

Mr. H. P. Sherwood, assistant naturalist to the Ministry, may be of interest.

Experiments in oyster culture in tanks are being carried out by the Ministry at Conway on a large scale, and have been in progress for several years. In order to throw light on the frequent failure of spat settlement under natural conditions, and the remarkable success which has almost uniformly attended the breeding experiments in the Conway tanks, special attention has been directed to the identification of enemies of the embryo oyster. Some six weeks ago large numbers of *Noctiluca miliaris* were noted in the Conway estuary, which has since contained this organism in varying quantity. Laboratory experiments were carried out, and Mr. Sherwood noted a remarkable and rapid diminution in the numbers of oyster embryos placed in aquaria in the presence of *Noctiluca*. He afterwards found that many of the *Noctilucas* contained from one to four oyster embryos. The embryos were seen at the outset in, or in close proximity to, the peristome and mouth, later becoming scattered through the substance of the *Noctiluca*, enclosed in distinct food vacuoles.

Mr. Sherwood has made a long series of confirmatory observations, and the actual ingestion of the embryos has now been repeatedly observed, including the transference of the embryo to parts remote from the mouth.

Many exceedingly interesting observations with regard to the mechanism of ingestion, etc., have been made, but a full description would be out of place in a short communication. It may, however, be noted that the tentacle of *Noctiluca* appears to take no active part in the process of ingestion. The behaviour of the embryos suggests that their movements, and therefore power of escape, are inhibited after contact with the oral groove, either by entanglement of the cilia with mucus, or by actual paralysis induced by the action of some "stinging" mechanism. Further investigation is required, however, before any definite deductions can be drawn.

When it is considered that *Noctiluca* often occurs in the sea in enormous numbers, and that each *Noctiluca* can dispose of at least as many as four oyster embryos at a time, the importance of this observation will be apparent. I am informed that great quantities of *Noctiluca* have recently been observed in the vicinity of the oyster beds at Orford.

Another observation recently made by Mr. Sherwood, in connexion with the disappearance of oyster spat, is of interest. Not only has he found oyster embryos in the stomachs of adult oysters, but also has found the stomach of a "black sick" oyster, taken from a tank in which there was no free-swimming spat, crammed with embryos in the same stage of development as those found in the gills of the parent oyster. It would thus appear that the oyster is not only a cannibal, but also even devours its own young before extrusion.

The very interesting observations made by Dr. J. H. Orton (*NATURE*, August 5, p. 178) on the ingestion of oyster embryos by *Aurelia aurita* throw further important light on the question of failure of oyster spat fall.

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Castle Bank, Conway, August 18.

#### Defoliation of Oaks.

IN view of the deplorable effect of repeated defoliation of oaks by the larvæ of *Tortrix viridana*, as noted by Mr. E. W. Swanton in *NATURE* for August 19, p. 250, it may be useful to remind planters that there

are two distinct races of British oak (*Quercus robur*, Linn.), to which some botanists have assigned specific rank as *Q. pedunculata*, Ehrh., and *Q. sessiliflora*, Salisb. The latter, known in the vernacular as the durmast oak, prevails as an indigenous growth in the western and north-western parts of Great Britain, throughout the English Lake District, and in Ireland. In eastern England and Scotland and in midland and southern England the pedunculate oak predominates, but not exclusively, for I have found that the old trees in Merevale Park, Warwickshire, survivors of the ancient Forest of Arden, are durmast, while such oaks as have been planted there are pedunculate.

The timber of these two varieties (or species) are of equal quality, the durmast being of straighter growth than the other; but there is an important and well-marked difference in their relative susceptibility to the ravages of Tortrix. The Hon. Gerald Lascelles, late deputy surveyor of the New Forest, directed my attention to this many years ago. "I have seen," he said, "a sessile oak standing out in brilliant foliage when every other oak in the wood around was as bare of leaf as in winter."

Subsequent careful observation in all parts of the country has fully confirmed Mr. Lascelles's statement. Unfortunately, the durmast forms and ripens acorns far less frequently than the pedunculate oak; hence the difficulty of obtaining durmast seedlings and plants from nurserymen, and the vast preponderance of the pedunculate oak in British and Irish plantations.

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#### Black Coral.

PROF. HICKSON, in his interesting article on Black Coral (*NATURE*, August 12, p. 217), alludes to the remains of Noah's Ark as quoted by Josephus from Berosus and others. It is said in Josephus (*loc. cit.*) that "the remains of the timber were a great while preserved." There is in the Monastery at Etchmiadzin a small piece of Noah's Ark carefully framed. It was given by an angel to a monk named James, who had wandered on Ararat in search of it for seven years (see J. B. Telfer, "The Crimea, etc.," 1876, p. 250). So far as I could see, when I examined it in 1898, it was neither wood nor fossil wood, but asbestos. This does not render improbable the occurrence of bitumen in the neighbourhood, but why does Prof. Hickson assume that the amulets were bracelets? In default of evidence that Noah utilised the Ark for dredging, there does not seem any reason to connect him with black coral.

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#### Metallic Coloration of Chrysalids.

IN *NATURE* of November 3, 1921 (vol. 108, p. 302), a letter of mine appeared on the "Metallic Coloration of Chrysalids." During the present year I have had the opportunity of observing some very fine examples of the chrysalids of *R. urticae*, in which the gilding extended over the whole surface. It may be of interest, as bearing on the origin of the colour, to note that when the gilding was very gently scraped, the gold first turned to green and then to blue. In the course of a few days the scraped area assumed the same appearance as the whole chrysalid does after the butterfly has emerged, namely, a yellowish white.

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9 Baring Crescent, Exeter, Aug. 24.