

## ON THE ORIGIN OF THE DELUGE OF DEUKALION AND THE MYTH OF ATLANTIS

In comparison with the great number of disastrous earthquakes which have occurred from antiquity to the present time in Greece, large tsunamis are very rare on the coasts of Greece. A really great tsunami may have started in the Aegean Sea after the tremendous explosion of Santorin volcano, which occurred  $3370 \pm 100$  years ago<sup>1</sup>. After the deposit of a layer of pumice 20 - 30 m thick and the emptying of the volcanic focus, the roof of the cavern thus formed collapsed. The central part, consisting of an area of 83 sq km, of the former island Stronghlyli, thus became a gigantic caldera 300 - 400 m deep.

There is no evidence indicating whether the collapse took place gradually or all at once. In the second case a huge tsunami should have started greater by far than that generated by the explosion of Krakatoa, on August 27, 1883. At that time depths of 200 - 300 m were formed by the sinking of  $\frac{2}{3}$  of the former island<sup>2</sup> of an area of  $33\frac{1}{2}$  sq km. Thus the cavity formed by the explosion of Santorin is about 4 times greater than that of the Krakatoa.

According to the archaeologist, Professor MARINATOS, there is evidence that all the Minoan cities and localities on the north and east coast of the island of Crete, as Amnisos<sup>3</sup> - the naval station of Knossos - Nirou Chani, Malia, Psira, Ghournia and Zakros, were swept clean by the huge waves started by the explosion of Santorin which occurred in about 1500 B. C. As a matter of fact, the destruction of Minoan Crete<sup>4</sup>, started by severe earthquakes on the south, east and north side of the island, which possibly induced the explosion, was completed by the great earthquake, which accompanied the birth of the caldera.

However, it should be noted that the relatively great depth and the gentle slope of the sea floor near the north coast of the island of Crete, the lack of inlets and the presence of Dia Island about 10 km to the north of Knossos, prevent the tsunamis from surging to destructive heights on the coast.

The total and sudden collapse of the central part of the former island

<sup>1</sup> A. GALANOPOULOS, Zur Bestimmung des Alters der Santorin-Kaldera, in: Ann. Géol. Pays Hellén., Vol. 9, 1958, 185 - 188.

<sup>2</sup> H. RECK, Die Geologie der Ring-Inseln und der Kaldera von Santorin, in: Santorin, der Werdegang eines Inselvulkans und sein Ausbruch 1925 bis 1928,

Vol. 1, Berlin 1936.

<sup>3</sup> S. MARINATOS, Amnisos, die Hafenstadt des Minos, in: Forsch. u. Fortschr., Vol. 10, Nr. 28, 1934, 341 - 343.

<sup>4</sup> S. MARINATOS, The Volcanic Destruction of Minoan Crete, in: Antiquity, Vol. 13, 1939, 425 - 439.

Stronghyli should have been accompanied by a great earthquake. The fact that the walls of the houses of the former occupants were found upright in quarries, under the lower pumice layer, does not establish a convincing reason that destructive earthquakes have not occurred either with or after the paroxysm of the eruption of Santorin<sup>1</sup>. As the Santorin caldera was formed after the first

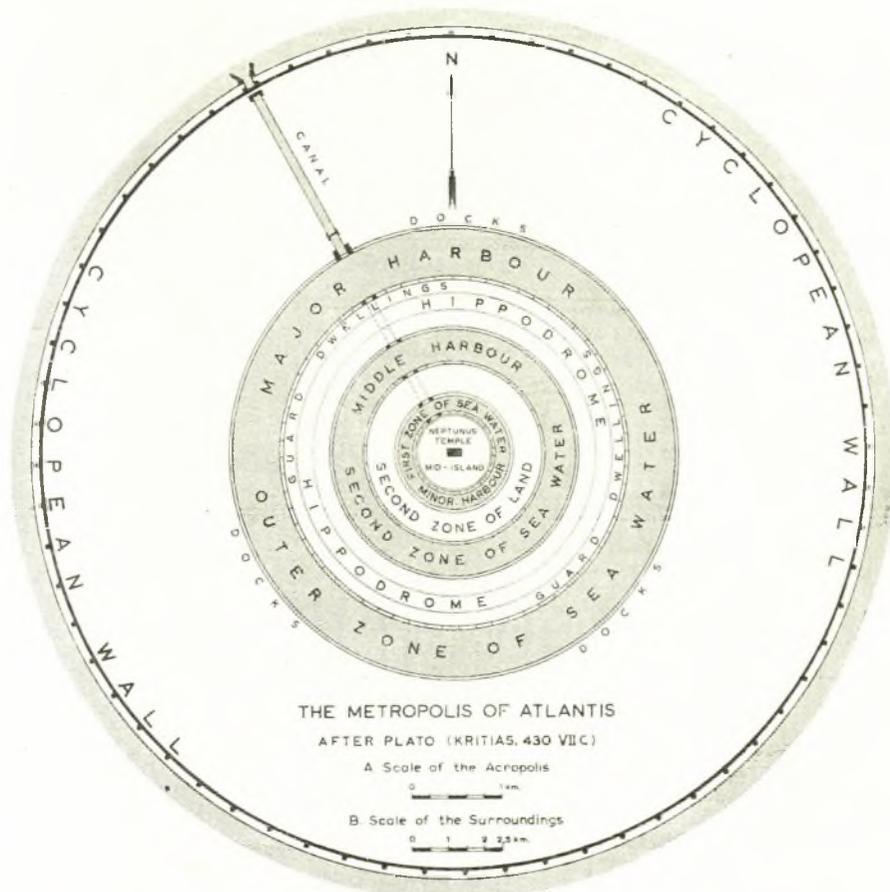


Fig. 1.—The Metropolis of Atlantis according to the data given by Plato in his Dialogue «Kritias».

pumice deposition, it was impossible for any earthquake, however great, to throw down houses already entombed in a thick pumice layer.

The volcanic eruption, the collapse of the central part of the former island of Stronghyli and the tsunami which followed for first time, open well the question of their bearing on the tale of Atlantis and the Deluge of Deukalion. The exaggeration in the size of the island<sup>2</sup>, which vanished in the sea, and in the

1 See footnote 2 in page 226.

2 The exaggeration in the size of Atlantis may have been made partly by purpose for justifying the great army of Atlantis and emphasizing so the importance of the victory of Old Athens. The exagger-

ation in the time may be partly due to an error or an oversight on the translation of the egyptian scripts by a factor 10, i. e. it was translated 9000 instead of 900 years before Solon's epoch.

time of its occurrence is quite a usual process due to 11 centuries which lapsed from the time of the collapse up to the epoch of Plato (B. C. 428 - 347). The exaggeration in the time is clearly indicated by the fact that bronze had been very largely used for the decoration of the metropolis of Atlantis; consequently, the destruction of Atlantis can not have occurred before the Bronze Age. The

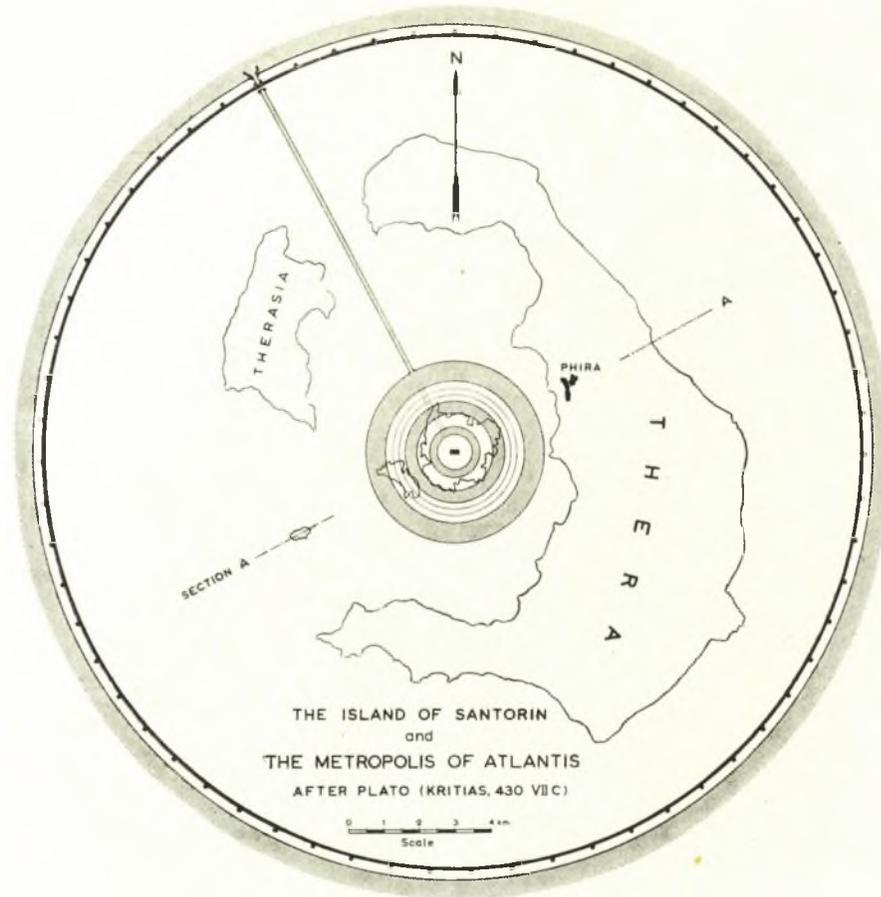


Fig. 2. — The Metropolis of Atlantis in comparison with the shape and size of Santorin Island. There is an alternative that Acropolis being in the middle of the island was 50 stades inland; in that case the radius of the island should have been 2 km smaller.

Bronze Age<sup>1</sup> is referred to the interval time of 2100 - 1200 B. C.. The exaggeration in the size of Atlantis, i. e. of the insular states of Atlantis, is clearly indicated by the description of the ancient metropolis<sup>2</sup>.

<sup>1</sup> H. QUIRING, *Geschichte des Goldes (die goldenen Zeitalter in ihrer kulturellen und wirtschaftlichen Bedeutung)*, Stuttgart 1948, S. 37.

<sup>2</sup> The description of the metropolis made on the basis of the documents, which were inherited from

Solon to Kritias, is awefully accurate. The discrepancies in the description of the other land, which was vaguely known and merely by tradition, are quite justifiable.

The description of the ancient metropolis (fig. 1) is quite the same of a volcanic island after a long time of quiescence; it fits perfectly to the features and especially to the shape and the size of the island of Stronghyli (fig. 2) or Kallisti<sup>1</sup>. Traces of the canal and the harbours of the metropolis are discernible even now on the floor of the caldera (fig. 3 and 4). The description of the other



Fig. 3.—Traces of the canal and the harbours of the Metropolis of Atlantis. The relief of the caldera of Santorin Island had been made by Prof. Dr. J. Trikkalinos, on the basis of a map of the Hydrographic Office of the Admiralty in 1916. (Geological Museum, Athens University, Greece.)

land, i. e. of the royal state, fits well to the morphology of Crete Island and strongly reminds of the features of the plain of Messara.

The sinking of a land within «one day and one night» is a geological process, which may occur on a small scale and only in the case of an earth slump or a collapse of the roof of a subterranean cavern. A gradual sinking of a great island and even of a continent should have passed unnoticed. The great

<sup>1</sup> In Greek Stronghyli means round and Kallisti the best.

shocks and the large floods which have accompanied the birth of Santorin Caldera may have affected the north coasts of Egypt to such an extent as the memory of this event to be kept—enlarged in the course of the time—among the priests<sup>1</sup>. It is quite impossible a geological event in the Atlantic Ocean to have affected the army of Old Athens.

Any story, however strange, can not produce a great impression, if there refers to a known, accessible place. For that reason, a real event occurred in the Aegean Sea was purposely displaced beyond Hercules' columns, in the Atlantic Ocean, in an inexplorable space and in a time, which could not be checked. However, considering that Peloponnesus was the main field of Hercules' doings, and that the part of the land, which was nearest to the Hercules' columns was

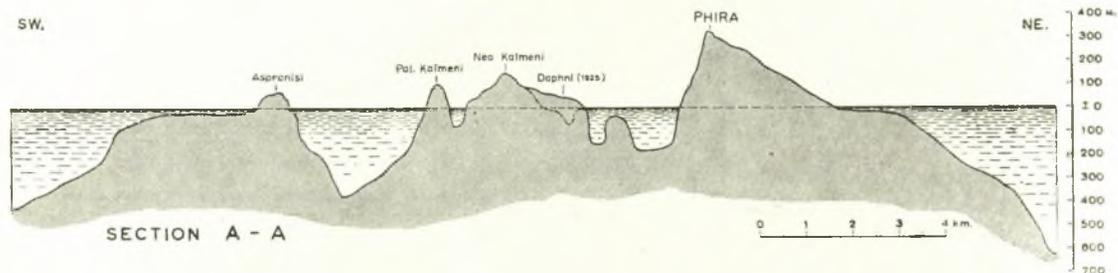


Fig. 4. — Traces of the middle and major harbours of the Metropolis of Atlantis in a section A - A through Aspronisi and Phira on Thera Island on the basis of a map of the Hydrographic Office of the Admiralty, 1947.

called in Greek «Ἐύμηλος» — meaning probably the island Melos — there is a great possibility that Hercules' columns were called rather the southern peninsulas Tainarum and Maleas<sup>2</sup>. This point is fairly supported by the fact that Neptune was not worshipped beyond the greek colonies.

The occurrence of the Deluge of Deukalion<sup>3</sup> all around on the coasts of the Aegean Sea in the epoch of the birth of the caldera is another strong argument for the idea that the Deluge of Deukalion and the myth of Atlantis<sup>4</sup> have their origin in the strong raining, which may have followed the volcanic explosion, as well as in the tsunamis, and in the collapse of the central part of Stronghlyli Island. However, the extraordinary wave, which was possibly started by the collapse, is an exceptional case, which has no relation to the ordinary tsunamis occasionally associated with the major and great earthquakes of Greece.

<sup>1</sup> The story was written down by the egyptian priests 8000 years before Solon's visit, i. e. 1000 or rather 100 years after the destruction.

<sup>2</sup> The sailing across the cap Maleas in ancient times was considered a great achievement.

<sup>3</sup> According to A. STAGIRITES (Oghyghia or Archaeology, vol. 4, Vienna 1818, p. 278), Deukalion was born in B.C. 1573, he reigned in B.C. 1541 and

the Deluge took place in B. C. 1529.

<sup>4</sup> It seems fairly probable that columns of lava solidified were supporting the roof of the volcanic cavern before the collapse; these columns found eventually by the excavation of the harbours or the canal of the metropolis were presumably considered as the shoulders of Atlas.

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