The Deepest Test Well

The region of the Bahamas is not a petroleum producing area, because no impervious layers such as shale and evaporites for retaining the oil or gas have been found. However, because of the close similarity between the Bahamian carbonate deposits and those located deep in some of the oil fields of the world, the oil companies have done a great deal of study of the Bahama Banks. They have done this in order to better understand those carbonate deposits which do have oil-retaining impervious layers covering them. The deepest of the test wells drilled in the Bahamas is the one made in 1947 by the Superior Oil Company, on Andros Island.[7] Andros is the largest island on the Banks. The deposits which are above sea level, making up the island itself, are composed chiefly of eolian dunes of limestone, old reefs, and old cemented beach ridges which mark the level at which the sea stood at various times in the past. The dune limestone has a very high percentage of oöids. These were piled up by winds, into dune formations. The winds carried them from the broad, flat, exposed upper surface of the Banks, as the sea level was lowering.[8]

The Superior Oil Company selected the northern end of Andros Island as the site for the deepest test well, and drilled to a depth of 14,585 feet. The drillers had expected to penetrate to the base of the Bank, but had to stop at this depth because of the loss of some of the drilling pipe in the bottom of the hole. To the very bottom they were cutting through various grades of limestone and dolostone. The cores and other samples of these have been studied in detail by numerous specialists in sedimentology, who have found them to be made up of shallow-water, marine sediment components very similar to those which are being formed today on the Banks.

The entire stratigraphic column is listed in detail by Goodell and Garman.[9] The types of rock, kinds of grains, and kinds of identifiable fossils are shown for the various depth levels. The entire list includes 62 descriptive entries. We have given a sampling of these entries from a few of the depth levels in Table 6. Notice in this table that almost every description gives the characteristics of the rock or other sedimentary material for at least 100 feet of depth (just as in the original table in Goodell and Garman).

It should be remembered that each 100 foot (or more) segment of rock in the well includes numerous subdivisional layers. Each of these many changes in the type of limerock or dolostone in the column represents at least a minor change in the environment in which the sediments of the layers were being formed. Such changes can include alterations in the water temperature, the water depth, the mineral and carbon dioxide content of the water, and the amount of turbulence. Each of these has a major influence on the type of sediment and rock which will be produced.

The Nature of the Deeper Layers

Numerous observers who have studied the drilling records and