

Archaeological Evidence for Eustatic Change of Sea Level and Earth Movements in the Western Mediterranean During the Last 2,000 Years

Author(s): [N. C. Flemming](#)

Geological Society of America



THE
GEOLOGICAL
SOCIETY
OF AMERICA®

Volume
109

DOI:

<https://doi.org/10.1130/SPE109>

© 1969 Geological Society
of America

Geological Society of
America

ISBN print:
9780813721095

Publication date:
January 01, 1969

Doi:

<https://doi.org/10.1130/SPE109-p1>

Published: January 01, 1969

The change of relationship of Greek, Roman, and Phoenician cities in the Western Mediterranean to sea level in the last 2000 years is used to analyze eustatic change and earth movements.

A survey of the literature on archaeological evidence for eustatic change reveals that selections from the field data have been used to prove everything from eustatic constancy to oscillations of 25 ft every 600 years. In order to arrive at a solution of greater reliability, fresh criteria for the identification of coastal ruins are outlined, together with rigorous methods for establishing the original relation of the ruins to sea level and for rejecting uncertain data. Because of the interaction of eustatic change and local earth movements, a study is made of the distribution of vertically displaced cities which would be expected from various hypothetical combinations of these factors. This is followed by an analysis of the effect on the results of uneven distribution of cities along the coast, and a summary of the actual spacing of 179 cities around the Western Mediterranean. The 179 cities are then considered individually and definite conclusions reached on 54, with relevant but inconclusive data on another 67. There are 2 cities uplifted; 27 proven fixed relative to sea level; and 26 submerged. The submerged cities are sunk to depths varying from 0.5–10 m. The depth of submersion is not a function of the age of the site, and they are all grouped in tectonic zones or on deltas. One site only is anomalous, near Cannes, France, with submersion of 0.5 m in a relatively stable zone.

It is concluded that there has been no net eustatic change in the last 2000 years; that all submerged sites are due to earth movement; and that tectonic movements in the basin are predominantly downward.

