

Allan D. Linder

and

Dale G. Koslucher

Department of Biology  
Idaho State University  
Pocatello, Idaho

## A Partial *Diastichus* (Cyprinidae) Skeleton from Plio-Pleistocene Lake Idaho

Deposits from ancient Lake Idaho which have been assigned a date of 3.0 to 3.5 million years (Evernden *et al.*, 1964; Malde and Powers, 1962) have yielded no complete fish skeletons. The cyprinid fish *Diastichus macrodon* Cope was based on three incomplete, right pharyngeal bones (USNM 2116) from these deposits (Cope, 1870). A partial skeleton (Fig. 1), referable to this species and in relatively good condition, was uncovered in 1968 near Fossil Butte in Owyhee County, Idaho (T4S, R2W, Sec. 12, NE $\frac{1}{4}$ ). The specimen was taken from a weakly consolidated, sandy-silt deposit which appears to be lacustrine in origin. Bones that could be salvaged are deposited in the Idaho State University Museum (ISUM 32036) and are considered here.

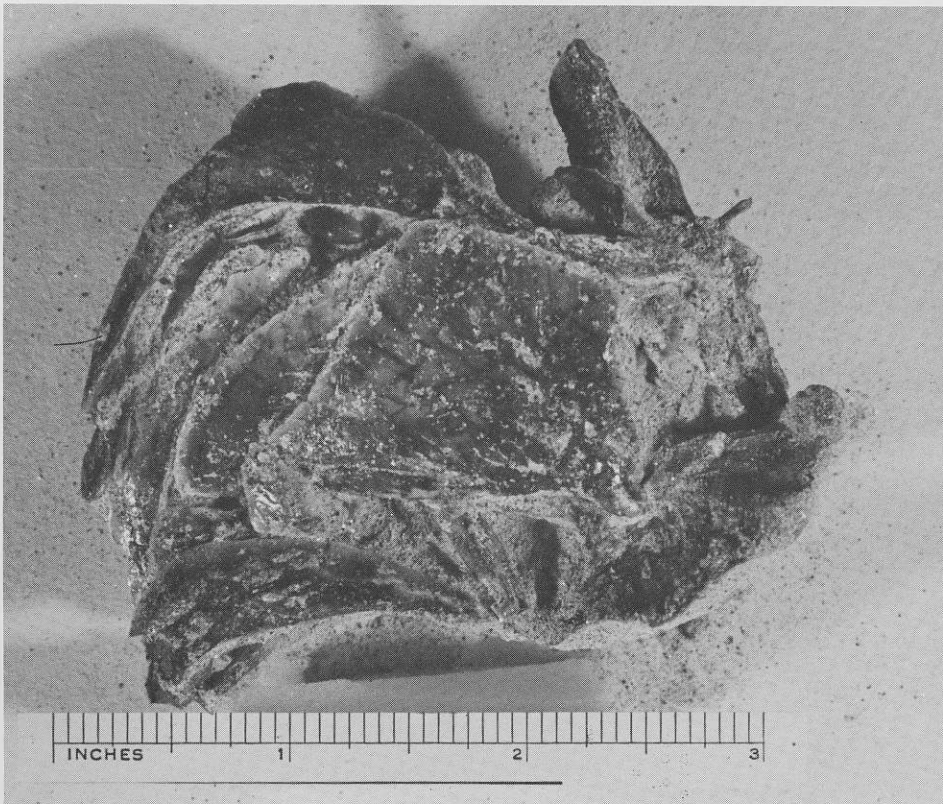


Figure 1. Partial skeleton of *Diastichus macrodon* embedded in matrix.

Both pharyngeal arches of this individual are in excellent condition (Fig. 2). Measurements of the right arch, using Uyeno's (1961) nomenclature, and measurements for cyprinid arches are as follows: the posterior limb is 4.26 cm long; the anterior limb, 2.68 cm long; total length, 3.92 cm; length of posterior edentulous process, 2.66 cm; the anterior edentulous process, 1.71 cm. The tooth formula is 0,5-5,0 with no evidence of a second row of teeth. These measurements approximate values for Cope's incomplete arch of *D. macrodon* and appear to agree with his description. The anterior limb first dilates, then contracts, only to expand and provide a triangular face with a symphyseal surface at the tip. Each tooth is compressed transversely to the anterior limb, is somewhat expanded at the base but is constricted in the middle so a distinct "neck" is formed. The head is distinct with a slanted, but unworn, grinding surface. These characters are barely discernible in tooth 5. The middle tooth of the left arch was somewhat displaced in preservation and is shown as found. Teeth 4 and 5 are at limb level, then the bone angles up sharply to create an elevation on which the other teeth are located. The posterior limb is somewhat cylindrical, longer than the anterior limb, and slightly twisted midway in its length. The teeth are robust and the arches appear massive, but less so than that of *Mylocyprinus robustus* Leidy from the same beds. In addition, the teeth of the latter are much more molariform. Compared to *Diastichus parvidens* Cope, the bases of the

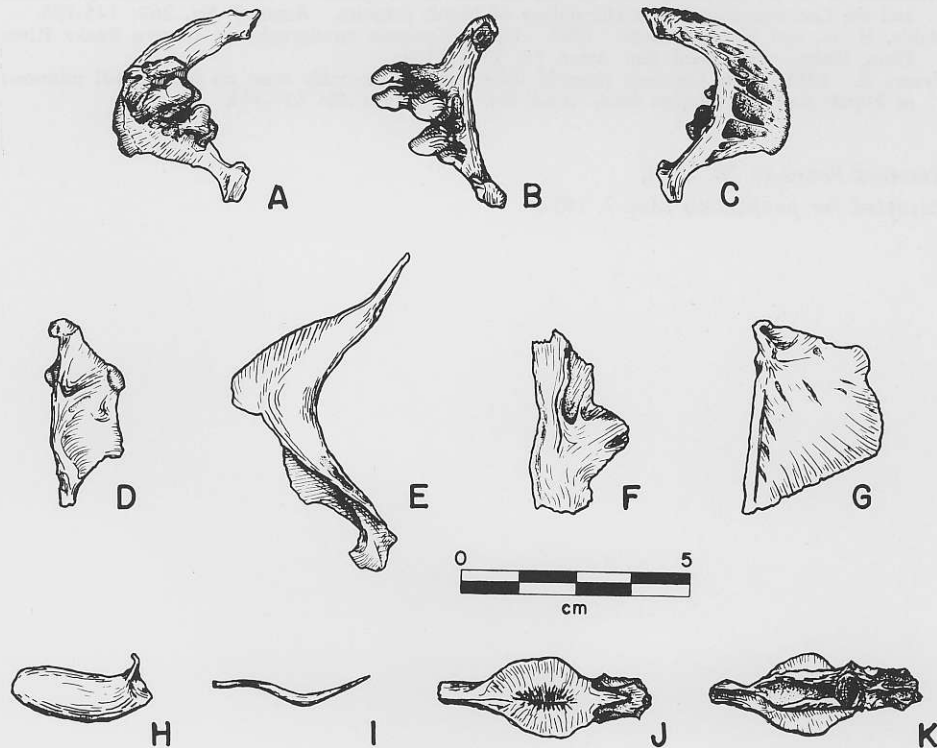


Figure 2. Isolated bones of *Diastichus macrodon*. A-C. Anterodorsal, posterolateral, and posterodorsal views of left pharyngeal arch. D. Right hyomandibular. E. Right cleithrum. F. Right frontal. G. Left opercle. H. Right subopercle. I. Postcleithrum. J. Basioccipital (ventral). K. Basioccipital (dorsal).

teeth are larger and the necks less constricted; the anterior limb is more compressed and less cylindrical. The posterior limb of both species is gradually twisted along its length, but the point for attachment appears as a diamond-shaped area in *macrodon*, rather than subtriangular, as in *parvidens* (Cope, 1870; Uyeno, 1971). There appear to be only slight differences in the arches of these two species. Pharyngeal arch morphology suggests close relationship to the modern genus *Gila*. Our collections indicate *Diastichus* to be the most common cyprinid genus at this site.

Other bones collected include: complete left opercle; right opercle; right subopercle; incomplete right preopercle; right branchiostegal; almost complete right cleithrum; fragmented left cleithrum; postcleithrum; basioccipital; right frontal; ribs; right hyomandibular; and many unidentifiable fragments (see Fig. 2).

#### Acknowledgements

Supported in part by a grant awarded to junior author by the Society of Sigma Xi. Drawings by Erica Hansen.

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Received February 28, 1974.

Accepted for publication May 7, 1974.