PROSPECTING OF TUMULI AND ANCIENT MECROPOLIS USING ELECTRICAL GEOPHYSICAL METHODS

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The opportunities offered by electrical methods for discovering and investigation of two different kind of archaeological sites (tumuli and ancient necropolis) are presented.

Great number of tumuli exists in the vicinity of the first capital of Bulgaria - Pliska. The tumuli are different in size and height - from scarcely seen over the surrounding terrain with the fully destroyed over ground part by agriculture activities, to such with height over 10 meters. The results from archaeological investigations of these sites show to their very varied age (the Thracian age, the Bronze age, the Proto-Bulgarian age, the early Middle age etc.) and purpose (funeral, ritual, for road sign etc.) too. Certainly these facts define variety methods of building of the tumuli, as well as in their structure.

Several tumuli were studied in area using the electrical sounding and profiling methods.

According to the results obtained by electrical sounding method the structure of the tumuli was clarified while the archaeological excavations simultaneously carried out allowed increasing authentically of the results. The general elements have been determined in the structure for different kind of tumuli as well as some characteristic ones for separate type of tumuli.

The distribution of the apparent resistivity of the loess layer shows a drift towards decrease of the resistivity under the tumulus' embankment. On this fact have to take notice because exist actual possibility for incorrectly interpretation of the results obtained by electrical profiling method.

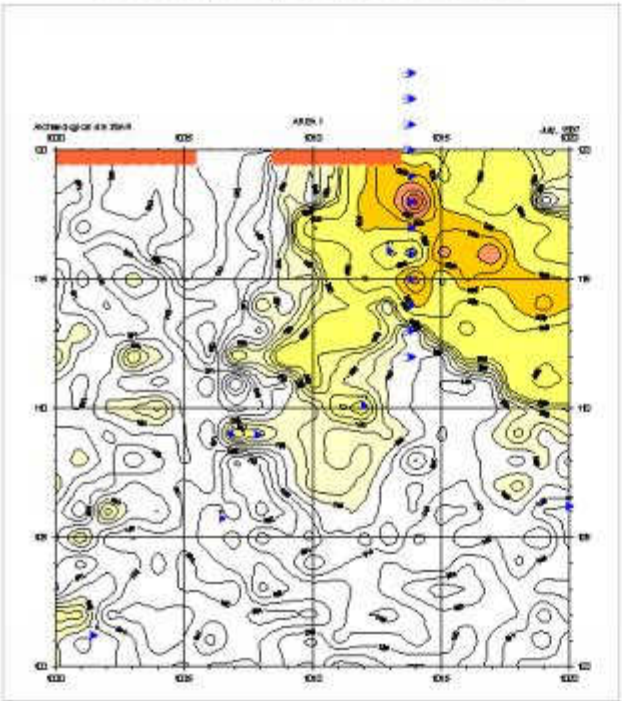
The area, known by the archaeologists under the name of Isar - Marvintsi (Republic of Macedonia) has been populated for nearly a millennium - from the 5th century BC to the end of the Roman Era.

This provides for the vast area of the necropolis, the great variety in the making of the burial constructions, their orientation and the conditions in which they were built.

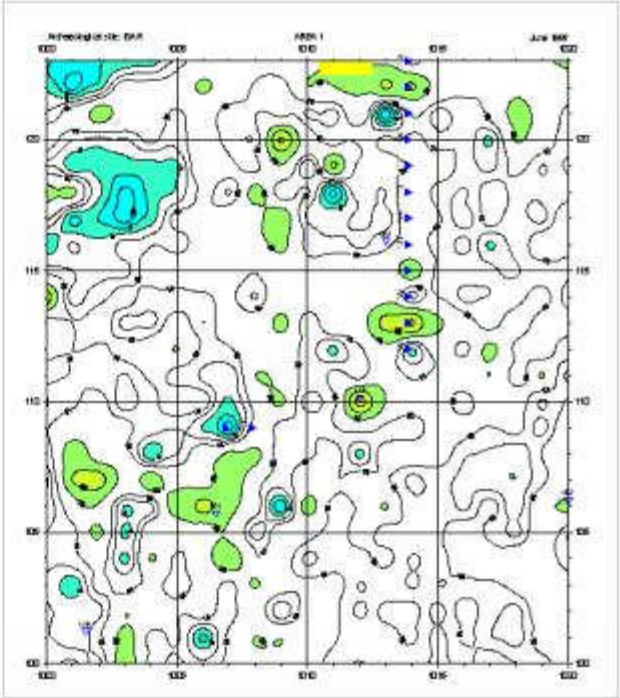
Isar - Marvintsi, Republic of Macedonia

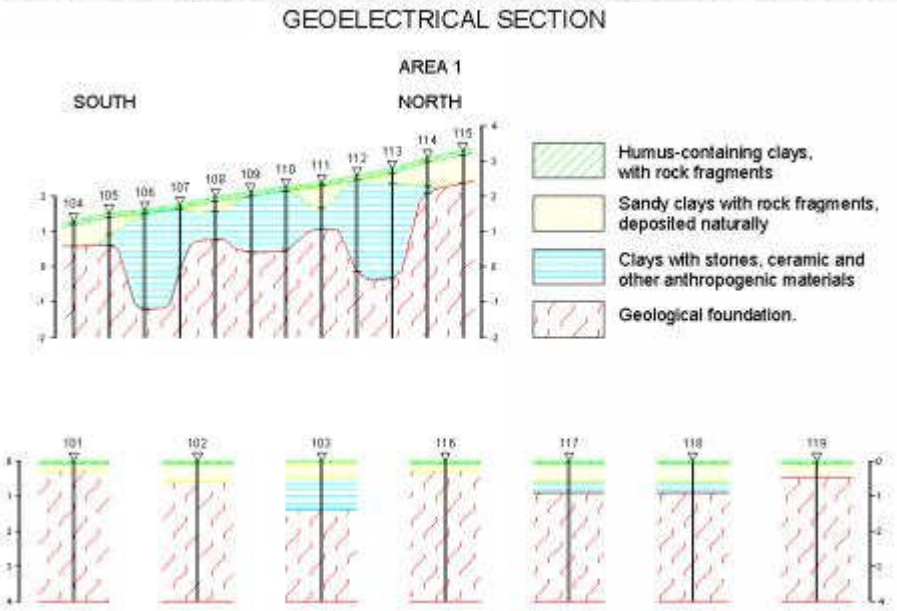
The geophysical methods used - magnetic gradientometry, electrical sounding and electrical profiling in some areas, chosen as promising for burials, demonstrated their effectiveness in determining the sterility of the graves and whether excavating them is promising.

Contour Map
of electrical profiling Area 1, Isar-Marvinci 1997



Contour Map
of magnetic gradient Area 1, Isar-Marvinci 1997





The detailed investigation of some areas showing archaeological promise resulted in discovering many tombs and graves, imbedded in the rock basement of metamorphoses or build into clay medium.

The graphical representation of the results is in the form of a map of the distribution of the apparent resistivity and as geological-archaeological sections based on data from the electrical sounding.

The initial phase of excavations showed a high degree of conformity between the geophysical investigations and the actual structures and materials.
