the Bahama California Oil Co. in 1971 (Hollister, 1972, p. 877, 881). The cores and other samples from the 1947 drilling have been studied in great detail. Well-preserved Foraminifera and Pelecypoda fossils were found at numerous levels, down to 10,600 feet (Goodell, 1969, p. 533-536). A significant discovery is that, even at the deeper levels, the sedimentary components making up the Bank are of shallow water types similar to those being produced on its surface and edges at the present time (Goodell, 1969, p. 530). The entire local stratigraphic column of the 1947 well is listed in detail by Goodell in this same paper. A high proportion of the layers drilled were composed of well-cemented limestone, frequently alternating with well-cemented dolostone. This alternation is highly significant, since it shows that there were periodic changes of environment which promoted the transformation of some of the layers of calcium carbonate sediments into the calcium-magnesium carbonate (dolomite) which is the main component of dolostone. (The carbonate-secreting marine organisms do not secrete dolomite; the magnesium ions have to be carried into the sediments by percolating water.)

Here then is another of the great carbonate structures in which we can see the results of a buildup by biological growth and cementation over a long period of time. All across the present surface of the Bank we can readily observe the continuing processes of carbonate sediment production and accumulation, <u>as a continuation of</u> the growth and sedimentation which are represented in the samples taken from the deep layers by research drilling. During the past 3 decades many careful and elaborate studies of the sedimentary processes in the Bahama Banks have been made. These have included both the methods by which the carbonate particles are formed and the rock-forming cementation processes by which they are lithified.

A significant proportion of the sediment particles being produced on the Bank at present are skeletal grains, such as particles of broken shells, bits of coral, and internal plates from the marine alga <u>Halimeda</u> (Newell, 1957, p. 48-51; Bathurst, 1975, p. 93-140). Other very sizable contributions are being made in the form of biologically-produced carbonate grains such as fecal pellets and the small mineral crystals which are formed in great abundance inside the plant bodies of several kinds of marine algae, e.g., the genus <u>Penicillus</u> (Newell, 1957, p. 51-53).

Recent core borings which have been systematically made in a line across the Great Bahama Bank to a depth of approximately 40 meters show that, near the 35-meter depth level in the sediments, there is an abrupt increase in the percentage of skeletal components in the limestone. At this level, most of the interior area of the Bank is covered with cemented limestone containing a high proportion of skeletal debris from corals and other marine organisms which secrete a carbonate exoskeleton. This recently collected data has led to the conclusion that the Bank was basically a coral atoll during a great deal of the time of its development, as had been suggested much earlier by Norman Newell (Ginsburg, 1980). Hollister (1972, p. 888, 890-895) gives an explanation of some of the probable stages in the development of the atoll, beginning in Lower Cretaceous times.

One of the most distinctive types of slowly-formed sedimentary deposit in the Bahama Banks is oölite limestone. The word oölite refers to the small, spheroidal oöids which are the most prominent kind of grains in this type of rock. These oöids are now being formed constantly on the surface of the Great Bahama Bank, but are also an important component of limestone layers at various levels in the deep parts of the Bank,