

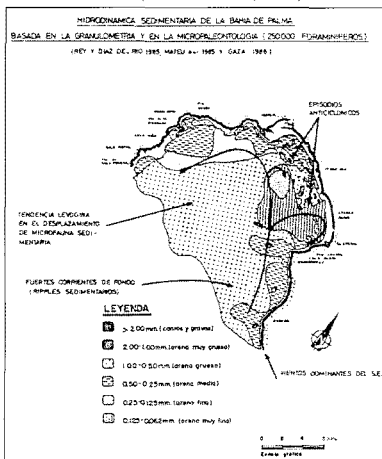
**BAHIA DE PALMA DE MALLORCA
(BALEARIC ISLANDS – SPAIN) : NEOGEN–QUATERNARY
HYDRODYNAMICS AND MICROPALAEONTOLOGY**

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Bahia de Palma : Foraminifers, littoral drift and fossil beaches. The “Bahia de Palma” forms a geometric unity between the coastal south–western shelves of the third mesozoic series of the “Serra de Tramuntana” and the tortonomesinian formations of the marine of “Llucmajor” with its ancient reef character. Its sedimentology (JAUME & FORNÓS, 1992) offers some biofacies or biological features of the sediments that in the light of a qualitative and quantitative study upon the foraminifers are the following: forms of epiphitic origin (*Miliolidae*, *Cibicides*, *Discorbidae*...) and of sammic and terrigenous origin (*Glabratellidae*, *Textulariidae*, *Elphidiidae*) are present all over the “Bahia” in consonance with extensive meadows of vegetables, or production–sources, followed by tafocenotic dynamics regulated by the paleocourses, the distribution of sands and its granulometry, as well as other physical and geological factors in the area. Above all, the sinistral littoral drift shows a major specific diversity and a remarkable gathering of benthonic and planktonic forms in the northern part of the “Bahia” (T2). All that and the following allowed us the hydrodynamic model of the “Bahia de Palma” (MATEU, 1989), recently corroborated by the “numerical model” of WERNER *et al.* (1993). These species mainly live within 1 and 40 m of depth, in the inner shelf, within normal salinity and even hyper–salty lagoons. Its steady permanence upon algae and rocks, in temperate tropical areas is associated to *Miliolidae*, *Soritidae*, *Planorbulinidae*, *Vertebralina*, etc., and its philotropical character makes us relate it to the climatic requirements of *Soritidae*, which appears in the “Bahia” on the paleo–reefily miocene coast of “Cap Blanc” (S14), wherein the ancient *Amphisteginidae* replaced by the present *Soritidae* would evoke the plio–pleistocenice continentalization of the Mediterranean and the resulting supplanting of the shallow reefly ecosystem by the photophylum communities of *Cimodocea* and *Caulerpa* of the infralittoral zone of the “Bahia de Palma” (MATEU, 1991). Its eutirrenian macrofauna is characterized by thermophile and senegalese species, with echinoderms, mollusca, etc. (*Strombus*, *Brachydones*, *Patella*, etc.), feebly cemented and its microfauna of foraminifera, also thermophile, offers 69 species, belonging to 16 families, whose shells are mainly calcareous–porcellaneous (*Nubeculariidae* 50%, *Miliidae* 25%, etc.), which presuppose meadows of *Posidonia* and coastal fringe of *Cymodocea*, *Caulerpa*, etc., as the microfaunistic morphotypes respond to this kind of vegetation (LANGER, 1993) (S40, S17).

Epineritic marsh : neogene quaternary evolution and microfauna. Local phases of quaternary subsidence in accordance with the puzzle of subsident blocks all along the pliocenic paleochannel of Mallorca, which joint the “Bahia de Palma” with the ones of “Pollença y Alcudia”. The different bathymetric distribution of the lithologic unities (calcsiltites of Son Mir, calcarenites of Sant Jordi and silts of Palma) remain confirmed by the magnetic anomalies and the bihorizons of the first and last appearance of certain planktonic species (MATEU, 1985). That way, in corer S40, beside the airport, in the calcsiltites of the basal Pliocene, lacustral ostracods (*Cyprideis torosa*) appear within levels inferior to the planktonic bloom of mesoepipelagic species (*Orbulina universa*, *Globigerinoides trilobus*, *G. inmatutus*, *Sphaerodina subdehicens*, *Globorotalia punctulata*, *G. margaritae*, etc.) whose synchronus character requires a mesopliocene marine environment (THUNNEL, 1979), which has nothing to do with that inferior pliocene sedimentation of the deep Mediterranean basins, with stratigraphic hiatus (zonations MPL1 and MPL2), which suggest a very strong hydrodynamic of the deep waters (KIDD *et al.*, 1978). Meanwhile our plankton would be tied to peripheric outcrops or to eolic gatherings, which remind us of the present planktonic depositions of the “salinas de Fornells” (Menorca) (MATEU *et al.*, unedited). The microfaunistic element, benthonic and infra–circalittoral, mainly characterises the superopliocenice calcarenites in consonance with the biodetritic model of a rocky coast and a internal shelf covered with meadows of vegetables, coralline and maërl (BLANC–VERNET, 1969), and wherein certain euryhaline foraminifers (*A. beccarii*, *Florilus boueanus*, *Elphidium sp.*), and salty ostracods, as *Cyprideis torosa*, offer a progressive adaptation to the adjacent marshes, testified by the sequence of margine–coastal facies, typical of the plio–pleisto–holocenice environment (VIÑALS *et al.*, 1989).



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