

ROCK WEATHERING AND FAILURE IN THE MERMAID'S TOMB OF THE ETRUSCAN NECROPOLIS OF SOVANA (ITALY)

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In the southern part of ancient Etruria (Tuscany, Central Italy) there are several areas of Etruscan origin that are of invaluable historical and artistic value. The Necropolis of Sovana is especially important, even compared to other centres of ancient Etruria, since all the major types of funerary architecture of the Tyrrhenean region can be found. The pyroclastic rock was cut, chiselled and worked from the time of the earliest Etruscan settlements (VIII century BC) and continued throughout the entire ten centuries of Etruscan history and into the Roman epoch. The Mermaid's Tomb, dating from the III century B.C., is one of the major examples of Etruscan funerary work in the Hellenic period. It is a large niche type monument in the form of an arch hewn from a single rock mass. On its facade is carving of a double tailed Mermaid symbolizing the Sea Goddess and the Otherworld. A block of about 2 cubic metres was detached from the Tomb facade on May 1999. Geological and geomechanical investigations (geological mapping, inventory of the rock discontinuities, sampling and laboratory testing, petrographic study) results necessary for comprehending the failure mechanisms and the preparatory and triggering factors. The pre-existing joint network and the intense weathering and loosening of the tufts are the main causes of the failure. A back-analysis of the failure permits to formulate the convenient measures for restoring the monument, taking into account the environmental and cultural constraints.