

stinctly says, the skulls contained fragments of the latter and none of the former; upon this point the Archdeacon also expressly states, "they were both found lying close together." If therefore the above skull eventually proves to be that of a bear, the period of its existence is decided to have been coæval with that of the Megaceros!

Believe me, my dear Sir, yours very truly,

HENRY DENNY, A.L.S.

On some new genera and species of Entozoa. By Dr. LEIDY.

1. *Ascaris cylindrica*. Body nearly cylindrical throughout, anteriorly moderately attenuated; tail curved, 1-214th of an inch in length from the anus; œsophagus elongated, gibbous in the middle, with the œsophageal bulb and pharynx 1-100th of an inch in length; œsophageal bulb pyriform, 1-75th of an inch in diameter; ventricle or intestine somewhat tortuous, cylindrical, dilated at both extremities; rectum pyriform; female generative aperture about half-way between the mouth and tail. Whole length 4-5th of a line, breadth 1-12th of a line.

Hab. Small intestine of *Helix alternata*.

Remarks.—I found the female only of this species in fifteen out of forty specimens of *Helix alternata*, in numbers of from one to three. The ovaries in all were distended with ova, the latter measuring 1-430th of an inch in length by 1-576th in breadth.

2. *Ascaris infecta*. *Female*.—Subcylindrical, gradually diminishing towards the extremities, white, with a brown streak down the lower two-thirds of the middle line; anteriorly obtusely rounded; tail slightly curved, 1-80th of an inch long from the anus. The three papillæ of the mouth projecting; œsophagus strongly muscular, thick, oblong, pyriform, 1-80th of an inch long, greatest breadth 1-175th of an inch; œsophageal bulb cordiform, 1-166th of an inch long by 1-166th of an inch broad; ventricle slightly dilated at commencement, contracted posteriorly; generative orifice projecting, just below the middle of the body; vagina furnished with a large ovate seminal receptacle.

Male.—Dilated at both extremities; tail thick, 1-174th of an inch long, furnished upon its inner aspect with two minute tubercles. Above the anus are two rows, each of four tubercles, connected by delicate folds of integument. Œsophagus 1-111th of an inch long by 1-260th of an inch broad; œsophageal bulb depressed cordiform, 1-214th of an inch long by 1-250th of an inch broad. Penis formed of two curved spiculæ, measuring in length, in a straight line, 1-78th of an inch.

Length of adult female 3 to $4\frac{1}{2}$ lines; breadth at origin of ventriculus 1-123rd of an inch; middle of body 1-83rd to 1-60th of an inch; just above anus 1-144th of an inch. Ova 1-319th of an inch long by 1-428th inch broad.

Length of male 2 lines; breadth at origin of ventriculus 1-176th of an inch; middle of body 1-211th of an inch; just above anus 1-202nd of an inch. Spermatophori oval, 1-1391 inch long by 1-1666th inch broad, with spermatozoa 1-3750th inch long by 1-10,000th inch broad.

Hab. This species is found in numbers of from three up to fifty or more, of various ages and sizes, pretty constantly in the small intestine of *Julus marginatus*, Say. The males are found in the proportion of about one in eight.

Aorurus, a new genus of *Nematoideæ*.—Body cylindrical, strongly annulated, with a tail nearly as long as the body, straight or nearly so, inflexible, spiculate, ensiform, shining, and pointed. Mouth unarmed. Female generative aperture near the middle of the body.

Remarks.—This genus is divisible, by several well-marked characters, into two distinct subgenera.

1st subgenus. Streptostoma.—Body cylindrical, very strongly marked with broad annuli. Mouth moderately large, round, bordered by a collar (formed by the second annulus projecting beyond the general outline of the body). Œsophagus divided into two distinct pyriform muscular bulbs, with a small intermediate rounded bulb. Tail four-fifths the length of the body.

Streptostoma agile. Female.—Body larviform, cylindrical, narrowed anteriorly and posteriorly, opalescent white, divided into from sixty-one to eighty-eight broad annulations, of which there are twenty-one from the mouth to the commencement of the ventriculus. Tail very straight, occasionally slightly sigmoid, or bent at the point, narrow and sharply pointed, inflexible and brittle. Mouth moderately large, round, projecting; pharynx almost null; œsophagus consisting of three bulbs: the first elongated pyriform, strongly muscular, measuring 1-197th in. long by 1-319th in. broad; second bulb small, rounded, muscular, 1-882nd in. long by 1-882nd in. broad; third, or true œsophageal bulb, pyriform, 1-294th in. long by 1-312th in. broad. Ventriculus dilated at commencement to nearly the diameter of the body, afterwards straight and cylindrical to near its termination, where it is slightly dilated. Rectum elongated, pyriform. Generative aperture situated about twenty-four rings above the anal aperture, which latter is placed between the last two annuli of the body. Ovary double; ova 1-333rd in. long by 1-400th in. broad.

Length of body from 1-13th to 1-11th inch; breadth at commencement of ventriculus 1-118th inch; at middle of body 1-97th inch. Tail from 1-16th to 1-15th inch long, by 1-888th in. broad at its middle.

2nd subgenus. Thelastoma.—Body cylindrical, attenuated anteriorly, strongly marked with moderately broad annuli. Mouth small, opening at the extremity of a small papilla. Œsophagus divided into two distinct portions, the first long and cylindrical, the second constituting the true œsophageal bulb. Tail more than half the length of the body.

Thelastoma attenuatum. Female.—Body attenuated anteriorly to commencement of the ventriculus, opalescent white, divided into from 140 to 160 annulations, of which there are from fifty-two to fifty-seven from the mouth to the commencement of the ventriculus. Tail very straight, or very slightly curved or bent, slender, inflexible and brittle, and sharply pointed. Mouth always projected, small, surmounting a small papillary elevation formed by the first annulus

of the body. Pharynx very short and narrow; œsophagus strongly muscular, cylindrical, 1-47th in. long by 1-533rd in. broad; œsophageal bulb pyriform, 1-178th in. long, 1-222nd in. broad. Ventriculus dilated alæform at commencement, cylindrical throughout. Rectum short, pyriform. Generative aperture forty-two annulations above the anal. Ovary double; ova 1-333rd in. long by 1-400th in. broad.

Length of body from 1-10th to 1-8th in.; breadth at middle 1-95th in. Tail 1-14th in. long by 1-111th in. broad at middle.

Hab. and Remarks.—*Streptostoma agile* and *Thelastoma attenuatum* are found together principally in the commencement of the large intestine of *Julus marginatus*, in numbers of from one to fifteen, and less frequently in the small intestine with *Ascaris infecta*, in numbers of from one to six. It is remarkable, that although I have found from one to fifteen of these two genera in nine-tenths of the animals examined, I have never yet been able to detect a single male.

Thelastoma always has the mouth projected, whilst *Streptostoma* has it retracted, producing, in some measure, but by no means wholly, the difference in size of the oral aperture.

At first I was inclined to think these two animals were different stages of the same species, but the adults uniformly correspond to the descriptions given, and in all cases contained more or less perfected ova.

Their movements are active, wriggling the body in a sigmoid manner and vibrating the delicate spiculated tail, which in sunlight resembles a shining acicular crystal.

Thelastoma, from its form of œsophagus and narrower annulations and shorter tail than *Streptostoma*, occupies a position between the latter and *Oxyuris*.

Gregarina, Dufour. Body consisting of two distinct cells. Inferior cell the larger, marked with delicate, parallel, longitudinal lines, (muscular?) and filled with a fine granular matter, obscuring one or two nucleolo-nucleated-organic cells. Superior cell placed in a depression of the inferior, surmounted by a slight papilla in which may be detected two lines, apparently outlines, of an oral canal to the interior of the cell which is filled with granular matter; cell-wall amorphous and transparent.

Gregarina larvata. Body opake white, cylindrical or fusiform, frequently considerably dilated at the middle of the upper third. Superior cell a flattened or depressed sphere, received about one-half into a depression of the inferior cell, surmounted by a papillary elevation with traces of a communication with the exterior; interior filled with a finely granular mass resembling oil-globules, and measuring from 1-15,000th to 1-7500th in. Length of cell, in smallest individuals, 1-123rd in.; in largest 1-80th by 1-61st in. broad. Inferior cell elongated, cylindrical or fusiform, not communicating with the exterior nor with the interior of the superior cell; filled with a mass of granules resembling that of the superior cell, rendering the larger individuals opake, but translucent in the smaller ones, and usually obscuring one or two comparatively large nucleolo-nucleated-organic cells, measuring from 1-888th to 1-308th in. in diameter. Cell-wall

marked with exceedingly regular, delicate, longitudinal, parallel lines about 1-9375th in. apart, apparently muscular in character.

Length from 1-160th to 1-30th in., by 1-830th to 1-111th in. in breadth.

Hab. Found in numbers of from half a dozen to over a hundred, in the ventriculus of *Julus marginatus*.

Gregarina is probably the larva condition of some more perfect animal, but in the 116 individuals of *Julus* which I have examined, I have not been able to detect any form which could be derivable from it. Creplin doubts its animality*. When I first discovered this body, thinking it to be a larva, I did not examine it carefully, and it was not until some time afterward, when, being desirous of ascertaining its true nature, upon examining some fresh specimens beneath the microscope, I detected movements of an animal character, and this led me to seek for muscular structure, which resulted in the discovery of the longitudinal lines of the inferior cell. These escaped the observation of Siebold, for he says, "Nach meine Beobachtungen bestehen die Gregarinen aus einer harten glatten den Eihüllen der Insekten-Eier ähnlichen Haut†." The movements of the animal are exceedingly sluggish, and consist of a very slow bending in any direction of any part of the inferior cell, most usually above the middle, rarely at the inferior extremity, but most frequently near the superior cell which is entirely passive. The superior cell is also frequently drawn or contracted within the inferior, and again protruded by the contraction of the latter, and the propulsion of the granular contents against it. The inferior cell is also frequently, more especially in younger individuals, intus-suscepted within itself through a partial contraction, and again relieved by a general contraction of the cell-wall.

In the state in which *Gregarina* is found, it would probably hold a rank between the *Trematoda* and *Trichina*, the lowest of the *Nematoidea*.—*Proceedings of the Academy of Natural Sciences of Philadelphia*, vol. iv. p. 229.

On the mouthless Acari which have been formed into the genus Hypopus. By F. DUJARDIN.

Degeer, Hermann and Geoffroy found upon various insects some very small parasitical mites, to which they gave the name of *Acarus muscarum* and *Acarus spinatarsus*; they were not, however, able to study them on account of their extreme minuteness. Dugès, who examined a single one only, constituted the genus *Hypopus* of it, characterized by a sucker, provided with two rigid bristles, but regretting at the same time that he had not sufficiently studied it. Since that period, M. Léon Dufour has made known two other species, and M. Gervais has described a fifth species; but he has mistaken the projecting lines resulting from the contiguity of the hips for a nervous system. M. Koch in Germany has also described two other species of them, but without making any attempt at investigating their organization. M. Dujardin, who in 1842 described,

* Nachträge zu Gurlt's Verzeichniss der Thiere bei welchen Entozoen gefunden worden sind. Wiegmann's Archiv, 1846, 1 Band, S. 157.

† Wiegmann's Archiv, 1838, 2 Band, S. 308.



1850. "On some new genera and species of Entozoa." *The Annals and magazine of natural history; zoology, botany, and geology* 5, 314–317.
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