länger, denn die ersten Exkremente stellten sich erst nach 19 Tagen ein und ging eine weitere Entladung erst nach 28 Tagen vor sich.

In allen Fällen konnte ich bemerken, daß die Schlangen nach dem Verschlingen des Kadavers möglichst bald das Wasser aufsuchten und dort tagelang unbeweglich im Bassin lagen, nur die Schnauze zum Atmen aus dem Wasser hervorhebend. Den Tag nach dem Schlinggeschäft war stets der Körper der Schlange in der Magengegend enorm aufgetrieben, was wohl durch die Gase des Kadavers mit verursacht wurde, doch nahm diese Auftreibung schon nach wenigen Tagen schnell ab. Bemerkenswert ist, daß wiederholt Schlangen, die ein Tier verschlungen hatten, nach kurzer Zeit noch ein zweites zu sich nahmen. Auf der andern Seite ist es erstaunlich, wie lange diese Tiere ohne Nahrung existieren können. Zwei prachtvolle Exemplare, die im Frühjahr im Tierpark eintrafen, verweigerten durchaus jede Nahrung. Während die eine dieser Schlangen bis heute noch nichts zu sich nahm, verschlang die andre vor einigen Tagen etliche Hühner. Diese Tiere kamen in einem prächtig genährten Zustande an, sind aber während dieser Zeit beträchtlich abgemagert.

Aus diesen Experimenten geht hervor, daß es sich bei diesen Schlangen um Reservefresser handelt, die auf längere Zeit hinaus Nahrung in größerer Quantität zu sich nehmen.

9. Parasitic Euglenae.

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eingeg. 30. November 1906.

Some fourteen years ago I briefly described (Proc. Linn. Soc. N. S. W. Vol. VII. 2nd series 1892) the occurrence as an intra-cellular parasite, in an undetermined Rhabdocoele Turbellarian, of a flagellate Protozoan that seemed to be closely allied to *Euglena*. This seemed to be the first record of a Mastigophoran living as a cell-parasite: and, so far as I am aware, it remains the only one.

Some months ago, on examining some specimens of a Mesostomid Rhabdocoele, as yet undetermined, I found that there issued from many of the specimens, when ruptured, innumerable multitudes of a Euglenoid Protozoan. When observed within their hosts these were found to be motionless, or to execute comparatively slow "euglenoid" movements. When set free they soon began to move more rapidly.

They are devoid of chromatophores and are almost colourless, with only a very faint yellowish or greenish tinge. They have the usual *Euglena* shape when at rest, and contain noumerous rounded clear corpuscles. At this stage there is no flagellum; and, without a very close

examination, it would be quite pardonable if an observer were to come to the conclusion that be had to do with a *Monocystis* or allied Gregarinid. The use of high powers however shewed unmistakeably (1) that there is a mouth and gullet (2), that there is a stigma (3) that there is a contractile vacuole and reservoir. Furthermore in some specimens a rhythmical movement could be detected within the gullet.

Specimens freed from the host sooner or later undergo a change. Within two hours in some cases, but often only after the lapse of a considerably longer time, the euglenoid movements cease, and are succeeded hy much more active spinning and rolling movements, which are found to be brought about by the agency of a flagellum. Often they retain a bottle-like shape for a considerable time after the appearance of the flagellum, and revolve rapidly round the long axis. Eventually they assume the form which is characteristic of the Euglenae in general when they are not undergoing "euglenoid" movements. The flagellum is about half the length of the body, and its movements are rapid-about ten to a second. Chromatophores were not developed, though freed specimens were kept alive for several days.

In the case of the *Euglena*-like form which I had previously observed (and which may be identical with the one now under consideration though found in a different host) the parasites were to be seen moving about within the protoplasm of certain of the cells of their hosts, often pushing aside the nucleus, or displacing protoplasmic filaments. The form occurring in the Mesostomid is not so easily to be observed in situ in the living condition, owing to the thickness and opacity of its host. It was seen, however, to be abundant among the spermatozoa in the vasa deferentia and vesicula seminalis. In sections it was found to occur within the cells of the digestive epithelium: but to be most numerous in the spaces between the gut and the body-wall. No free Euglenae were found in the water in which the Turbellarian hosts were living.

It is somewhat remarkable that this peculiar kind of parasitism has escaped notice. In his recently published momoir »Die Turbellarien als Parasiten und Wirte« Graff's only reference to flagellate organisms as parasites of Turbellaria is as follows: — »Flagellaten-ähnliche Organismen mit lebhaft schwingenden Geißeln sind bisher bloß in den Nebentaschen der Bursa seminalis von *Monocelis fusca* Örst. gefunden worden« (p. 59).