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- 1). Distribution of Oolitic Sediments: Aragonitic oöids as a major constituent of recent littoral sediments are known from three regions of the Mediterranean Sea: I). off Djerba Island, Gulf of Gabes, Tunisia (2); II). off Alexandria, Egypt (2; 3); and III). in the lagoon of La Palme, Gulf of Lyon, France (4).

The two north African localities coincide with thick oölitic beach dunes of Quaternary age (2; 5; 6; 7). Similar deposits are also known from the area of the Isthmus of Corinth (8; 5). Reworked oöids of Quaternary age are described from shelf sediments and from slumped deposits now in the deep water of the Strait of Otranto (9; 10).

- 2). Age of Oöid Formation: A Recent formation of oöids has been postulated for the littoral deposits off Djerba and off Alexandria (2; II). An "actual or subactual" formation was interpreted for the oöids of the 'Etang de La Palme' (4). Pleistocene age (Thyrrhenian stages) is indicated for the oölitic eoleanites forming a fossil dune belt between South Tunisia and the Levante and also near Corinth (2; 6; 7; 8).

New C-I<sub>4</sub> data from the oöids in the recent marine sediments and the most seaward oölitic dunes from Djerba must be interpreted as early Holocene, while other oölitic dune rocks, situated more to the coastal hinterland of Djerba gave an apparent C-I<sub>4</sub> age of late Pleistocene. Reworking of the near-shore semiconsolidated oölitic rocks can also be regarded as a possible source of the oöids in the recent marine sediments (6).

- 3). Ultrastructures of the so-called "Recent" Mediterranean Oöids.

Scanning electron microscopic investigations of the oöids from the littoral sediments off Djerba (5) and from the Etang de La Palme (12) showed that all oöid grains are in a stage of disintegration and corrosion. No proof of an actual formation of the oölitic cortex on recent organic and inorganic nuclei was found.

- 4). Comparison of Climatic Data: The mean temperatures of surface waters in the Mediterranean oöid-bearing areas range from 14° to 15° C for the coldest months and 24° to 25° C for the summer months (13). This is significantly less in the Bahamian waters (14) where we find values of about 24° to 25° C for the winter and about 30° C during summer. In the Mediterranean Sea similar high water temperatures, permitting a formation of oöids, probably have existed during the warm periods of Pleistocene and early Holocene time (climatic optimum).

- 5). Conclusions: The oöids in the recent marine sediments of the Mediterranean Sea are regarded as relicts of interglacial or postglacial warm periods of Quaternary time. In regard to their general mode of formation the Mediterranean oöids can be regarded as equivalents to the oöids of the Bahamas or the Persian Gulf. They are indicative for a warm paleoclimate too.

Notes and Bibliography :

- (I) This investigation was supported by the Deutsche Forschungsgemeinschaft.
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- (3) M.E. HILMY (1951) : J. Sediment. Petrology, 21, I09-I20, Tulsa
- (4) A. RIVIERE et S. VERNHET (1959) : C. Rend. Acad. Sci., 249, 2596-2598, Paris.
- (5) F. FABRICIUS and H. KLINGELE (1970) : Verh. Bundes-Anst. 1970. 594-617, Wien.
- (6) F. FABRICIUS, D. BERDAU et K.- O. MUNNICH (1970) : Science, 196, 757-760, Washington D.C.
- (7) E. GAVISH and G.M. FRIEDMAN (1969) : J. Sediment, Petrology, 39, 980-1006, Tulsa.
- (8) B. v. FREYBERG (1952) : Ann. Géol. Hell., 4, I57-I88, Athen.
- (9) F. FABRICIUS, U. v. RAD, R. HESSE and W. OTT (1970) : Geol. Rundschau, 60, I64-I92, Stuttgart.
- (10) R. HESSE, U. v. RAD and F. FABRICIUS (1971) : Mar. Geol., 10, 293-355, Amsterdam.
- (II) The oöids from the sediments off Alexandria were also interpreted as reworked from Tertiary source rocks (3).
- (I2) I am grateful to Prof. A. RIVIERE, Paris, for providing me with samples from the Etang de La Palme.
- (I3) MEDITERRANEAN PILOT (1963), 9th ed., with supplements (1968), Hydrograph. Deptm. London.
- (I4) P.E. CLOUD Jr. (1962) : U.S. Geol. Surv. Prof. Pap., 350, p. 98 Washington D.C.

SCHUILLING -

Has the inferred high-temperature formation of the Ooids been checked by oxygen isotope geothermometry ?

Reply : We did but we have not yet the results.

BUROLLET -

Je tiens à féliciter le Professeur FABRICIUS pour son excellente présentation. Mais je voudrais souligner que le caractère remanié des Oolites de Djerba est connu en Tunisie depuis des années (Coque et Jauzein). Certaines sont liées aux couches Tyrrheniennes à Strombus bubonius. Vous apportez l'évidence que, à terre et dans les éléments remaniés, on a un épisode chaud plus récent, Holocène. Les formations carbonatées qui entourent le Golfe de Syrte sont liées à la pente du plateau et elles sont souvent emboîtées avec des aspects voisins et plusieurs âges successifs.

Une seconde question : pensez-vous que la formation de ces ooides puisse être comparée à celle des oncholites, c'est-à-dire, qu'elle soit liée à une action algaire ?

Réponse : Je suis en faveur de cette hypothèse.

NESTEROFF -

La très belle communication que nous venons d'entendre confirme que l'association "oolithes - récifs coralliens" des anciens auteurs, n'est pas vérifiée dans les gisements actuels et sub actuels. Ceci suggère un mécanisme de formation des oolithes entièrement séparé de l'évolution des ensembles coralliens.