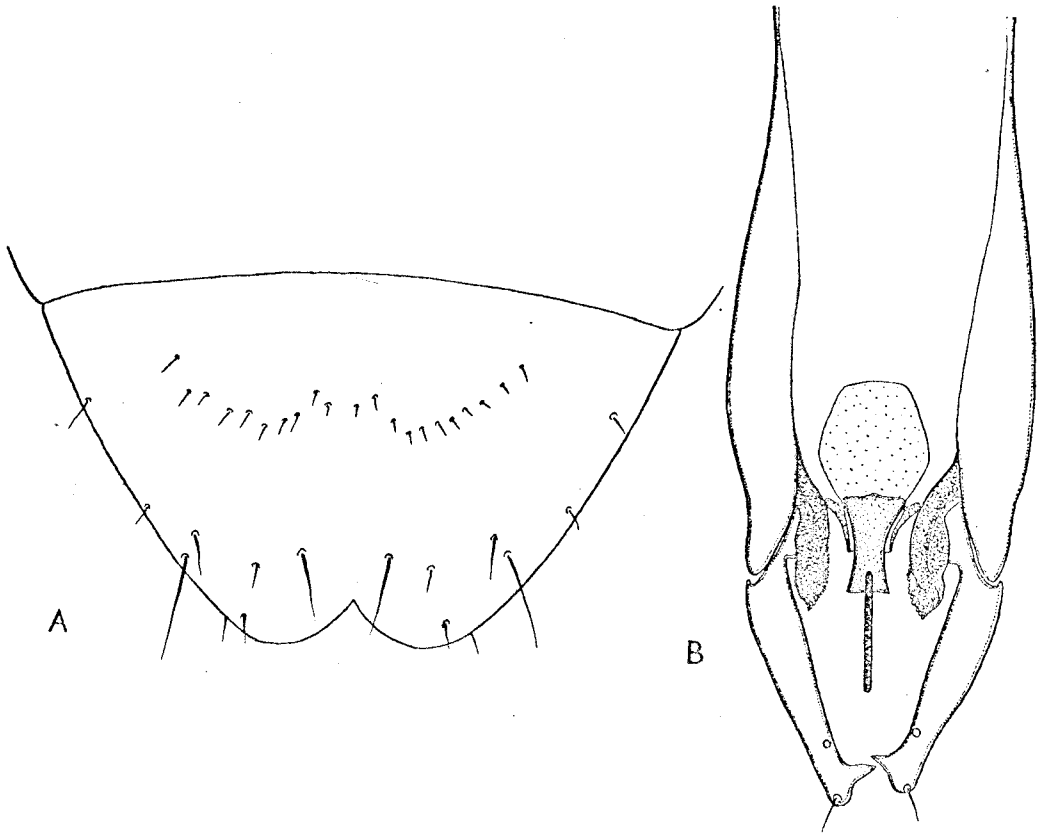

Fig. 6. *Ardeicola geronticorum* n. sp. A. Chaetotaxy of the last segment of the female abdomen. Ventral view. — B. Male genitalia. (Orig.)

Chaetotaxy and general shape: vide fig. 5.
Measurements: vide table 3.

TABLE 3. *Measurements in millimetres of Ardeicola geronticorum n.sp.*

	♂ type from Basutoland	♂ paratype from Natal	♀ paratype from Natal	♀ paratype from Natal
Length of head	0.52	0.53	0.62	0.60
Breadth of head	0.32	0.33	0.39	0.40
Length of prothorax	0.16	0.17	0.18	0.18
Breadth of prothorax	0.28	0.30	0.34	0.33
Length of pterothorax	0.31	0.33	0.36	0.36
Breadth of pterothorax	0.37	0.42	0.55	0.56
Appr. greatest breadth of abdomen	0.39	0.42	0.64	0.58
Appr. length of body	2.25	2.33	3.0	3.0

The head is fairly short with slightly rounded temples. 3rd antennal joint enarged in male, not so in female. Chaetotaxy apparently rather stable. Thoracal terna only slightly sclerotized; sternal plates poorly defined and somewhat variable.

The bristle-cover of the body is fairly sparse and as far as can be seen in the present material very similar in males and females—except for the last abdominal segment cf. fig. 6A). The normal variation of the discal setae of the abdominal segments s also very slight.

Male genitalia: vide fig. 6B.

Austrogoniodes bifasciatus subsp. *demersus* (KÉLER, 1952)

Cape Prov.: Dyer I. 15.5. 1912. Several examples from 2 specimens of the Cape Penguin *Spheniscus demersus* (L.). This is the type host of subsp. *demersus*.

Carduiceps complexivus (KELLOGG & CHAPMAN, 1899)

S.W. Angola: Port Alexander. 23.10. 1912. 5 specimens from *Crocethia alba* (PALLAS) (*Calidris arenaria* L.). This is the type host, an arctic breeder, migrant to South Africa.

C. scalaris (PIAGET, 1880)

S.W. Angola: Port Alexander. Coroca River. 13.10. 1912. 4 examples taken off the type host, *Philomachus pugnax* (L.), breeding in Europe and Asia and wintering in Africa southwards to the Cape Province.

C. zonarius (NITZSCH, 1866)

S.W. Angola: Port Alexander. 23.10. 1912. 5 specimens taken off the type host, *Erolia minuta* (LEISLER) (an arctic breeder, migrant to southern Africa). — Same locality. 20.9. 1912. Several examples from 4 specimens of *Erolia testacea* (PALLAS) [*Ancylochilus subarquatus* (GÜLDENST.)]. — **Cape Prov.:** Dyer I. 22.1. 1913. 1 specimen taken off *Erolia testacea* (PALLAS), an arctic breeder wintering i.a. in Africa south to the Cape.

Docophoroides brevis (DUFOUR, 1835)

South Atlantic Ocean: 34° 17′ S, 5° 45′ E. Many specimens taken off the Wandering Albatross, *Diomedea exulans* L., which is the type host.

D. simplex (WATERSTON, 1914)

S.W. Angola: off Port Alexander. 16.8. 1912. Several specimens taken off *Diomedea chlororhynchos* GMELIN, a bird of the southern oceans. Type host: *D. melanophris* TEMMINCK.

Episbates pederiformis (DUFOUR, 1835)

South Atlantic Ocean: 34° 17′ S, 5° 45′ E. Several specimens from the Wandering Albatross, *Diomedea exulans* L., which is the type host.

Falcolipeurus secretarius (GIEBEL, 1874)

Cape Prov.: Franskraal, 4 miles SE of Gansbaai. 24.5. 1912. Several specimens from the type host, *Sagittarius serpentarius* (MILLER).

Halipeurus pelagicus (DENNY, 1842)

Atlantic Ocean: 16° 40′ S, 21° 10′ W. 5 specimens taken off the Fork-tailed Petrel, *Oceanodroma leucorhoa* (VIEILLOT).

Harrisoniella hopkinsi EICHLER, 1952

S. Atlantic Ocean: 34° 17′ S, 5° 45′ E. Several specimens from the Wandering Albatross, *Diomedea exulans* L., which is the type host.

Lunaceps actophilus (KELLOGG & CHAPMAN, 1899)

S.W. Angola: Port Alexander. 23.10. 1912. Several specimens from the type host, *Crocethia alba* (PALLAS) (*Calidris arenaria*), an arctic breeder, migrant to South Africa.

L. cabanisi TIMMERMANN, 1954

S.W. Angola: Port Alexander. 20.9. 1912. 6 specimens taken off *Erolia testacea* (PALLAS) (*Ancylochilus subarquatus* GÜLDENST.), an arctic breeder wintering i.a. in South Africa.

L. holophaeus (BURMEISTER, 1838)

S.W. Angola: Port Alexander, Coroca River. 13.10. 1912. 2 specimens taken off *Philomachus pugnax* (L.), the type host, a migrant to Southern Africa.

L. incoenis (KELLOGG & CHAPMAN, 1899)

S.W. Angola: Port Alexander. 23.10. 1912. Several specimens taken off *Erolia minuta* (LEISLER).

Naubates sp. nov. R. L. EDWARDS (in press)

Cape Prov.: South Coast, St. Sebastian Bay. 25.4. 1912. Several specimens taken off *Procellaria aequinoctialis* L.

Pectinopygus acutifrons (RUDOW, 1869)

Cape Prov.: Dyer I. 18.1. 1913. 2 specimens (probably stragglers) from the common African cormorant, *Haliëtor africanus* (GMELIN). — South Coast, Hydra Bay. 27.1. 1913. Several examples taken off 2 specimens of the Cape Cormorant, *Phalacrocorax capensis* (SPARRMAN), the type host.

P. afer (KELLOGG, 1910)

Cape Prov.: Dyer I. 18.1. 1913. Several specimens off *Haliëtor africanus* (GMELIN), the type host.

P. bassani (O. FABRICIUS, 1780)

Cape Prov.: Saldanha Bay, Malagas I. 20.2. 1951. Several specimens taken off *Morus capensis* (LICHT.). Type host is the holarctic *M. bassanus* (L.). In 1940, THOMPSON distinguished specimens from *M. capensis* as a race of *P. bassani* differing in measurements. I agree with Miss CLAY that the present material does not seem to endorse such a separation of the populations from these two hosts.

P. gyricornis (DENNY, 1842)

Cape Prov.: Dyer I. 7.1. 1913 and 15.1. 1913. Many examples from 3 specimens of *Phalacrocorax carbo lucidus* (LICHTENSTEIN), an Ethiopian race of the type host, *Ph. c. carbo*. — **S.W. Angola**: Port Alexander. 28.8. 1912. 7 specimens from the same host.

Perineus diomedeae (FABRICIUS, 1775)

Cape Prov.: South Coast, off Cape Infanta. 24.4. 1912. 2 specimens off the type host, *Diomedea melanophris* TEMMINCK. — **S.W. Angola**: off Port Alexander. 24.7. 1912. 9 specimens taken off *Diomedea chlororhynchos* GMELIN, the Yellow-billed Albatross.

Philopterus leptomelas (NITZSCH, 1866)

Basutoland: Quthing. 15.3. 1951. Several specimens taken off *Corvus albicollis* LATHAM, which is the type host.

Quadraceps auratus (HAAN, 1829)

Cape Prov.: Dyer I. 15.1. 1913. 1 specimen off *Haematopus ostralegus moquini* BONAP. Type host is the race of *H. ostralegus* breeding in western Europe.

Q. decipiens (DENNY, 1842)

S.W. Angola: Port Alexander. 23.9. 1912. A few specimens taken off *Recurvirostra avosetta* L., which is the type host.

Q. hospes (NITZSCH, 1866)

S.W. Angola: Port Alexander. 20.11. 1912. 1 specimen collected off the type host, *Squatarola squatarola* (L.) (*S. helvetica*), an arctic breeder which migrates to S. Africa.

Q. kilimandjarensis (KELLOGG, 1910)

Cape Prov.: Franskraal, 4 miles SE of Gansbaai. 23.5. 1912. 6 specimens off the Ethiopian Crown Plover, *Stephanibyx c. coronatus* (BODDAERT). — **S.W. Africa**: Kaokoveld, Orupembe (Anabib), 100 miles W of Ohopoho. 2 specimens off the same host. Type host is a related species, *Hoplopterus armatus* (BURCHELL).

Q. macrocephalus (WATERSTON, 1914)

Cape Prov.: Dyer I. 11 and 29.1. 1913. 10 specimens off the Ethiopian plover *Charadrius p. pecuarius* TEMMINCK, which is the type host. — **S.W. Angola**: Port Alexander. 8.7. 1912. 9 specimens off *Charadrius alexandrinus marginatus* VIEILLOT. Same locality. 3.8. 1912. Several examples from 2 specimens of *Charadrius venustus rufocinctus* REICH.

Q. normifer (GRUBE, 1851)

S.W. Angola: Port Alexander. 23.10. 1912. Several specimens taken off *Stercorarius parasiticus* (L.), a migrant to S. Africa. This is the type host.

Q. recurvirostrae (LINNÉ, 1758)

S.W. Angola: Port Alexander. 23.9. 1912. Several specimens off the type host, *Recurvirostra avosetta* L. Although mainly a migrant to Southern Africa, there are populations breeding in this country.

Q. sellatus (BURMEISTER, 1838)

Cape Prov.: Dyer I. 10.1. 1913. 9 specimens off *Thalasseus b. bergii* (LICHT.) — **S.W. Angola**: Port Alexander. 28–30.10. 1912. 1 specimen off the type host, *Sterna h. hirundo* L., a migrant from the North. — Same locality. 2.11. 1912. Several specimens taken off *Thalasseus s. sandvicensis* (LATHAM), a migrant to Southern Africa.

Q. signatus (PIAGET, 1880)

S.W. Angola: Port Alexander. 23.9. 1912. Several examples taken off 3 specimens of *Recurvirostra avosetta* L. This is the type host.

Saemundssonia africana TIMMERMANN, 1951

Cape Prov.: Franskraal, 4 miles SE of Gansbaai. 23.5. 1912. 2 specimens taken off *Stephanibyx c. coronatus* (BODDAERT). Type host is *Hemiparra crassirostris* (HARTL.), a tropical East-African Plover.

S. cephalus (DENNY, 1842)

S.W. Angola: Port Alexander. 23.10. 1912. Several specimens off *Stercorarius parasiticus* (L.), a migrant to Southern Africa. This is the type host.

S. fallai TIMMERMANN, 1951

S.W. Angola: Port Alexander. 23.10. 1912. Several specimens off *Larus cirrocephalus poiocephalus* SWAINSON. The type host is a widespread gull, *L. novaehollandiae* STEPH., which occurs with a race *hartlaubi* BRUCH in Southern Africa.

S. incisa TIMMERMANN, 1950

Atlantic Ocean: 16°40′ S, 21°10′ W. 2 specimens off *Oceanodroma leucorhoa* (VIEILLOT). This Petrel is the type host.

S. laticaudata (RUDOW, 1869)

S.W. Angola: Port Alexander. 2.11. 1912. 9 specimens taken off the type host *Thalasseus s. sandvicensis* (LATHAM) (*Sterna cantiaca*), a migrant to Southern Africa. — **Cape Prov.:** Dyer I. 10.1. 1913, 1 specimen off *Thalasseus b. bergii* (LICHT.), a tern breeding in S. Africa.

S. melanocephala (BURMEISTER, 1838)

S.W. Angola: Port Alexander. 30.10. 1912. 4 specimens taken off *Sterna balaenarum* (STRICKLAND), a West African tern. Type host is *Sterna albifrons* (PALLAS).

S. naumanni (GIEBEL, 1874)

S.W. Angola: Port Alexander. 20.11. 1920. 9 specimens off the type host, *Squatarola squatarola* (L.) (*S. helvetica*), a migrant to Southern Africa.

S. scolopacisphaeopodis (SCHRANK, 1803)

Cape Prov.: Franskraal, 4 miles SE of Gansbaai. 23.5. 1912. 2 specimens off *Stephanibyx coronatus* (BODDAERT). — **S.W. Angola:** Port Alexander. 23.10. 1912. 2 specimens taken off *Charadrius venustus rufocinctus* REICH. Type host is *Numenius phaeopus* (L.) which winters i.a. in Africa south to the Cape.

S. sternae (LINNÉ, 1758) sensu TIMMERMANN

S.W. Angola: Port Alexander. 30.10. 1912. 1 specimen off the type host, *Sterna h. hirundo* L., a migrant to S. Africa.

S. tringae (FABRICIUS, 1780)

S.W. Angola: Port Alexander. 23.10. 1912. 2 specimens off *Erolia minuta* (LEISLER), a migrant to S. Africa. Type host: *Erolia maritima* (BRÜNNICH).

Trabeculus hexacon (WATERSTON, 1914)

Cape Prov.: South Coast, St. Sebastian Bay. 25.4. 1912. Several specimens taken off *Procellaria aequinoctialis* (L.), which is the type host.

Host List of the Species in the above Material

Family SPHENISCIDAE

Spheniscus demersus (L.)	*Austrogoniodes bifasciatus* subsp. *demersus* (KÉLER, 1952)

Family DIOMEDEIDAE

Diomedea chlororhynchos GMELIN	*Docophoroides simplex* (WATERSON, 1914)
	Perineus diomedeae (FABRICIUS, 1775)
D. exulans L.	*Docophoroides brevis* (DUFOUR, 1835)
	Episbates pederiformis (DUFOUR, 1835)
	Harrisoniella hopkinsi EICHLER, 1952
D. m. melanophris TEMMINCK	*Procellariphaga ?affinis* (PIAGET, 1890)
	Perineus diomedeae (FABRICIUS, 1775)

Family PROCELLARIIDAE

Oceanodroma leucorhoa (VIEILLOT)	*Halipeurus pelagicus* (DENNY, 1842)
	Saemundssonia incisa TIMMERMAN, 1950
Procellaria aequinoctialis L.	*Naubates sp.* nov.
	Trabeculus hexacon (WATERSTON, 1914)

Family SULIDAE

Morus capensis (LICHT.)	*Eidmaniella pustulosa* (NITZSCH, 1866)
	Pectinopygus bassani (O. FABRICIUS, 1780)

Family PHALACROCORACIDAE

Haliëtor africanus (GMELIN)	*Pectinopygus acutifrons* (RUDOW, 1869)
	P. afer (KELLOGG, 1910)
Phalacrocorax capensis (SPARRMAN)	*Eidmaniella pellucida* (RUDOW, 1869)
	Pectinopygus afer (KELLOGG, 1910)
Ph. carbo lucidus (LICHT.)	*Eidmaniella brevipalpis* (PIAGET, 1880)
	Pectinopygus gyricornis (DENNY, 1842)

Family THRESKIORNITHIDAE

Geronticus calvus (BODDAERT)	*Colpocephalum clayellum* n. sp.
	Ardeicola geronticorum n. sp.

Family PHOENICOPTERIDAE

Phoeniconaias minor (GEOFFR.)	*Anaticola phoenicopteri* (COINDE, 1859)
	Anatoecus pygaspis (NITZSCH, 1866)
Phoenicopterus antiquorum TEMMINCK	*Anaticola phoenicopteri* (COINDE, 1859)
	Anatoecus pygaspis (NITZSCH, 1866)
	Colpocephalum heterosoma PIAGET, 1880
	C. salimalii CLAY, 1951
	Trinoton femoratum PIAGET, 1880

Family SAGITTARIIDAE

Sagittarius serpentarius (MILLER)	*Colpocephalum cucullare* GIEBEL, 1874
	Falcolipeurus secretarius (GIEBEL, 1874)

Family FALCONIDAE

Falco tinnunculus rupicolus DAUDIN	*Laemobothrion tinnunculi* (L.)

Family RALLIDAE

Gallinula chloropus brachyptera (C. L. BREHM)	*Pseudomenopon pilosum* (SCOPOLI, 1763)

Family HAEMATOPODIDAE

Haematopus ostralegus moquini BONAPARTE	*Actornithophilus grandiceps* (PIAGET, 1880)
	Quadraceps auratus (HAAN, 1829)

Family CHARADRIIDAE

Charadrius alexandrinus marginatus (VIEILLOT)	*Quadraceps macrocephalus* (WATERSTON, 1914)
Ch. p. pecuarius TEMMINCK	*Quadraceps macrocephalus* (WATERSTON, 1914)
Ch. venustus rufocinctus REICH.	*Actornithophilus ochraceus* (NITZSCH. 1818)
	Quadraceps macrocephalus (WATERSTON, 1914)
	Saemundssonia scolopacisphaeopodis (SCHRANK, 1803)
Squatarola squatarola (L.)	*Actornithophilus ochraceus* (NITZSCH, 1818)
	Quadraceps hospes (NITZSCH, 1866)
	Saemundssonia naumanni (GIEBEL, 1874)
Stephanibyx coronatus (BODDAERT)	*Actornithophilus hoplopteri* (MJÖBERG, 1910)
	Quadraceps kilimandjarensis (KELLOGG, 1910)
	Q. signatus (PIAGET, 1880)
	Saemundssonia scolopacisphaeopodis (SCHRANK, 1803)

Family SCOLOPACIDAE

Crocethia alba (PALLAS)	*Actornithophilus umbrinus* (BURM., 1838)
	Carduiceps complexivus (KELLOGG & CHAPMAN, 1899)
	Lunaceps actophilus (KELLOGG & CHAPMAN, 1899)
Erolia minuta (LEISLER)	*Carduiceps zonarius* (NITZSCH, 1866)
	Lunaceps incoenis (KELLOGG & CHAPMAN, 1899)
	Saemundssonia tringae (FABRICIUS, 1780)
Erolia testacea (PALLAS)	*Actornithophilus umbrinus* (BURM., 1838)
	Carduiceps zonarius (NITZSCH, 1866)
	Lunaceps cabanisi TIMMERMANN, 1954

Philomachus pugnax (L.)	*Actornithophilus pustulosus* (PIAGET, 1880)
	Carduiceps scalaris (PIAGET, 1880)
	Lunaceps holophaeus (BURMEISTER, 1838)

Family RECURVIROSTRIDAE

Recurvirostra avosetta L.	*Actornithophilus uniseriatus* (PIAGET, 1880)
	Quadraceps decipiens (DENNY, 1842)
	Q. recurvirostrae (LINNÉ, 1758)
	Q. signatus (PIAGET, 1880)

Family STERCORARIIDAE

Stercorarius parasiticus (LINNÉ, 1758)	*Quadraceps normifer* (GRUBE, 1851)
	Saemundssonia cephalus (DENNY, 1842)

Family LARIDAE

Larus cirrocephalus poiocephalus SWAINSON	*Saemundssonia fallai* TIMMERMANN, 1951
Sterna balaenarum (STRICKLAND)	*Saemundssonia melanocephala* (BURMEISTER, 1838)
S. h. hirundo LINNÉ	*Quadraceps sellatus* (BURMEISTER, 1838)
	Saemundssonia sternae (LINNÉ, 1758)
Thalasseus b. bergii (LICHT.)	*Austromenopon pachypus* (PIAGET, 1888)
	Quadraceps sellatus (BURMEISTER, 1838)
	Saemundssonia laticaudata (RUDOW, 1869)
Th. s. sandvicensis (LATHAM)	*Austromenopon pachypus* (PIAGET, 1888)
	Quadraceps sellatus (BURMEISTER, 1838)
	Saemundssonia laticaudata (RUDOW, 1869)

Family PSITTACIDAE

Agapornis roseicollis (VIEILLOT)	*Psittacomenopon war* (EICHLER, 1947)

Family TYTONIDAE

Tyto alba affinis (BLYTH)	*Kurodaia subpachygaster* (PIAGET, 1880)

Family CORVIDAE

Corvus (Corvultur) albicollis LATHAM	*Colpocephalum semicinctum* RUDOW, 1866
	Myrsidea hopkinsi BEDFORD, 1939
	Philopterus leptomelas (NITZSCH, 1886)
C. albus MÜLLER	*Colpocephalum semicinctum* RUDOW, 1866
	Myrsidea obovata (PIAGET, 1880)
	M. bedfordi n. sp.
	M. sjoestedti (KELLOGG, 1910)
	M. subanaspila BEDFORD, 1939.

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