stages in the half the time of the Atlantic species. If the recently published statement be reliable that a marked salmon, 24 pounds weight and 36 inches in length, had been taken in the fall of 1898, which there was evidence to show was one of a batch of small fry planted in the spring of 1897, then our ideas as to the growth of these fish must be entirely changed. It is *prima facie* improbable that a larval fish a fraction of an ounce in weight (the newly hatched salmon weighs the one-hundredth of an ounce) should reach in sixteen or eighteen months a weight of 24 pounds. Indeed I have a number of sockeye salmon fry in my possession which show twelve or thirteen "parr" stripes, though less distinctly than at an earlier stage and they are seven months old. They are from 2 inches to 3¼ inches long and weigh barely 50 grains each (about ⅛ oz). At the same rate of growth they would reach 5 or 6 ozs. a year later, and that is the weight of a smolt 7 inches long at the time that it descends to the sea. Until the evidence is clearer and more convincing it is advisable therefore to adhere to the usual scientific opinion that a Pacific salmon as a rule does not reach a weight of 8 to 15 pounds in less than three years, but as it is in every sense full grown at that weight in the sockeye and other species, its development is far more rapid than that of the eastern species.

All the salmonidæ of whatever genus or species pass through recognized stages. All commence with the egg, which is deposited in clear rippling portions of rivers and streams where gravel and small stones abound and where the water is sufficiently shallow to ensure abundant aeration. The second stage is the "alevin," or newly hatched larva, a delicate worm-like condition, in which the large elongated bag of yolk on the under side, the prominent tinted eyes, the slender tail, and the continuous fin-membrane along the bag, are seen in all the species. Whatever differences there may be in minor details the life history of the eastern or Atlantic salmon is typical of the allied species in our eastern and western waters and it may be divided into eight separate stages.

(1.) The egg stage, in which the fish is as yet unformed. The egg is a spherical object not unlike a translucent pea about ¼ inch in diameter. It is of a marked reddish hue on account of globules of oily matter of a salmon tint which is scattered through the ball of fluid yolk. After fertilization the ball of fluid yolk, somewhat yellowish in appearance, separates into two parts, one the lower, shaped like a flattened disk is germinal protoplasm and is the real germ mass out of which the fish is built up, the other more bulky portion is the food-yolk, finely granular, and containing as already noted the reddish coloured globules of oleaginous matter. Each egg possesses a transparent shell or egg-capsule like a thin skin or envelope, which is very strong and resistent. The egg of a salmon will resist great pressure, some experiments showing that a weight of 5 pounds 6 oz. may be placed upon a salmon's egg before it can be crushed. The eggs are produced in quantity, about 900 eggs to the pound-weight of the parent fish. A 36-pound female salmon will deposit 30,000 eggs, and they grow so rapidly in the ovaries that whereas in early spring the eggs are only about 1 per cent of the total weight of the parent, yet in November when the eggs are nearly ripe and ready to be deposited, they exceed one-quarter the total weight of the female. The ripe eggs are deposited in batches. In 150 days under a temperature 34° to 36° the young embryo has been fully developed and is ready to emerge. One-quarter the time is occupied if the temperature is kept very high, say 97° Fahr. and in 90 days when it is 45°, while the period is 101 days at 43° Fahr. Towards the end of March and during the month of April the embryo salmon have so developed in the eggs that they are ready to burst out. The thin shell ruptures and there emerges a tiny and almost transparent creature, difficult to recognize as a fish at all, and too feeble to employ its mouth in obtaining subsistence. As a rule the young salmon lies upon its side and does not wander far, lying hidden amongst the yellow gravel and remarkable chiefly for the large somewhat lengthened bag of yolk hanging from its under side and directed backward. The reddish orange globules which are so conspicuous a feature in the egg, are still prominent in the yolk-sac of the newly hatched embryo, and they become grouped in masses at the upper side—next to the body of the fish. Red streaks passing across the yolk-sac indicate the blood vessels which pour their contents by the great vitelline vein in front into