

6. Some Microfilariae found in the Blood of Birds dying in the Zoological Gardens, 1920-1921. By RITA MARKBREITER, B.Sc., Research Assistant in the Helminthological Department of the London School of Tropical Medicine*.

(Text-figures 1-6.)

[Received November 6, 1922 : Read February 6, 1923.]

From October 1920 till June 1921 the blood of 183 birds which died in the Zoological Gardens of London was examined and 22 were found to contain Microfilariae, roughly 12 per cent. Of these 22 birds, one, a King Bird of Paradise (*Cicinnurus regius*), contained two species of Microfilaria, and these two species each occurred once again separately in other King Birds of Paradise, so that in all 23 Microfilariae of 21 different species were found.

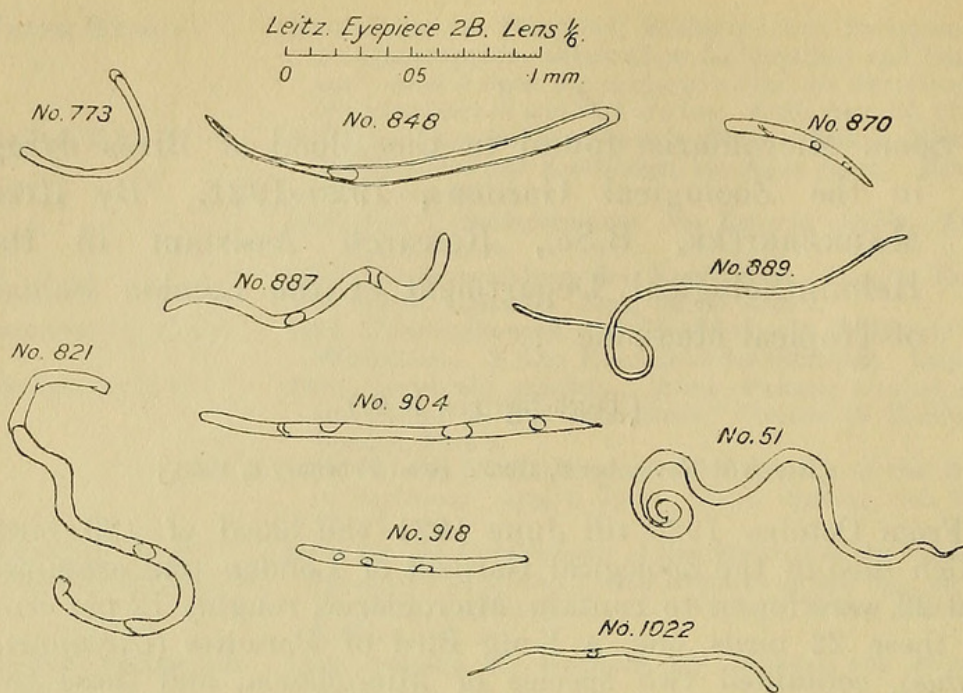
The birds were of 21 species belonging to 15 different families, and came from the following parts of the world:—Mexico, Brazil, S. and N. America, various parts of India, Chili, Java, Madagascar, New Guinea, Malacca, and S. and W. Africa, which shows how wide the distribution of these parasites is. It is not possible to name the embryo parasites unless the adults have been simultaneously found; in these cases they were only found three times, namely:—(1) In the Mexican Hangnest (*Cassidix melanicterus*), the adult being unidentified; (2) in the Occipital Blue-Pie (*Urocissa occipitalis*); and (3) in the Wandering Tree-Pie (*Dendrocitta vagabunda*): in both (2) and (3) the adult was a Diplotriæna, and it is interesting to note that the corresponding Microfilariae are of the same type though they differ in size.

As in the Microfilariae of man, the avian Microfilariae fall into two distinct types, sheathed and unsheathed, and in both groups many different forms are found, long and short, thick and thin, coiled and straight. Three of the Microfilariae listed were also found by Plimmer, namely, the short form, occurring in *Cicinnurus regius*, and those in *Urocissa occipitalis* and *Cittocinclla macrura*; the others are reported for the first time. In the detailed lists which are appended the adjectives short, medium length, long and thin, medium thickness, and thick are represented by the following measurements:—Short = 0-100 μ ; thin = under 3 μ ; medium length = 100-200 μ ; medium thickness = 3-4 μ ; long = over 200 μ ; thick = over 4 μ .

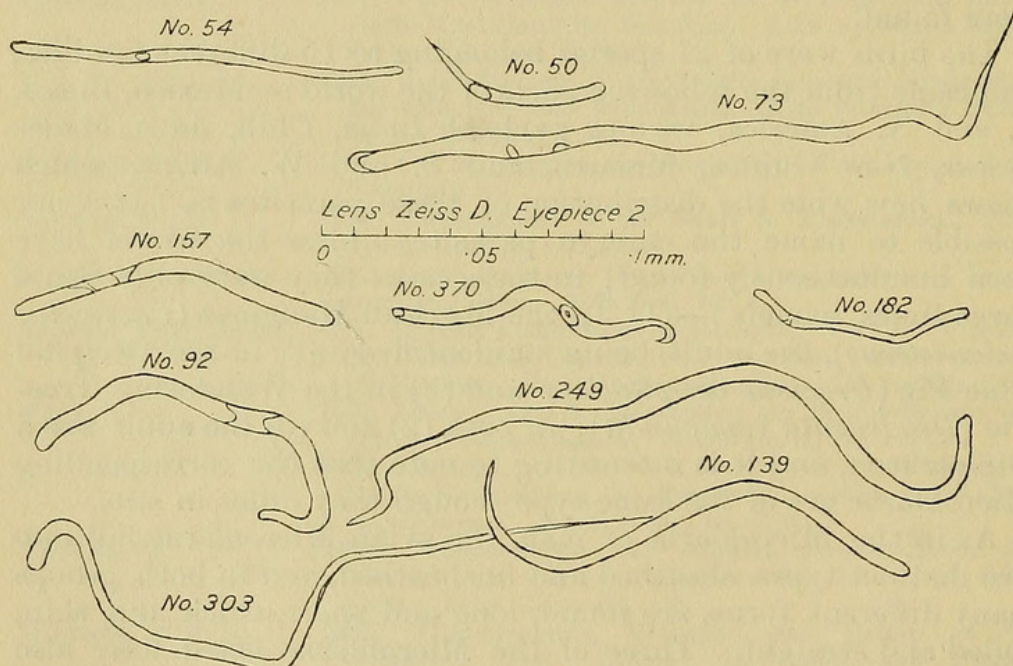
Reference.—Plimmer, "On the Blood Parasites found in Animals in the Zoological Gardens," Proc. Zool. Soc., 1912.

* Communicated by Prof. R. T. LEIPER, M.D., D.Sc., F.Z.S.

Text-figure 1.



Text-figure 2.



Outlines of *Microfilaria* to show comparative sizes and forms. Camera lucida used. Leitz microscope: eyepiece 2B; lens $\frac{1}{6}$ for drawings 773 (1920) to 1022 (1920) and 50 (1921) to 73 (1921).

Zeiss microscope: eyepiece 2; lens ZD used for drawings 92 (1921) to 370 (1921).

The numbers referring to *Microfilaria* in text-figs. 1 and 2 are those of the Death Book of the Zoological Society for the years 1920 and 1921.

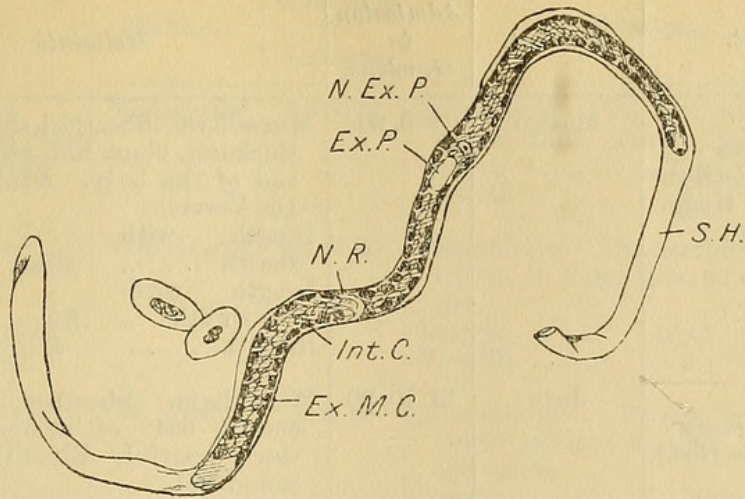
TEXT-FIG. 1.

773. Host. *Cassidix melanicterus*.
 821. " *Irene turrosa*.
 848. " *Caccabis chukar*.
 889. " *Cicinnurus regius*.
 887. " *Psittinus incertus*.
 870. " *Cicinnurus regius*.
 904. " *Urocissa occipitalis*.
 918. " *Dendrocitta vagabunda*.
 1022. " *Agapornis cana*.
 51. " *Hypochera nitens*.

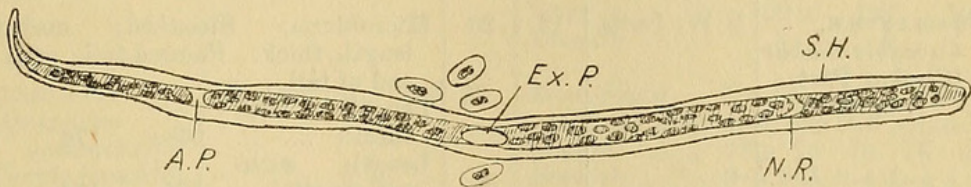
TEXT-FIG. 2.

54. Host. *Serinus scotops*.
 50. " *Quiscalus quiscalus*.
 73. " *Bubulcus coromandus*.
 92. " *Otogyps calvus*.
 139. " *Elanus caeruleus*.
 157. " *Paradisaea minor*.
 182. " *Turacus corythais*.
 249. " *Steganura paradisaea*.
 303. " *Cittocincla macrura*.
 370. " *Ramphocelus brasilius*.

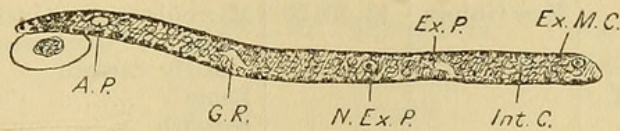
Text-figure 3.



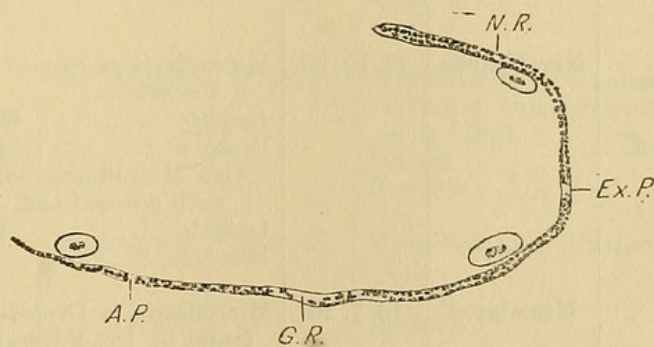
Text-figure 4.



Text-figure 5.



Text-figure 6.



Freehand drawings to show details.

Text-fig. 3. *Microfilaria* out of *Irene turrosa* (Fairy Blue-Bird).

„ 4. *Microfilaria* out of *Oaccabis chukar* (Chukar Partridge).

„ 5. *Microfilaria* out of *Cicinnurus regius* (King Bird of Paradise).

„ 6. *Microfilaria* out of *Cicinnurus regius* (King Bird of Paradise).

Ex.P. = excretory pore. N.Ex.P. = nucleolus of excretory pore. Ex.M.C. = external muscle cells. Int.C. = internal cells. G.R. = genital region. N.R. = nerve ring. S. = sheath.

<i>Host.</i>	<i>Habitat.</i>	<i>Admission to Gardens.</i>	<i>Helminth.</i>
ICTERIDÆ. <i>Cassiculus melanicterus</i> (Mexican Hang- nest).	Mexico	9. 6. 20	Microfilaria. Sheathed, short, medium thickness, blunt tail, no cells at one end of the body. Adult found by Dr. Vevers. Length with sheath 86 μ 84 86 Length with- out sheath ... 84 82 82 Breadth 4 4 4
TURDIDÆ. <i>Irene turrosa</i> (Fairy Blue-Bird).	Java	13. 10. 20	Microfilaria. Sheathed, long with sheath, body of medium length; thick, graceful. Blunt tail; cells in end of tail. Length with sheath 267 μ 214 198 Length with- out sheath ... 162 133 119 Breadth 8 8 7
PHASIANIDÆ. <i>Caccabis chukar</i> (Chukar Part- ridge).	N.W. India	16. 7. 23	Microfilaria. Sheathed, medium length, thick. Pointed tail; cells to end of tail. Length with sheath 168 μ 176 93 Length with- out sheath ... 164 174 92 Breadth with sheath 7 8 6 Breadth with- out sheath ... 5 6 4
PARADISEIDÆ. <i>Cicinnurus regius</i> (King Bird of Paradise).	New Guinea	13. 10. 20	Microfilaria. Unsheathed, short, medium thickness. Pointed tail, nearly straight. Length 61 μ 61 73 Breadth 4 4 4
PSITTACIDÆ. <i>Psittinus incertus</i> (Blue-rumped Parrakeet).	Malacca	13. 10. 20	Microfilaria. Unsheathed, medium length and thickness. Length 130 μ 170 148 Breadth 4 4 4
PARADISEIDÆ. <i>Cicinnurus regius</i> (King Bird of Paradise).	New Guinea	13. 10. 20	Microfilaria as in previous King Bird of Paradise. Length 60 μ 66 62 Breadth 4 4 5 Also Microfilaria, long and slender, with pointed end. Unsheathed. Length 218 μ 220 Breadth 1.5 2
CORVIDÆ. <i>Urocissa occipitalis</i> (Occipital Blue- Pie).	Himalayas	16. 7. 20	Microfilaria (a <i>Diplotriæna</i> sp., adult found by Dr. Vevers). Unsheathed, medium length, and thick. Pointed, tilted tail. Length 143 μ 158 150 Breadth 4-5 4-5 4-5
CORVIDÆ. <i>Dendrocitta vagabunda</i> (Wandering Tree- Pie).	India	4. 6. 20	Microfilaria (a <i>Diplotriæna</i> sp., adults found by Dr. Vevers). Unsheathed, short, thick. Pointed tail. Similar in type to preceding microfilaria. Length 90 μ 100 90 Breadth 5 4 4

<i>Host.</i>	<i>Habitat.</i>	<i>Admission to Gardens.</i>	<i>Helminth.</i>
PSITTACIDÆ. <i>Agapornis cana</i> (Love-Bird).	Madagascar	24. 9. 17	Microfilaria. Unsheathed, medium length, thin. Pointed tail. Length 128 μ 124 130 Breadth 2 2-3 3
PARADISEIDÆ. <i>Cicinnurus regius</i> (King Bird of Paradise).	New Guinea	13. 8. 20	Microfilaria. Unsheathed, medium length to long, thin, pointed at one end. Length 198 μ 184 205 Breadth 2 2 2
PLOCEIDÆ. <i>Hypochera nitens</i> (Shining Weaver-Bird).	W. Africa	8. 9. 19	Microfilaria. Unsheathed, long, thick, pointed at one end, blunt end coiled. Length 304 μ 250 Breadth 5-6 5
FRINGILLIDÆ. <i>Serinus scotops</i> (Seed-eater).	S. Africa	21. 1. 21	Microfilaria. Unsheathed, medium length and thickness, one end pointed. Length 150 μ 128 104 Breadth 4 4 4
ICTERIDÆ. <i>Quiscalus quisqualis</i> (Purple Grackle).	N. America	9. 6. 20	Microfilaria. Unsheathed, short, medium thickness, one end pointed. Length 78 μ 78 78 76 86 Breadth 3-4 3-4 3-4 3-4 3-4
ARDEIDÆ. <i>Bubulcus coromandus</i> (Cattle Egret).	India	28. 4. 20	Microfilaria. Unsheathed, long and thick, end tilted and very pointed. Length 287 μ 308 337 Breadth 6-7 6-7 6-7
VULTURIDÆ. <i>Otogyps calvus</i> (Pondicherry Vulture).	„	16. 7. 20	Microfilaria. Unsheathed, thick, medium length, slightly pointed at one end. Length 140 μ Breadth 8
FALCONIDÆ. <i>Elanus caerules</i> (Black-shouldered Kite).	W. Africa	3. 5. 20	Microfilaria. Unsheathed, medium length and breadth. Length 200 μ 162 180 152 Breadth 3 3.5 4 2.5
PARADISEIDÆ. <i>Paradisea minor</i> (Minor Bird of Paradise).	New Guinea	27. 10. 19	Microfilaria. Unsheathed, short, medium thickness, nearly straight, ends blunt. Length 100 μ Breadth 4
MUSOPHAGIDÆ. <i>Turacus corythaix</i> (Touracou).	S. America	29. 9. 20	Microfilaria. Unsheathed, short, thin. Length 72 μ Breadth 2
COLUMBIDÆ. <i>Zenaidura auriculata</i> (Auriculated Dove).	Chili	24. 8. 17	One microfilaria, partially hidden by corpuscles and badly seen, medium length and thickness. Length 180 μ Breadth 4
PARADISEIDÆ. <i>Steganura paradisea</i> (Paradise Whydah-Bird).	W. Africa	7. 7. 19	Microfilaria. Unsheathed, long and thick, blunt one end, pointed the other. Length 315 μ 260 245 Breadth 5 5 6

<i>Host.</i>	<i>Habitat.</i>	<i>Admission to Gardens.</i>	<i>Helminth.</i>
TURDIDÆ. <i>Cittocincla macrura</i> (Shama).	India	16. 7. 20	Microfilaria. Unsheathed, long, graceful, thick and blunt at the anterior end, tapering gradually to a slender pointed posterior end. Length 230 μ 244 244 Thickest breadth 5 5 5
TANAGRIDÆ. <i>Ramphocelus brasilius</i> (Scarlet Tanager).	Brazil	18. 12. 19	Microfilaria. Unsheathed, graceful, blunt at one end which contains a clear refractory body; other end pointed and frequently curled, medium length and thickness. Length 120 μ 100 90 Breadth 6 6 5.5



Markbreiter, Rita. 1923. "Some Microfilariae found in the Blood of Birds dying in the Zoological Gardens, 1920-1921." *Proceedings of the Zoological Society of London* 1923, 59–64. <https://doi.org/10.1111/j.1096-3642.1923.tb02172.x>.

View This Item Online: <https://www.biodiversitylibrary.org/item/98473>

DOI: <https://doi.org/10.1111/j.1096-3642.1923.tb02172.x>

Permalink: <https://www.biodiversitylibrary.org/partpdf/71983>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Biodiversity Heritage Library

Copyright & Reuse

Copyright Status: Public domain. The BHL considers that this work is no longer under copyright protection.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.