## PLANTING YOUNG FRY: ITS COMPARATIVE ADVANTAGES.

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It was my intention, in the present report, to treat exhaustively the much discussed question of the planting of yearling or 'fingerling' fish, as compared with the planting of newly-hatched fry. The latter method of stocking waters is that mainly carried out in the system of artificial fish-culture conducted by the Department of Marine and Fisheries. The controversy, respecting the merits of the two systems, has been actively carried on for more than a quarter of a century, and fish-culturists are still divided into two schools, the partisans of one school being as emphatic and zealous in their own special advocacy, as the partisans of the other. The adoption of one system does not imply the total disparagement of the other, and there is certainly much to be said for the rearing of the fry of fishes, in our hatcheries, until they are robust and independent ; until, in other words, they are able to look after themselves. In order to do justice to the two methods: the 'young fry' method, and the 'fingerling' or 'yearling' method, the various points raised require to be dealt with exhaustively and I therefore propose to treat in a future report the whole subject with some thoroughness, in order that the practical aspects of the matter may be fully set forth, as theoretical considera-tions, have, it must be confessed, hitherto figured very largely in this important discussion. My present purpose is simply to state, in the meantime, the principal points which may be urged in favour of the system carried out in Canada. I shall do so as concisely and as clearly as I can, reserving for the present those more technical and complex features which can be understood by the embryologist, but are of less moment to the practical man, to whom the more salient points appear, of course, to have the greatest weight. It is necessary to point out that by the terms fry, young fry, or newly hatched fry, is meant the true larval condition, before the features of the embryonic stages are lost. When a young fish emerges from the egg, at the close of the incubation process, it bears no resemblance in most cases, to the parent fish. It is, as a rule, not at all like a fish : but resembles a small worm with a protruding bag of yolk attached to the under side. I have often heard people declare, on seeing newly-hatched fish in a jar or tank, that they looked like wriggling insects. A minute scientific examination shows that the young fish larva is not only in external form and features, but also in internal structure and anatomical arrangement quite different from a fish, indeed is almost as unlike as the caterpillar is unlike the butterfly. At first the newly-batched larval fish feeds only on its store of yolk, but as soon as this is exhausted, it begins to change its shape, the mouth, which at first is not used at all, becomes actively movable and numerous minute weeth protrude from the surface of the jaws. Indeed, in the young shad, for instance, teeth develop long before the food-yolk is used up. The late Professor Ryder called attention to this precocious appearance of teeth in the infant shad. Of his previously published statement 'that the yolk cack disappeared on the fourth to the fifth day after the young fish had left the egg,' he said (Bullet. U.S. Fish. Commis., 1881, p. 241): 'Although this statement is in a broad sense true, I find upon more accurate investigation that there is a small amount of yolk retained in the yolk-sack for a much longer time. It appears in fact that there are really two periods of absorption of the yolk which may be very sharply distinguished from each other. The first extends from the time of hatching to the end of the fourth or fifth day, according to temperature,