

THE OCCURRENCE OF DIPLOPODS IN THE  
HUMAN ALIMENTARY TRACT

WITH NOTES ON TWO NEW CASES

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In view of a widespread scepticism that persists as to the possibility of myriopods adapting themselves for any considerable length of time to a parasitic life within the human body, it seems desirable to preface the record of a new case with some general remarks. The scepticism mentioned is natural since so many supposed cases of this kind have been based upon observation not rigorously controlled and because of the well known tendency among persons, particularly women, in morbid or hysterical states to introduce organisms or other foreign material into their dejecta or even into the rectum or vagina. However, the number of carefully authenticated cases is now so large that there is no room whatever for doubt that myriopods may live for considerable periods, in some cases certainly for months, if not years, both in the aerial passages and in the alimentary tract, through the entire length of which they may pass unharmed.

The cases on record at the time were carefully reviewed by Professor Blanchard in 1898, with additions in 1902. Of the forty cases noted, thirty-one concerned the presence of the animals in the aerial passages, particularly the nasal cavity, and nine their presence in the alimentary tract. All the forms noted as occurring in the aerial passages were chilopods, these being active nocturnal forms that probably entered the body of their own volition during sleep; while of the forms noted as occurring in the alimentary tract, six are chilopods and three diplopods. In considering the likelihood of the continued living of myriopods once introduced into the stomach it should be noted that they are not disturbed by the higher temperature existing and that the digestive fluids do not act on their chitinous shell. The closing of the spiracles would prevent the penetration of the digestive fluids when the animals were submerged. These animals have been proved experimentally to be able to withstand long continued submergence, though in the stomach complete submergence would not necessarily be frequent or prolonged. The gases normally present contain enough oxygen to meet the needs of these forms and food would be abundant. In this connection it is interesting to recall the finding by Koenike (1889) of a living geophilid, determined by Latzel as *Geophilus sodalis* Bergsoe and Meinert, in the albumen of a hen's egg from Westphalia. In view of the nature of the special fertilization processes in myriopods, it is highly improbable that

reproduction could take place in the body, and the evidence indicates that the existence of the animals in numbers is due to repeated introductions. The cases are all to be regarded as examples of pseudo-parasitism.

It is the three authentic cases of the presence of diplopods in the alimentary tract that are concerned especially here. They may be briefly summarized. Dr. Tourtual, of Münster, was called in 1821 by a peasant woman twenty-eight years of age who suffered for three months of nausea, vomiting and cramps at the stomach. All medicines proved ineffective. The patient became exceedingly thin and weak, and kept herself doubled up on the couch, with hands compressing her stomach. Oedema of the limbs appeared, the vital forces seemed almost exhausted, fainting spells were frequent and various other symptoms indicated the approach of death. She complained of a living animal in her stomach whose movements were perceptible. Tourtual, thinking of a verminous affection, gave an emetic. In less than two minutes, in the presence of the physician, violent vomiting occurred. In the midst of the mucus was found a living Julus. This was a tailed form, listed as *J. terrestris*, but possibly also either *J. ligulifer* or *Schizophyllum sabulosum*. The symptoms then ceased and the patient recovered with no recurrence of the trouble.

The second case was recorded by Rooms in 1885. A young boy of eleven years living in Bruges manifested a bizarre taste in the choice of his food. He became thin and was subject to various ill feelings and nervous crises, particularly during the night; he complained of violent pains and of a strange sensation of movement in his stomach and intestines. It was thought to be a verminous malady; a vermifuge produced an expulsion of some ascarides, but without any noticeable amelioration. All these symptoms abated in the fall and winter, but the succeeding summer, at a time coincident with the first attack, they reappeared in aggravated form. For three consecutive years the same phenomena alternated with a state of comparative health and well-being in winter. Helminthics were of no avail. In August of the second year the child drank a glass of gin in which had been put some crushed blooms of *Artemisia*. Then there appeared in the stools for the first time living myriopods which survived for several days as well as in air as in water. The same treatment was applied several times, always with the same result. The following winter the child appeared to be completely recovered, but the third summer the same troubles reappeared. One day the mother gave the child a double dose of the customary remedy; he was then seized with vomiting and diarrhea, when he expelled a considerable number of live myriopods from the mouth, nose and anus. For another month the treatment was continued, but with more moderation; at the end of this time all trace of the parasites had disappeared and from then on his recovery was complete and undisturbed. The

myriopod was identified by Professor Plateau as *Julus londinensis*, a species very common in Europe and also in the eastern United States. As Rooms suggested, it seems highly probable that the little patient had infested himself by eating fruits, etc., the choice of which was directed by an evident perversion of taste.

The third case was reported by V. Thébault in 1901. It concerns a seamstress, thirty-nine years old, living in the suburbs of Paris. About the first of November this woman was seized from time to time by fits of coughing, accompanied by irritation of the throat and nausea. For three or four days she suffered also with a very intense itching in her ears and particularly in the commissure of the vagina. The woman had few teeth and mastication was therefore difficult, but her digestion was good. At the time indicated she experienced violent constrictions of the stomach, severe headache and pains in her limbs, as well as acute feelings of suffocation during the night. She said she had sensations of a great weight in her stomach. There was no constipation and no diarrhea. On the day which preceded the expulsion of the parasite she had a violent stomachache which was succeeded by diarrhea, this evacuation being accompanied by glairy and bilious vomit, very green. At the same time she suffered uterine pains which she described as being as severe as those she had suffered at childbirth. At length the tenesmus ceased and she had a liquid evacuation, a veritable intestinal débacle, in the midst of which she found, to her great surprise, a living myriopod. With its expulsion there was an absolute cessation of the symptoms. The myriopod was an adult male of *Polydesmus complanatus* (L.), measuring sixteen millimeters.

In 1919 the present writer received from Dr. L. O. Howard of the United States Bureau of Entomology a milliped which Dr. E. R. Shilling of Columbus, Ohio, had transmitted for identification. This specimen, according to the history supplied by Dr. A. H. Seeds through Dr. Shilling, had been removed alive from the rectum of a lad sixteen years of age, residing in Hilliards, Ohio, after he had experienced an intolerable itching in the region concerned. The boy had previously been sick for about a year; but I have been unable to secure from his physician a clinical history that connects clearly the illness with the presence of the diplopod. It seems desirable, however, to place on record an additional milliped that seems to have demonstrated its ability to live in the alimentary tract of man with possibly deleterious effect on the host. The specimen was an adult male of *Diplojulus pusillus* (Leach) (= *Julus virgatus* Wood), a small form from 8 to 10 mm. in length which often occurs in decayed spots of fruits and vegetables. Although a native of Europe, it has long been established in the United States.

A second case came to my attention through Prof. C. A. Kofoid of the University of California who in October, 1922, transmitted to me

for identification a millipede with the following note: "It is of interest to us because it was reported to have been vomited by a woman who had been troubled with bloody vomit for some time. This condition is reported to have continued for a year and she is stated to have vomited three other small specimens which cannot now be obtained." While the complete clinical history of this case has also not as yet been released, the general biological interest warrants putting on record the name of another millipede that apparently may at times become parasitic in the human alimentary tract when accidentally introduced. The specimen in this case proved to belong to *Parajulus trivius* Chamberlin, a small species for this genus, reaching a maximum length of 20 mm. The species is common about San Francisco Bay, but has not been taken thus far outside of California.

## REFERENCES CITED

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