

fully develop. The ova of the ling are, indeed, more delicate and more susceptible to unfavorable conditions than those of the cod and haddock." Now, these observations would apply exactly to the present egg. It is so light that the slightest movement in the water carries it hither and thither. In still water it falls to the bottom, and, indeed, unlike marine eggs, which are in water of greater specific gravity, the egg of the fresh-water ling cannot permanently float. It is perfectly spherical and has a diameter of 1.77 mm. ( $=.0695$  inch) and the globular oil sphere measures .354 mm. ( $=.039$  inch) in diameter. The egg of the marine ling measures 1.68 mm. ( $=.066$  inch, or even  $.0916$  inch) in diameter and the oil globule .96 mm. ( $=.037$  inch), so that the fresh-water species produces an egg in general of smaller size, indeed in proportion, it may be said to the different size reached by the full grown form in both species. Whereas the burbot reaches a length of only 12 to 30 inches and a weight (according to Pennell) of 2 to 8 pounds; the marine ling may measure 24 to 72 inches in length and a weight ranging from 15 to 60 pounds.

None of the burbot's eggs were fertilised, so that no germinal disk was formed, though a thin layer of protoplasm surrounded the ball of clear yolk fluid. The yolk was not granular, and the bright globule of oil lay free in the yolk and moved readily about as the egg revolved when pushed by a scalpel on the stage of the microscope. In some of the eggs a thin irregular envelope of protoplasm collected round the globule, but in most examples it was not present. A perivitelline space separates the yolk-globe from the thin capsule of the egg. The capsule itself is a simple transparent shell, as in all pelagic types of ova; and in optical section it appeared as if double, and concentrically striated—a false effect—but repeated and careful examination showed radial striations in the thin capsule; these striations apparently corresponding with minute dots or pits occurring all over the exterior. The micropyle showed the usual features, a slight conical thickening in the centre of which was the aperture seated in a crater-like depression. As in the case of the marine ling, the eggs of this fresh-water form are delicate in the extreme, and very readily