

specialization as the American and African species, this may be an incipient tendency towards that condition. The capacity of the eggs of Cyprinodonts to lie dormant during unfavourable season in stagnating water would certainly enhance their suitability as larvicidal fishes.

Regarding *O. melastigma*, Job³ says that "At Calcutta they hatched out in eleven days in water at 88° and in fourteen days in 85°. A few eggs kept in a vessel without change of water hatched out in nineteen days". In the case of other Cyprinodonts some variations in the incubation period are recorded by Job³ in *Aplocheilichthys panchax* and by Kulkarni⁴ in *Horaichthys setnai*.

The views of some of the former workers on this subject are as follows. Tennent⁵ in his *Natural History of Ceylon* refers to the belief that eggs of many tropical fishes are able to tide over the dry season in the mud and gives reasons against such a possibility. He is of opinion that the mature fish bury themselves in the mud under the hardened top crust and come out ready to spawn at the advent of rains. Thomas⁶ emphasizes the need for more work for studying the capacity, if any, of the eggs of tropical fishes to aestivate. Day,⁷ in the absence of any definite data, declines to make any comment on the view that fish full of spawn are able to aestivate till the commencement of the next rains.

I am indebted to Dr. George S. Myers of the Stanford University for sending me a copy of the *Stanford Ichthyological Bulletin* containing the article referred to above, and to Dr. S. L. Hora, Director of Fisheries, Bengal, for going through this note and communicating it for publication.

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December 11, 1943.

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ON THE BIONOMICS OF BIG-JAWED JUMPER, *LACTARIA* *LACTARIUS* (Cuv. & Val)

THE Big-jawed Jumper, *Lactaria* (Cuv. and Val.) is a shoaling fish to an important fishery in the Gulf and Palk Bay, from the month of month of January. The peak of occurs in September and October.

Food.—The Big-jawed Jumper is a voracious fish, feeding on other smaller species as the Sprat (*Sardinella gibbosa*), the *(Engraulis indicus)*, the White-bait (*Engraulis sp.*), the Jew-fish (*Sciæna*), the Silver-bellies (*Leiognathus* sp.), young fish (*Trichiurus savala*), the Sole (*Rhombus arsius*), the Shrimp (*Alpheidae*) and the Prawn (*Peneus* sp.). The White-bait appears to be its favourite food.

Size.—Over three thousand specimens in size from 11 to 25 cm., were reared in the laboratory of Krusadai Biological Station during the years 1940-41, 1942-43. The commercial catches consist of specimens 17 to 21 cm. in length. The percentage of males in a shoal is always less than that of the females, in some cases as low as 25. The males are smaller than the females, attaining maturity within 18 cm.; and they become mature when they are 16 cm. in length, while the females are larger, attaining a length of 25 cm. and they become mature when they are 18 cm. in length.

Spawning season.—The spawning is confined to the months of September and October, when the fishery is at its height. The females form the bulk of the catches; yet their heavy destruction seems to diminish or deplete the fishery.

Eggs.—The ripe ovarian egg measures 0.76 mm. in diameter, with a single yellowish oil-globule measuring 0.4 mm. in diameter. Attempts made to collect eggs from the sea off Thangachimadam village four miles east of Pamban, where the fishery takes place, have not been successful. It is probable that the ripe fish go to the open sea beyond the three-mile limit of the catamarans, to spawn there unharmed. Fisheries Bureau, Madras, February 24, 1944.

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SIR JEREMY RAISMAN'S BUDGET SPEECH

WE wish to invite the attention of our readers to the relevant portions of the enlightened budget speech of Sir Jeremy Raisman, the Finance Member to the Government of India (appearing elsewhere in this issue), relating to the capital and recurring grants for the estab-

lishment of National Research Laboratories. This generous gesture, which is "an expression of the Government's desire to foster the development of Indian industry," is hoped, will soon be followed by substantial grants.