

Der anatomische Bau des Tentakels läßt manche pathologischen Eigenheiten erkennen, die besonders auf die Organe der Gesichtsempfindung Bezug haben.

Das Auge fehlt vollkommen, und mit ihm ist keine Spur eines Nerven zu entdecken, der sich als Opticus identifizieren ließe. Es schlängelt sich allerdings an der Basis des Fühlers ein Nervenbündel von der Dicke des Opticus hin, das aber bald im umgebenden Gewebe verläuft und, ohne den breiten Fühlergrund zu verlassen, sein Ende findet. Selbstverständlich ist hier nicht zu entscheiden, ob wir es wirklich mit dem Rudiment des Sehnerven zu tun haben, der etwa bei der Verletzung des Tentakels eine Verlagerung erfahren oder sich an un Zweckmäßiger Stelle neu gebildet hätte.

Die übrigen nervösen wie muskulösen Gebilde des Fühlers zeigen keine Anomalien. Hervorzuheben ist nur noch, daß die großen, stark färbaren Zellen, deren Bedeutung Flemming¹⁴ noch offen ließ, und die Simroth¹⁵ als Drüsenzellen beschrieben hat, wohl an der Spitze des Tentakels in gewohnter Zahl ausgebildet sind, aber an der Grenze des M. retractor gegen die subepitheliale Muskulatur fast vollkommen fehlen.

3. Notes on New Sporozoan Parasites of Fishes.

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(With 3 figures.)

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1. *Mitraspora cyprini*. n. g. n. sp.

During the last few years it has been found that numbers of carp and gold-fish kept in small ponds during winter to protect them from bitter cold have died, apparently from unknown cause. On examining their visceral organs the kidney was found to be much damaged, and indeed, in serious cases its structure was completely bruised. Such specimens were always exceedingly infested with the sporozoa, which now I am going to describe. The renal tubule of the kidney thus affected was massed with sporoblasts of the parasite, and sometimes the ureter was seen almost packed with its free spores. The sporoblast contains generally 3 or 4 spores. The general outline of the spore resembles the monk's hood, slightly more attenuated in its anterior end. It is 10—13 μ in length, and 5 μ in its largest breadth, which lies almost in the middle

¹⁴ Flemming, Untersuchungen über die Sinnesepithelien der Mollusken. In: Arch. Mikr. Anat. Bd. 6, 1870.

¹⁵ H. Simroth, Über die Sinneswerkzeuge unsrer einheimischen Weichtiere. Zeitschr. f. wiss. Zool. Bd. 26, 1876.

of the spore. The shell is very thin and has the same thickness throughout, except two points of the truncated posterior end, where it presents a knot-like appearance. On its surface there are distinct striations, which are 8 in number and run almost parallel to the suture of the shell (Fig. 1). The most characteristic peculiarity of this species are its moderately long cilia, which attain $5,8\mu$ in length and attach themselves in a single row along the posterior margin of the spore. Their point of attachment appears to meet with the end of the striation lines. Whether they stand exactly so or not is not at present ascertainable, although I am inclined to believe it to be the fact. The polar capsules are symmetrical in form but not much closely apposed to each other. They

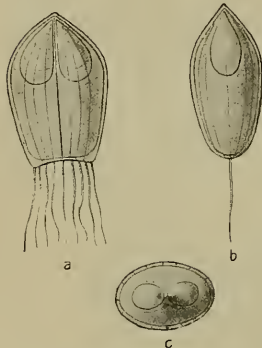


Fig. 1. *Mitraspora cyprini*. Much enlarged spore. a, Front view; b, side view; c, anterior view.

are $3,8\mu$ in length and 2μ in breadth. With a weak solution of glycerine, the capsular filament, which attains about 15μ in length, is easily extruded from the spore. The nucleus is obscure and there is no vacuole. This species differs from all known forms of Myxosporidia in as much as its general contour and the nature of cilia present very notable characteristics. At first sight, it presents some resemblance to *Sphaerospora caudata*, as both carry their cilia in a similar way; but the shape of the spore, the length of the cilia, the thickness of the shell etc. do not allow them to be classed as one and same species. It is not quite exact even to classify this species as

Sphaerospora, which has a spherical form as its prominent characteristic. Thus, considered from every point of view, this is a parasite altogether new and not yet into notice in this field of sporozoa. The generic name hitherto adopted by authors is based mostly on the nature of the spore, and following the same principle I have called it the *Mitraspora* with the species name *cyprini* as it was first found in cyprinoid fish.

2. *Sphaerospora acuta* n. sp.

In the early summer, number of gold-fish are brought here for sale from Tokyo. I am informed that some of them, after lying on their side for some time finally die. This is generally believed to be the natural consequence of the abrupt change of their environment. I could not affirm the fact until such an accident happened to my fishes brought from the same locality. Then, all the internal organs were carefully examined, but no obvious cause could be discovered. Finally, the gill was

cautiously inspected and in its epithelium a new sporozoan parasite was found. The sporoblast of this species contains about 2 spores. The spore is perfectly spherical in form with but a very slightly pointed anterior end. Its size is $8-10\mu$ and its breadth $7-8\mu$. In side view it is spindle in shape, having $5-6\mu$ in its broadest width. The shell is smooth and rather thin (Fig. 2). The polar capsule is two in number but slight dissimilar in shape and arranged in somewhat convergent form. It is large and pear shaped in its outline, having 5μ in length and 4μ in breadth. It occupies about $5/8$ of the spore in space. No vacuole is brought into view by any iodine solution. This species is smaller than hitherto known species among the *Sphaerospora*, to which the present form no doubt belongs. Besides, from the description above, it will be apparent that the present species shows striking differences

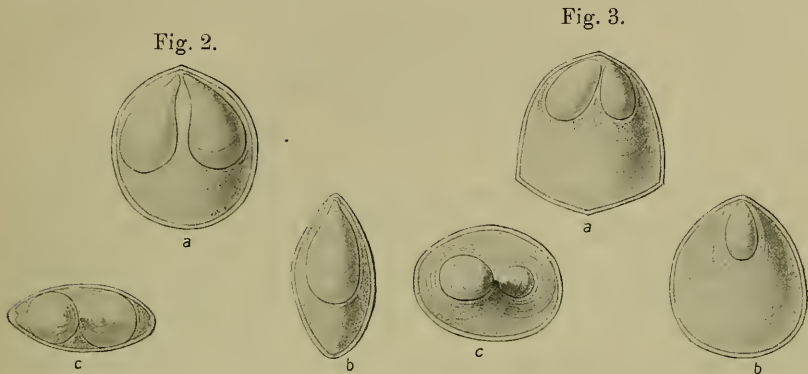


Fig. 2. *Sphaerospora acuta*. Much enlarged spore. a, Front view; b, side view; c, anterior view.

Fig. 3. *Sphaerospora angulata*. Much enlarged spore. a, Front view; b, side view; c, anterior view.

from all others in the form and size of spore and in other respects. Hence I consider this to be a new species and have named it as *acuta* after its pointed anterior end.

3. *Sphaerospora angulata* n. sp.

This species was found in the kidney of cyprinoid fishes in the same manner as the *Mitraspora cyprini* described above, and sometimes it appears together with this latter form. Nevertheless, it occurs less frequently. The number of the spore in the sporoblast is in this case always less than in the others, rarely exceeding two. It is small, being $7-8\mu$ in length and $6-7\mu$ in breadth. It is somewhat triangular in form with its sides swollen out. Often it is also slightly pointed at the mid-basal part, that is at the mid-posterior margin of the spore (Fig. 3).

The shell is very thin with concentric striations faintly marked on its surface. In side view it is oval, and its greatest width is about 5μ , which lies nearly in the middle part of the spore. The two polar capsules are oblong but dissimilar in their size. The larger one is $3,8\mu$ in its longest diameter. They are situated apart from each other. The capsular filament has the length twice as long as that of the spore. From these facts it will be evident that the present species belongs to the *Sphaerospora*. Of course it manifests some difference in its general outline; but this is an objection quite negligible as this genus comprises various forms not strictly spherical in their shape. Nevertheless, this is a species not yet recorded in current literature of Sporozoa. So I have designated this parasite as *angulata* from its characteristic form.

4. Teuthologische Notizen.

Von Dr. Adolf Naef, Neapel.

(Mit 2 Figuren.)

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3. Die Arten der Gattungen *Sepiolo* und *Sepietta*.

Die von europäischen Küsten bekannten Sepiolinae wurden bisher in der Gattung *Sepiolo* vereinigt, wobei der allerdings sehr übereinstimmende Habitus der meist ungenügend beschriebenen Tiere maßgebend war. Da dieser Habitus aber für die Unterfamilie, in etwas weiterer Fassung sogar für die ganze Familie (die einst unter dem Namen *Sepiolo* vereinigt war) typisch ist, so kann natürlich für die systematische Gruppierung einzelner Arten darauf kein Gewicht mehr gelegt werden. Immerhin kann ich zugeben, daß meine Gattungen *Sepiolo* und *Sepietta* noch eine Anzahl gemeinsamer Züge aufweisen, durch deren Besitz sie als nahe verwandt erscheinen. Dieselben betreffen den für alle Cephalopoden charakteristischen, in der Ausbildung der inneren Geschlechtsorgane und der Art der Begattung begründeten Sexualdimorphismus, welcher für die Systematik der Sepioliden eine besondere Wichtigkeit besitzt.

Ohne das sorgfältige morphologische Studium dieser Erscheinung ist hier die systematische Unterscheidung und Bestimmung der Arten durchaus undenkbar, da 1) die Differenzen zwischen den Geschlechtern oft beträchtlicher als zwischen den Weibchen und jugendlichen Tieren der nahestehenden Arten und 2) die letzteren zum größten Teil unbedeutend, veränderlich, und nur an lebendem oder sehr gut erhaltenem und sorgfältig konserviertem Material feststellbar sind. So erlauben die Körpergröße, die Färbung, die Proportionen der einzelnen Teile

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