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## 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.*, XLI, p. 61, 1938). The Mallophaga<sup>1</sup> 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

<sup>1</sup> 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 *Esthiopterum gruis*. Among them was a single specimen of *Heleonomus* 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 specimens being infected. Only 4 of these birds were examined during 1937-38, of which 3 were parasitized. The Psittacidae 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 *Oxyphaps lophotes* had been bred in captivity and obviously acquired its parasite from the parents. 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.

* <i>Trinoton querquedulae</i> <sup>1</sup> (Linn.) 1758	<i>Philacte canagica</i> (Sewast.) 1802.
<i>Menopon gallinae</i> (Linn.) 1758	<i>Gallus lafayetii</i> Lesson 1831.
<i>Menopon tumidum</i> Piaget 1885	<i>Sarkidiornis melanota</i> (Pennant) 1769.
<i>Menopon ridibundum</i> Denny 1842	<i>Larus r. ridibundus</i> (Linn.) 1758.
<i>Menopon</i> sp. ?	<i>Bubo bubo</i> (Linn.) 1758.
<i>Menopon</i> sp. ?	<i>Turtur chalcospilos</i> (Wagler) <sup>1</sup> 1827.
<i>Amyrsidea</i> sp. ?	<i>Pavo muticus</i> Linn. 1766.
<i>Myrsidea</i> sp. ?	<i>Passerina leclancheri</i> (Lafr.) 1840.
<i>Menacanthus</i> sp. ?	<i>Estrilda melpoda</i> (Vieillot) 1817.
<i>Menacanthus</i> sp. ?	<i>Estrilda subflava</i> (Vieillot) 1819.
<i>Menacanthus</i> sp. ?	<i>Temenuchus pagodorum</i> (Gmel.) 1789.
<i>Menacanthus</i> sp. ?	<i>Steganura paradisea</i> (Linn.) 1758.
<i>Kurodaia alternatus</i> (Osborn) 1902	<i>Cathartes aura falklandica</i> (Sharpe) 1873.
<i>Eidmaniella brevialpe</i> (Piaget) 1880.	<i>Phalacrocorax a. aristotelis</i> (Linn.) 1761.
<i>Colpocephalum kelloggi</i> Osborn 1902	<i>Cathartes aura falklandica</i> (Sharpe) 1873.
<i>Colpocephalum</i> sp. ?	<i>Circuætus g. gallicus</i> (Gmel.) 1788.
<i>Colpocephalum</i> sp. ?	<i>Haliastur i. indus</i> (Boddaert) 1783.
<i>Colpocephalum</i> sp. ?	<i>Haliaëtus l. leucocephalus</i> (Linn.) 1766.

<sup>1</sup> The species indicated by a star (\*) show slight variation which may ultimately prove to be subspecific.

<i>Heleonomus</i> sp. ?	<i>Anthropoides paradisea</i> (Licht.) 1793.
<i>Heleonomus</i> sp. ?	<i>Balearica p. pavonia</i> (Linn.) 1758.

## Ricinidae.

<i>Ricinus fringillae</i> Degeer 1778	<i>Fringilla c. coelebs</i> Linn. 1758.
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## Philopteridae.

<i>Goniodes pavnis</i> (Linn.) 1758	<i>Pavo cristatus</i> Linn. 1758.
<i>Goniodes parviceps</i> Piaget 1880	<i>Pavo muticus</i> Linn. 1766.
<i>Goniodes eurygaster</i> Piaget 1885	<i>Lophophorus impejanus</i> (Latham) 1790.
<i>Coloceras</i> sp. ?	<i>Tympanistria tympanistria</i> (Tem. and Knip) 1808.
<i>Coloceras</i> sp. ?	<i>Turtur chalcospilos</i> (Wagler) 1827.
<i>Goniocotes haplogonus</i> Nitzsch 1866	<i>Lophophorus impejanus</i> (Latham) 1790.
<i>Goniocotes</i> sp. ?	<i>Diardigallus diardi</i> (Bonaparte) 1856.
<i>Goniocotes</i> sp. ?	<i>Lophura rufa</i> (Raffles) 1822.
<i>Goniocotes</i> sp. ?	<i>Oxyphaps lophotes</i> (Temminck) 1822.
<i>Goniocotes</i> sp. ?	<i>Cariama cristata</i> (Linn.) 1766.
<i>Lagopoecus heterotypus</i> (Mégnin) 1880	<i>Lophophorus impejanus</i> (Latham) 1790.
<i>Otilipeurus turmalis</i> (Denny) 1842	<i>Otis t. tarda</i> Linn. 1758.
* <i>Degeeriella fusca</i> (Denny) 1842	<i>Buteo buteo</i> (Linn.) 1758.
<i>Degeeriella numenii</i> (Denny) 1842	<i>Numenius a. arquata</i> (Linn.) 1758.
<i>Degeeriella punctata</i> (Burmeister) 1838	<i>Larus r. ridibundus</i> (Linn.) 1758.
<i>Degeeriella</i> sp. ?	<i>Falco columbarius aesalon</i> Turnstall 1771.
<i>Degeeriella</i> sp. ?	<i>Butastur teesa</i> (Franklin) 1831.
<i>Degeeriella</i> n. sp.	} <i>Pluvianus a. aegyptius</i> (Linn.) 1758.
<i>Degeeriella</i> sp. ?	
<i>Bruëlia</i> sp. ?	<i>Junco h. hyemalis</i> (Linn.) 1758.
<i>Bruëlia</i> sp. ?	<i>Paroaria cristata</i> (Boddaert) 1783.
<i>Rallicola lugens</i> (Giebel) 1874	<i>Porphyrio poliocephalus</i> (Latham) 1790.
<i>Crasspedorrhynchus platystomus</i> (Burmeister) 1838	<i>Buteo buteo</i> (Linn.) 1758.
<i>Crasspedorrhynchus</i> sp. n.	<i>Uroaëtus audax</i> (Latham) 1807.
<i>Crammingsiella testudinarius</i> (Denny) 1842	<i>Numenius a. arquata</i> (Linn.) 1758.
<i>Saemundssonina</i> sp. ?	<i>Larus r. ridibundus</i> (Linn.) 1758.
<i>Eustrigiphilus ceblebrachys</i> (Denny) 1842	<i>Nyctea nyctea</i> (Linn.) 1758.
<i>Anatoecus</i> sp. ?	<i>Bucephala islandica</i> (Gmel.) 1789.
<i>Anatoecus</i> sp. ?	<i>Nyroca nyroca</i> (Guldenstadt) 1769.
<i>Anatoecus</i> sp. ?	<i>Cereopsis n. hollandiae</i> Latham 1801.
<i>Anatoecus</i> sp. ?	<i>Branta b. bernicla</i> (Linn.) 1758.
* <i>Esthiopterum gruis</i> (Linn.) 1758	<i>Anthropoides paradisea</i> (Licht.) 1793.
<i>Anaticola subsignatum</i> (Giebel) 1866	<i>Phoenicopterus antiquorum</i> Temminck 1820.
<i>Columbicola</i> sp. ?	<i>Turtur chalcospilos</i> (Wagler) 1827.

- Falcolipeurus marginalis* (Osborn) 1902 . . . *Cathartes aura falklandica* (Sharpe) 1873.  
*Struthiolipeurus rheae* Harrison 1916 . . . *Rhea americana albescens* Lynch 1878.

## III. ACARINA (Mites).

**Laelapidae.**

- Hypoaspis ferulis* Mégnin 1876 . . . *Pluvianus a. egyptius* (Linn.) 1758.

**Liponyssidae.**

- Liponyssus sylvorum* Canestrina and Fanzago 1877 . . . *Bubo lacteus* (Temminck) 1824.  
*Liponyssus* sp. ? . . . *Richmondia cardinalis* (Linn.) 1758

**Tyroglyphidae.**

- Tyroglyphus farinae* Koch 1841 . . . *Melopsittacus undulatus* (Shaw) 1905.

**Glycyphagidae.**

- Glycyphagus domesticus* Degeer 1778 . . . *Pluvianus a. egyptius* (Linn.) 1758.

**Falculigeridae.**

- Protolichus lunula* Robin and Mégnin 1877 . . . *Melopsittacus undulatus* (Shaw) 1905.

**Proctophyllodidae.**

- Joubertia microphylla* Robin and Mégnin 1877 . . . *Fringilla c. coelebs* Linn. 1758.

## LIST OF HOSTS.

**Rheidae.**

*RHEA AMERICANA ALBESCENS* Lynch 1878, South American Rhea (1). London Zoo,<sup>1</sup> August 1938. Obtained from South America. Confined in a paddock with various species of birds. Heavy infection of *Struthiolipeurus rheae*. (Z.)<sup>2</sup>

**Phalacrocoracidae.**

*PHALACROCORAX A. ARISTOTELIS* (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 *Eidmaniella brevipalpe*. (R. I.)

**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.)

<sup>1</sup> "London Zoo" refers to the Zoological Society of London, Regent's Park.

<sup>2</sup> M. R. = Miriam Rothschild, E. M. = Elizabeth Meyerhof, R. I. = Ruth Italiener, Z. = Staff of the Prosectorium, The Zoological Society of London, Regent's Park.

*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 ANTIQUORUM* Temminck 1820, Flamingo (1). London Zoo, December 1938. Obtained from Egypt. Confined with other Flamingoes and Ducks. Light infection of *Anaticola subsignatum*. (Z.)

**Anatidae.**

*BUCEPHALA ISLANDICA* (Gmel.) 1789, Barrow's Golden-eye (1). London Zoo, December 1938. Obtained from Iceland. Confined with other Ducks and Waders. Light infection of *Anatoecus* sp. ? (Z.)

*TADORNA TADORNA* (Linn.) 1758, Common Sheldrake (2). Dudley Zoo, 13.10.37 and 26.11.37. Locality of capture unknown. Confined with various birds. No ectoparasites. (M. R.)

*MARECA PENELOPE* (Linn.) 1758, Wigeon (1 chick). Dudley Zoo, 3.7.38. Bred in captivity. Confined with various birds. No ectoparasites. (M. R.)

*SARKIDIORNIS MELANOTA* (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 tumidum*. No eggs noted. (E. M.)

*NYROCA NYROCA* (Guldenstadt) 1769, Ferruginous Duck (1). London Zoo, December 1938. Obtained from India. Confined with other Ducks. Medium heavy infection of *Anatoecus* sp. ? (Z.)

*METOPTIANA PEPOSACA* (Vieillot) 1818, Rosy-billed Pochard ♂ (1). Dudley Zoo, 26.1.38. Locality of capture unknown. Confined with various species of Duck. No ectoparasites. (E. M.)

*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.)

*BRANTA B. BERNICLA* (Linn.) 1758, Brent Goose (1). Lilford Aviaries, 30.1.38. Captured in Lincolnshire, England. Confined separately. Three specimens of *Anatoecus* sp. ? No eggs noted. (E. M.)

*CEREOPSIS N. HOLLANDIAE* 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 *Anatoecus* sp. ? No eggs noted. (E. M.)

*NEOCHEN JUBATA* (Spix) 1825, Oronoco Goose ♂ (1). Lilford Aviaries, 4.3.38. Locality of capture unknown. Four years in captivity without contact with other birds. No ectoparasites. (E. M.)

*PHILACTE CANAGICA* (Sewast.) 1802, Emperor Goose (1). London Zoo, August 1938. Obtained from Siberia. Confined with various species of birds. Very light infection of *\*Trinoton querquedulae* (Linn.) 1758. (Z.)

**Cathartidae.**

*CATHARTES AURA FALKLANDICA* (Sharpe) 1873, Falkland Turkey Buzzard (1). London Zoo, February 1938. Obtained from Falkland Isles. Confined with same species only. A light infection of *Falcolipeurus marginalis* and *Colpocephalum kelloggi*, and a heavy infection of *Kurodia alternatus*. (Z.)

**Accipitridae.**

*BUTEO BUTEO* (Linn.) 1758, Common Buzzard (2). Dudley Zoo, 12.10.37 and 9.2.38. Locality for the first bird unknown, the second bird captured at Oxford, England. Confined with Vultures, Eagles and Storks. Both heavily infected with \**Degeeriella fusca*. Eggs confined to the surface of the basal half of lower wing coverts. The second bird with two specimens of *Crasspedorrhynchus platystomus* on the head. (M. R. and E. M.)

*CIRCAETUS G. GALLICUS* (Gmel.) 1788, Short-toed Eagle (1). London Zoo, February 1938. Obtained from South Africa. Confined separately. Heavy infection of *Colpocephalum* sp. ? (Z.)

*HALLASTUR I. INDUS* (Boddaert) 1783, Brahminy Kite (1). London Zoo, December 1938. Obtained from India. Confined separately. Heavy infection of *Colpocephalum* sp. ? (Z.)

*HALIAETUS L. LEUCOCEPHALUS* (Linn.) 1766, Bald Eagle (1). London Zoo, December 1938. Obtained from U.S.A. Confined separately. Heavy infection of *Colpocephalum* sp. ? (Z.)

*UROAETUS AUDAX* (Latham) 1801, Wedge-tailed Eagle (1). London Zoo, August 1937. Obtained from Australia. Confined with other Eagles. Heavy infection of *Crasspedorrhynchus* sp. n. (Z.)

**Falconidae.**

*FALCO COLUMBARIUS AESALON* Turnstall 1771, Merlin (1). London Zoo, December 1938. Obtained from Europe. Confined separately. Heavy infection of *Degeeriella* sp. ? (Z.)

**Cracidae.**

*MITU MITU* (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.**

*DIARDIGALLUS 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 IMPEJANUS* (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 haplogonus* and a light infection of *Lagopoeus heterotypus*. (Z.)

*PAVO CRISTATUS* Linn. 1758, Peafowl (1). London Zoo, January 1938. Obtained from India. Confined separately. Light infection of *Goniodes pavonis*. (Z.)

*PAVO MUTICUS* Linn. 1758, Burmese Peafowl (2). London Zoo, January and February 1938. Obtained from Burma. Confined separately. Both heavily infected with *Amyrsidea* sp. ? (Z.)

*GALLUS LAFAYETII* LESSON 1831, Ceylon Jungle Fowl (1). London Zoo, December 1938. Obtained from Ceylon. Confined with other Jungle Fowls. Medium heavy infection of *Menopon gallinae*. (Z.)

*ACRYLLIUM VULTURINUM* (Hardwicke) 1834, Vulturine Guinea Fowl (1). Lilford Aviaries, 9.3.38. Captured in Somaliland. Six years in captivity in a large-sized aviary with two other species of Guineafowl. No ectoparasites. (M. R.)

**Gruidae.**

*ANTHROPOIDES PARADISEA* (Licht.) 1793, Stanley Crane (1). Dudley Zoo, December 1937. No data. Wings only examined. Very heavy infection of \**Esthiopterum gruis* and one specimen of *Heleonomus* sp. ? No eggs found. (M. R.)

*BALEARICA P. PAVONIA* (Linn.) 1758, Crowned Crane (1). London Zoo, December 1938. Obtained from West Africa. Confined with other Cranes. Light infection of *Heleonomus* sp. (Z.)

**Rallidae.**

*AMAURORNIS PHOENICURUS* (Pennant) 1769, White-breasted Water-Hen (1). Lilford Aviaries, 13.12.37. Imported from India. Confined in a large aviary with various birds for four years. No ectoparasites. (E. M.)

*PORPHYRIO P. POLIOCEPHALUS* (Latham) 1801, Grey-headed Gallinule (1). London Zoo, December 1938. Obtained from India. Confined with various species of birds. Heavy infection of *Rallicola lugens*. (Z.)

**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 straggler, but at present nothing definite is known concerning the Ischnoceran Mallophaga of the Cariamidae. (Z.)

**Otidae.**

*OTIS T. TARDA* Linn. 1758, Great Bustard (1). London Zoo, January 1938. Obtained from Hungary. No data. Medium heavy infection of *Otilipeurus turmalis*. (Z.)

**Glareolidae.**

*PLUVIANUS A. AEGYPTIUS* (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 *Degeeriella* sp. n. and *Degeeriella* sp. and the second with only slight infections of *Degeeriella* sp. n., *Glycyphagus domesticus* and *Hypoaspis fenilis*. The eggs of *Degeeriella* 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 *Degeeriella* sp. n. (Z., E. M. and M. R.)

**Scolopaciidae.**

*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 *Degeeriella numenii* and *Cummingsiella testudinarius*. No eggs noted. (E. M.)

*CALIDRIS C. CANUTUS* (Linn.) 1758, Knot (1). Lilford Aviaries, 1938. Captured in Lincolnshire, England. Kept in an aviary with various other waders for about three years. No ectoparasites. (E. M.)

#### Laridae.

*LARUS R. RIDIBUNDUS* (Linn.) 1758, Black-headed Gull (1). Ashton Wold, 5.9.38. Captured in Warwickshire, England. Confined alone. General but light infection with *Menopon ridibundum*, *Degeeriella punctata* and *Saemundssonii* sp. ? No eggs noted. (M. R.)

*LARUS A. ARGENTATUS* Pontopp 1763, Herring Gull (1). Dudley Zoo, 21.9.38. Reared in captivity. Confined with Herons and Pelicans. Wings only examined. No ectoparasites. (M. R.)

#### Columbidae.

*GEOPELIA CUNEATA* (Latham) 1801, Diamond Ground Dove (2). Dudley Zoo, 25.11.37. Captured in Australia. Confined with various species of birds. No ectoparasites. (E. M.)

*TYMPANISTRIA TYMPANISTRIA* (Temm. and Knip) 1808-11, Tambourine Dove (1). Lilford 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.)

*ZENAIDA A. AVIATICA* (Linn.) 1758, White-winged Dove (1). Lilford Aviaries, 18.2.38. Bred in captivity. Confined with various species of doves. No ectoparasites. (E. M.)

*OXYPHAPS LOPHOTES* (Temminck) 1822, Australian Crested Dove (1). Lilford Aviaries, 3.6.38. Bred in captivity. Not confined with other species of birds. A heavy infection with *Gonicocotes* sp. ? principally confined to the breast feathers. No eggs noted. (M. R.)

*TURTUR CHALCOSPILOS* (Wagler) 1827, Emerald-spotted Dove (1). Lilford 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. ?, *Columbicola* sp. ? and *Menopon* sp. ? Of the two 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 *Tyroglyphus farinae* and *Prototichus tumula*. (E. M., R. I. and M. R.)

*AGAPORNIS FISHERI* (Reichenow) 1887, Fisher's Lovebird (1). Dudley Zoo, 4.12.37. Obtained from Africa. Confined with various birds. No ectoparasites. (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.)

*AGAPORNIS PULLARIA* (Linn.) 1758, Red-headed Lovebird (1). Dudley Zoo, 16.4.38. Locality of capture unknown. Confined with same species only. No ectoparasites. (E. M.)

*KAKATOE ROSEICAPILLA* (Vieillot) 1817, Roseate Cockatoo (1). Dudley Zoo, 25.10.37. Locality of capture unknown. Confined separately. No ectoparasites. (E. M.)

*ARA MARACANA* (Vieillot) 1816, Illiger's Macaw (1). Lilford Aviaries, 27.1.38. Locality of capture unknown. Confined in a large aviary with other species of parrots. No ectoparasites. (E. M.)

#### Bucerotidae.

*TROPICRANUS ALBOCRISTATUS* (Cassin) 1848, White-crested Hornbill (1). Dudley Zoo, 23.1.38. Locality of capture unknown. Confined with *Lophoceros semifasciatus*. No ectoparasites. (E. M.)

*LOPHOCEROS FLAVIROSTRIS LEUCOMELAS* (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, Milky Eagle Owl (1). Dudley Zoo, 24.10.37. Locality of capture unknown. Confined separately. Wings only examined. Heavy infection of *Liponyssus sylvanum*. (E. M.)

*NYCTEA NYCTEA* (Linn.) 1758, Snowy Owl (1). London Zoo, January 1938. Obtained from Greenland. Confined separately. Medium heavy infection of *Eustrigiphilus ceblebrachys*. (Z.)

#### Turdidae.

*COSSYHA NIVEICAPILLA* (Lafres) 1838, Snow-headed Robin-chat (1). Dudley Zoo, 22.11.37. Obtained from Africa. Confined separately. No ectoparasites. (E. M.)

*SIALIA MEXICANA* Swanson 1832, Mexican Blue-bird (1). Foxwarren Park, 20.3.38. From "Pacific States." Confined separately. No ectoparasites. (E. M.)

*KITTACINGLA MALABARICA INDICA* (Baker) 1924, Indian Shama (1). Foxwarren Park, 6.6.38. Obtained from India. Confined with various species of birds. No ectoparasites. (M. R.)

#### Timelidae.

*LIOTHRUX LUTEA* (Scopoli) 1786, 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.)

*LIOPTILA CAPISTRATA* (Vigors) 1831, Blue-headed Sibia (1). Foxwarren Park, 8.12.37. Bred in captivity. Confined with various species of birds. No ectoparasites. (M. R.)

*GARRULAX ALBOGULARIS* (Gould) 1835, White-throated Jay-thrush (1). Dudley Zoo, 12.7.38. Locality of capture unknown. Confined with *Garrulax leucolophus*. No ectoparasites. (M. R.)

#### Ploceidae.

*EUPLECTES FRANCISCANA* (Isert) 1789, Orange Bishop (3). Dudley Zoo, 18.10.37 and 21.2.38. Locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M. and M. R.)

*ENODICE MALABARICA* (Linn.) 1758, Indian Silver-bill (1). Dudley Zoo, 27.9.37. Exact locality of capture unknown. Confined separately. No ectoparasites. (M. R.)

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

*ORYZIVORA ORYZIVORA* (Linn.) 1758, Java Sparrow (7). Dudley Zoo, 1937-1938. Locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M. and M. R.)

*AMADINA FASCIATA* (Gmel.) 1789, Cut-throat Finch (4). Dudley Zoo, 13.2.38, 12.3.38 and 23.6.38. Exact locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M.)

*TAENIOPYGIA CASTANOTIS* (Gould) 1837, Zebra Finch (1). Dudley Zoo, 25.10.37. Exact locality of capture unknown. Confined separately. No ectoparasites. (M. R.)

*ESTRILDA ASTRILD SANCTAEHELENAE* 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.)

*ESTRILDA 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.? (M. R.)

*ESTRILDA MELPODA* (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.)

*URAEINTHUS BENGALUS* (Linn.) 1766, Red-cheeked Cordon Bleu (3). Dudley Zoo, 25.11.37 and 23.6.38. Locality of capture unknown. Confined with various species of birds. No ectoparasites. (E. M. and M. R.)

*STEGANURA PARADISEA* (Linn.) 1758, Paradise Wydah (2). 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.)

*STURNUS VULGARIS* (Linn.) 1758, Common Starling (1). Dudley Zoo, 23.6.38. Obtained in England. Confined with various species of birds. No ectoparasites. (M. R.)

#### Fringillidae.

*PASSERINA LECLANCHERI* (Lafres) 1840, Rainbow Bunting (1). Dudley Zoo, 5.6.38. Locality of capture unknown. Confined separately. Light infection of *Myrsidea* sp.? No eggs noted. (E. M.)

*JUNCO H. HYEMALIS* (Linn.) 1758, Slate-coloured Junco (1). London Zoo, March 1938. Obtained from Newfoundland. Confined with various species of birds. A light infection of *Bruëlia* sp. (Z.)

*FRINGILLA C. COLEBS* (Linn.) 1758, Chaffinch (3). Dudley Zoo, 8.3.38. Captured near Dudley, England. Confined with various species of birds. One specimen with light infection of *Ricinus fringillae*, and *Joubertia microphylla* on the primaries. The eggs of *Ricinus fringillae* were laid 1-3 at the base of the breast feathers. (M. R.)

*RICHMONDENA CARDINALIS* (Linn.) 1758, Virginian Cardinal (2). Dudley Zoo, 13.10.37 and 2.12.37. Exact locality of capture unknown. One specimen confined with various species of birds, the other alone. The first with a light infection of *Liponyssus* sp.? (M. R. and E. M.)

*PAROARIA CRISTATA* (Boddaert) 1783, Red-crested Cardinal (1). Dudley Zoo, 25.11.37. Exact locality of capture unknown. Confined with various species of birds. A very light infection of *Bruëlia* sp.? No eggs noted. (M. R.)

*PAROARIA DOMINICANA* (Linn.) 1758, Dominican Cardinal (1). Dudley Zoo, 24.10.37. Exact locality of capture unknown. Confined separately. No ectoparasites. (M. R.)

#### Trochilidae.

*THALURANIA FURCATOIDES* (Gould) 1849, Amazonian Wood-nymph (1). Foxwarren Park, 5.8.38. Exact locality of capture unknown. Confined separately. No ectoparasites. (M. R.)

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