H24 Not for the Passive: The Active Application of Electronic Resistivity in the Excavation of a Mass Grave

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The goal of this presentation is to demonstrate the use of geophysical examination, in this case electrical resistivity, as an active element in the excavation strategy of a mass grave located near Belgrade, Serbia, and Montenegro.

This presentation will impact the forensic community and/or humanity by demonstrating the comparison between the survey data and the use of the electrical resistivity results in excavation of this mass grave. This demonstrates that active use of geophysics can be a positive element in excavation strategy.

In the past geophysical examination has been used in the search for mass and individual graves but to the presenter's knowledge never in the planning of the actual excavation of the feature. This presentation will demonstrate the use of geophysical examination - in this case, electrical resistivity - as an active element in the excavation strategy of a mass grave located near Belgrade, Serbia/Montenegro.

An unreasonably short deadline, based on political propriety, was given to complete the full excavation, recording, and removal of all human remains and related evidence from the mass grave. While the general size of the grave feature was known through prior archaeological delimitation of the surface feature, the excavation planners could only speculate as to the contents based on other graves already excavated within the same area. The time it took to excavate all the previous mass graves exceeded the short deadline the excavation team now faced. To complicate matters, as the end of the year was approaching most team members including the principle archaeologists were scheduled to leave for winter holiday vacation. It was feared that the excavation would not be completed within the allotted time frame and no 'Plan B' was forthcoming from the political authorities in charge of the site; postponement until spring was impossible and the excavation was to be completed in the time allotted.

To assist in organizing a strategy aimed at accelerating the excavation time, geophysical testing using electrical resistivity was conducted over the targeted mass grave. Results allowed planners a glimpse at the general size and shape of the grave's forensically significant deposits. This understanding of the body mass shape in the context of the grave feature allowed for a more rapid and safe removal of forensically sterile overburden by a construction machine. It is estimated that the use of the construction machine saved at least a week of time and resulted in the safer removal of sterile overburden from the bodies than would have occurred if the planners attempted the remove of overburden without advance knowledge of the body mass shape and size.

During the excavation of the grave, electronic survey data was gathered to represent all recovered human remains, artifacts, and features in two and three-dimensional maps. This survey data was then compared to the electrical resistivity results to judge the reliability of the results and attempt to understand what type of items in the grave produced the greatest resistivity results. Unfortunately, comparison of the evidence types to the resistivity results is mixed and cannot be narrowed down to a particular type(s). However, in general, it was found that the results were very consistent with the survey data when the data was filtered to show the forensically significant deposits as a whole. The comparison with the survey data and the use of the electrical resistivity results in excavation of this mass grave demonstrates that active use of geophysics can be a positive element in excavation strategy. An understanding of soil types and geophysical equipment type limitations are of course necessary. It is suggested that survey data from future excavations where geophysics are used be investigated to gain a clearer understanding of exactly what elements in a grave give the best readings.

Geophysics, Forensic Archaeology, Excavation Strategy

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