Division of the Flattened Egg

It has long been known that when a fertilized egg is flattened between two plates it may cease to divide. Zeuthen[1] has shown recently that although cell division is inhibited, nuclear division may continue, so that many nuclei may be present in a single flattened cell. I obtained essentially similar results during the summer of 1951, at Roscoff. It was found that, if the egg was not too greatly compressed, it would eventually divide and, once division set in, cleavage of the cytoplasm would continue until the normal ratio of one nucleus to one cell was re-established.

When the degree of flattening is too great to permit cleavage, eventually bodies of granular cytoplasm may segregate around the individual nuclei, separated from one another by gelled cytoplasm. The volumes of these segregates of granular cytoplasm are often similar to the volumes of the cells which would have existed at that stage if division had been possible. For example, at the 16-nuclei stage there are four segregates which are much smaller than any of the others, corresponding to the four micromeres of the 16-cell stage.

It was also observed that if a number of eggs were flattened by the weight of a small glass plate, the degree of flattening was not constant. Between divisions the flattening was maximal. Just before cell division the degree of flattening diminished sharply, so that the upper glass plate was raised. Then after division the degree of flattening increased. This cycle of events was repeated at each division.

The simplest explanation of the change in ease of deformation is that immediately before division there is an increase in the tension at the cell surface, and that in the plane which was occupied by the metaphase chromosomes this tension reaches a higher value than elsewhere, so that cleavage ensues in this plane. When cleavage is complete the tension falls off to its original value, only to rise again before the next cleavage.

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[1] Zeuthen, E., *Pubb. Staz. Zool. Napoli*, **23**, Supp. 47 (1951).

Fish Feeding on *Simulium* Larvæ

During investigations on the food of migrating fish in the Tanganyika region, a species of fish (*Varicorhinus tanganicæ* Boulenger) was found to feed on algæ, diatoms and insect larvæ covering stones and bottom in streams. *Simulium* larvæ proved to be the principal item of the food of *Varicorhinus*.

In 120 fish, 51 per cent were found to contain *Simulium* larvæ or pupæ, 48 per cent Ephemeroptera nymphs, 47 per cent Chironomids, 30 per cent other insects and 40 per cent plant material. In some of the stomachs the number of *Simulium* larvæ was very high, in some cases more than 50 (once 57).

The structure of the mouth in the genus *Varicorhinus*, with sharp edges in place of true lips, seems to be well adapted to scraping stones and weeds. *Varicorhinus* spends a part of its life in Lake Tanganyika, where the mineral content of the water is high, and another part in the affluent streams where the mineral content is low. It is able to ascend very rapid streams and withstand strong currents. The temperature of its home waters was found to vary between 17° and 27° C. and their electric conductivity between 49·7 and $566{\cdot}2 \times 10^{-6}$ mhos. The bottom of its home waters is often stony; but in the Lake it lives among weeds as well. *Varicorhinus tanganicæ* seems thus to be a very adaptable fish to varied external conditions.

The interest of the observations on food is that *Simulium* larvæ are sometimes very common in the rapid streams of East and Central Africa, and may give rise to swarms of very disagreeable flies, some species of which carry diseases of man and cattle.

Varicorhinus tanganicæ, or perhaps other species of the genus from rivers, could probably be introduced in regions where blackflies constitute a pest, as in the Nile near the Ripon Falls in Uganda.

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Discovery of *Tetragonurus* Risso, 1810, in South African Waters

The rare oceanic form *Tetragonurus cuvieri* Risso, 1810, has been known with some certainty since the sixteenth century from an account by Rondelet. It has at intervals been reported, mainly as single specimens, from the following localities: Mediterranean (sixteenth century onwards); Madeira (1839); Australia (1882 onwards); North Atlantic (1895); Hawaii (1928); California (1936 onwards); Japan (1939); New Zealand (1948). This fish has therefore been found over a wide range of temperate seas, but not hitherto in the Indian Ocean or in the adjacent Western Pacific.

A specimen of *Tetragonurus* has recently been found on the south coast of Natal, at about 31° S. This is noteworthy as the first record from the Indian Ocean. In addition, its characters and the locality have an important bearing on the question of whether all the specimens so far discovered are all one rather polymorphous species, or whether more than one exists.

A detailed description and figures of this fish will be published later.

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Trimorphism and Self-incompatibility in *Narcissus*

In 1887 [1] and 1888 [2] the Portuguese botanist Henriques described trimorphic heterostyly in two forms of *Narcissus* which he called *N. triandrus* L. and *N. reflexus* Brot., both belonging to *N. triandrus*, *sensu lato*. Though detailed studies have been made of trimorphic heterostyly in *Lythrum*[3] and *Oxalis*[4] the only subsequent investigation of this phenomenon in *Narcissus* seems to be a recent one by Fernandes[5], who published the frequencies of the three style-lengths in natural populations and speculated on the