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Problems of the Akropolis Rocky Hill

Les Problèmes du Mont Rocheux d'Acropolis

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Although Acropolis is at home in Greece and is an eternal witness of the cultural and technological achievement of the Athenians 3000 years ago, today these monuments, being herited to the mankind, belong to all of us who are offering our outmost care in preserving them at the best possible condition.

Acropolis is to the eyes of the visitor an imposing structure, as it dominates over the top of a rocky hill, arising with steep slopes over the surrounding terrain. Geologically the Acropolis hill consists of limestone rising over the surrounding Athenian schists. Between schist and limestone exists a layer of tectonic breccia (Fig.1).

The top of the hill (Fig.2) is more or less level and has an altitude of approximately 157 m. above sea level. It measures a length about 270 m., E-W direction, and 156 m. in its widest part. The total area of the top surface is approximately 30.000 sq.m. The only access to the hill can be found on its western part.

The monuments existing on Acropolis are exposed to several problems of technical nature. Among the most important ones is the rainfall accumulations on the western side of the hill, which filling small karstic cavities eroded into the rock in the course of the ages, percolates into

the deeper strata at the contact between the limestone and the Athenian schist. Water percolation through a network of Karstic channels is evidence by the occurrence of three meager springs located at the contact of the two aforementioned geological formations.

Another very serious problem is the influence of the joints and fissures of the limestone, being a result of a intense tectonic action of the area. This tectonic activity was of horizontal and perpendicular direction and as a result many clastic phenomena show up leading to movements of limestone blocks, but without any resulting tectonic disarrangement of the limestone rock. These unfavorable conditions i.e. the presence of a network of strong fissures of various strikes and carstic channels cause not an immediate danger.

In general the Acropolis limestones are dense, thick bedded with few discontinuing surfaces that may definitely decrease the stability of the rock masses. Also the lithologic, macro-tectonic and micro-tectonic conditions of the area as well as the weathering of the rock masses do not affect the mechanical characteristics such as to justify the necessity of immediate protective measures.

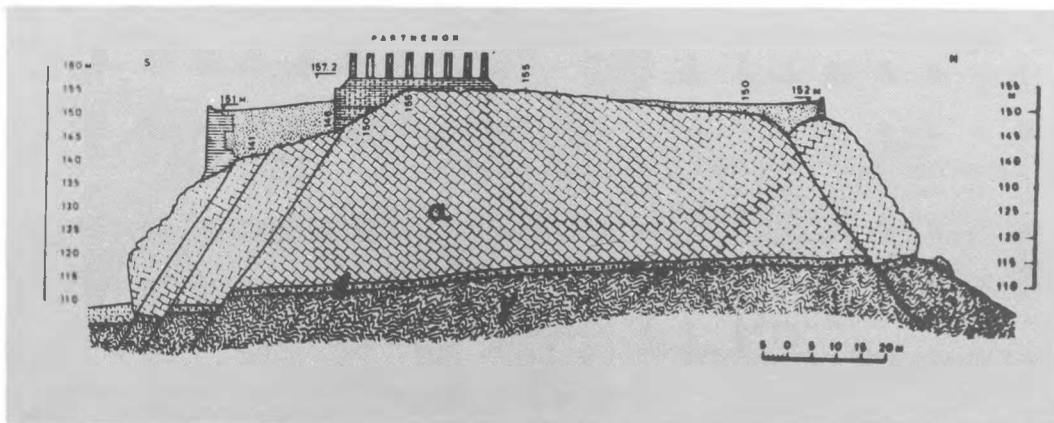


Fig. 1. Tectonic section through the hill of Acropolis (After Trikhalinos, 1975)

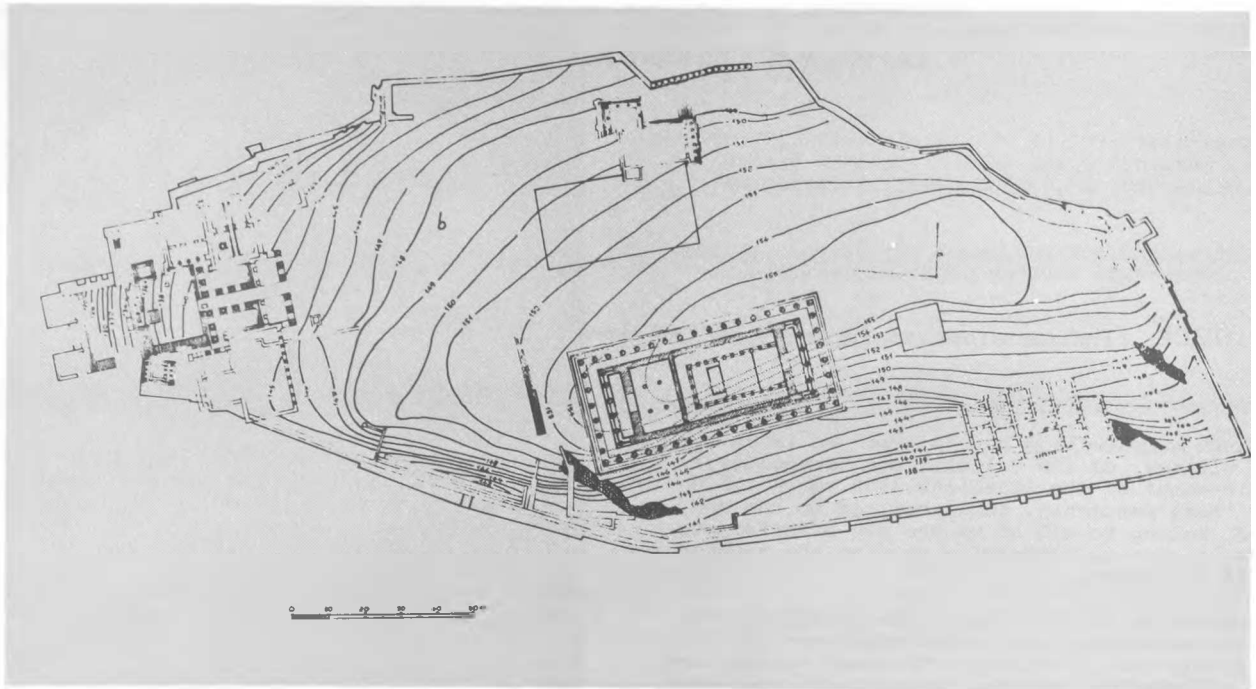


Fig. 2. Planview of the Acropolis hill. (After Trikallinos, 1975)

The forementioned unfavorable conditions in the Acropolis hill do not impose an immediate danger for the monuments, but in view of the possibility of undesirable developments in the future, preventive measures have been proposed by involved specialists:

- I. Water tightness of the hill up at the areas where water escapes into the limestone mass and construction of a suitable drainage system for the catchment and diversion of the rainwater.
2. Stabilization or removal of the unstable limestone blocks, and protection of certain parts of the slopes against further deterioration and weathering.
3. Sealing of the various cavities, sinkholes e.t.c.

REFERENCES

- Trikallinos J. (1975). Zur Frage der Erhaltung der Heutigen Morphologie der Akropolis. Abhandl. der Akad. von Athen. Bd 35.