

Geological sampling on Skerki Bank - Strait of Sicily

by

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The Skerki Bank lies 20 mls northeastward of Iles Cani and 45 mls westward of Island Marettimo. It is formed by an elongated structure striking SW to NE, with numerous low- and high-lying areas, the highest of them are known as Hecate reef, Keith reef and Sylvia knoll. The bank represents a submarine continuation of the tectonic axes of the Tunisian Atlas (also striking SW to NE) which here meet those of the Strait of Sicily (SE - NW) (COLANTONI & ZARUDZKI, 1972).

The Laboratorio di Geologia marina had undertaken extensive research in that zone using sparker seismic reflection techniques to elucidate the structure, and relying on diving to procure geological samples.

The problems which had to be overcome during the work in this area are connected with strong sea currents and with positioning of the research ship.

The available data on the currents between Sicily and Tunisia are scarce. It is known, however, that the area is affected by a predominantly east-going current which has an estimated average velocity of 1 to 2 kts. Over the banks this velocity is always increased because the current flow is restricted by a steep rise of the seafloor, forming a sort of dam. Velocity up to 4 kts were observed during the winds from NW.

The ship's positioning in this area has always been somewhat problematic, resulting from the lack of an adequate Loran C coverage and from a considerable distance from the coastlines rendering navigation by Radar impossible.

The following techniques were followed which enabled us to successfully collect the rock sample by dives :

1. — A buoy equipped with Radar reflector was anchored at the last position fixed by a radar distance from the coast and the Loran C position line.
2. — The ship approached the central part of the bank ranging on the buoy with its radar.
3. — In an immediate vicinity of the bank a motor-boat was launched for a reconnaissance of the bottom with the glass-bottomed bucket.
4. — The position of the executed dive was obtained from the ship by a Radar and Astrofix.

To resist the force of the current it was necessary to use the boat's anchor line on descending and to retain a constant hold on rocks on the bottom. The current velocity was estimated at about two knots.

The samples were collected on Keith reef at 12 meters depth, 40 mls N of Cape Bon (coordinates of the point : 37°49.8' N, 10°56.1' E). In this area DANGEARD & SOLIGNAC [1923] dredged at depth of 35 m blackish marls and sandstones for which a Lutetian age was assumed on basis of lithological analogies with rocks outcropping in Tunisia. A little further south were dredged red sandstones tentatively assigned to Pliocene and Quaternary [BLANC, 1958]. Our samples were hand-collected in good visibility over the bottom characterised by gentle morphological forms, covered by dense algal vegetation.

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One could observe thick rock strata gently dipping to the northeast and crossed by numerous cracks. The rocks consist of a compact yellowish-brown organogenic limestone, containing numerous macrofossils fragments.

The microfossil content (Foraminifera and Coprolites) of the rocks recovered permits to establish their age as Miocene, probably middle-upper [BORSETTI & COLANTONI 1972].

This paper results from a first attempt to dive for the datable fossil-bearing rocks of the Skerki-Bank.