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Bioarchaeological approaches to looting: A case study from Sudan

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ABSTRACT

Looting is a significant destructive force at archaeological sites; grave robbing, in particular, leaves human remains and cultural heritage irreparably damaged. *Al-Widay*, a necropolis excavated by the Oriental Institute Nubian Expedition near the Fourth Cataract region of the Nile River, is a site with important implications for understanding the taphonomy of archaeological looting. Over 60% of the tumuli excavated at Al-Widay were disturbed in antiquity, making the site an ideal case study for examining the effects of looting on ancient human skeletal remains. Our research applies bioarchaeological methods of quantifying fragmentation to an assessment of "Culturally Significant Anatomical Regions" in order to evaluate the nature and degree of human disturbance activity at this necropolis. At Al-Widay, site reports document looted graves (n = 22), unlooted graves (n = 14), and a sample of graves (n = 42), for which the level of disturbance is unknown. Fisher's exact test showed significant differences in the bioarchaeological patterning of looted versus unlooted contexts, and a cross-validated logistic regression model was used to sort five unknown graves into looted and unlooted categories, providing a quantitative bioarchaeological method for the identification of looting.

1. Introduction

Burial disturbance in the form of revisitation, looting, and bioturbation is ubiquitous in the archaeological record. However, burial disturbance activities are not restricted to contemporary practices and processes. Law 25 of the Hammurabi Code (Roth, 1995) and later New Kingdom Egyptian texts (Botti and Peet, 1928) describe some of the first recorded instances of criminal burial disturbance. The collection of New Kingdom (1100 BCE) papyri, translated and collected as "The Great Tomb-Robberies of the Twentieth Egyptian Dynasty" details looting activities, compiles inventories of materials looted, and describes the punishments of each looter (Botti and Peet, 1928; Peet, 1930). It is evident that grave robbing is not an isolated activity for which people are occasionally punished, but rather a long-standing and wide-reaching social and political issue.

Archaeologists typically find ways of working around looting activity at archaeological sites, and more recent work has attempted to account for looting and disturbance of the material past in the framing of research design and questions, which produces valuable insight into looting as a social practice for heritage management as well as archaeological research (Al-Houdalieh, 2012; Conlee, 2011; Kaulicke et al., 2012; Kersel and Chesson, 2013; Sneddon, 2002; Stone, 2008; van Velzen, 1996; Webb and Frankel, 2009). Examining disturbance activity (e.g., looting) at archaeological sites provides a long-term geopolitical perspective on occupation and landscape use, and the addition of bioarchaeological indicators provides valuable information on the interactions between archaeological bodies, funerary material culture, and living people.

Working with human remains from disturbed or unknown contexts can be an obstacle to archaeologists seeking to interpret funerary practices. The absence or extreme fragmentation of the cranial and postcranial regions of the skeleton also present obstacles to reconstructing aspects of prehistoric identity and lived experiences. However, research on historical contexts has demonstrated that anthropogenic postmortem disturbance of graves has the potential to produce identifiable patterns of skeletal preservation (Goff, 2011; Tward and Patterson, 2002). For example, during the salvage excavation of Fort Craig, archaeologists documented a peculiar pattern of anatomical preservation in historic graves. Fort Craig is former military post in New Mexico, where cemetery burials were moved by personnel before the post was decommissioned. Archaeologists found that supposedly "empty" graves actually contained many small bones of the hands and feet, as well as ribs, vertebrae, hyoids, clavicles, sternums and scapulae. This pattern of recovery is likely related to personnel targeting the largest and most recognizable elements of the body (e.g. the skull, femur, tibia, pelvis, humerus and larger ribs) for removal, while missing or ignoring smaller, less recognizable bones (Goff, 2011; Kimberly Spurr, pers. comm.) The timing of post-mortem disturbance also affects the patterning of skeletal preservation; during the heyday of anatomical grave-

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robbing during the 19th century, bodies were removed from graves before decomposition was greatly advanced (Tward and Patterson, 2002), leaving a signature of disturbance in which all skeletal elements were missing from the grave.

Our research uses recent developments in the study of skeletal taphonomy, particularly fragmentation-zonation recording methods and analyses of skeletal completion, to differentiate looted and unlooted graves (Osterholtz et al., 2014; Stodder and Osterholtz, 2010; Knüsel and Outram, 2004). The taphonomic patterning of looting activity is distinctive from ritualized skull removal (Bonogofsky, 2003; Kuijt et al., 2009; Millaire, 2004; Strouhal, 1973), amputation (Bricker, 1976), and burial relocation (Goff, 2011; Heinlen and Gray, 2010); and although the congenital absence of bones is well documented in many human populations, congenital absences were accounted for during initial osteological analyses (Ingvoldstad, 2009).

This research refines bioarchaeological methods of analyzing commingled and fragmentary human remains in order to illustrate a method for incorporating human remains from looted contexts into archaeological investigations in the prehistoric or historic periods. The methodology developed and discussed in this paper allows bioarchaeologists to determine whether preservation and presence-absence of skeletal elements is due to looting activity or non-human related taphonomic processes. This approach is especially relevant for scholars and professionals who are increasingly working within museum contexts where stratigraphic evidence or information on disturbance are largely unavailable due to historical contingencies, or proximity to excavations and communication with original excavators may not be possible. Using a sample of burials from Kerma-period Nubian contexts, we develop a model to predict grave context (e.g. "looted" or "unlooted") based on a combination of qualitative and quantitative methods. While our sample of 36 burials is small, this study provides a guide for future bioarchaeological research concerned with looting, and it is our hope that future studies will expand and elucidate the taphonomic patterning in human skeletal remains observed in this research.

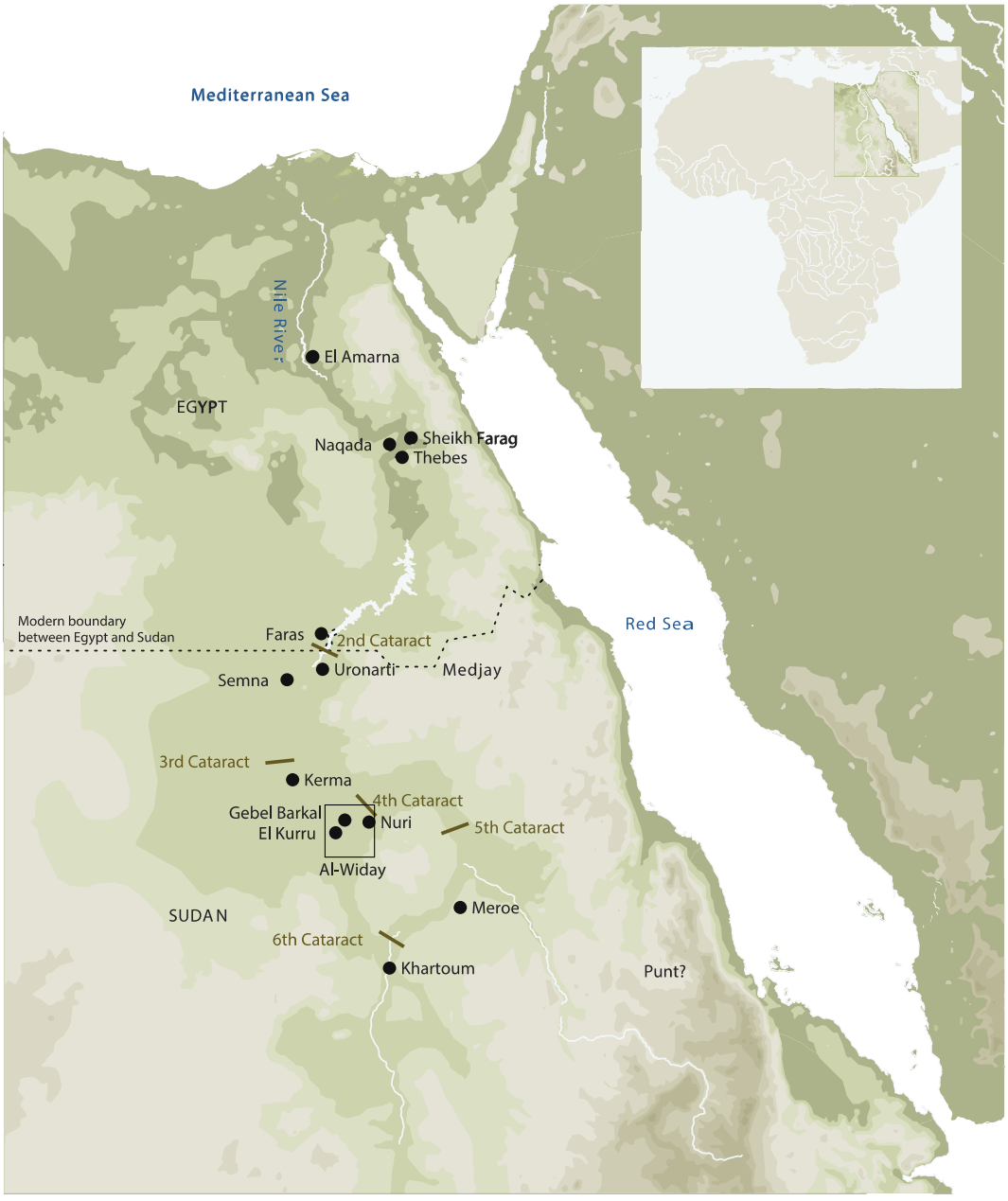

Fig. 1. Map of location of Al-Widay I in relation to other sites.
Adapted from Emberling, 2011.