A STUDY OF THE PHARYNGEAL TEETH IN THE BLUNT NOSED MINNOW

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The taxonomic value of the teeth of fishes is readily expressed in the following quotation from D. S. Jordan, 1910. "No progress can be made in the study of these fishes (Cyprinidae) without careful attention to the teeth, as the genera are largely based upon dental characters." Cox, 1897 says, "It is often necessary to know the nature of the lower pharyngeal bones and teeth in identification, especially in suckers, minnows, and sunfish." Inasmuch as these characters have been stressed as taxonomic guides it is necessary to establish them as unvarying in order to give them their full value.

This account, a summary of the results obtained from a study of 56 specimens of the blunt-nosed minnow, shows that there are deviations in numbers and arrangement of the teeth in individual specimens as well as for different specimens of the group.

The pharyngeal teeth are situated on the pharyngeal bones of the fifth brachial arch. They are used as masticatory organs and possibly aid in affording the fish a chance to taste his food. The teeth are composed of the three tooth tissues. The prismatic structure of the enamel is not well marked and is probably absent in some cases. The cement is more appropriately named "bone attachment."

Fifty-six specimens were examined and it was found that 41 had the normal dentition formula of 4-4 as given by various authorities. The remaining 15 showed various deviations from the normal involving asymmetry between the two sides in the same fish as well as the presence of both supernumerary and subnormal numbers of teeth.

The size of the individual seemingly does not have any direct relationship to the number and arrangement of the teeth. This is shown by the fact that of a group of five specimens 48 mm. in length three had the normal dentition formula of 4-4, one of 4-4,1 and another of 2,4-4,2.

In some of the bony fishes teeth are "shed" but the old tooth functions until the new one is fully developed and ready for use. In one specimen there were four teeth on one side and three on the opposite side but there was not the slightest indication of regeneration of the "missing" tooth.

The main row of pharyngeal teeth is fastened directly and firmly to the pharyngeal bones. The median teeth are usually very broad and rather heavy with a sharp hook. Adjacent teeth laterad of the meseal series become longer, more slender, and more sharply hooked.

The secondary teeth are in a longitudinal row immediately posterior to the main row. They are arranged so as to fit between two teeth in the primary row and are fastened to the jaw by means of strong ligaments. The median secondary tooth is almost as heavy as the median primary one. It is broader and shorter with about the same angle of hook. It is less than one-third the length of the adjacent primary ones.

CONCLUSIONS

(1) The pharyngeal teeth furnish important data for identification of fishes but in the blunt nosed minnow neither the number nor the arrangement is absolute.

(2) The pharyngeal teeth are variable in form within the species or even in the same individual.

(3) In the blunt nosed minnow the size of the specimen has little or nothing to do with the number of pharyngeal teeth.

(4) The secondary row of pharyngeal teeth is not firmly attached to the pharyngeal bone.