

AGE OF PINECREST BEDS, SOUTH FLORIDA

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The "Pinecrest beds" were first described by Olsson and Petit (1964, p. 516), who dated them as "late Miocene or Pliocene in age." Hunter (1968) assigned the Pinecrest Sand, the Ochopee Limestone, and the Buckingham Limestone to the upper part of the Tamiami Formation and proposed the correlation of the Tamiami Formation with the Jackson Bluff Formation of northern Florida, the Duplin Marl of South and North Carolina, and the Yorktown Formation of Virginia. Weisbord (1972, p. 60) published a section of the Pinecrest Formation in the Warren Brothers Pits at Sarasota, Florida, as measured and described by Harbans Puri.

Material studied for the present report was collected by Mr. and Mrs. Robert C. Hoerle from the Pinecrest beds at a locality described as follows by Dr. Harold E. Vokes (1969, p. 125):

"Tulane locality 1000. Pinecrest beds, borrow pit at east end of 17th Street, 3.2 miles east of Tuttle Road, about 8 miles east of U.S. Highway 301 in Sarasota (T36S, R19E), Sarasota Co., Florida."

Washing of material from Tulane locality 1000 on a U.S. Standard Sieve number 200 produces a residue of mainly quartz sand and mollusk fragments in which at least a dozen species of ostracodes and a benthonic foraminiferal fauna of littoral origin are present. Planktonic foraminifera are rare. Only *Globigerina bulloides* and *Globorotalia inflata* were identified in the material by the writer.

The following species were identified in a sparse flora of calcareous nannoplankton:

Braarudosphaera bigelowi (Gran and Braarud)

Coccolithus doronocoides Black and Barnes

Coccolithus pelagicus (Wallich)

Cyclococcolithina leptopora
(Murray and Blackman)

Cyclolithella annula (Cohen)

Gephyrocapsa caribbeanica
Boudreaux and Hay

Gephyrocapsa reticulata Nishida

Helicopontosphaera kamptneri Hay and Mohler

Reticulofenestra pseudoumbilica
(Gartner)

Sphenolithus abies Deflandre

Syracosphaera pulchra Lohmann

Umbilicosphaera mirabilis Lohmann

Braarudosphaera bigelowi and *Helicopontosphaera kamptneri* are the most frequent components of the flora.

Fortunately, several species occur in the formation that are diagnostic for geologic age. These are *Gephyrocapsa caribbeanica*, *Reticulofenestra pseudoumbilica*, and *Sphenolithus abies*. Concurrence of these three species is in Neogene Zone 20 of Blow (1969), and the overlap of the ranges of these nannofossils thus argues strongly for a middle Pliocene age for the Pinecrest beds (Figure 1).

The ranges of the late Cenozoic Coccolithophoridae are based on the extensive investigations of the Deep Sea Drilling Program. Earlier concepts of coccolith biostratigraphy have been modified and improved in the light of paleoclimatic control afforded by borings in virtually all latitudes (Wise, 1973, p. 126), and precise age assignments are now possible for most marine beds by calcareous nannoplankton.

Other Neogene formations of the Atlantic Coastal Plains of the United States and Mexico have been studied for planktonic foraminifera (Akers, 1972) and dated as lower to middle Pliocene. Even more precise dating is now afforded by calcareous nannofossils (Akers and Koepfel, 1973) for the Yorktown, Jackson Bluff, Concepcion, and Agueguexquite formations with which the Pinecrest Formation is correlated. All are assigned to Zone N. 20.

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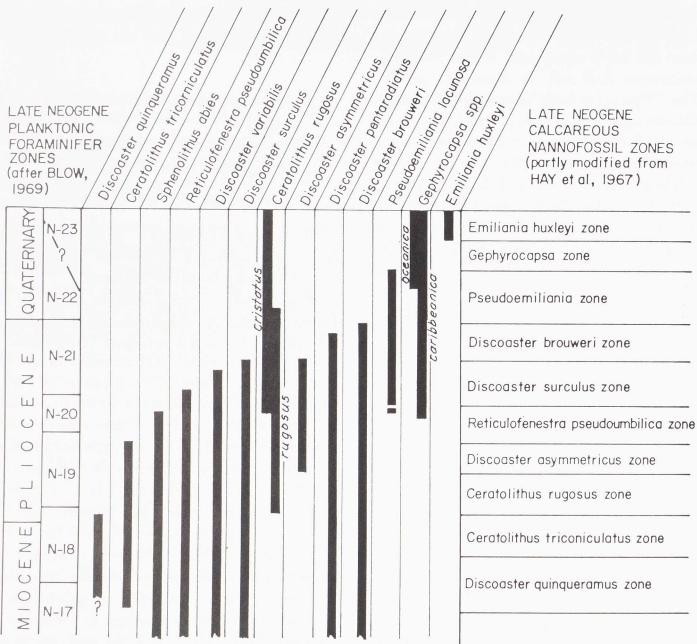


Figure 1. Ranges of some important Neogene calcareous nannofossil species, and correlation of nannofossil zones with planktonic foraminifer zones. MODIFIED AFTER GARTNER (1969).

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