

living personage who had helped his party instead of looking after the monuments of those great men who have made England what she is, "My Lords, under the exceptional circumstances of the case," would have "been pleased to sanction the action of the First Commissioner." Moreover, it must be remembered that Mr. Layard was only First Commissioner, and that Mr. Gladstone as a Commissioner is responsible for Mr. Layard's action.

After all, however, perhaps it is well that, considering what we know of Mr. Ayrton's treatment of the living, he should have as little to do with our great dead as possible. Let their records vanish, let their sepulchral monuments disappear. What is this to the English Government? But there is a moral in all this which concerns the present. This treatment of a scientific society is the *ne plus ultra* of official Philistinism. It shows that any assistance rendered to the Government by scientific men or scientific bodies is rendered, as matters stand at present, at their peril; and until some alteration is made, any expenditure of time and energy for Government purposes should be respectfully declined.

NEW RESEARCHES IN ENTOZOA

Beiträge zur Anatomie der Plattwürmer. (Leipzig: Engelmann. 1872.)

IN the first part of this serial work, just issued, the authors—Dr. F. Sommer and Dr. L. Landois, Professors in the University of Greifswald—confine their attention to the structure of the sexually mature joints or segments of *Bothriocephalus latus*. With excellent judgment they record the results of their own investigations in the first twenty-six pages, the remainder of the *brochure* being devoted to a critical comparison of the writings of other helminthologists from the time of Eschricht down to the latest period. This method, as they remark (s. 27), not only preserves the continuity of the record of a great number of frequently repeated observations and statements, but it also has the advantage of enabling their readers to discriminate between the results obtained by themselves and those acquired by earlier and equally independent observers.

So considerable a portion of our knowledge of the structure and economy of the tapeworms is due to the researches of their own countrymen, that no surprise need be expressed at the completeness of the analysis which they afford of the writings of Siebold, Leuckart, Böttcher, Stieda, and Knoch, of St. Petersburg. Nevertheless, we may remark that, although their analysis is for the most designedly confined to the facts observed in a single species, there would have been no impropriety in noticing some of the anatomical facts given in Van Beneden's account of *Bothriocephalus punctatus*; and also, more particularly, certain facts of a similar order given in Krabbe's description of the general structure of several species of parasites belonging to the same genus. Dr. Olssen, of Lund, and other helminthologists, have likewise recorded detached observations on the structure of the *Bothriocephali* and their allies, some reference to which might very well have been introduced in Drs. Sommer and Landois' admirable summary.

On account of the complex character of the organisation

of the proglottides of *Bothriocephalus*, we have hitherto been in doubt respecting many particulars connected with the intimate structure of the adult parasite. Now, happily, these are well-nigh all removed, owing principally to the investigations of Leuckart, supplemented by the present "contributions." If, in matters of biological investigation, any proof were wanting of the necessity of extending the principle of division of toil, it would be sufficient to point to Drs. Sommer and Landois' labours as affording ample proof of the value of patient research within a given limited area.

The authors commence with a description of the exterior of the proglottis, conveniently recognising at the ventral surface a clear central space which corresponds with the region occupied by the mass of the reproductive organs, and on either side of this a marginal space whose comparatively dark colour is due to the presence of numerous large corpuscles lying immediately beneath the integument. These are the yolk chambers.

Their account of the mode of termination of the ducts of the reproductive organs at the ventral surface is in harmony with the descriptions of Eschricht and Leuckart; but it is in reference to the precise nature of the connection subsisting between the *vas deferens* and the various ducts proceeding from the female reproductive organs that these contributions lend such important aid.

The male generative apparatus consists, in the first place, of a number of testicular chambers, or minute testes, individually measuring about $\frac{1}{16}$ " in diameter. Each of these is furnished with an excretory duct; all the outgoing passages uniting to form a central cistern-like reservoir; the latter emptying itself into a single tortuous *vas deferens*, or common seminal duct. Near the final outlet it expands into the well-known globular or bottle-shaped muscular organ, as previously described by Leuckart and Böttcher. Our authors ascertained that a single joint was supplied with from ten to twelve hundred of these little testes. Truly the provision made for ensuring the propagation of these intestinal worms is astonishing; for if we reckon a full-grown *Bothriocephalus* to consist of three thousand proglottides (an estimate decidedly below the mark), that would give us over three millions as the number of testes supplied to a (so-called) single parasite. Shakespeare was not far wrong in the remark that "evil things do fastest propagate"—a conclusion which becomes all the more striking when we make ourselves acquainted with the exceeding complexity of the female reproductive organs of the *Taniada* and their allies.

The sexual apparatus comprises not only the vagina and uterus (which in this class of creatures form totally distinct passages, with separate outlets), but also three special sets of organs severally concerned in the production of the germ, the yolk, and the egg-shell. Moreover, each organ is itself made up of numerous parts, being, at the same time, supplied with its own proper excretory channels. All this, of course, we knew before; but in tracing out the relations subsisting between these various channels and the organs whence they proceed, and also in establishing the mode in which their final connection with the vagina and uterus is brought about, Drs. Sommer and Landois have displayed consummate ability, and have thus materially added to our knowledge.

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