

* Laboratorio di Geologia Marina del C.N.R., Via Zamboni 65,
40127 Bologna (Italy).

The strait of Sicily is characterized by the extensive sicilian and african continental shelves separated by slopes broken up into deep basins, banks and plateaus.

The geological and stratigraphical investigation of this area involves the rocks:

a) outcropping in the islands; b) forming the banks; c) and the sediments of the shelves and continental slopes.

Our main conclusions can be summarized as follows:

a) The limestones outcropping on Lampion Island belong to late Cretaceous (Maestrichtian) and the calcarenites with Lithothamnium of Lampedusa to the middle-upper Miocene, up to Tortonian stage with *Borelis melo*. The succession of coralline limestones with clays and marls on the Maltese Islands shows a complete sequence from Aquitanian (*Globigerinita dissimilis* zone) to Tortonian (*Globorotalia menardii* zone). The depositional facies of the rocks on Lampedusa belong to a shallow water environment similar to that of the north african sequences. On the Maltese Islands there are found levels with Lithothamnium (similar to those of Lampedusa and north Africa) as well as others with planctonic remains characteristic of deeper environment and resembling the Miocene deposits outcropping in Sicily.

b) The numerous banks are rocky plateaus i.e. Skerki bank: organogenous limestone (middle-upper Miocene); Talbot bank: dolomite (probably Triassic); Pantelleria Vecchia bank: calcarenite with *Elphidium* and Lithothamnium (middle-upper Miocene); Levante bank (Lampedusa): calcarenite with *Elphidium* and *Borelis melo* (Tortonian stage).

c) By dredging the flanks of the deepest basins, we recovered marly limestone of upper Cretaceous in the Malta basin, marly clay of lower Pliocene (*Globorotalia margaritae* zone) in the Pantelleria basin and calcarenites of upper Messinian (*Globigerinoides ruber parkeri* zone) in the Malta and Linosa basins. The calcarenites show an oligotypic pelagic fauna (with *Globorotalia puncticulata* and *Globigerinoides ruber parkeri*) while the outcropping Tortonian of the islands with *Borelis melo* and Lithothamnium is characteristic of a shallow water environment. This fact suggests active vertical displacement in the upper Miocene. Pliocenic rocks were also found NW of Pantelleria and it is possible that they are lacking in the eastern part of the Strait of Sicily.

Pleistocenic sediments (gray and yellow muds and sands), are widespread while recent deposits, mainly ochre-yellow clayey muds, predominantly accumulate in the deep basins. In shallow water strong currents remove the detritic materials and off the coast, on the sicilian and african shelves, there is nearly no terrigenous sedimentation but only biogenic, mostly algal, deposits. On rocky bottoms at depths greater than 280 m, there are carbonate and ferromanganese precipitates.

- In two cores from Malta and Linosa basins three major climatic phases are demonstrable by paleontological analysis. In the first phase (Holocene) *Spiratella inflata*, *Creseis* spp., *Globigerinoides ruber* and *Globigerina inflata* dominated the fauna; in the second (post-Würm) *Globigerinoides ruber* is less frequent and *Globigerina pachyderma* (dextral coiling), together with *Globigerina inflata*, increased. In the third phase (last glacial period) *Spiratella retroversa*, *Globigerina pachyderma* (dextral coiling), *Globigerina quinqueloba* and *Globorotalia scitula* predominated. Sedimentary structures and differences in plankton/benthos ratio evidence changes in water circulation and active vertical motions of the sea floor, mostly during the last glacial and post-glacial period. The calculated sedimentation velocities for these basins are 20-30 cm/1000 yrs during the post-glacial (15,000-10,000 y.B.P.) and 12-20 cm/1000 yrs during the Holocene (last 10,000 yrs).

- The sedimentary rocks in the Strait of Sicily were much faulted during the upper Miocene and the movements have continued until the present.

Interventions à la suite des papiers 4-10. et 4-11. présentés par M. COLANTONI :

BITTERLE - Shell International. The Hague.

Can you please point out where you have the eroded Triassic bank ?

Réponse : Dolomites, possibly Triassic, were collected by diving to 20 m and by dredging near 60 meters on the Talbot Bank.

LEE - Washington.

Have these data been published or will they be published, and where ?

No they are unpublished data and they will be published in the Journal of Geology in Bologna.

Dr. CLOSS - You showed the graben system very clearly. Is it possible to combine it with the graben system shown by other authors. Magnetic maps indicated trends in the same direction. I should have the feeling that there is a same trending from Minorca to this area, through the deep sea anomalies.

Réponse : Here are the grabens in the straits of Sicily but this direction is widespread in the Mediterranean. Here it cuts the continuation of the Atlasic ranges. Some points of rotation have been reported north of the area. I cannot be more precise on the identity of the trends.

This trend is present in Tunisia where there are other grabens, according to BUROLLET, which are very recent, perhaps Villafranchian. I think the grabens of the straits are Pliocene in age and they are in accordance with the general story of movements within the Neogene.

BRINKMAN - Ismir - Turquie.

How do you explain the higher Bouguer anomalies in the grabens than on the horsts ?

Réponse : Denser rocks such as intrusives could explain this; but we do not really know.