ECTOPARASITES FROM CAPTIVE BIRDS.

II. 1937–1938.

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ECTOPARASITES have again been collected from various birds dying in captivity. The same procedure has been adopted as in 1936–37 (Clay and Rothschild, Nov. Zool., XL, p. 61, 1938). The Mallophaga ¹ have again been identified by Miss Theresa Clay and the Acarina by Mrs. A. M. Hughes. As in the previous list the initials following each record, whether positive or negative, indicate the collector who examined the bird in question, and the figures in brackets after the name of the host refer to the number of specimens received.

GENERAL REMARKS.

A total of 129 birds was examined, pertaining to 85 species and 27 different families. Of this number 98 were confined in captivity with various species of birds, but despite the opportunity thus afforded only one doubtful case of “straggling” is recorded. The Crested Cariama (Cariama cristata) is probably not the natural host of Goniocotes sp. and it may have acquired the infection from some game bird with which it came into contact before arrival in this country (see p. 312). Owing to the absence of negative data from the London Zoo, and because from the hosts in question no mites were collected, it is more convenient to consider these birds separately. Twenty-four species (26 specimens), of which 11 were confined separately, yielded 30 species of Mallophaga. These included two double and one treble infection. No very outstandingly heavy infestations were noticed.

A total of 62 species of birds (104 specimens) were examined from aviaries other than the London Zoo. Of these 23 species (28 specimens) were found to be infected with ectoparasites. Twenty-two species (25 specimens) harboured Mallophaga and 5 species Acarina. The former included 28 species and the latter 7. Four double infections and 2 treble infections of Mallophaga and 2 double infections of Acarina were recorded, while 2 birds harboured both lice and mites. It seems probable that a number of infections of mites were overlooked on account of the rather poor state of preservation of some of the hosts.

The Buzzards again showed very heavy individual infections, but the most striking example of great numbers of parasites was seen on the Stanley Crane. Only the wings of this bird were examined, but these were crawling with thousands

¹ Before attempting to describe any of these species a revision of several genera is necessary, and for this purpose further material is required.
of specimens of *Eusthiora iterus* gruis. Among them was a single specimen of *Heliconius sp.?* It was regrettable that the distribution of these parasites on the rest of the body could not be determined.

A rather disappointing number of eggs of the Mallophaga were collected, but those available for study tend to confirm the suggestion that, apart from their morphological characters, the manner of attachment, position, and distribution will prove of value for purposes of classification.

In our previous list the Cardinals had been shown as the most highly parasitized group of birds, 7 out of 8 species being infected. Only 4 of these birds were examined during 1937–38, of which 3 were parasitized. The Puffins were again negative for Mallophaga, but two infections occurred among the Waxbills which had previously been invariably negative.

Only 18 species (18 specimens) of these birds were confined separately or with related species only. Of these *Oxyphagas lophotes* had been bred in captivity and obviously acquired its parasite from the parent. Among the remaining birds no case of straggling of Mallophaga is recorded. The evidence so far obtained from the study of captive birds suggests that "straggling" in Nature must be a very rare occurrence.

**LIST OF PARASITES.**

I. **SIPHONAPTERA** (Fleas).

Parasite.  
Host.  
No records.

II. **MALLOPHAGA** (Biting Lice).

**Menoponidae.**

* Trinoton querquelulalae (Linn.) 1758  
  *Philaecanasa* canagica (Sewast.) 1862.

Menopon gallinace (Linn.) 1758  
  *Gallus lafayeti* Lesson 1831.

Menopon tumidum Piaget 1885  
  *Sarkidiornis melanota* (Pennant) 1769.

Menopon ridibundum Denny 1842  
  *Larva r. ridibundus* (Linn.) 1758.

Menopon sp.?  
  *Bubo bubo* (Linn.) 1758.

Menopon sp.?  
  *Turtur chloropus* (Wagler) 1827.

Amyrisidae sp.?  
  *Pavo muticus* Linn. 1766.

Myrsidea sp.?  
  *Passerina lecthaneri* (Lafr.) 1840.

Menacanthus sp.?  
  *Estrilda melodia* (Vieillot) 1817.

Menacanthus sp.?  
  *Estrilda subflava* (Vieillot) 1819.

Menacanthus sp.?  
  *Temenesusa papulosa* (Gmel.) 1789.

Menacanthus sp.?  
  *Stephanura parasitosa* (Linn.) 1758.

Kurodaia alternata (Osborn) 1902  
  *Catharsis aura falklandica* (Sharpe) 1873.

Eidmaaniella brevipalpe (Piaget) 1880  
  *Phalaconus a. aristotelis* (Linn.) 1761.

Colpocephalum kellogii Osborn 1902  
  *Catharsis aura falklandica* (Sharpe) 1873.

Colpocephalum sp.?  
  *Cercinele g. gallicus* (Gmel.) 1788.

Colpocephalum sp.?  
  *Hubastor t. indica* (Booarlet) 1783.

Colpocephalum sp.?  
  *Hubastor t. leucocaphalus* (Linn.) 1766.

* The species indicated by a star (?) show slight variation which may ultimately prove to be subspecific.
Falcolepus marginalis (Osborn) 1902
Cathartes aura falklandica (Sharpe) 1873.

Struthiopseus rhoea Harrison 1916 . Rhea americana albecens Lynch 1878.

III. ACARINA (Mites).

Laeinidae.
Hypoaspis ferruginea Mégnin 1876 . Pluvius a. aegyptius (Linn.) 1758.

Liponyssidae.
Liponyssus sygvarum Canestrina and
Fanzago 1877 . Bubo lacteus (Temminck) 1824.
Liponyssus sp. 1 . Richmondia cardinals (Linn.) 1758.

Tyrolyphidae.
Tyrolyphus farinae Koch 1841 . Melopistes undulatus (Shaw) 1905.

Glycophagidae.
Glycophagus domesticus Degeer 1778 . Pluvius a. aegyptius (Linn.) 1758.

Falcularidae.
Protodictus lunula Robin and Mégnin
1877 . Melopistes undulatus (Shaw) 1905.

Prociophysyllidae.
Joubertia microphysylla Robin and Mégnin
1877 . Fringilla c. coelebs Linn. 1758.

LIST OF HOSTS.

Rheidae.
Rhea americana albecens Lynch 1878, South American Rhea (1). London Zoo, August 1938. Obtained from South America. Confined in a paddock with various species of birds. Heavy infection of Struthiopseus rhoea. (Z.)

Phalacrocoracidae.
Phalacrocorax a. aristoletii (Linn.) 1761, Shag (2). Dudley Zoo, 3.8.38 and 5.8.38. One caught in Great Britain (Birmingham). Confined with other Shag purchased in Holland. High infection of Eidsmaela brevipalpe. (R. L.)

Ardeidae.
Ardea cinerea Linn. 1758, Common Heron (2). Dudley Zoo, 5.11.37 and 21.9.38. Locality of capture unknown. Confined with Gulls and Pelicans. Wings only examined. No ectoparasites. (M. R.)

Egretta alba (Linn.) 1758, Great White Egret (1). Lilford Aviaries, 13.5.38. Probably obtained from Central Asia. Not confined with other birds during several years at Lilford. No ectoparasites. (E. M.)

Egretta garzetta (Linn.) 1766, Little Egret (1). Dudley Zoo, 30.12.37. Locality of capture unknown. Confined with various other birds. No ectoparasites. (E. M.)

Phoenicopteridae.
Phoenicopterus roseus Temminck 1820, Flamingo (1). London Zoo, December 1938. Obtained from Egypt. Confined with other Flamingoes and Ducks. Light infection of Anatola subasignataum. (Z.)

Anatidae.
Bucephala islandica (Gmel.) 1759, Barrow's Golden-eye (1). London Zoo, December 1938. Obtained from Iceland. Confined with other Ducks and Waders. Light infection of Anatocala sp. 1. (Z.)


Sarkidornis mlanota (Pennant) 1769, India Comb Duck (1). Lilford Aviaries, 24.1.38. Obtained from India. Confined with Great White Egrets. A fairly heavy generalized infection of Menopon tatum. No eggs noted. (E. M.)

Nyroca nyroca (Golenstadt) 1769, Ferruginous Duck (1). London Zoo, December 1938. Obtained from India. Confined with other Ducks. Medium heavy infection of Anatocala sp. 1. (Z.)


Aix sponsa (Linn.) 1758, Carolina Duck (1). Dudley Zoo, 26.1.38. Locality of capture unknown. Confined with various species of Duck. No ectoparasites. (E. M.)


Cerophas c. hollandi (Latham) 1801, Cape Barren Goose (1). Dudley Zoo, 19.2.38. Locality of capture unknown. Confined with various species of birds. Light general infection of Anatocala sp. 1. No eggs noted. (E. M.)

Neochen jubata (Spix) 1825, Urocycoo Goose (1). Lilford Aviaries, 4.3.38. Locality of capture unknown. Four years in captivity without contact with other birds. No ectoparasites. (E. M.)

Phalacrocorax canagicus (Sewark) 1802, Emperor Goose (1). London Zoo, August 1938. Obtained from Siberia. Confined with various species of birds. Very light infection of Trston quenuelliae. (Linn.) 1758. (Z.)

Cathartidae.
Cathartes aura falklandica (Sharpe) 1873, Falkland Turkey Buzzard (1). London Zoo, February 1938. Obtained from Falkland Islands. Confined with same species only. A light infection of Falcolepus marginalis and Colpocephalum kelloggi, and a heavy infection of Kurodaia alternata. (Z.)
Accipitridae.

Buteo buteo (Linn.) 1758, Common Buzzard (2). Dudley Zoo, December 1938. Obtained from South Africa. Confined separately. Heavy infection of *Colopocephalum* sp. (Z.)

Haliaeetus leucocephalus (Linn.) 1766, Bald Eagle (1). London Zoo, December 1938. Obtained from U.S.A. Confined separately. Heavy infection of *Colopocephalum* sp. (Z.)

Falco columbarius aequatorius Turnstatt 1771, Merlin (1). London Zoo, December 1938. Obtained from Europe. Confined separately. Heavy infection of *Degoreilla* sp. (Z.)

Falconidae.

Cracidae.

Mitru mitru (Linn.) 1766, Razor-billed Curassow (1). Dudley Zoo, 21.10.37. Locality of capture unknown. Wings only examined. Confined with various species of birds. No ectoparasites. (M.R.)

Phasianidae.

Diardius diardi (Bonaparte) 1856, Siamese Crested Fireback (2). London Zoo, December 1937 and July 1938. Obtained from Siam. Confined with other Firebacks. Both heavily infected with *Goniocotes* sp. (Z.)

Lophura rufa (Raffles) 1822, Vieillot’s Fireback (1). London Zoo, December 1938. Obtained from Siam. Confined separately. Light infection of *Goniocotes* sp. (Z.)

Lophophorus impeyanus (Latham) 1790, Impeyan Pheasant (1). London Zoo, December 1938. Obtained from the Himalayas. Confined separately. Heavy infection of *Goniodes eurygaster*, a medium heavy infection of *Goniocotes haplopus* and a light infection of *Lagopeus heterotypus*. (Z.)

Pavo muticus Linn. 1758, Peafowl (1). London Zoo, January 1938. Obtained from India. Confined separately. Light infection of *Gonioides parvus*. (Z.)

Pavo muticus Linn. 1758, Burmese Peafowl (2). London Zoo, January and February 1938. Obtained from Burma. Confined separately. Both heavily infected with *Amphisbaena* sp. (Z.)

Gallus gallus (Gmel.) 1788, Short-toed Eagle (1). London Zoo, February 1938. Obtained from South Africa. Confined separately. Heavy infection of *Colopocephalum* sp. (Z.)

Gruidae.

Arthrophorus paradisaea (Licht.) 1793, Stanley Crane (1). Dudley Zoo, December 1937. No data. Wings only examined. Very heavy infection of *Esthipoecus griseus* and one specimen of *Helmisoma* sp. No eggs found. (M.R.)

Balaeniceps p. pavonia (Linn.) 1758, Crowned Crane (1). London Zoo, December 1938. Obtained from West Africa. Confined with other Cranes. Light infection of *Helmisoma* sp. (Z.)

Rallidae.


Cariamidae.

Cariama cristata (Linn.) 1766, Crested Cariama (1). London Zoo, December 1938. Obtained from South America. Confined separately. Medium heavy infection with *Goniocotes* sp. This species is most probably a struggler, but at present nothing definite is known concerning the Ichneumon Mallocopha of the Cariamidae. (Z.)

Otidae.


Glaroididae.

Pluvialis a. alceutus (Linn.) 1758, Egyptian Plover (3). Foxwarren Park, 8.12.37 and 4.5.38, and London Zoo, August 1938. Captured in Egypt and the Gold Coast. Confined with various species of birds. The first specimen with a heavy infection of *Degoreilla* sp. n. and *Degoreilla* sp. and the second with only slight infections of *Degoreilla* sp. n., *Glycyphugus domesticus* and *Hypaspis felina*. The eggs of *Degoreilla* were found principally on the breast feathers. Several eggs on one feather, confined to the posterior half, and fixed near the central shaft parallel to the barbules. The specimen from the Zoo with a medium heavy infection of *Degoreilla* sp. n. (Z., E. M. and M. R.)

Scolopacidae.

Numenius a. arquata (Linn.) 1758, Common Curlew (1). Lilford Aviaries, 2.3.38. Captured in Lincolnshire, England. Confined with various species of
birds in large enclosure. A fairly heavy infection particularly on the wings of Deguereilla numenii and Cummingiella testudinaris. No eggs noted. (E. M.)


Laridae.


Columbidae.


Tympanistria tympanistria (Temm. and Knip) 1808-11. Tambourine Dove (1). Lillford Aviaries, 26.11.37. Obtained from Africa. Confined separately for a month, and for a time previously with other doves. A light infection of Coloceras sp.? No eggs noted. (E. M.)


Oxyphaps lophotes (Temminck) 1822. Australian Crested Dove (1). Lillford Aviaries, 3.6.38. Bred in captivity. Not confined with other species of birds. A heavy infection with Conoicotes sp.? Principally confined to the breast feathers. No eggs noted. (M. R.)

Turdus chlorospilos (Wagler) 1827. Emerald-spotted Dove (1). Lillford Aviaries, 6.9.38. Locality of capture unknown. Confined with six other species of doves. A general light infection with three species of Mallophaga, Coloceras sp.? Columbicolix sp.? and Menopon sp.? Of the other latter only immature specimens were found. No eggs noted. (E. M.)

Psittacidae.

Melopsittacus undulatus (Shaw) 1805. Budgerigar (12). Dudley Zoo, 1937-1938. Green, Yellow and Blue varieties. Probably all bred in this country. With one exception all confined with various birds. One specimen with light infection of Typhlopilus farinae and Protolichenis luna. (E. M., R. L. and M. R.)


Amazona aestiva (Linn.) 1758, Blue-fronted Parrot (1). Dudley Zoo, 12.11.37. Locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M.)


Amazona aestiva (Linn.) 1758, Blue-fronted Parrot (1). Dudley Zoo, 12.11.37. Locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M.)

Bucerotidae.


Lophoceros flavirostris luzonensis (Lichtenstein) 1842. Yellow-billed Hornbill (1). Dudley Zoo, 8.7.37. Locality of capture unknown. Confined separately. No ectoparasites. (E. M.)

Strigidae.

Bubo bubo (Linn.) 1758. Great Eagle Owl (1). Dudley Zoo, 24.10.37. Locality of capture unknown. Confined separately. Wings only examined. One specimen of Menopon sp.? (E. M.)

Bubo lacteus (Temminck) 1824. Milly Eagle Owl (1). Dudley Zoo, 24.10.37. Locality of capture unknown. Confined separately. Wings only examined. Heavy infection of Eupetes sylvarum. (E. M.)


Turdidae.


Kittacincla malabarica india (Baker) 1924. Indian Shama (1). Foxwarren Park, 6.6.38. Obtained from India. Confined with various species of birds. No ectoparasites. (M. R.)

Timelidae.

Lioreutix lutza (Scopoli) 1769. Pekin Robin (3). Dudley Zoo, 27.9.37 and 6.12.37. Locality of capture unknown. The first pair confined with various birds, the third alone. No ectoparasites. (E. M. and M. R.)


Ploceidae.


Munia striata (Linn.) 1766, Japanese Munia (1). Dudley Zoo, 27.4.38. Bird in captivity. Confined with various species of birds. No ectoparasites. (E. M.)


Amadina pascata (Gmel.) 1789, Cut-throat Finch (4). Dudley Zoo, 13.2.38, 12.3.38 and 22.6.38. Exact locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M.)


Estrelda astrild sanctaeelenae Shelley 1903, St. Helena Waxbill (3). Dudley Zoo, 18.10.37 and 6.11.37. Locality of capture unknown. Confined with various species of birds. No ectoparasites. (M. R.)

Estrelda subflava (Vieillot) 1819, Zebra Waxbill (1). Dudley Zoo, 4.12.37. Locality of capture unknown. Confined with various species of birds. A light general infection with Menacanthus sp. No eggs noted. (E. M.)

Estrelda melipoda (Vieillot) 1817, Orange-cheeked Waxbill (3). Dudley Zoo, 20.10.37, 6.11.37 and 3.12.37. Obtained from West Africa. Confined with various species of birds. Two birds with a light general infection of Menacanthus sp.? No eggs noted. (E. M.)


Sturnus paradisi (Linn.) 1758, Paradise Wydah (3). Dudley Zoo, 4.12.37. Exact locality of capture unknown. Confined with various species of birds. Very light infection of Menacanthus sp.? No eggs noted. (E. M.)

Sturnidae.

Temenuchus pagodorum (Gmel.) 1789, Pagoda Starling (2). Dudley Zoo, 3.12.37 and 13.2.38. Exact locality of capture unknown. Confined with same species only. One of the birds with heavy general infection of Menacanthus sp. Eggs laid at the base of the breast feathers, several eggs on each feather. (E. M. and M. R.)


ACKNOWLEDGMENTS.

We would again like to express our gratitude to all those who have so kindly co-operated with us in preparing this list, in particular to Mrs. A. M. Hughes for identifying the mites, and Mr. J. D. MacDonald for correcting the host names.

Our special thanks are due also to the Earl of Dudley, Mr. Alfred Ezra, Lord Lilford, Mr. R. W. Partridge, and the Zoological Society of London for permission to examine the birds dying in their aviaries; to Dr. H. Honigman, Mr. A. F. Moody and Mr. A. P. Shearing for the immense trouble they have taken in dispatching the material and supplying data, and to Miss Elizabeth Meyerhof, Miss R. Italiener and the staff of the prospectorum of the Zoological Society of London for examining birds in the authors' absence.