

New Species of Stickleback.

The pulsation of the heart, seen immediately in front of the yolk-bag, and the movement of the blood in the vessels of the yolk-bag, in the aorta and the large veins above and below the spinal column, as well as in the transverse branches passing between the muscular flakes of the sides, can be very distinctly perceived. The spinal column appears as a uniform cartilaginous hyaline cord, and the pectoral fins are fully developed and in constant motion. The posterior part of the body is surrounded by a delicate membranous fin, terminating in a rounded point at the tail.

As the yolk-bag diminishes in size, beautiful stellate pigment cells become developed in the skin, and render it too opaque to permit the interior structures to be well seen; and before the little creature has attained the length of one-sixth of an inch, it has all the appearance of the adult, and may be seen slowly swimming or hovering, with its bright eyes rolling in search of the minute crustaceans, worms, rotifers and animalcules which form its prey, and which it seizes by sudden, quick darts. When alarmed, it hides under stones or algæ, or remains motionless over some part of the bottom resembling its own colour, which, when it is irritated or frightened, deepens almost into black.

The fry remain in the brooks throughout the spring and early summer; but the greater part disappear, descending I suppose into the river, before autumn. Those that remain are now (September) nearly an inch in length, and will probably be full-grown next spring.

The following is the description of the adult in spring:—

Length, two inches; head to body, as 1 to 4; depth of body to length, as 1 to 4. Form, compressed, especially above; back, regularly arched to the end of the dorsal fin, from which it curves upward slightly to the insertion of the caudal fin. Head, regularly conical, obliquely truncated by the lower jaw. Eye, prominent, diameter one-tenth of an inch. Nostril, half-way between eye and pre-maxillary, and on a level with the upper part of the orbit. Body, quite destitute of bony plates; on this last character, the absence of defensive armour, I have given it the specific name *gymnetes*. Pre-operculum, bent nearly at a right angle, rounded at apex. Operculum, rounded below, nearly straight above, rounded at superior posterior angle. Brancheostegal rays, three. Mucous pores, three above each eye, a few very small under the eye; on the occiput a curved row of pores convex backward; at the edge of the operculum two less distinct rows convex upward.