ROBULUS "43" AND DISCORBIS "4" — TWO USEFUL MIOCENE FORAMINIFERA FROM LOUISIANA

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ABSTRACT

For a number of years a foraminiferal species, commonly designated *Robulus* "43" by economic paleontologists, has been used to mark a biostratigraphic zone in the Miocene post-Anahuac sedimentary sequence of south Louisiana. In the petroleum industry this species has also been known as *Robulus* "L," *Robulus* "4" and *Cristellaria* "angular." A paper describing and naming this species and its associate *Discorbis* "4" has been submitted to the *Journal of Paleontology* for publication (Butler, in press).

Regionally, the *Robulus* "43" zone lies stratigraphically below the *Cibicides carstensi opima* and *Amphistegina* "B" zones and above the *Operculinoides* sp. zone. The *Amphistegina* "B" fauna generally occurs 100 to 200 feet above the *Robulus* "43" zone, but tends to climb stratigraphically in the section along strike and to the southwest. Since *Robulus* "43" shows less stratigraphic variation than the *Amphistegina* "B" fauna, it is consider a more reliable regional marker on which to base correlations.

A prolific foraminiferal assemblage occurs with *Robulus* "43"; however, most of the species range above and below the zone. The only species found to have approximately the same stratigraphic and geographic distribution is *Discorbis* "4". In areas where *Robulus* "43" occurs rarely and is poorly developed, the *Discorbis* may be considered the zonal indicator. The exact stratigraphic ranges of the two species have not yet been determined. Updip (landward) undescribed species of *Uvigerina* and *Pseudononion* (?) occur in association with *Robulus* "43" and *Discorbis* "4" to mark the top of the zone. Downdip (gulfward) the *Uvigerina* and *Pseudononion* (?) species tend to occur stratigraphically higher than the zonal top making the association invalid in those areas.

Environmentally, the zone appears to have been deposited under middle to outer neritic conditions. Updip, in the Shell Oil Company, Norman Breaux no. B-1, West Lake Verret field, St. Martin Parish, the fauna occurs in a section marked by alternating sands and shales. The shales in which the fauna is found contain a relatively high percentage of quartz and a fauna indicative of an open ocean environment described as Zone 2 by Crouch (1955) with an inferred water depth of 50-100 feet. Downdip, in the Magnolia Petroleum Company (presently Mobil Oil Company), State Lease 883, no. A-1, Block 46 field, Vermilion Offshore area, the quartz percentage is markedly less and the electrical log shows a massive shale section where the top of the *Robulus* "43" zone is encountered. The fauna here is much more diversified, containing numerous pelagic forms and displaying a deeper water environment than the updip well. The zone in this well has characteristics fitting Crouch's Zone 3 or 4 with inferred water depth ranges of from 100-200 and 300-600 feet respectively.

Robulus "43" is typically developed in Assumption and St. Martin Parishes where its stratigraphic significance was first noted. The designated type locality for this species and *Discorbis* "4" is in the Magnolia Petroleum Company State Lease 883, no. A-1, at a depth of 12,970-13,000 feet where they reach their optimum development in coastal Louisiana (Butler, in press). Small, poorly preserved specimens of *Robulus* "43" have been noted in the John W. Mecom L. L. & E., et al. well, Unit 1-L, no. 1, Lake Washington field, Plaquemines Parish, at a depth of 20,856 feet (Crouch, personal communication, 1959). The zone can be traced across southern Louisiana from the vicinity of Lake Pontchartrain westward to Cameron Parish. Offshore, it has been noted in wells from the northern Eugene Island area southwestward to Brownsville, Texas, and may possibly occur in the offshore areas of northeastern Mexico.

A cross section, constructed from West Lake Verret field to Block 46 field, depicts the stratigraphic relationship of the *Robulus* "43" zone to other Miocene biostratigraphic zones encountered in south Louisiana.

REFERENCES CITED

CROUCH, R. W., 1955, Pragmatic approach to correlation of Miocene strata in southern Louisiana: Am. Assoc. Petroleum Geolcgists, Bull., v. 39, no. 11, pp. 2321-2328.

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