

W. von Buddenbrock. Bericht über die in Schilksee bei Kiel in den Jahren 1928—1931 durchgeführten Erbrütungsversuche an Scholleniern. Ber. d. deutsch. wiss. Komm. f. Meeresforschung. N. F., Bd. VI. Heft 2. Leipzig, 1932.

Dr. von Buddenbrock in his final report on the hatching of plaice eggs in the Laboratory of the Schilksee near Kiel gives a very interesting account of the experiments which he has been supervising for the last three years. Although these researches have not shown that any increase of young fishes can be expected with the methods employed, the results are valuable, as many difficulties have been overcome and every year the improvement is manifest.

The plaice in this region lives under peculiar conditions, the salinity of the water being so low that it almost reaches the limit which the fish can stand, it being on the borders of its natural distribution. The consequence is that in any hatching experiments the eggs, which naturally float freely on being discharged from the female, in the water of the Schilksee sink to the bottom and it is only by the addition of salt to the water in the containers that they can be brought to the surface. Statistics show that at the very best the number of larvae hatching from the experimental tanks does not exceed what can reasonably be expected from those hatching in their natural surroundings. Besides the disadvantage of the low salinity there were many others, notably that the plaice brought from the breeding grounds had little time to acclimatise themselves to the changed environment and — a very important fact — the growth of bacteria on the egg sheath caused a high mortality in the newly hatched larvae. This last was effectually remedied by the judicious use of a solution of formalin.

The flounder is much more easily reared, an average of 72 % of the experimental eggs being hatched out, which shows that the defective results with regard to the plaice do not arise from technical faults so much as from the susceptibility of that fish.

The feeding of the larvae is a question of importance and Dr. von Buddenbrock has experimented by keeping the newly hatched fishes in filtered water with no food and in water provided with a pure culture of *Protococcus*. As was to be expected those without food died as soon as the yolk-sac was absorbed, but those fed on the algae lived for some time after the absorption of the yolk and evidently ate the algae which were found in quantities in their stomachs. Such a vegetable diet is naturally only suitable for the very young larvae, but the *Protococcus* certainly appears to be a good food for such early stages, the larvae in the latest experiments being kept for three weeks without great loss of life. The greatest difficulty comes on afterwards when animal food is essential. The author states that even quite young nauplii are too large for such small fishes and that he found when they were fed with natural plankton that they took tintinnids and protozoa. This is not the first time that tintinnids have been found to be the food of young fishes. They are seen frequently inside very young herring which have just begun to feed. Researches resulting in a reliable method for the culture of tintinnids would probably lead to important results. It cannot be long, however, before the larvae would naturally take the smallest crustacea, many of which are not much larger than an average-sized tintinnid, and it is almost certainly among the crustacea that an ideal food will be found on which to rear the young plaice.

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