

NOTES ON THE OCCURRENCE OF *GIGANTORHYNCHUS*
ECHINODISCUS DIESING IN THE ANTEATER OF
PANAMA

LAWRENCE H. DUNN

Medical Entomologist and Assistant Director, Gorgas Memorial
Laboratory, Panamá, R. de P.

The large, spineheaded worm, *Gigantorhynchus echinodiscus* Diesing, one of the Acanthocephala, seems to be quite common in Brazil but apparently is little known elsewhere. Travassos (1) has reported specimens of it having been taken from anteaters in that country, representing three genera: *Tamandua tetradactyla* (L.), *Myrmecophaga jubata* (L.) and *Cyclopes didactylus* (L.). Strong, Shattuck, Bequaert and Wheeler (2) while in Brazil as members of the Hamilton Rice Seventh Expedition to the Amazon also found this species in the duodenum and ileum of a *Tamandua tetradactyla*. Recently this parasite was encountered in Panama and a remarkable feature was noted in connection with its occurrence since specimens were spontaneously eliminated daily.

On March 28, 1932, an adult, female anteater, *Tamandua tetradactyla chiriquensis* Allen, weighing ten and a quarter pounds, was purchased by this laboratory. She had been captured a few miles east of Panama City a day or two previously. This animal was purchased principally for the study of her external and internal parasites. It was also proposed to ascertain if she would be effective in the extermination of numerous small colonies of ants that were attempting to establish themselves in the laboratory yard.

Since the large yard surrounding the laboratory is enclosed by a concrete wall, the anteater was turned loose in order that she might seek ants. She soon located a nook in an angle of the basement wall of the laboratory in which she spent the days lying curled up with her nose tucked between her paws. With the coming of dusk each evening she became active and began moving rapidly about the yard with a waddling gait. Locating the ants seemed to be done mainly with her nose and when they were found her long, slender, ribbon-like tongue rapidly collected them.

A small building used for an insectary in the yard was surrounded by a concrete trough that was kept filled with water to act as a moat to prevent ants from gaining entrance. This moat was about ten feet in length on each of the four sides and the water in it was fifteen inches wide and from six to nine inches deep.

It was noted that as soon as the anteater became active in the evening she went to this moat to obtain a drink of water and to defecate before

beginning her hunt for ants. On the first two nights the stools were deposited on the ground at the edge of the moat. The stool deposited on the second night was large and well formed. It somewhat resembled the stool of a dog and emitted an extremely strong odor. Upon examination it was found that approximately 90 per cent of the stool consisted of undigested, hard, chitinous parts of ants. The other 10 per cent was made up of digested matter, flakes of rotten wood, tiny pebbles and fragments of stone. On the third night and on each night thereafter, with but one exception, while the observations were carried on, the stools were deposited in the water of the moat.

No further attention was given to the feces of this anteater until the morning of April 4th, when it was noted that the stool deposited in the water during the previous night contained three long, living worms belonging to the *Acanthocephala*. These were examined and found to be female specimens of *Gigantorhynchus echinodiscus*.

During the following eight days the stools of this anteater were collected each morning and examined for specimens of this worm. From one to three were found to be present each day except on April 10th, when the stool excreted that day was deposited on the ground at the side of the moat. It is suspected that if any worms were present in this stool they either disappeared in the grass or crevices of the ground or furnished a breakfast for some early bird. Two stools were deposited in the water on the night of April 7th and also on April 12th, and a worm was found in each stool on both occasions.

Much to my regret the anteater disappeared on the night of April 13th. It is quite probable that she was stolen.

During the nine days that the stools of this animal were examined a total of fourteen worms were collected. These consisted of six males and eight females. It would be of considerable interest to be able to definitely account for this daily spontaneous elimination of these worms. It is possible, but hardly probable, that the animal may have been so heavily infested that the passage of the worms was due to a resistance that was being acquired. It seems more likely, however, that some factor produced by captivity may have been the cause. The theory has sometimes been advanced that the diet of a host animal may exert considerable influence on its parasites. Such may have been the case in this instance. Lack of proper intestinal contents with a change in the digestive juices may have exerted an influence. It was noted that the amount of earth present in the feces of the anteater increased during the period of her captivity. An examination of a stool passed on April 10th showed that approximately 30 per cent of it consisted of earth, gravel, etc. This was an increase of about 20 per cent of such material over that found in the stool examined on April 1st. This may have been due to the fact that

the longer the anteater remained in the yard and continued to consume the ants the scarcer the latter became. Possibly in licking them from the ground in smaller numbers she may have taken up more earth with her tongue than she ordinarily would have done when taking them from larger colonies. It was also possible that the earth or water may have contained ingredients from construction material used in building the recently erected concrete laboratory and wall that acted as a vermifuge. Although the first specimens observed were found on April 4th, there is no certainty that they were not being expelled during the first days in captivity, except that none were found in the feces examined on April 1st. The disappearance of the animal prevented an examination at autopsy that was planned when and if the worms ceased to appear in the feces.

A second anteater of the same species was later obtained. This was a young, adult female that was so intractable that she was sacrificed. Upon being autopsied two specimens of the worms, a male and a female, were found in the cecum. It is hoped that further observations on the occurrence of *G. echinodiscus* in Panama may be made.

ACKNOWLEDGMENT

I wish to express my thanks and appreciation to Dr. M. C. Hall and other personnel of the Zoological Division of the U. S. Bureau of Animal Industry for their kindness in confirming my identification of these parasites.

REFERENCES

1. Travassos, L. 1917.—Contribuicoes para o conhecimento da fauna helmintologica brasileira. Memorias do Instituto Oswaldo Cruz. Tome IX, p. 29.
2. Strong, R. P., Shattuck, G. C., Bequaert, J. C., and Wheeler, R. E. 1926.—Medical Report of the Hamilton Rice Seventh Expedition to the Amazon, in Conjunction with the Department of Tropical Medicine of Harvard University, pp. 110 and 125. Harvard University Press, Cambridge, Mass.