

-8. - ANCIENT COASTLINES IN THE GULF OF OROSEI (WESTERN SARDINIA)

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Présentée par le Pr R. SELLI. Via Zamboni 65

Thirteen ancient coastlines have been recognized by the authors in the Gulf of Orosei.

The four highest (at 120, 65, 42 and 20 meters a.s.l.) are the most difficult to date. They seem to be younger than basalts of Cala di Luna (pre- or early-quaternary), and older than the remaining lava flows lying along the gulf. The latter basalts can be related to one of late reversed magnetic "events" of the "Matuyama Epoch" which occurred at the end of pre-glacial Quaternary. The terrace at 120 m, with cold climate microfauna, may be referred to Calabrian or Sicilian period.

The age of high coastlines usually decreases with their decreasing altitude ; thus the coastlines at 65, 42 and 20 m a.s.l. may be progressively younger than the one at 120 m, and would belong to the pre-glacial Quaternary. After the formation of these paleo-beaches occurred a period with temperate-warm and damp climate, followed by the most recent basalt flows.

The remaining ten lower coastlines are subsequent to these effusions, and belong to the glacial Quaternary. Among these, the three highest (see Tab. I) are not horizontal, but slope south. Slope, increasing with present a.s.l. height, results from a coastal slow movement, determining a relative lowering of the southern part. Thus, the age of these ancient shorelines decreases according to their slope. The three considered sealevels present sediments containing temperate-warm climate fauna (Globorotalia inflata, Globigerinoides ruber, many Miliolidae, large shells of Spondylus gaederopus, etc...).

In the lower subhorizontal a.s.l. coastlines has been found temperate-warm faunas, including : at 7,5 m Tritonidea viverrata and large molluscs shells ; at 3,5 m Arca plicata, Gastrochaena dubia, Cladocora coespitosa, G. ruber, Urocythereis margaritifera ; at 2,7 m a well preserved fauna with Natica lactea, C. coespitosa, large shells of Patella ferruginea and S. gaederopus. These sub-horizontal coastlines are obviously more recent than those dipping south.

The table shows agreement relationships between the coastlines of the Gulf of Orosei (younger than more recent basalt flows) and those of Majorca, which BUTZER (1966) regards as valid for all stable Mediterranean areas. The close agreement in elevations and faunal assemblages allow to correlate Majorca costlines with Orosei ones. Additional data will derive from outstanding radiometric age analysis.

Marine strata (according to Butzer, 1966)	The island of Majorca (and stable areas of the Mediterranean).	The Gulf of Orosei
Tyrrhenian (s.s.) (= "Tyrrhenian II": Riss- -Würm)	(+15-20 m)	+12,05-14,76 m
	+10,5-12,5 m	+10,90-12,65 m
	+8-9 m	+8,32-10,66 m
	+6-7,5 m	+7,5 m
	+2-4 m	+3,5 m
"Tyrrhenian III" (W I-II)	+2,5 m	+2,7 m

A further wide subhorizontal terrace at 3 m b.s. l., with traces of subaerial erosion and temperate-warm marine fauna, has been recognized. It is too wide to have been formed at the end of the Flandrian transgression ; it has been tentatively ascribed to the beginning of the first Würmian regression. A coastline at 1 m b.s.l. has been also observed ; being horizontal, it is certainly late or post-Tyrrhenian (s.s.). A recent terrace lying at 1 m a.s.l. and yielding Holocene fauna has been finally recognized.

Intervention à la suite du 10-8.-

GENNESSEAUX - Avez-vous des renseignements sur les mouvements verticaux en Sardaigne septentrionale, en particulier dans la région du Grand Graben méridien du Golfe d'Asinara ?

Rep. SELLI : Pas de données ; absence de séismes ; très stable.

RYAN - Do you have plans to date the calcareous fossils on the various terraces by uranium series methods ? Such results would be very valuable to help us correlate our Pleistocene chronology established on deep sea cores with sea-level changes related to eustatic responses to glaciation.

Rep. SELLI : transmettra aux auteurs.

MASCLE.- Sur la côte méridionale de Sicile on reconnaît trois terrasses, correspondant aux trois terrasses supérieures de votre système supérieur et aux mêmes altitudes. Est-ce qu'en Sardaigne des industries humaines sont liées à ces terrasses comme en Sicile ?

Rep. SELLI : à sa connaissance, industries seulement dans les terrasses les plus basses.

FERNEX - Ces données très précises conduisent à tenter un rapprochement avec la région de Nice où les terrasses sont étagées à peu près de la même façon. En particulier, la terrasse tyrrhénienne de 14 m correspond vraisemblablement à notre terrasse de 12,50 m (voir les travaux de G. IAWORSKY). En ce qui concerne la terrasse de 120 m, nous avons aussi effectué des mesures de la direction de l'aimantation de quelques échantillons prélevés dans des niveaux comparables (mais sur des paléo-sols). J. POUTIERS et moi avons obtenu des résultats très comparables à ceux de nos collègues italiens : Les sols les plus anciens ont des aimantations normales, tandis que des sols moins anciens ont montré une aimantation apparemment inverse.

MEULENKAMP - Outside the subject of his actual communication I asked Prof. SELLI to give some information on the mass-transport movements in the Calabrian area, in particular concerning the transport from eastern directions. Le Pr SELLI donne des précisions - discussion sur les olistostromes.