INVESTIGATIONS ON THE ORIGIN AND THE EVOLUTION OF THE SEA BRANCH (CORINTHIAN ETC. GREAT TRENCH) BETWEEN MIDDLE GREECE AND PELOPONNESUS

Gaspard G. MISTARDIS
(Athens, Greece)

On the hypothesis of an important uplift of the N. Peloponnesian side and of landmovements downward of the S. Middle Greece side, is exposed in this paper another one, based among others, on the vestiges of ancient high surfaces on both sides on the High Hellenic Mountain Belt and of a Transtrenchian lower ridge, as also on the Aegean plate deformations.

Voici développées quelques conclusions de mes recherches sur l'origine et l'évolution de la grande fosse (maintenant bras de mer) qui sépare le Péloponnèse de la Grèce Moyenne, en tranchant très profondément la Haute Chaîne Hellénique et les zones à relief horsts-grabens de chaque côté. On y aboutit par l'étude, entre autres, des vestiges d'anciennes surfaces, sur la Haute Chaîne de chaque côté de la fosse, et de cette petite chaîne qui divisait la large fosse en deux fosses parallèles, ainsi que des déformations en extension et en compression de la plaque Egéenne, depuis la partie la plus élevée du Miocène Supérieur.

Geomorphological contrasts. The N. Peloponnesian slopes facing to the Corinthian gulf, covered by thick Plio-Pleistocene lacustrine and fluvio-torrential deposits, as also the rectilinear of the shore line, are attesting in favour of a very important uplift. On the contrary, the absence of a similar cover on the S. Middle Greece slopes facing to this gulf, as also the ingression type of the coast are attesting in favour of important landmovements downward.

Hypothesis on the evolution. It is thus considered that the evolution of this great trench was influenced chiefly from vertical landmovements, upward in N. Peloponnesus, downward in S. Middle Greece.

High ancient surfaces. However, on both sides of the gulf altitudes go mostly till 2200-2400 m in the High Hellenic Mountain Belt, and vestiges of 3 ancient (Upper Miocene ?) surfaces are found at about the same

altitudes (différences are due chiefly to great vaultings), both attesting in favour : only an uplift of this belt.

Horsts-grabens relief. Eastward chiefly of this belt, less westward, is developing since the middle probably of the Upper Miocene (Styrian foldings period ?) a horsts-grabens relief.

The Transtrenchian ridge. At that period is developing as a very elongated horst (faults : WNW-ESE) into the broad Great Trench a lower ridge, dividing it in two parallel sub-trenches. Remnant of this ridge is the Perachora (1100 m)-Geraneia (1350) little mountain range.

The two sub-trenches. The north Sub-Trench remained during the uplift of the High Hellenic Mountain Belt a large valley ; thus the relief of the S. Middle Greece slopes is shaped by the erosion. The south Sub-Trench was occupied by a lake ; thus lacustrine and fluvio-torrential deposits covered the N. Peloponesian slopes.

The Pliocene distension. In Pliocene and the base of Pleistocene the Aegean plate, except the outer arc, is in distension deformations ; thus important faultings and subsidences. At this period, probably in Middle Pliocene, the central and western parts of the Transtrenchian ridge subsided, and only a part of the eastern remained in relief. Thus the Great Trench became little by little again single.

In Upper Pliocene the sea had submerged the Saronian gulf area, but sure traces of it are not know in the greater part of the Corinthian gulf area.

The lower Pleistocene compression. During deformations in compression of the Aegean plate sea was retired. Apcheronian lacustrine deposits are found in eastern Corinthia. Later lakes were limited and erosion was prevailling. Marked uplift of the High Hellenic Mountain Belt.

Middle Pleistocene distension. After the compression episode, began again deformations in extension of the Aegean plate. Sea recover important spaces since the Milazzian. However, in our area are not known, but only Tyrrhenian (with Strombus bubonius) marine deposits.

Such a scheme of evolution gives an enough satisfactory explanation for a certain number of the problems concerning the Great Trench (now a sea branch), but enough others remain without sufficient interpretations.