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FOSSIL FISHES FROM THE TRIASSIC  
OF TEXAS

BY

ALDRED S. WARTHIN, JR.



UNIVERSITY OF MICHIGAN  
ANN ARBOR

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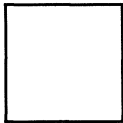
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Isolated Characters

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4	5	6	7	o	.
8	9	0	h	l	B

## MESH HALFTONE WEDGES

65

85

100

110

133

150



# CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

(Continuation of Contributions from the Museum of Geology)

## UNIVERSITY OF MICHIGAN

Editor: EUGENE S. McCARTNEY

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(Continued on inside of back cover)

## FOSSIL FISHES FROM THE TRIASSIC OF TEXAS

By ALDRED S. WARTHIN, JR.

### INTRODUCTION

THE expedition from the Museum of Paleontology of the University of Michigan in the summer of 1925 recovered considerable material from the Triassic beds of western Texas. A few fragments of fossil fish were included in the lot and these were turned over to the writer for examination by Dr. E. C. Case. Much of the material is too fragmentary to admit of identification, but two specimens of interest are here noted and figured. These fragments gain in significance when it is borne in mind that the Triassic of this part of the continent has thus far yielded almost no evidence of fish life. The great fauna of fishes which flourished in eastern North America during Newark time seems to have been unable to penetrate to the west.

### DESCRIPTION OF MATERIAL

#### CERATODUS CROSBIIENSIS, n. sp.

(Plate I, Fig. 1)

*Description.*—The specimen is a left palatal tooth plate. Its outline is nearly that of a right-angled triangle, the long face being the internal one. There are four main denticles with a smaller fifth on the internal border of the plate. The first denticle is low and has a knob on the outer border, probably an abnormal state due to injury, as the others are long and straight. They are narrow and sharp and are separated from one another by deep angular furrows. The second, third, and fourth denticles extend all the way to the angulus internus, and are discernible

as separate ridges on its extreme point. The first denticle does not reach to the angulus internus.

When viewed from the edge the denticles are seen to be made of narrow folds of dentine covered with a thin coat of enamel. This enamel surface is preserved only in the younger portions of the furrows between the denticles, where it presents a smooth shiny surface with faint lines of growth. Its thickness here is 0.10 mm. On the remainder of the tooth plate the enamel is missing and the dentine is exposed. On the surface of the dentine are numerous small openings, round or oval, and averaging 0.11 mm. in diameter. They are spaced according to no apparent plan but each opening is about 0.35 mm. distant from its neighbors. Weathering has affected the type specimen so much that many of these pores are further exposed and lie revealed as part of a complex canal system which pervades all of the dentine. *Ceratodus* teeth from widely varying localities have been sectioned by numerous scientists and all show this canal system. The pulp cavity beneath extends up into the denticles only in those forms having a thin layer of dentine.

The length of the tooth plate along the internal border is 21 mm., its width is 12 mm. and its greatest thickness (near the angulus internus) is 4.5 mm.

*Occurrence.*—The type was collected from the Dockum beds of Upper Triassic age at Walker's Tank, Crosby County, Texas, by Doctor R. C. Hussey. It occurred in association with plant and reptilian remains which indicate a continental environment.

*Type.*—The holotype of *Ceratodus crosbiensis* bears the number 9634 and is preserved in the Museum of Paleontology of the University of Michigan.

*Remarks.*—No trace of the genus *Ceratodus* has as yet been recorded from the Triassic of eastern North America, and only one other species, *C. dorothea* Case, has been collected in Texas. The type of *C. crosbiensis* differs from that of *C. dorothea* in being thinner, in having the second, third and fourth denticles separate for their entire length and radiating straight from the angulus internus, and also in not having the second denticle

arise from the first. In *C. crosbiensis* the denticles have a greater horizontal length and slope down at the end only gently, instead of dropping off almost vertically as in *C. dorothea*.

All these differences indicate the more primitive character of *C. crosbiensis*.

#### MACROPOMA SP.

(Plate I, Figs. 2-3)

*Description.*— In the same region which yielded the preceding form was collected a fragment which appears to be the first evidence of the presence of fishes of the family *Coelacanthidae* in the Triassic of Texas. This fragment consists of a quadrate bone with a portion of the pterygoid bone attached to it. They are from the left side of the skull.

The quadrate is thin, with a rib on its posterior edge, and closely appressed to the pterygoid. On its lower end it carries two well-developed condyles. The inner one is nearly hemispherical, about 8 mm. in diameter, and was probably somewhat anterior to the outer condyle which is more conical and is only 6 mm. in diameter. Both structures have slightly flaring margins. There is a long narrow groove on the back of the quadrate above the condyles.

The pterygoid is flat and joined to the quadrate by a suture. On its posterior edge it has a rib which increases in size from below upward, in proportion as the rib on the quadrate decreases. On its outer surface about 20 mm. above its base it also develops another rib which curves anteriorly. The interior surface of the pterygoid is gently curved and is covered with numerous denticles, mammillary in shape, with obscure radial striae. The denticles are set in shallow depressions on the surface of the pterygoid and they range up to 0.2 mm. in diameter. Portions of the interior surface of the pterygoid are also ornamented with fine striae in irregularly arranged groups.

Total length of the fragment, 40 mm.; length of the quadrate alone, 35 mm.

*Occurrence.*— The specimen was collected by Dr. E. C. Case

from the Dockum beds, Upper Triassic in age, of Crosby County, Texas. It is now preserved in the Museum of Paleontology of the University of Michigan where it bears the catalogue number 9630.

*Remarks.*—This fragment has a detailed resemblance to the specimen of *Macropoma mantelli* figured by Watson<sup>1</sup> in an article on the morphology of the coelacanth skull. The only observable differences are a slight discrepancy in the position of the anterior rib of the pterygoid, and some slight variation in the shape of the condyles. The genus *Macropoma* is typically Cretaceous, and has not previously been recorded from the Triassic so that it is with some hesitation that this specimen is so identified. A survey of the Triassic coelacanth genera already known, including the forms described from Spitzbergen by Stensio,<sup>2</sup> failed to discover any form with a comparable structure.

None of the characters observable seem to be other than generic in nature, so no specific name is here applied to the specimen.

<sup>1</sup> Watson, D. M. S., "On the Coelacanth Fish," *Ann. Mag. Nat. Hist.*, Ser. 9, Vol. 8, 1921, pp. 320-337.

<sup>2</sup> Stensio, E. A., *Triassic Fishes from Spitzbergen*, Part 1, 1921. Vienna, Adolf Holzhausen.

## EXPLANATION OF PLATE I

### *Ceratodus crosbiensis*, n. sp.

FIG. 1. Left palatal tooth plate, showing canals in dentine, and straight denticles radiating from the angulus internus.  $\times 2$   
(No. 9634, Museum of Paleontology, University of Michigan)

### *Macropoma* sp.

FIG. 2. View of left quadrate and pterygoid, seen from outer side. The black line marks the suture between the bones.  $\times 1.5$

FIG. 3. View of the same specimen from the internal side.  $\times 1.5$   
(No. 9630, Museum of Paleontology, University of Michigan)



PLATE I



1



2



3



(Continued from inside of front cover)

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