eral and not caused by warm brines released by the activities of the oil industry in this area.

Bathymetry analyses show a large variation in small topographic features and fewer gullies than indicated by Shepard a decade earlier. Comparing his and the present results, a trend of shallowing of East Bay seems to continue, but at a rather low rate.

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PRELIMINARY SCANNING ELECTRON MICROSCOPE OBSERVATIONS ON Orbitolina FROM LOWER CRETACEOUS GLEN ROSE FORMATION, TEXAS

The foraminifera Orbitolina occurs profusely on the outcrop. The fossils vary in size and shape, probably depending on whether they are either microspheric or megalospheric in their initial stage. Their internal structure as well as external features are being studied. Heretofore, only the specimens with a megalospheric initial stage have been studied in detail. For this purpose, many specimens have been etched with dilute hydrochloric and acetic acids, and the results have been quite satisfactory except for the extreme outer marginal zone of the test.

Orbitolina, besides the embryonic apparatus, has a very complex and delicate internal structure. This structure is divided into 3 zones: the central complex, the radial, and the marginal. Preliminary observations were concentrated on the radial zone in general, and on the marginal zone in particular, as these are present in all specimens and play an important role in the test.

The radial and marginal zones consist of chambers, and the chamber passages with connecting tubes, called stolons, cover and encircle the entire test in successive offsetting layers. This pattern is striking and beautifully delicate. The chamber walls, as well as the chamber passages and their stolons, apparently have been strengthened by the cementation of calcite crystals, as evidenced by the holes left after etching. Between the chambers, chamber passages and stolons, the living Orbitolina may have filled the space with crystals and foreign material of different sizes. The finest crystals were observed in the outermost part of the marginal zone and the coarser seem to have been confined to the chambers and chamber passages.

Many specimens were etched to obtain the chamber, chamberlets, and cellules of the marginal zone. Only 1 specimen was successfully etched, yielding several chambers with chamberlets and cellules. After the crystals between the chamberlets and cellules were dissolved by acid, voids or empty spaces remained. These, when observed with transmitted light, appeared to be the features previously described as "partitions" and/or "plates" in axial and horizontal thin sections of Orbitolina.

Without the aid of the scanning microscope, some minute details within Orbitolina either would not have been known, at least to the writer, or would have been difficult to interpret using only the stereoscopic microscope. These observations, and others to be made in the near future, will contribute toward making the morphology of Orbitolina more readily understood.

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GRAND ISLE BARRIER ISLAND, LOUISIANA—HUMAN ACTIVITY IN NATURAL DYNAMIC SYSTEM
Grand Isle, Louisiana, is a recently formed barrier.