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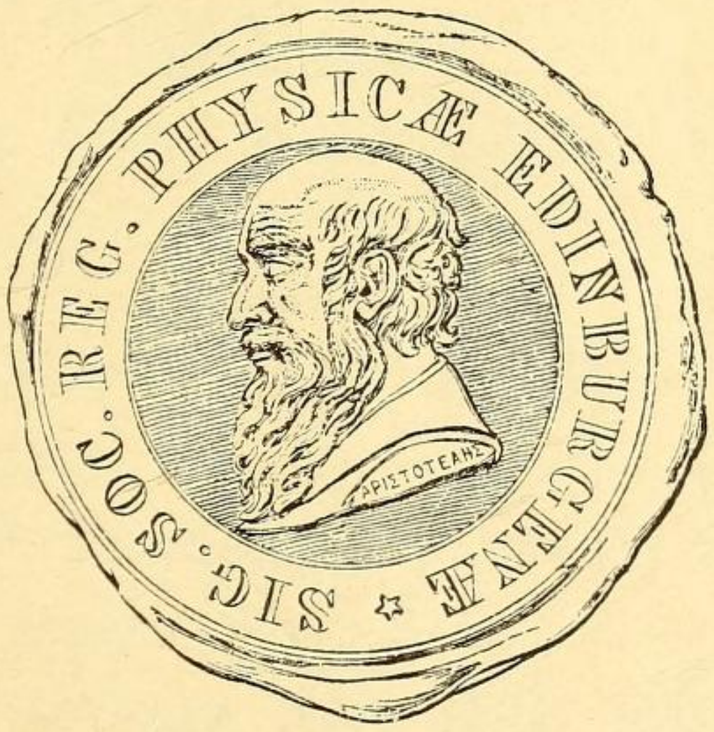

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V.—Note on *Trypanophis grobbeni*, a Protozoan Parasite of Siphonophora.

By **J. F. M. Floyd**, M.A., University of Glasgow.

(*With Plate.*)

(Read 27th March 1916. MS. received 27th March 1916.)

THE material for the following notes was collected during the summer of 1912, whilst the writer occupied the Oxford Table at the Zoological Station, Naples.

In June the colonies of the siphonophore *Halistemma tergestinum* were richly infected with *Trypanophis*, which, as Keysselitz records,[1] are found throughout the gastro-vascular system of the infected colony—the active parasites can easily be seen in situ with the aid of a dissecting lens (× 20).

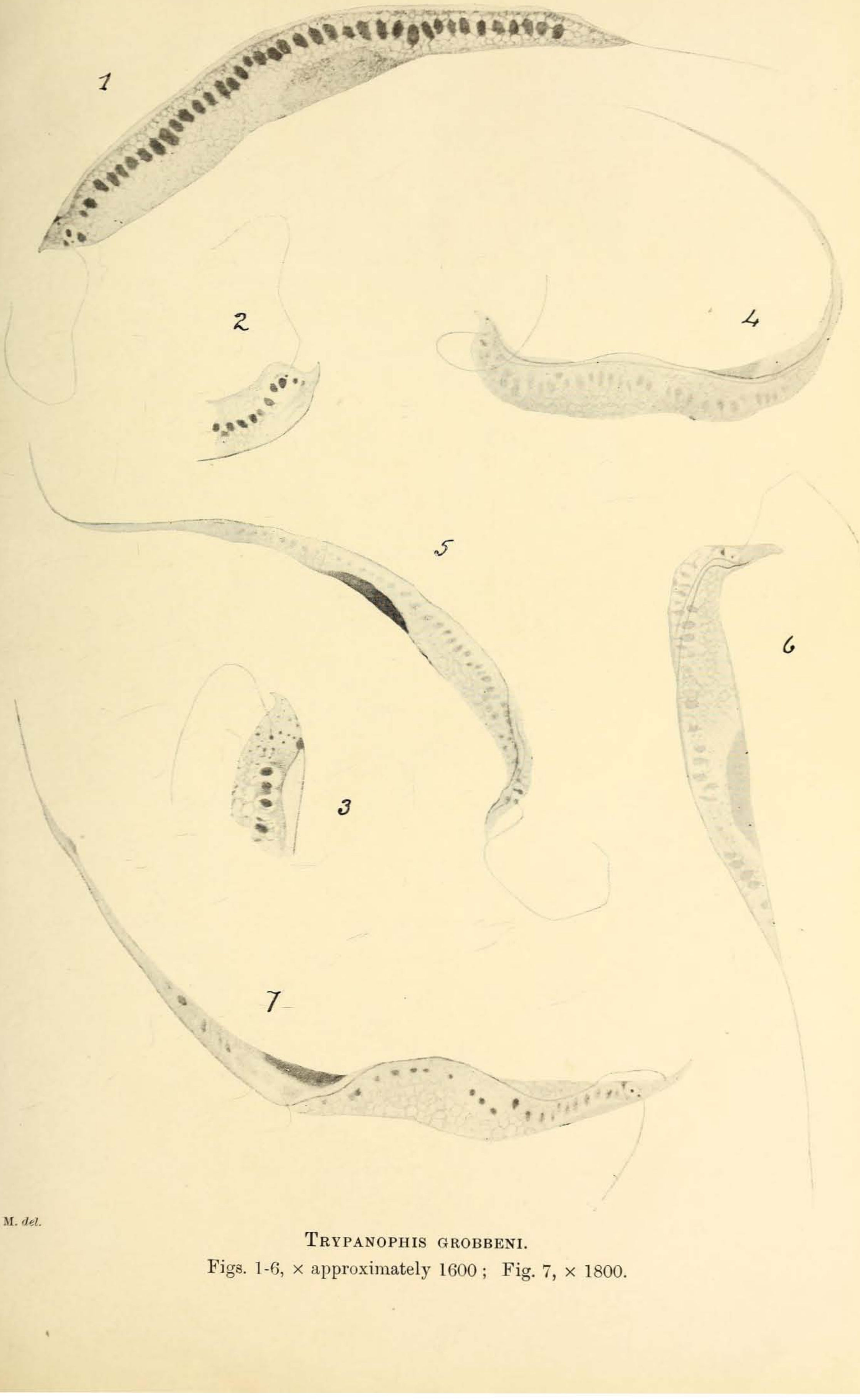
Examination of the contents of the cœlentera of *Velella* gave negative results.

Film preparations of *Trypanophis* cannot readily be made because of the difficulty of ensuring that the animals adhere to the glass. Pieces of the Siphonophore were squeezed on to coverslips previously smeared with egg-albumen and these allowed almost to dry; by this means a certain number could be retained, but a large proportion were always washed off during fixation.

The smears were fixed in strong Flemming's Solution, bleached with hydrogen peroxide and stained in Mayer's hæmalum followed by a trace of eosin, or else in iron-hæmatoxylin. The process of partial drying causes the *Trypanophis* to appear broader and more flattened than is natural, and in their struggles individuals are liable to assume rather distorted shapes—but in life, although extremely active, they undergo little or no change of form, differing altogether in this respect from *Trypanoplasma*.

None of my preparations shows a differentiation within the nucleus ("trophonucleus") of a karyosome, like that figured by Keysselitz. In some there is a large clear space like a vacuole, and the nuclear substance is more deeply stained round its edges—possibly an artefact. A more finely alveolar structure than that of the surrounding cytoplasm is all that can be defined.

[1] *Arch. f. Protistenk.*, iii., 1904



J. F. M. *del.*

TRYPANOPHIS GROBBENI.

Figs. 1-6, × approximately 1600; Fig. 7, × 1800.

The nucleus stains bluish in hæmalum and eosin — grey in iron-hæmatoxylin. The position of the nucleus is constant, its shape more or less so. One side is always formed by the side of the body opposite to the undulating membrane. Its inner boundary is not very sharply defined from the coarser cytoplasm.

Keysselitz has figured a substantial kinetonucleus from which the two flagella spring directly. No such body is visible in my preparations. The free flagellum springs from a more or less distinct basal granule, in the position shown in the figures. Close to this granule, in most of the figures, can be see a deeply stained body, to which may perhaps be applied the name of kinetonucleus. This body, when distinguishable, is surrounded by a halo of clear cytoplasm. It must be confessed that in many cases nothing so definite as the above can be made out owing to the confusion of a number of small darkly stained granules in this region—as *e.g.*, in Plate II. fig. 3.[1]

The attached flagellum originates from the edge of the body at a point either on a level with the basal granule of the free flagellum or a little in advance of it.

The base of the narrow undulating membrane is sometimes marked, as in Keysselitz's figures, by a distinct line throughout its length (see Figs. 4 and 6). Especially may this be the case in hæmalum and eosin preparations in which the anterior end of this basal line may be quite intensely stained, Just before the basal line joins the flagellum there is a widening of the space between them, and, in consequence, the basal line dips inwards. The point of union may be marked, as in Figs. 1 and 3, by a darkly stained thickening or granule, but in Fig. 2 and in the hæmalum preparations this cannot be seen.

The "chromatic bodies" are embedded in a row; their arrangement and relation to the cytoplasm are best shown in Fig. 1. The foremost of them may be just behind the "kinetonucleus," when visible, or there may be one or two in advance of it as in Figs. 1 and 2.

They take up eosin very readily and stain intensely in iron-hæmatoxylin.

Keysselitz figures a second partial row of smaller "chromatic bodies" in the anterior half of the body. The only trace of this I have been able to find is a tendency among the more anterior bodies of some specimens to duplicity—partial as in Fig. 4 or complete as in Fig. 5.

As to the clear zone about the kinetonucleus, a similar condition of

[1] Figs. 1-6, × approximately 1600; Fig. 7, × 1800.

individual "chromatic bodies" may be seen in Figs. 2 and 3, and may be due to a shrinkage of the surrounding cytoplasm. The process of drying tends to stretch the walls of the cytoplasmic alveoli, giving an exaggerated appearance of coarseness.

In conclusion, I wish to express my indebtedness to the late Mr C. H. G. Martin who first directed my attention to *Halistemma*, and to Mr J. S. Dunkerly for advice and help during the progress of my work.

(*Issued separately*, 14*th September* 1916.)