Joyeuxia fuhrmanni Baer, 1924, a hitherto unrecorded Cestode Parasite of the Domesticated Cat in South Africa.

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A domestic cat belonging to a member of the staff of this Institute was observed to pass cestode segments in its faeces, and was in consequence placed at the writer’s disposal for observation and treatment. An examination of the voided segments showed that they belonged to a member of the genus Joyeuxia Lopez-Neyra, 1927, and were very similar to those of J. pasqualei (Diamare, 1893), a parasite which had been recorded from domestic cats from various parts of Europe. The cat was treated with two grams of Kamala in milk after fasting, but this failed to remove any worms. It was then decided to keep the cat and utilise the voided segments in an attempt to elucidate the life-history of this parasite. In consequence the segments were collected from day to day and fed to a number of dung beetles belonging to the genera Hister, Aphodius and Onthophagus. The members of the different genera of these beetles, which had been collected from cow dung in the field, were placed in separate tubes containing fresh cow dung mixed with broken up and whole cestode segments; this dung was replaced every day for a week with fresh dung and segments, after which the beetles were fed on untreated dung only. Two beetles of each genus were now killed and dissected every other day from the 10th to the 24th day after their initial feed, i.e., 48 beetles were dissected. A careful search for larval cestodes was made of the various organs and muscles, but no such forms were encountered. This experiment could unfortunately not be continued as the cat had to be destroyed, but so far it appears that if a coprophagus insect is essential in the life-history of this parasite, this insect is probably not a member of the genera mentioned above.

On post-mortem the cat was found to harbour an intense cestode infection, practically the whole length of the small intestine being filled with worms. Over a hundred were collected and these varied in length from about 2 cm. to 6·5 cm. They were allowed to relax and die in cold water and were then fixed in a mixture of equal parts of 70 per cent. alcohol, glycerine and distilled water. Prior to staining and making whole mounts the selected specimens were placed in changes of distilled water to remove all the fixative.

The only record of this parasite is by Baer (1924 and 1927) who described it from Zibethailurus serval and Felis catus. This material had been collected by Sir Arnold Theiler and handed over to Prof. O. Führmann of Neuchatel, Switzerland, for determination. Wittenberg (1932), who has made a comparative study of the members of the Dipyldiinae, came to the conclusion that Baer’s species was the same as J. pasqualei (Diam.), in that the types of both species agreed with each other in essential characters. While admitting that these two species appear to be closely related, the writer, however, feels that these species must be considered distinct. In all the specimens examined (about 20) the writer failed to find a single specimen in which the vasa deferentia were removed from the anterior margin of the segments, and the testes extending in a zone anterior of the vasa deferentia. The most extreme case seen is that
figured, but even here it will be seen that although the testes pass between the coils of the vasa deferentia they do not extend beyond them. According to Wittenberg there is always a space between the vasa deferentia and the anterior margin of the segment in the specimens of J. pasqualei examined by him, and that, although this space is larger in the larger than in the smaller specimens several testes are always present in this space anterior of the vasa deferentia. As Wittenberg had ample material at his disposal it appears legitimate to assume that this arrangement of the vasa deferentia and the testes has a specific significance, and as this arrangement is not present in the material at the writer’s disposal or in the type material of J. fuhrmani, it would appear that these two species are not co-specific.

The specimens dealt with above agree in essentials with Baer’s descriptions. They, however, differ in being larger, the largest specimens being about 65 mm. long whereas Baer’s largest specimens measured only 30 mm.; having fewer segments (100 to 130) and in that the scolex does not present an “acorn-like aspect” as described and figured by Baer (1927); this appearance is probably due to contraction as suggested by Wittenberg.

REFERENCES.

