

# FOSSIL MURRAY COD (*MACCULLOCHELLA MACQUARIENSIS*) FROM DIATOMACEOUS EARTHS IN NEW SOUTH WALES.

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(Plates xxxi-xxxiii.)

## Introduction.

The fossil fishes described in this paper have been gathered together from various sources, and I am indebted to the following persons for the loan of specimens and for other facilities of research: Mr. Heber Longman, Director of the Queensland Museum, who first brought the occurrence of the beautifully preserved fishes from Bugaldi to my notice; Dr. Ida Brown, who subsequently discussed the occurrence with me and arranged for me to borrow the material in the Museum of the Geology Department, University of Sydney; Dr. A. B. Walkom, Director of the Australian Museum, who kindly loaned the specimens in his care, and also enabled me to examine material of the living Murray Cod; Miss E. C. Pope, of the Australian Museum, who supplied measurements and scales of the living species; Mr. J. A. Tubb, M.Sc., of the Fisheries Division, Council for Scientific and Industrial Research, who generously placed at my disposal his unpublished notes on anatomical variation within the genus *Maccullochella*; Mr. G. Mack, formerly of the National Museum, Melbourne, who provided material for comparison; Mr. R. A. Keble, of the National Museum, who loaned a fossil specimen in his care; Mr. H. F. Whitworth, Curator of the Mining Museum, Sydney, who kindly had certain fossil specimens photographed for me and loaned an important specimen for study; Mr. F. S. Colliver and Mrs. Fenton Woodburn, of Melbourne, who loaned specimens from their private collections. The photographs for the plates are the work of Miss M. Johnston, of the Geology Department, University of Melbourne.

The registered material studied by me is as follows:

1. Queensland Museum. No. F.2732. Loc., Baradine, Warrumbungle Mts., N.S.W.
2. Department of Geology, University of Sydney. Nos. 954, 979, 980, 956, 955. Loc., Bugaldi, 14 miles N.W. of Coonabarabran, N.S.W.
3. Australian Museum, Sydney. Nos. F.19324, 5; F.19799, F.30912, F.37085. Loc., Bugaldi. No. F.36921. Loc. Chalk Mt., near Coonabarabran. No. F.18259. Loc. Cooma, N.S.W.
4. Mining Museum, Sydney. No. F.12462. Loc. Bugaldi.—This specimen has been transferred to the Australian Museum Collection, where its registered number is F.42458.

With the exception of the specimen No. F.18259 from Cooma, it appears that all the other material was derived from the well-known deposit of diatomaceous earth at Chalk Mountain, Bugaldi, in the Warrumbungle area, regarding which Kenny (1924) states that "fossil fish and leaves are fairly plentiful". The fishes are beautifully laid out in the diatomite, with the bones but little disturbed and the finest details of the fin-lobes and scales preserved in impression. The bone, if present, is generally extremely friable except in one specimen (No. F.30912), in which both bone and scales are preserved.

All the specimens seen by me clearly belong to the one species, preliminary restorations based on this assumption having been confirmed by the study of material acquired later. No specimen is complete, and most are deficient as to head and tail.

The two most nearly complete examples, No. 954, of the Geology Department, University of Sydney, and No. F.12462 of the Mining Museum, afford most of the essential information and are designated as hypotypes.

## Technical Description.

Family MACCULLOCHELLIDAE.

Genus MACCULLOCHELLA Whitley, 1929.