A NEW SPECIES OF THE TETRACORAL GENUS *PALASTRAEA* FROM THE MISSISSIPPIAN OF KENTUCKY

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INTRODUCTION

THE species of the tetracoral genus *Palastraea* described in this paper is based on four specimens collected by Professor A. C. McFarlan, of the University of Kentucky, from the Vienna limestone of the Upper Mississippian Chesterian series of Kentucky. According to Professor McFarlan, the specimens were found in debris of loose white chert at the top of the Glen Dean limestone about one mile south of Sugar Grove, Little Muddy Quadrangle, Butler County, Kentucky. In a letter Professor McFarlan states that the chert horizon from which the debris certainly was derived is in the Vienna limestone.

We wish to thank Professor McFarlan for the opportunity to study these specimens and for permission to deposit some of the type material in the Museum of Paleontology of the University of Michigan.

SYSTEMATIC DESCRIPTION

Phylum Coelenterata
Class Anthozoa
Subclass Tetracoralla
Family Palaeosmiliidae
Genus *Palastraea* McCoy

Palastraea McCoy, 1851, p. 111.

Genotype.—By monotypy, *Astraea carbonaria* McCoy, 1849, p. 125; 1851, p. 111, pl. 3A, figs. 7–7a, pl. 3B, figs. 1–1a. Carboniferous limestone, near Bakewell, Derbyshire, and Corwen, North Wales, = *Cyathophyllum regium* Phillips, 1836, p. 201, pl. 2, figs. 25–26, Carboniferous limestone, Derbyshire, England.

Palastraea mcfarlani Ehlers and Stumm, sp. nov.

(Pl. I, Figs. 1–3)

Description.—Coralla aphroid, low subhemispherical, with low convex distal surfaces, composed of corallites averaging 13 mm. in diameter. Calyxes polygonal with shallow axial pits and broad, inwardly sloping peripheral platforms. Centers of pits with small, low axial bosses, each with a medial depression representing enlarged axial part of a fossula.

In transverse section, septa thin, smooth, radially arranged, averaging 50 in mature corallites; major septa reaching almost to axis; minor septa extending to borders of tabularium; cardinal septum shorter than other major septa but longer than minor septa. Shortened cardinal septum and major septa on sides of this septum indicating presence of obscure fossula, narrow in the dissepimentarium and oval in the tabularium; axial ends of major septa in cardinal quadrants deflected toward axial end of cardinal septum. Peripheral ends of a few septa of adjacent corallites confluent; peripheral ends of most septa separated by narrow zones of elongate dissepiments.

In longitudinal section, tabularia averaging about 5.5 mm. in diameter; axial part of tabularia composed of closely set, incomplete, distally arched tabulae, bent sharply proximally at their peripheries; periaxial part of tabularia composed of small, irregularly placed tabellae. Dissepimentaria wide, composed of elongate dissepiments, axially directed adjacent to tabularia and distally convex toward peripheries of corallites.

Remarks.—The genus *Palastraea* has been regarded by most investigators of Paleozoic tetracorals as a synonym of *Palaeosmilia*. The genotype of *Palaeosmilia*, *P. murchisoni* Milne-Edwards and Haime, has a simple corallum with an epitheca; the genotype of *Palastraea*, *Astraea carbonaria* McCoy, has a compound corallum in which the corallites are separated by dissepiments. Most workers have not considered these differences sufficient for generic distinction. In spite of the fact that the coralla of the two genera have similar internal structures, we believe that the aphroid corallum of *Palastraea* is so distinct from the simple corallum of *Palaeosmilia* that these two genera should not be combined.

The only previously described species of *Palastraea* from North American strata is *P. compressa* (Easton). This species from the

Mississippian Golconda(?) formation at Sherwood, Tennessee, differs from *Palastraea mcfarlani* in having larger corallites, a larger number of septa, and more complete and horizontally disposed tabulae. See Plate I, Figures 4 and 5.

The species is named after Professor A. C. McFarlan who has contributed much to the knowledge of the stratigraphy and paleontology of Kentucky.

Occurrence. — Upper Mississippian (Chesterian series — Vienna limestone; one mile south of Sugar Grove, Little Muddy Quadrangle, Butler County, Kentucky.

Types.—Holotype No. 28892; paratype No. 28893, Museum of Paleontology, University of Michigan. Parts of the holotype and of the paratype and a topotype are in the collection of the Department of Geology of the University of Kentucky. Another topotype, No. 28894, is in the Museum of Paleontology, University of Michigan.

University of Michigan

LITERATURE CITED

Easton, W. H. 1943. New Chester Corals from Alabama and Tennessee. Journ. Paleontol., 17 (3): 276–80.

McCoy, F. 1849. On Some New Genera and Species of Palaeozoic Corals and Foraminifera. Ann. Mag. Nat. Hist., Second Series, 3: 1–20, 119–36.

—— 1851–55. *In* A. Sedgwick, A Synopsis of the Classification of the British Palaeozoic Rocks, by the Rev. Adam Sedgwick . . . with a Systematic Description of the British Palaeozoic Fossils in the Geological Museum of the University of Cambridge by Frederick M'Coy. London and Cambridge. Pp. i–iv, 1–184, 1851; pp. i–[x], 185–406, 1852; pp. i–xcviii, 407–661, 1855; pls. 1A–1L, 2A–2D, 3A–3D.

Phillips, J. 1836. Illustrations of the Geology of Yorkshire . . . Part II. The Mountain Limestone District. London. xx + 253 pp., 25 pls.

EXPLANATION OF PLATE I

Palastraea mcfarlani Ehlers and Stumm, sp. nov.

FIG. 1. Longitudinal section of a corallum showing tabulae and elongate dissepiments. Holotype No. 28892, Museum of Paleontology, University of Michigan. Upper Mississippian (Chesterian series—Vienna limestone); one mile south of Sugar Grove, Little Muddy Quadrangle, Butler County, Kentucky. × 2

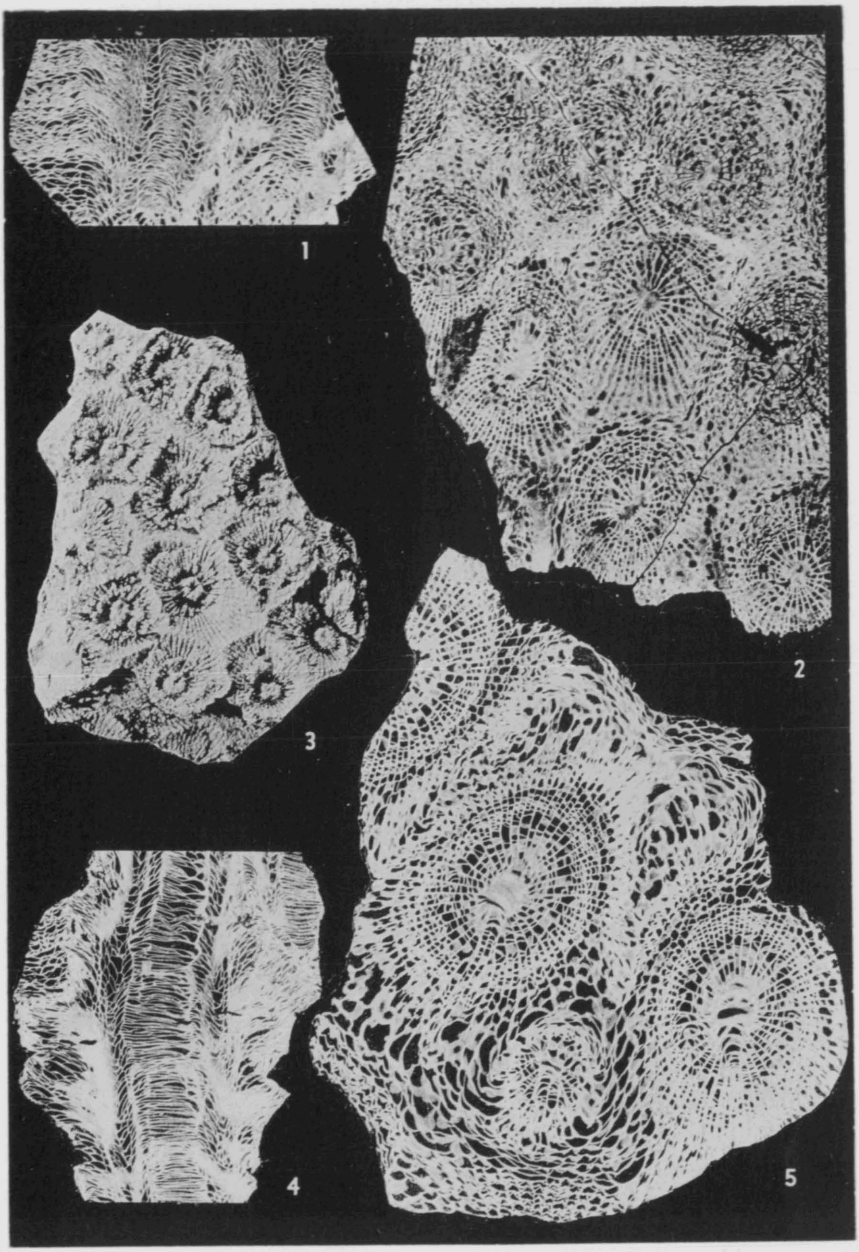
FIG. 2. Transverse section of the same corallum as in Figure 1 showing thin septa, peripheral ends of septa of adjoining corallites separated by elongate dissepiments, and arrangement of axial parts of septa about oval, axial parts of fossulae. × 2

FIG. 3. Distal view of a part of the weathered surface of another corallum showing polygonal corallites with axial bosses in small axial pits and a medial depression in each axial boss representing the enlarged, oval, axial part of a fossula. Paratype No. 28893, Museum of Paleontology, University of Michigan. Same stratigraphic position and locality as holotype. × 1

Palastraea compressa (Easton)

FIG. 4. Longitudinal section of a corallum showing tabulae and elongate dissepiments. Hypotype No. 24372, Museum of Paleontology, University of Michigan (thin section of a specimen collected by Dr. Charles Butts and preserved in the United States National Museum). Upper Mississippian (Chesterian series—Golconda[?] formation); quarry at Sherwood, Tennessee. × 2

FIG. 5. Transverse section of same corallum as in Figure 4 showing larger corallites, more numerous septa, and larger fossulae than exhibited by *Palastraea mcfarlani*. × 2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