

8-14. - RECENT TECTONIC MOVEMENTS AND OLD STRANDLINES ALONG THE COAST OF CRETE

by M. DERMITZAKIS - University of Athens, Depart. of Geology and
Palaeontology, Akademias street 46

1. In the peninsula of Gramboussa in NW Crete, recent tectonic movements have been observed. An ascendent movement was certified at the east shore of the north part of the peninsula from the place Ormos Hag.Sostis up to Cape Vouxas. This movement was identified by the existence of old strandlines with lithodomus holes and of a terrace of a destructive form. The height of them is 1-2,20 m. Contrarily on the western shore of the peninsula close to the places Tigani, Balos was observed a descendent movement. This fact is verified by the small height of the Tyrrhenian beds ; 8 Km southly the place Tigani close to Cape Coutri was certified an ascendent movement with a strandline, whose height is 6,50 m. Besides, the ancient port of Phalassarna-lying nearby-has been elevated. But the elevation of the land is also verified by the height of the horizon of the tyrrhenian beds, which is 15 m., while the same horizon in Tigani is 8 m. high.
2. We accept that a tilt of the strata has taken place, as we observe some movements of the shorelines at the localities a) Ormos Hag. Sostis Cape Vouxas b) Tigani-Balos c) Phalassarna. The cause of the strata tilt is either a reanimation of the already existing faults or a flexure being in the first stages of its creation. As a consequence of this tilt the north part of the peninsula Gramboussa was elevated eastwards and submerged westwards, while the south part near Phalassarna was moved in the opposite way.
3. These movements must have taken place during the historical ages, because as it is mentioned in the text, the geographers Strabo, Skylax Caryandensis and the anonymous author of "Stadiasmus", describe an artificial port in Phalassarna. This port, nowadays, is lying higher than the sea-level and much more removed from it.
4. The cited list of the movements certified in Crete, proves that they are of a local character, either ascendent ot descendent. This contrast is even observed in places quite close to each other. This is the reason why Raulins interpretation of Spratts observations, according to which east Crete submerges whereas west Crete elevates, cannot be valid. Besides, except these places which have been partially covered by alluvium, another the mole of the port of the ancient Lassaia (Kali Limenes).

We must, in addition, emphasize that these elevations and sinkings have taken place in different periods of the historical ages.

5. The seismic energy is participating in these movements. There is existing a correlation between them, as it is proved by the above mentioned events.
6. The elevation of the sea-level is a fact. This is the cause the buildings have been covered by the sea, but it is not the only one, because how does it happen that the ancient buildings of Suja and Phalassarna are higher than the sea-level ? Thus we admit that these movements are the result of the activity of all the above mentioned causes, but the magnitude of the eustatic elevation cannot be estimated.

7. A more detailed research must be conducted, in order to verify and in consequence to generalise the theory that a tilt of strata has taken place in the island. As this theory has been admitted for constructions of an older age, e.g. the Tyrrhenian of the Isthmus of Corinth, our opinion is that the existence or the absence of Tyrrhenian beds (in several places) in the south and north coasts of the island correspondingly, must be attributed to these movements, if, of course, we except the factor of the action of erosion, which probably has made a lot of these beds disappear.

BERCKHEMER - Frankfurt.

Are there indication to distinguish between discontinuous and continuous shone line movements.

Answer : In some cases we found 2 or 3 distinct shorelines, sometime only one, but in other cases the movement seems to have taken place continuously.

GOEDICKE -

Sandstone and limestone conglomerate outcrop are found on the east crast of Rhodos half way between Rhodos and Lindos.

High level strand lines are found at the some level of about 1.20 - 1.60 meters above sea level between Rhodos and Lindos and south of Lindos.

Similar but less noticiably strand lines are found on the east side of the Island of Castellarizo.

At the Island of Kekona, on the Turkish coast, old buildings have been submerged about 2-2.5 meters. Included among these are Lycian tombs.

FERNEX -

Comment distingue-t-on la plage de 2 mètres d'une plage de 5 000 ans ? Il est souvent difficile de distinguer le Tyrrhenien. Dans les Alpes-Maritimes françaises les variations d'altitude sont eustatiques et ne correspondent pas à une néotectonique : si les plages bougent, comment peut-on les identifier ?

Réponse : Les mouvements récents sont mesurés par rapport au niveau de la mer. Les observations peuvent être faites en rapport avec des monuments.

MEULENKAMP -

The recent differential movements on Crete, Karpathes, Rhodos and other areas give the impression of being discontinuous. Moreover, the topographic expression of these (sub) recent movements may change very quickly over very small distances.