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There is a popular notion that the Paddlefish (*Polyodon spathula*) uses its paddle or snout as an organ of excavation in its search for food. Examination and consideration of the composition and texture of this organ ought to lead one to question the correctness of the popular opinion. The snout or rostrum of the common sturgeons may well be an organ of excavation, armed and protected as it is with bony plates, but the rostrum of the paddlefish is covered with a soft naked skin. Stockard (1907) has given us a very thorough and enlightening account of the habits of this fish. In the lower Mississippi River region, where in recent years it has been the most abundant, it is never found, according to Stockard, in lakes less than ten feet in depth. "Usually it is caught in those parts of the lakes having soft muddy bottoms, the sections with hard sandy bottoms yielding no Polyodon when seined." "The main diet of *Polyodon* consists of small Crustacea, usually Copepods. These are probably obtained by stirring the muddy bottoms and gulping in the agitated material, which is then effectively strained by means of the long slender gill-rakers, so that only the small arthropods remain in the mouth to be swallowed." From the fact that large healthy Polyodon are found with only the stump of the snout left, Stockard doubts the foraging value of the rostrum. His doubts are increased by the observation that contact of the rostrum with an external object, as a seine, seems to partly paralyze the motor activities of the animal. He believes that if *Polyodon* ran its snout into viscid mud it would be likely to be trapped thereby. "Since the fish lacks the power to turn its head from side to side, it cannot stir the mud with its spatulate snout, but must agitate the silt by a general movement of the entire body." Stockard regards the snout more as a tactile organ rather than an organ of excavation.

Mr. Alfred C. Weed, Division of Fishes, Field Museum of Natural History, informs the writer that Mr. Floyd S. Young, Director of the Aquarium, Lincoln Park, Chicago, reports having seen a paddlefish swimming through shallow water and swinging

its snout from side to side, hitting by this movement grass and weeds and supposedly dislodging the aquatic animals that form its natural food. These lateral movements evidently involve the entire body as Stockard observes. In this connection it is interesting to note that Luther (1913) has shown that the base of the rostrum in *Polyodon* is structurally adjusted to the resistance of lateral strain.

The occurrence of enormous numbers of sense organs (so-called "primitive pores") on the rostrum of the paddlefish has been quite generally accepted as related to food-seeking habits. Luther (1913), who doubts the excavating function of the rostrum, thinks it probable that it is the bearer of sense organs that guide the animal to places where food is abundant. As noted above Stockard regards the snout as having a special tactile function.

The visceral sensory nerve supply of the rostrum in *Polyodon* is vestigial, and no taste buds occur externally on the body except in the immediate region of the mouth (Allis, 1920). The barbels, which in the sturgeons are well developed and crowded with taste-buds, are rudimentary and devoid of sense organs in the paddlefish. Black (1916-1917) has called attention to the meager development of the visceral sensory centers and the great size of the lateral line centers in the brain of *Polyodon*, observations that the writer can confirm. The primitive pores are lateral line sense organs, and occur not only on the rostrum but also on the gill-cover and other parts of the head. Nachtrieb (1910) estimates that there are fifty to seventy-five thousand of them on the head of a single individual. Only a small part of the enormously developed lateral line contingent of the facial nerve in Polyodon goes to supply the typical canal organs, the most of it innervating primitive pores. No neurologist would think of assigning gustatory functions to lateral line sense organs, although our knowledge of the function of the lateral line system in vertebrates in general is confessedly inadequate. We may take as a summary of our present knowledge and opinions of these problematic organs Herrick's (1922) statement: "their functions are probably intermediate between those of the organs of touch in the skin and those of the internal ear, responding to water vibrations of slow frequency and probably assisting in the orientation of the body in space."

We may therefore tentatively suggest that the enormous development of the rostrum in Polyodon serves a double purpose:—

of forming an organ for the dislodging of the aquatic animals that form its chief food supply, and of furnishing surface for the distribution of the sensory pits (primitive pores). If these sensory pits have an equilibrium or pressure-difference detecting function their extensive development on the rostrum may be directly related to the lateral movements of the animal in the search for its food.

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