

extraneous matter as possible." [These eggs are about 2.5 mm. diameter, and are characterized by possession of a great many small oil-globules dispersed throughout the superficial layer.—G. M. T.] "It appears that the eggs require some strong current to keep them clean, as those kept in glass jars with the water running quickly enough to keep the eggs moving remained quite clean, and fewer deaths resulted. On the 29th January, forty-four days from securing the eggs, they began to hatch and continued for several days. Almost from the beginning the young garfish began to disappear between midnight and 6 a.m. On speaking to Mr. Adams he thought the overflow of the boxes was too high. This was remedied and new cloth placed on the bottoms, but still they disappeared. My intention was to preserve one larval garfish each day to show the development of the lower beak, but I did not have sufficient specimens for such work. One night five disappeared, and the last disappeared when nearly three weeks old." But several stages of growth have been preserved, and drawings made showing slight increase in the lower jaw.

*Kokopuru* or *Cockabulli* (*Tripterygion varium*).—Specimens of this species were found on the 21st October to have spawned in empty mollusc shells, "the males exhibiting parental care of the eggs, remaining inside the shell and aerating them during the three weeks hatching. Close observations were taken and recorded, drawings were made of the larval fish and photographs taken of the male protecting the eggs."

*Sucker-fish* (*Diplocrepis puniceus*).—These fish were found spawning at Harrington Point on the 8th October. Eggs were brought to the station and photographs and drawings were made. Although a great number of ripe fish of both sexes were brought to the station, only on two occasions did they spawn in captivity."

Mr. Graham reports that of *Notothenia purpuriceps* (new to New Zealand), of which one specimen was met with last year, five more were caught in the channel near the station, and one at Moeraki. Fishermen have sent in specimens of the following rare fish to the station, viz.: Ribbon-fish (*Trachypterus trachypterus*), *Pseudopentaceros Richardsons*, *Notothenia microlepidota*, *Paratrichthys Trailli*, and *Emerocoetes Waitei*. "*Auchenoceros punctatus*, a fish I recorded new to Otago as being found in the stomach of red cod, is now plentiful in the harbour and in Blueskin Bay. A ray of unusual shape, which according to the drawings and description appeared to be an Australian form, was sent to the station during my absence in hospital, but was not kept to be examined." Stomach contents of both mature and juvenile fish have been recorded throughout the year. Notes on the habits and life-histories of ten species of mollusca, six species of decapod crustaceans, and other forms were made.

*European Lobsters*.—The stock of lobsters in the ponds on the 31st March consisted of fourteen males and eleven females. These, which were imported in 1928, are now presumably about fourteen or fifteen years old. The females were examined early in November: six were found to be carrying full batches of eggs; three varied from three-fourths to half batches. Mr. Adams estimates that the total number of larvæ liberated from the ponds in December and January was about 105,000, probably a very conservative estimate. In his annual report to the chairman, Mr. Adams states, "As Mr. Graham decided to make another attempt to rear a number of young lobsters, two females with eggs more advanced than the others were placed in the wharf pond. Some three weeks later both were removed to an observation tank, and on the 14th December the first larvæ commenced to hatch out. These were placed in the boxes in the aquarium, and the water-supply was brought direct from the reservoir through a rubber hose so that it was impossible for any rust to foul the bottom screens." Mr. Graham reports that "over 100 larvæ were kept in specially prepared boxes with water flowing in direct from the main concrete tank. These were kept till they were a month old and were living on the floor. Seventy-nine fairly active specimens were liberated at Quarry Point in a secluded spot where there were plenty of crevices to remain in and thus escape the larger enemies. Six weeks later on examining the spot, two were found under a rock close by and made frantic efforts to find cover."

The attempt to introduce the European lobster into New Zealand waters has, up to the present, met with no success. A brief summary of the history of the movement shows that the first attempt was made in 1864 by Mr. A. M. Johnson, of Opawa, Christchurch, who was noted for his work in endeavouring under most adverse conditions to introduce many sorts of fish into the Dominion. In shipping them from London he put all his twenty-six lobsters into one tank, with the result that they fought like Kilkenny cats till only one was left alive, and this was sold to a passenger who no doubt had it for dinner.

In 1885 a dozen lobsters were shipped in London by Mr. C. S. Farr for the Canterbury Acclimatization Society, but all died in the tropics. In 1892 Mr. Clifford, of Dunedin, shipped a lot for the Otago Acclimatization Society, but these met with the same fate.

In 1891 Mr. Purves, Chief Engineer of the "Ionic," attempted on his own account to bring out lobsters, but was unsuccessful. He renewed the attempt in the following year, again without success. But on his third voyage he landed nine (out of twelve shipped) at Dunedin. These were the first lobsters landed alive in this country. They were placed on the mole at the entrance of Otago Harbour, a most unsuitable locality, and were never heard of again.

In 1906 the Board of the Portobello Fish Hatchery, the parent of the present Board, renewed the attempt. Twenty-five lobsters were shipped by the "Karamea," but the apparatus for cooling the water was very defective, and only two were landed at Port Chalmers. In 1907 and 1908 further shipments of twenty-five each time were made, and on each voyage seven were landed alive. In 1909 better success was achieved, and seventeen males and fourteen females were landed. In 1912 Mr. Anderton, curator of the station, went Home to bring out herring ova for the Government, and advantage was taken to bring out more lobsters. On the 1st March, 1913, forty-one lobsters (out of forty-three shipped), were landed at the station. The surviving lobsters of the old stock were liberated at Harrington Point, just inside Otago Heads. In 1928 the last lot of thirty-nine was landed at the station, and as reported above there are still twenty-five in the ponds.