

Seaward extensions of some North African and Sicilian Structures and Sediments

by

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Résumé

Cette communication touche la structure et la stratigraphie du Déroit de Sicile sur la base de sondages sismiques et d'échantillons du fond marin datés par paléontologie (du Triassique jusqu'au Quaternaire). Les sédiments crétaçés et éocènes sont semblables à ceux de l'Afrique du Nord. Le bassin évaporitique sicilien s'étend jusqu'aux fosses.

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The Strait of Sicily is characterized by recent distensive tectonics with horsts and grabens recognizable also from the actual morphology of the seafloor i.e. deep closed basins interspaced by plateaus and shallow banks. To reconstruct the tectonic and stratigraphic setting, we obtained numerous seismic profiles (Sparker) and bottom samples. These are of the following age : *Trias* (?) on Talbot Bank gray dolomite. *Cretaceous* on N and S flanks of the Malta graben : marly limestones and clays with *Globotruncana* spp. *Eocene* on the N slope of the Malta graben : white limestone with *Globorotalia* spp. and *Hantkenina* spp.; on the Terrible Bank: white and brown crystalline limestone with *Discocyclina* sp. and *Lepidocyclina* sp. *Serravalian* on the N flank of the Malta graben : grey-yellowish clays with benthonic and planktonic faunas with *Praeorbulina circularis* and *Orbulina suturalis*. *Mid-upper Miocene* on Skerki and Pantelleria Vecchia banks : limestones and calcarenites with benthonic foraminifera, fecal pellets and algae. *Tortonian* on the Levante Bank of Lampedusa : biocalcarene with *Lithothamnium* and *Borelis melo*. *Messinian* on the N flank of Pantelleria graben : marly, sulphurous clays. *Lower Pliocene* on the N flank of the Pantelleria graben : gray-blue clay with *Globorotalia puncticulata*; in the Malta and Linosa grabens : calcarenite with predominantly benthonic faunas containing rare *Globorotalia puncticulata*.

The main conclusions which, at present, can be drawn are :

1. The possibly Triassic dolomite (Talbot Bank) indicates a sub-sea continuation of the Sicani Mtns and Egadi islands series. The extensive continental shelf would be therefore a strongly tectonised and eroded area.
2. The Cretaceous and Eocene rocks from the Malta graben indicate an open sea sedimentation similar to that of the North Africa. Further NW the sea was shallow at least from Eocene to the mid-upper Miocene, as indicated by the rocks found in the banks Terrible, Pantelleria Vecchia and Skerki.
3. The Tortonian with *Lithothamnium* of Lampedusa, the Levante bank and the Malta series with the *Lithothamnium* and *Globigerina* horizons represent facies change between the shallow sea deposits, typical of North Africa (Libya), and those of deep sea in central Sicily.
4. The vast Messinian evaporite basin of Sicily extends as far as the Pantelleria graben, where marly sulphurous clays were sampled. Seismic profiles show that it stops before the Malta graben surrounding the zone of the No-Name Bank.

Rapp. Comm. int. Mer Médit., 23, 4a, pp. 105-106 (1975).

5. We suppose that generally within mesozoic and paleogenic sequences (Cretaceous and Eocene were sampled) there are Miocene rocks, probably from Aquitanian through Tortonian (Lampedusa and Malta) or to Messinian. On these series lies the Lower Pliocene which in the evaporitic basin is of deep marine facies (clays) and practically conformable, while elsewhere it is of shallow sea environment (calcarenites of the Malta and Linosa grabens) and clearly unconformable.

6. Finally, a very strong unconformity is visible in the seismic profiles above the Lower Pliocene. It may be related to the mid-pliocene transgression although we do not have as yet data on this sedimentation episode. Nevertheless it should have developed mainly in the basins and then covered by later deposits.

In fact, we think that inspite of the tectonic movements, which continue until the present time, the basins reached their actual development after Lower Pliocene.

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Discussion

M. Caire demande si tout ceci sera publié.

M. Colantoni répond que c'est une communication préliminaire et que l'ensemble sera publié.

M. Finetti : Author said that evaporites of Pantelleria graben are of deep water : can be indicated have deep are these waters?

Les auteurs : Nous avons dit que le Pliocène au-dessus est de faciès profond (100-200 m).

M. Letouzey : Pouvez-vous suivre sur les profils sismiques situés en mer, le front des masses allochtones connues, traversé en forage à terre, et situé dans le Pliocène?

P. Colantoni : Some disturbed zones in the plio-quaternary cover can be clearly seen in many profiles located near the sicilian coast. This zones can be interpreted as allocthonous masses or slumpings.

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