



A70 Human Bone Taphonomy and the Use of Consolidants: An Example From Cyprus

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After attending this presentation, attendees will better understand human bone taphonomy and the use of consolidants; Walter H. Birkby utilized bone consolidants both in forensic anthropology casework to preserve fire-damaged teeth and in bioarchaeology to prepare human skeletal remains for a museum display in Cyprus. This presentation will look historically at the use of consolidants commonly used for human bone and also note more recent work examining the analytical effects of these materials that may affect choices made in the field today.

This presentation will impact the forensic science community by examining the taphonomy of human bone and by making known Walter H. Birkby's contributions to conservation sciences.

Walter H. Birkby, in addition to devoting his career to teaching and practicing forensic anthropology, was a bioarchaeologist, often working on archaeological field projects during the summer months. His skills in the analysis of skeletal disease and trauma, as previously noted by Dr. Fenton in this session, were invaluable, both in the context of casework in forensic anthropology and in applications to archaeology. Walt's archaeological work in Arizona is noted in Dr. Hinkes's presentation on the human skeletal material from Grasshopper Pueblo and in Dr. Reinhard's presentation regarding Walt's research in mummy studies. In historical archaeology, Walt spent a field season excavating in the Rocky Mountains, where he and a team excavated and analyzed the victims of the first convicted cannibal in United States history, Alferd Packer.

In international endeavors, Walt consulted on at least one forensic case in Mexico, and in classical antiquity, Walt worked at both of the University of Arizona excavations, directed by David Soren, at the Roman sites of Lugnano in Italy, and at Kourion in Cyprus. As with casework in forensic anthropology, Walt took his students with him into the field, and Kourion was no exception. It was in Cyprus where victims of the AD 365 earthquake were recovered and prepared for a museum display.

Animal bone is highly mineralized and it is generally recovered from archaeological contexts in Cyprus in better condition than human bone. Unfortunately, human bone on the island often tends to be demineralized, with the organic component of the bone having been highly degraded through taphonomic processes. Human bone prefers a constant environment, such as in Egypt, for example, where it is hot and dry, or in the Russian tundra where the climate remains relatively cold. Both conditions tend to produce more well-preserved human bone.

The situation in Cyprus, though, is not one of stability, but rather one of flux, due to the constantly changing environmental conditions, alternating between hot and dry summers and cool and wet winters. Furthermore, bone prefers a neutral soil pH, and Cypriot soils tend to be either highly alkaline or highly acidic. To exacerbate the situation, Cypriots in the past, as they do today, often reused tombs and practiced secondary burial, thus commingling human skeletal remains and causing further damage to the bone in the process.

Walt worked in conjunction with archaeological conservators at Kourion, in both the consolidation of human skeletons and in block-lifting them as was required among two different contexts at the site by the Department of Antiquities of Cyprus. Walt understood the value of using consolidants in the field, both in forensic anthropology



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casework for the preservation of fire-damaged teeth and in archaeology for preserving human skeletal remains, in particular, for those destined for museum display.

This presentation will provide a historical view of the use of consolidants commonly used for human bone and also note more recent work examining the analytical effects of these materials that may affect choices made in the field today.

Human Bone Taphonomy, Bone Consolidants, Walter H. Birkby, PhD