

A NEW FOSSIL CORAL FROM THE CRETACEOUS OF TEXAS

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The species *Hindeastraea discoidea* was made the type of a new genus *Hindeastraea* by White.¹ The type (see pl. 2, figs. 1 and 1a for paratype) was reported to have been obtained from the Ripley (Navarro) formation near Terrell, Kaufman County, Tex. White compared *Hindeastraea* to *Isastrea* Milne Edwards and Haime and said the latter differed in having a massive growth form, in its more numerous dissepiments, and in the less distinct boundaries formed by the walls between the calices.

Dr. L. W. Stephenson, of the United States Geological Survey, turned over to me a small series of specimens collected by Mr. C. H. Dane (U. S. Geol. Surv. Coll. No. 13837) from a thin bed in the Wolfe City sand of the Taylor marl about 1 mile N. 30° W. of Farmersville, Collin County, Tex. These, together with a specimen from the same locality collected by Mr. A. H. Kimzey (U. S. Geol. Surv. Coll. No. 13781), throw additional light on the structure and growth form of the genus.

These specimens have a massive, irregular growth form and in this way differ from *Hindeastraea discoidea*. However, the calicular characteristics are so nearly identical that it is probable the specimens describe by White represent merely the early growth stages of the species, and that as development progresses the corallum becomes massive. Until specimens are obtained, however, which show the actual transition between the two forms I am keeping them separate and placing the massive ones in a new species, *Hindeastraea colinensis*. The following description is of the specimen collected by Mr. A. H. Kimzey, which is No. 73608, United States National Museum, and is here designated the type.

¹ White, C. A., *Hindeastraea*, a new generic form of Cretaceous *Astraeidae*, *Geol. Mag.* London, dec. 3, vol. 5, p. 363, figs. 1-5, 1888.

HINDEASTRAEA COLLINENSIS, new species

Plate 1, Figures 1, 1a, 2, 2a; Plate 2, Figures 2, 3, and 4

Corrallum an irregular flattened frond broken at base, with calices on all sides. Length, 103 millimeters; width, 36 millimeters at base, becoming narrower higher up; thickness, 15 millimeters.

Corallite separated by distinct walls about 0.5 millimeter wide and as much high, which inclose polygonal calices, usually five or six sided. The material of the corallum is so recrystallized that it is difficult to tell much concerning the structure of the wall. Judging from what could be seen in some poor sections, however, and also from the fact that the septa are not crowded a true theca seems to be present.

Diameter of calices about 8 millimeters, smaller on the edges of the frond and near the top than on the flattened sides. Some have a diameter of only 4 or 5 millimeters and others as much as 11 millimeters. Calices shallow, only 1 to 2 millimeters deep at the subcircular fossa above the columella and less than that toward walls.

The septa are in three complete cycles. Those of the first two cycles are subequal and join the columella. The septa of the third cycle bend and join those of the second just before the columella is reached. All 24 septa are of about the same thickness; thicker near wall where some measure as much as 1 millimeter and becoming thinner toward center of calice. Septal edges depressed slightly at intercorallite wall, then rise somewhat toward center to form a subcircular ridge before plunging down relatively steeply to the columella. The arrangement of the septa to form this ridge, together with what seems to be a concentration of dissepiments here, gives it the appearance of an inner wall. Septa seems to be imperforate; faces with granulations which are in most places arranged in vertical rows indicating probably the courses of the trabeculae; edges dentate with dentations continuous with granular rows on faces.

Columella spongy, made of fused ends of septa; about 2 millimeters in diameter in well-developed calices.

Reproduction by intercalicular gemmation, mainly at the edges of the corallum.

The growth form of most of the other specimens in the suite is also massive with irregular surfaces and with corallites on both sides and edges. Some of these have the intercorallite walls and the septal edges which adjoin them worn away, which accentuates the inner raised rim of the columella fossa (see pl. 2, figs. 2, 3, and 4). Others show no evidence whatever of this rim.

Holotype and paratypes.—Cat. Nos. 73608, 73609, U.S.N.M.

The type specimens of *Hindeastraea discoidea* White are similar to this species except in growth form. The septa are the same in

number, arrangement, and appearance. In only one calice are there as many as 26 septa. The septa are not as thick as those usually found on the type but correspond in this respect to some of the other specimens.

Grateful acknowledgment is made of the aid given by Dr. T. Wayland Vaughan in the description of this coral.

EXPLANATION OF PLATES

(All specimens figured in Plates 1 and 2 are from the vicinity of Farmersville, Collin County, Tex.)

PLATE 1

Hindeastraea collinensis Hoffmeister

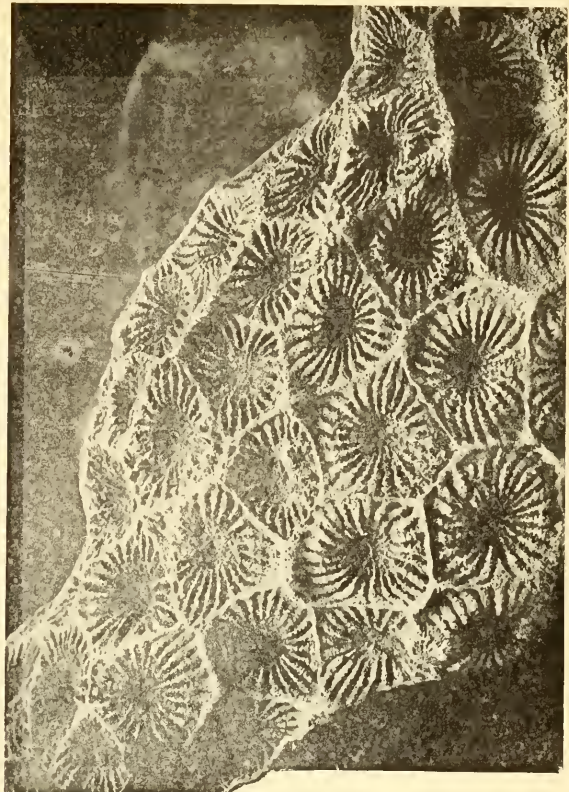
- FIGURE 1. The type, natural size. U. S. Nat. Mus. Cat. No. 73608.
 1a. The type, calices $\times 2$.
 2. A typical specimen, natural size. U. S. Nat. Mus. Cat. No. 73609.
 2a. Same specimen, calices $\times 2$.

PLATE 2

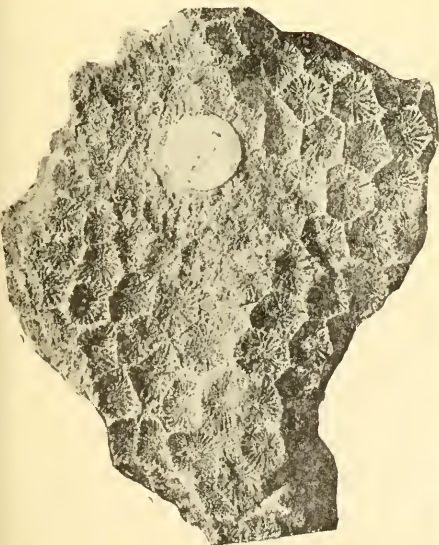
- FIGURE 1. *Hindeastraea discoidea* White. Paratype. Calices $\times 4$. U. S. Nat. Mus. Cat. No. 19166.
 1a. *Hindeastraea discoidea* White. Paratype. Bottom view $\times 4$. U. S. Nat. Mus. Cat. No. 19166.
 2. *Hindeastraea collinensis* Hoffmeister. A specimen showing variation in calicular arrangement. U. S. Nat. Mus. Cat. No. 73609.
 3. *Hindeastraea collinensis* Hoffmeister. Specimen with irregular growth form. U. S. Nat. Mus. Cat. No. 73609.
 4. *Hindeastraea collinensis* Hoffmeister. A specimen showing calices $\times 4$. U. S. Nat. Mus. Cat. No. 73609.



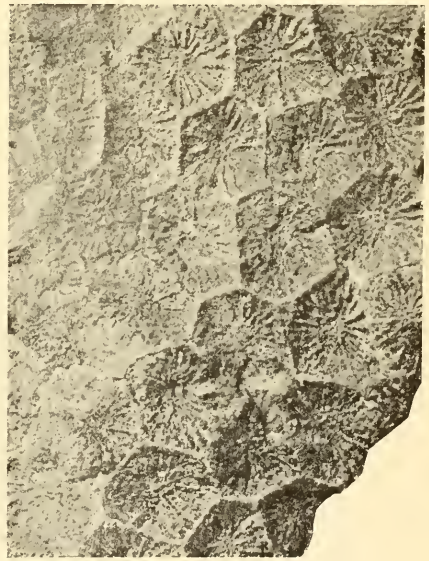
1



1a



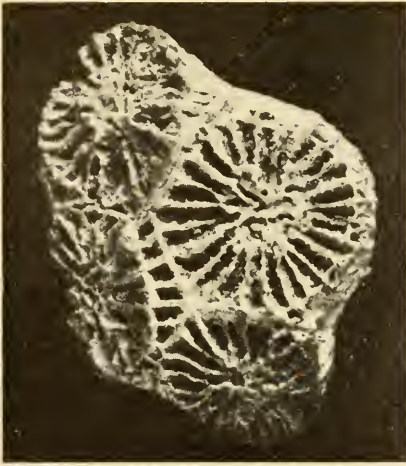
2



2a

CRETACEOUS CORALS FROM TEXAS

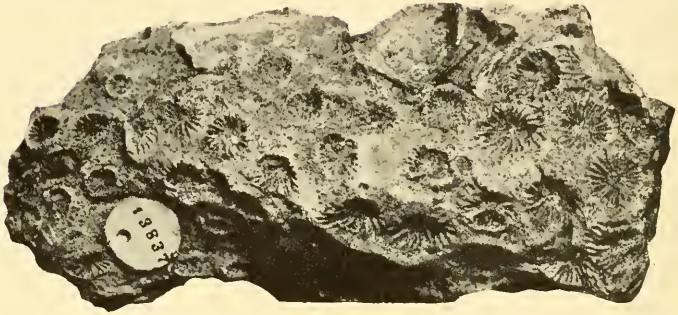
FOR EXPLANATION OF PLATE SEE PAGE 3



1



1a



2



3



4

CRETACEOUS CORALS FROM TEXAS

FOR EXPLANATION OF PLATE SEE PAGE 3