

Easton, W. H., & Melendres, M. M.,
1964

A PALEOZOIC CORAL FROM MINDORO

BY

W. H. EASTON AND M. M. MELENDRES

Reprinted from
JOURNAL OF PALEONTOLOGY
Vol. 38, No. 2, March, 1964

A PALEOZOIC CORAL FROM MINDORO

W. H. EASTON AND M. M. MELENDRES

University of Southern California, Los Angeles, and Catawba International, Inc., Manila

INTRODUCTION

The coral on which this note is based was collected by Melendres during a supervisory field inspection of geologists working for Republic Resources and Development Corporation on Mindoro Island in 1961. Pertinent data have been released for publication through the courtesy of the Board of REDECO. Identification and stratigraphic significance were determined by Easton. Stratigraphic details and areal geology have been published elsewhere (Easton & Melendres, 1963).

LOCALITY

The coral came from the Punso area, which lies 22 km. north of San Jose by gravel road. San Jose is accessible by plane or boat from Manila. The actual outcrop lies about 2 km. north of Labangan River between two tributaries and about 4 km. east of the point where the river bends abruptly east from the gravel road.

The bed from which the coral came lies near the base of a succession about 5,000 feet thick. It is thought that the Punso Conglomerate is of Miocene-Pliocene age, and that perhaps the

Miocene-Pliocene contact occurs slightly above the bed containing the coral. According to the foregoing review, it is possible that 22,000 feet of Mesozoic rocks and 31,000 feet of Tertiary rocks were deposited in the region before uplift and erosion brought the original Paleozoic coral-bearing strata into the erosional-sedimentary regimen. At any rate, the coral is of no use in dating the conglomerate, for the coral-bearing clast was derived from Paleozoic rocks elsewhere and transported to this site during Late Tertiary time.

One outcrop of Mindoro Metamorphics forms a subcircular patch about 11 km. in diameter, the west edge of which lies about 1.5 km. east of Layagan Peak. The peak is 16 km. west-northwest of Mansalay Bay. The outcrop of Tertiary conglomerate from which the coral came lies about 16 km. southwest of Layagan Peak, so it is possible that the coral originally was derived from the Mindoro Metamorphics nearby.

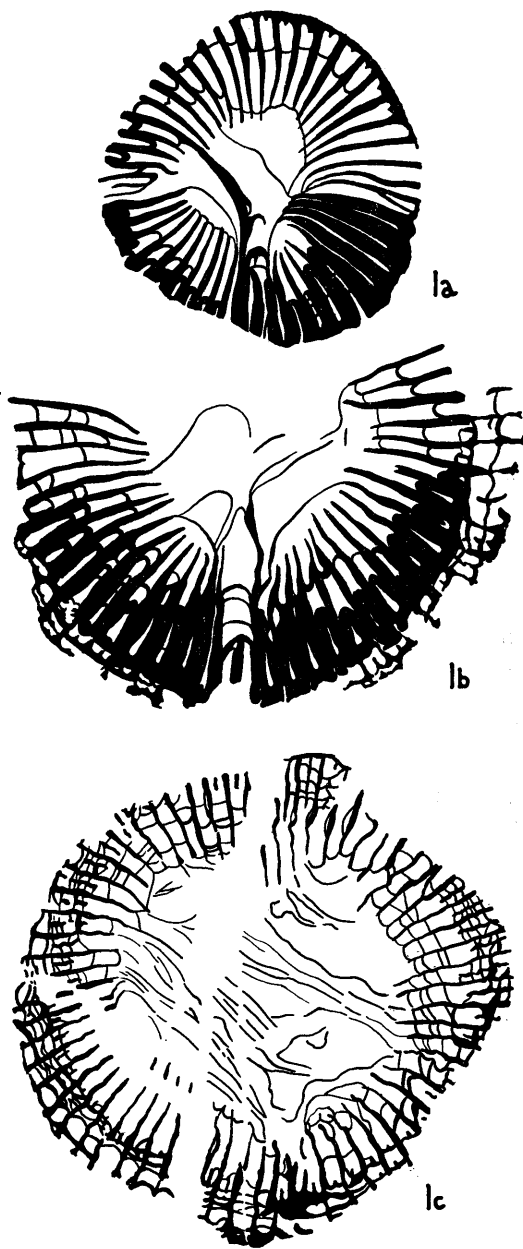
THE CORAL

After the coral was collected, three thin sections and two polished surfaces were prepared. Of these, one section was lost in a fire in Manila in 1962, together with the external mold of the coral. A second section was donated to the Bureau of Mines Paleontology Museum in Manila where it bears the number MrMM 198 (F 229). The third section and the remainder of the specimen were sent to Los Angeles for study by the senior author. The specimen has been returned to the Bureau of Mines Paleontology Museum and the figured slide, which was donated to USC by the junior author, bears the number 5603 in the USC Geology Collection.

Description.—The simple coral is represented by a fragment whose apical angle is about 30° and whose cardinal position is on the convex side of curvature. The fragment received by the senior author is about 3 cm. long and had already been cut in two and used for preparation of thin sections. The fragment was perhaps 4 cm. long originally, but even that was incomplete.

In early maturity (Text-fig. 1a; diameters 20 by 20 mm.) there are 50 major septa, of which the 22 in the cardinal quadrants are notably dilated. The septa extend about 3/4 of the radius. Dissepiments are not present and minor septa are merely short spines which occur at only a few places. A long septum, which probably is the counter septum, is slightly longer than adjacent major septa. Tabulae seem from their traces to be essentially flat, axially down-turned marginally, and complete. The cardinal fossula is very prominent.

In middle maturity (Text-fig. 1b; diameter about 35 mm.) there are 57 major septa of which



TEXT-FIG. 1—Transverse features of *Gshelia?* sp. a, Polished surface, early maturity, X2; b, thin section, middle maturity, USC 5603, X2; c, polished surface, late maturity, X1.5.

the 26 in the cardinal quadrants are still dilated, but progressively less so toward the alar positions. They extend about 2/3 of the radius. As many as three rows of anguloconcentric dissepiments are present and the minor septa tend to cross the dissepimentarium irregularly. The probable counter septum remains a bit longer than its neighbors.

In late maturity (Text-fig. 1c; diameter 45 mm.) there are about 63 major septa, which are essentially undilated and extend about $\frac{1}{2}$ of the radius. At least 6 rows of dissepiments are present and the minor septa tend to be represented as septal spines.

A longitudinal section was not prepared.

Ontogeny.—In so far as decipherable, the ontogeny reflects a youthful stage of rather long major septa, of which the septa in the cardinal quadrants are notably dilated, but there are no minor septa and no dissepiments. In middle maturity a narrow dissepimentarium has been added but minor septa are discontinuous and majors have retreated a bit from the tabularium. In late maturity the dilation of the majors is essentially lost and they have retreated notably, whereas the minors continue across the still narrow dissepimentarium. In all stages the presumed counter septum remains slightly longer than the adjacent majors.

Relationships.—This coral seems to belong in the cyathopsid (caniniid) family, for it has dilated septa, open tabularium, and a dissepimentarium, but it is very distinctive and different from described genera because the cardinal fossula is on the convex side of curvature, rather than on the concave side. Unfortunately, there is not general agreement about the taxonomic value of variations in the position of the cardinal fossula, so corals may be assigned to the same genus even though their cardinal fossulae occur on either the concave or convex sides of curvature. Although resembling *Caninia* in general appearance, the Philippine coral also differs because the dissepimentarium arises extremely late in the growth and is not as wide and complexly constructed as in other caninioid corals with prominently dilated major septa. The anguloconcentric dissepiments are reminiscent of *Caninophyllum*, but the dissepimentarium of that genus is very wide and the major septa tend to remain quite long.

The genus *Gshelia* contains *Caninia*-like corals in which the counter septum is decidedly long and even joins a weak columella in young stages but retreats in maturity. Dilated septa and complexity of dissepiments of the Philippine coral are reminiscent of *Gshelia* but the counter septum is only slightly longer than adjacent majors even in early maturity, and so resembles over a long period of growth only the late mature stages of *G. rouillieri* as figured by Dobrolyubova (1940, pls. 13–16). If earlier stages of the Philippine coral were available a confident generic assignment probably could be made by determining the

relative length of the major septa. Under present circumstances it seems best to refer to the coral as *Gshelia?* sp., but it is almost as much like a *Caninia* as a *Gshelia*. Fortunately, the geologic significance is not impaired at this time by the foregoing taxonomic uncertainties.

AGE

Cyathopsid corals range from Devonian into Permian and are especially abundant from Early Mississippian into about Middle Permian, so that would clearly establish the Late Paleozoic age of the Philippine specimen. The occurrence of a cyathopsid coral in the Philippines is not particularly expectable because the majority of Carboniferous rugose corals reported from Australia and east Asia are lithostrotionids and clisiophyllids, that is, corals with some sort of axial complex for a columella. The abundant cyathopsids in Russia are referable preponderantly to *Bothrophyllum*. That genus differs from *Gshelia* because at least some major septa in *Bothrophyllum* cross the tabularium to meet axially in all stages. True *Caninia* is very rare in Japan and China; Minato, for instance, (Minato, 1955, p. 70) figured only two imperfect examples, which were from the Mississippian System. The *Gshelia*-like features suggest a Middle to Early Late Pennsylvanian age, for these are the ranges of their great flares in China and Russia, respectively. Hill (1948, p. 139) reports that *Gshelia* is rare in China but common in Russia.

CONCLUSIONS

The coral is a cyathopsid resembling both *Caninia* and *Gshelia* but is tentatively assigned to *Gshelia?* sp. It is Late Paleozoic in age. It may well have been derived from the Mindoro Metamorphics which crop out a few kilometers to the northeast. Teves seems to have been justified in concluding that the Mindoro Metamorphics are in part Paleozoic.

REFERENCES

- DOBROLYUBOVA, T. A., 1940, The Rugosa corals of the Upper Carboniferous of the Moscow Basin: Akad. Nauk., U.S.S.R., Trudy, v. 9, book 3, p. 1–88, pls. 1–25.
- EASTON, W. H. & MELENDRES, M. M., JR., 1963, The First Paleozoic fossil from the Philippine Archipelago: Bull. Amer. Assoc. Petroleum Geologists, v. 47, p. 1871–1873.
- HILL, DOROTHY, 1948, The Distribution and sequence of Carboniferous coral faunas: Geol. Mag., v. 85, no. 3, p. 121–148.
- MINATO, MASAO, 1955, Japanese Carboniferous and Permian corals: Jour. Fac. Sci., Hokkaido Univ., ser. 4, v. 9, no. 2, p. i–iv + 1–202, pls. 1–43.