

UC Santa Barbara

UC Santa Barbara Previously Published Works

Title

Tumuli at Tombos: Innovation, Tradition, and Variability in Nubia during the Early Napatan Period

Permalink

<https://escholarship.org/uc/item/58f9b7xg>

Journal

African Archaeological Review, 40(4)

ISSN

0263-0338

Authors

Buzon, Michele R
Smith, Stuart Tyson

Publication Date

2023-12-01

DOI

10.1007/s10437-023-09524-x

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Starting in the late New Kingdom (c. 1300 BCE), some of the ancient inhabitants of modern Tombos created a tumulus cemetery at the Third Cataract of the Nile in Sudan located adjacent to burial areas established by Egyptian colonial settlers (c. 1450-1069 BCE). These tumuli continued through the early Napatan/Third Intermediate Period (c. 1069-750 BCE), spanning the so-called “Dark Age” in Upper Nubia. The lack of inscriptions between the end of the Egyptian empire and rise of the Kingdom of Kush, whose kings ruled as Egypt’s 25th Dynasty (Table 1), has led to the assumption of collapse and devolution in the absence of Egyptian influence. The resumption of tumulus superstructures at Tombos could be seen as supporting Egyptological models of a “Nubian revival” in the context of the disappearance of a thin “veneer” of superior Egyptian culture after the “withdrawal” of Egyptian colonial personnel at the end of the New Kingdom (Morkot 2013). However, a more nuanced examination of practices within the larger cultural context at Tombos and other former colonial centers inspires alternative explanations that reject the notion that the colonies were abandoned, ~~and Nubia fell into competing “chiefdoms.”~~ A theoretically informed approach allows us to go beyond simple shifting binaries of Nubian and Egyptian identity towards an understanding of the complexities of intercultural interaction both during and after the Egyptian empire.

[Figure 1]

[Table 1]

Discussions of identity and variability in the groups who once occupied what is known as Ancient Nubia/Kush and the surrounding desert areas have been at the forefront of research in recent times. As de Souza (2021) notes, archaeological names of groups in this region, such as C-Group, Kerma, and Pan-Grave, are modern constructs created by early 20th century scholars within a culture-historical context that emphasized the differences in material culture and behavior rather than the similarities. The categories of “Nubian” and “Egyptian” have also been essentialized in ways that the people living in the region, especially in the aftermath of the Egyptian empire, might not have recognized. Scholars now acknowledge that the ancient inhabitants of the greater Nile Valley and adjacent areas arose from an interconnected Neolithic background and interacted through the millennia, although distinctions emerged, and communities were broadly diverse and varied in their levels of contact (Smith 2018a; Spence 2019; de Souza 2021; Williams 2021). While we have some indications of ancient peoples’ conceptualizations of these groupings through Egyptian texts and art, we largely lack perspectives from Nubians themselves. Some Nubian residents of Egypt did self-identify as Nehesi or Medjay, pointing towards ethnic diversity and overlap within the larger category of “Nubian,” and later Napatan rulers referred to themselves as Kings of Kush, which appears in earlier Egyptian texts referring, in particular, to Upper Nubia, the region between the second and sixth cataracts. But these terms shifted over time and social context (Davies 2003; Liszka 2011; Smith 2018b; de Souza 2020¹).

Caution is warranted in treating groups as distinct and bounded within the confines of these historically and archaeologically derived names. Archaeological evidence of spatial and temporal heterogeneity is clear. Plentiful evidence of variation at the individual and community level reflects the use of Nubian and Egyptian culturally affiliated practices in different ways and combinations from the New Kingdom onwards. In contrast to traditional essentializing culture-history approaches, we now know that identity is complex and multi-faceted, with overlapping axes that might include ethnicity, gender, age, religion, status, etc.

(Díaz-Andreu et al. 2005; Smith 2014). Ethnic identity, in particular, is mutable and situationally contingent, resulting in overlapping patterns of material culture and social practices (Jones 1997; Smith 2018b). Ethnicity and, more broadly, cultural identity, heavily emphasized in earlier approaches, are also not necessarily the most salient aspects of identity in different social contexts, where gender, religion, status, and other axes of identification may come to the fore. New archaeological data interpreted through theoretically informed perspectives can expand our understandings (e.g., Lemos and Tipper 2021; Raue 2019; Smith 2022; Spence 2019).

Our excavations at Tombos provide new information about the people living in the region through chronological, mortuary, and skeletal observations from a cemetery associated with a period that is often framed as a “Nubian revival” but in fact is not definitively connected to a single archaeologically named group. Rather than simply classifying sites and individual tombs as Nubian or Egyptian, we demonstrate that the community at Tombos instead created a new and localized cultural constellation that drew on older traditions but also innovated. Through spatial and temporal comparison, this analysis of Tombos tumuli broadens our understanding of local populations that lived during the period between the Egyptian empire and Napatán Kingdom of Kush, whose kings ruled as Pharaohs of Egypt’s 25th Dynasty (c. 1069-750 BCE). While many aspects of the burials include practices that have been found locally before and after the Egyptian conquest, they do not simply duplicate what was found in the general Third Cataract region during the first Kingdom of Kush or subsequent times in a “Nubian revival.” Neither do they match either prior or contemporary practices from the north in a re-“Egyptianization.” Instead, we examine what compelled individuals buried in the tumuli to begin new traditions at this site and attempt to reach a greater understanding of the diverse motivations and ways in which the ancient inhabitants of Tombos combined different cultural threads to create more than a homogenous Nubian “revival” or a new Egyptian “vener”.

Background

Archaeological excavation has been conducted at the site of Tombos since 2000 by co-directors [Stuart Tyson Smith](#) and [Michele R. Buzon](#) initiated by the [University of California, Santa Barbara](#) and in collaboration with [Purdue University](#) since 2010. Tombos was founded as an Egyptian *menenu* (fortress) around 50 years after the original conquest of Kush during the Egyptian New Kingdom period and sits at a geopolitically strategic location on an internal boundary within the larger empire (Morkot 1991; Smith 2003). While much of this colony’s settlement lies under the modern town and agricultural fields, excavations have revealed substantial foundation walls of large buildings, which would have been administrative or religious in nature. Pottery in the settlement dates from the mid-18th Dynasty into the early Napatán period. While the assemblages are primarily Egyptian in style, Nubian-style handmade pottery, including mat-impressed cooking wares and black topped styles, is present. Recent excavation has shown that the fortified enclosure at Tombos was larger than any other in Nubia and the likely location of the *menenu* named Taroy (Morris 2005; Smith and Buzon 2018).

[Figure 2]

Two areas contain tombs that are primarily Egyptian in style: pyramid/chapel tomb monuments in the west and underground chamber tombs in the north. Both areas have communal tombs as well as some smaller pit tombs and date to the beginning use of the site, around the time of Thutmose III continuing into the Ramesside period; these tombs show later reuse in the early Napatan period (Units 15, 23, 31) as well as the creation of new tombs into the 25th Dynasty (Units 5B, 6A, 9, 9a, and 18a; Buzon et al. 2016). Nubian-style tumuli were constructed in the eastern cemetery of the site, possibly as early as the Ramesside period and continuing until the 25th Dynasty (Figure 2 and Table 1; Buzon et al. 2016). Previous survey by Edwards and Osman (2001) had suggested that features in this area of the site were possibly settlement structures. An investigation of this area during our first season at Tombos in 2000 revealed that the stone circles instead represented tumuli. One grave was fully excavated in 2000. Additional tumuli were excavated in subsequent seasons: 2005, 2010-11, 2016, and 2020, a total of thirty-five grave shafts, twenty-seven of which had evidence for tumulus superstructures. The majority of tombs held the burials of 1-3 individuals; disturbance due to looting and/or reuse was common especially if more than one individual was present. With export approved by the National Corporation for Antiquities and Museums in Sudan, the human skeletal remains are curated at Purdue University. Selected pottery sherds and other archaeological samples are curated at University of California Santa Barbara. The remaining archaeological materials are stored in Sudan.

Chronology

This study concentrates on the period towards the end of the Egyptian colonization of Nubia during the New Kingdom into the early Napatan period before the 25th Dynasty (Table 1). However, features during this period can be challenging to date. Spence (2019) notes the reduction in inscribed objects and monuments, which has created problems both in dating specific contexts but also for ceramic chronologies dependent on those contexts. The gradual stylistic change of Egyptian ceramics during the period combined with the lack of inscriptions to provide absolute dates has created a tendency for chronology based on pottery to be pushed earlier to the Ramesside period and later to the 25th Dynasty, creating the false impression of a hiatus (Aston 1996, 2009; Spence 2019). These well-known complications with the seriation of pottery during this period mean that radiocarbon dating can provide an important corrective for pottery types that have either been pushed earlier or later than their actual dates, filling a putative a gap in the early Napatan period.

Radiocarbon dates are available for twenty-six individuals in the tumulus cemetery. In addition, eleven samples of associated organic material (wood, botanical, fabric) were also tested. This series of dates supports continuity at Tombos from the Ramesside through the Napatan period (Figure 3). However, radiocarbon dating of bone collagen can present some challenges. Among datable materials, bone has the highest rates of ¹⁴C dating failure due to poor preservation and contamination (Becerra-Valdivia et al. 2020). Low collagen yields have been shown to result in radiocarbon ages that differ from bioapatite dates (Cherkinsky 2016). The preservation of collagen in the Tombos skeletal material is poor, as is common at other sites in the Nile valley and in general for hot, arid climates. Previous stable isotope analysis using bone collagen from Tombos revealed that many samples were not viable due to low yields and/or high carbon to nitrogen ratios indicative of contamination (Schrader 2013). Pretreatment methods can

mitigate these issues, though laboratory protocols can be inconsistent and not comparable (Herrando-Perez 2021). The pretreatment methods used for the Tombos bone collagen samples are provided by the labs that conducted the radiocarbon analysis, University of Arizona AMS (samples submitted 2004-2011) and DirectAMS (samples submitted 2015-2022).

[Figure 3]

A comparison of dates derived from bone collagen and associated organic materials recovered from the same contexts shows that they are broadly consistent, with material like fabric not surprisingly providing tighter ranges, so we are confident that the radiocarbon chronology is reliable (Figure 3). Dates for four burials (Units 16 B1, 17 B2, 33, 45 B1) fall within the late New Kingdom Ramesside period, before 1069 BCE. Seven additional burials have dates that span the late New Kingdom into the early Napatan period (Units 2, 19, 20 Shaft 1, 27 Burial 1, 27 Burial 2, 28 Pit B, 20 Shaft 1). The remaining burials have dates solidly in the early Napatan period, with some closely approaching the 25th Dynasty. A comparison with ceramics from the same tombs indicates that some pottery types imported from Egypt should date earlier, or have longer chronological ranges, than previously thought. For example, a series of similarly shaped jars with flaring rims with or without handles finds close parallels in Egypt that fall into Aston's Phase III South, dating from the late 8th to mid-7th century BCE (after the beginning of the 25th Dynasty, cf. Figure 4a, b and Aston 1996: 71-78, Figs. 178 and 224). A very common type of amphora at Tombos and other sites with a distinctive shape and incised band below the rim is also thought to date to the same period (Aston 2009: 325, Figs. 35-36). However, radiocarbon dates from associated burials at Tombos also establish an earlier date for these types (Figure 4c), a pattern repeated for other forms that might otherwise indicate a date not earlier than the 25th Dynasty or late 8th century.

[Figure 4].

[Table 2.]

Osteological techniques

The human skeletal remains were inventoried and analyzed. Transition Analysis, a statistical program created by Boldsen and colleagues (2002) was used to estimate age at death for adults. This technique is multifactorial and creates unique age ranges (confidence intervals) for each individual and has been shown to better address issues of inaccuracy of age estimates especially in older individuals (Simon and Hubbe 2021). The program utilizes informed priors (sex, ancestry) combined with data on traits from the cranial sutures, pubic symphyses, and iliac auricular surfaces. The reference samples used to create the program come from a 20th century United States skeletal collection, admittedly quite different from the sample under study from the ancient Nile Valley. As such, the category of "Black" (American of African descent) was used as the closest ancestral group. Juvenile age was estimated using dental development, union of epiphyses and ossification centers, and long bone length (Buikstra and Ubelaker 1994; Cunningham et al. 2016).

Methods for skeletal sex estimation followed the protocols detailed in Buikstra and Ubelaker (1994) using os coxae and cranial morphology for individuals

determined to be at least 15 years of age and assigned to the categories of female, male, and indeterminate. Concepts such as the body, gender, biological sex, and sexuality should not be considered as interchangeable, nor mutually exclusive. Biological sex can be estimated to a degree by studying skeletal structures, with well-established osteological non-metric and metric scoring methods detailed above. However, it is known that not all individuals have the typical sex chromosomes of XX and XY and even for those who do, their bodies may not express a certain set of physical features. As such, biological sex does not definitively equate to how an individual or others understood this facet of identity in the past. Individuals have different experiences without set boundaries, no matter the number of gender categories (Agarwal and Wesp 2017; Matić 2016).

For a generalized view of life experiences, observations were made on a number of skeletal conditions indicative of chronic conditions caused by nutritional deficiencies and infectious disease (Buzon 2014). Linear enamel hypoplasia is associated with systemic metabolic issues during the period of childhood tooth development (Goodman and Rose 1990; Hillson 2014). Altered mineralization of enamel (groove or pits) was recorded on incisor, canine, and premolar teeth. Orbital lesions (cribra orbitalia) are commonly associated with anemia and other nutritional deficiencies as well as infection during childhood (Walker et al. 2009). These lesions were recorded when porosity with coalescing foramina was present on the orbital roof; the extent of healing was also recorded. Periosteal lesions caused by infections and inflammatory conditions were recorded along with the extent of healing. In order to confine analysis to lesions indicative of systemic infection, only individuals with bilateral lesions on one or more long bones were counted as present (Goodman and Martin 2002). All bones were observed for signs of traumatic injury including bone fractures, noting the type of injury, position, and state of healing (Buzon and Richman 2007; Schrader and Buzon 2017).

Identity at Tombos: Entanglement, innovation, and intersectionality

What can we learn about the people who created this separate cemetery of tumulus graves next to traditionally Egyptian funerary structures? Michael Dietler's practice-based model of cultural entanglement (2010) provides a strong theoretical framework focused on individual choices surrounding consumption that can be used to understand the cultural and biological linkages that affected the economic, political, social, and cultural trajectories in Nubia. This approach differs from Philip Stockhammer's idea of entanglement (2012; followed by van Pelt 2013), which emphasizes the creation of hybrid cultures, a problematic conceptual framework that tends to obscure the complexities of intercultural interaction (Dietler 2010; Silliman 2015; Lemos and Budka 2021). A practice approach (Bourdieu 1977) allows for interactions and intercultural borrowings to be traced through a carefully contextualized analysis of material cultural patterning and archaeological residues of practices. People interact in an active process of intercultural consumption involving appropriation and adaptation but also indifference to and rejection of different objects or practices, as well as innovation. A bottom-up examination the intersection of the different social and cultural logics of the parties involved is crucial to a nuanced understanding of larger developments (Dietler 2010). The tumulus cemetery at Tombos represents an opportunity to explore these issues for the people of mixed backgrounds who continued to live at a former colony after the end of the Egyptian empire. The following sections consider architecture, burial practices, material culture, and skeletal analyses to provide new information about

who used these tombs for burial and their everyday experiences, expanding our understanding of the variability present in the region. A contextual analysis of burial practices is integrated with data from other sites in the region in order to explore markers of identity. The material remains are integrated with skeletal analysis to provide an additional lens into residential origin, biological relationships, and the overall well-being of the community.

Architecture

The use of tumulus structures at Tombos is in line with long standing Kushite burial practices (Smith and Buzon 2018), although these later tumuli are not identical to earlier examples or those found at other contemporary sites. Tumulus graves were characterized by the presence of irregular drystone circles. Excavation units were established in relation to these circles; at times, more than one grave shaft was encountered within a unit, as was the case with Unit 57a and b (Figures 2 and 5). Some of the grave shafts were associated with very clear tumulus superstructures while others were very minimal and/or showed extreme deflation due to wind erosion and modern site disturbance, as was the case for Unit 57b with only the southern arc of the tumulus preserved. The stone circles range in size from approximately five to ten meters in diameter and consist of roughly laid small granite blocks. Of the more than fifty stone circles mapped during survey, thirty-five were excavated. The tumulus superstructures covered rectilinear shafts consistently oriented east-west and led down to a north facing side chamber/niche in all but two, which faced south perhaps due to the location of boulders. These grave shafts were generally deep, approximately 2-5 meters (Figure 5). The chamber/niche was typically blocked with a mud brick wall, as was the case with Unit 57b, often reusing bricks from collapsed and/or dismantled New Kingdom tombs in the older part of the cemetery. The floor of the chamber also typically had trenches to accommodate bed legs, a common feature of this period that also appears in Classic Kerma tombs (c. 1680-1500 BCE; e.g., Mills 1968; Geus 1991). The tumuli at Tombos themselves differ from the Kerma affiliated cemeteries nearby at Abu Fatma and at Kerma. These sites are characterized by tumuli with patterned designs of white quartz pebbles alternating with larger black stones, all much smaller and more consistent in size than the rough granite blocks used at Tombos (Akmenkalns 2018; Bonnet 2000, Honegger 2014; Raue 2019).

[Figure 5]

North of Tombos at Amara West, tumulus superstructures are also attested but somewhat different in construction from Tombos and earlier Kerma practice. They consist of a low oval 8m mound covered in a scatter of local schist stones (Spencer 2014). The tumuli at Tombos also show some similarities to sites in Lower Nubia dating to the New Kingdom. Cemetery 176 at Debeira East in Lower Nubia excavated by the Scandinavian Joint Expedition features Nubian stone ring superstructures, though many plundered units had no trace of superstructures (Säve-Söderbergh 1989). This cemetery is considered to be a transitional New Kingdom site with some similarities to Kerma graves at Mirgissa and more broadly with the Pan-Grave culture, another Nubian group (Säve-Söderbergh 1989; cf. Vercoutter 1970; de Souza 2020¹). Serra East Cemetery D also contains tumuli with loose stones and sand (Williams 1993). Overall, we see some general similarities with round mounded tumuli, though there is significant variation in structure and

type and size of stones, likely varying with local availability. Yet each site is distinctive, and there are no direct correlates for the tumulus superstructures at Tombos.

Below the tumulus superstructures at Tombos, a rectangular shaft leads to a northern side chamber in the vast majority of tombs. In contrast, a rectangular shaft leading to larger east and west chambers was found under tumuli at Amara West (Binder et al. 2011), a feature normally associated with Egyptian funerary architecture (e.g., Smith and Buzon 2018). At Missiminia, there are a number of early Napatan side-chamber burials without tumuli (Vila 1980). Fadrus features one documented New Kingdom shaft and side niche substructure that is similar to Tombos (Spence 2019), though no superstructure was present. Shaft and side chamber tombs also appear in the earlier New Kingdom part of the cemetery at Tombos, although again without superstructures. Before the New Kingdom, Kerma tumuli contained a burial underneath the superstructure in a simple pit or shaft without a side chamber (Bonnet 1991; Williams 1991). In Lower Nubia, Debeira East tumuli typically had an oval shaft, though rectangular shafts were also found in two tombs (Save-Soderbergh 1989). Serra East Cemetery D tumuli included a subrectangular shaft (Williams 1993), which is also the case at Abu Fatma and other Classic Kerma affiliated sites (c. 1700-1500 BCE). In sum, we see some similarities with other sites, though regional variation is clear. In both superstructure and substructure, these monuments are not simply a revival of what went before but represent a new and localized interpretation of a traditional form of funerary monument.

Burial Practice

Burial position at Tombos could usually be reconstructed, in spite of the common disturbance of the original body position, especially when more than one individual was buried in the grave. In some cases, disturbance was minimal; only the head of the upper of two burials placed in Unit 57b was apparently displaced (Figure 5). Nevertheless, many burials retained portions of an articulated body, which was useful in determining original body position, especially if the lower body was intact to indicate extended or flexed legs. As a result, body position could be determined for thirty-one individuals. Twenty-nine (94%) were in an extended position with head to the west, an alignment tied in Egyptian theology to the rejuvenating power of the sun's rebirth on the eastern horizon (Assmann 2005). There was only one exception, the child mentioned above whose head was to the east. However, two female burials were flexed with head to the west, one facing north and the other south, both placed on top of beds (Figure 5). For earlier Kerma burials, there is some variability though as with the Unit 57 burial, most are oriented east-west, head to the west facing north (Welsby 2012; Reisner 1923). This mixed pattern contradicts the idea of a wholesale revival of Nubian burial types in spite of the use of tumuli, instead pointing to entanglement.

[Figure 6]

Spence (2019) notes the continued use of New Kingdom chamber tombs from the Ramesside into the early Napatan Period in Nubia generally. This practice parallels developments in Egypt, where burial in communal contexts became more common, and likely represents the existence of family crypts, pointing to population continuity after the end of the New Kingdom. Reuse reflects a similar dynamic,

indicating a sense of ancestral attachment to a place, even when the tombs have no direct connection to the deceased (Meskell 2003; Smith and Buzon 2014a). Egyptian-style tombs at Tombos follow this pattern with reuse during the New Kingdom and beyond along with the building of new tombs after the colonial period into the 25th Dynasty (Smith and Buzon 2018). Although unlike Amara West, none of the Tombos tumuli have end chambers and multiple inhumations are attested, albeit in small numbers. Some of these burials were apparently contemporaneous, while others represent reuse in the aftermath of ancient disturbance, a pattern also appearing in the main necropolis. Based on the radiocarbon dates of burials within some tumuli and the positioning of the individuals, reuse was evident, as with the intact burial of a child in Unit 20, Shaft 7. The original burial was largely disarticulated and scattered, their painted coffin broken apart and used in reconstructing the mud brick wall sealing the side chamber (Figure 6).

In a similar way, most of the tombs included dark stains indicative of decayed wood, frass, and/or small pieces of preserved wood from both beds, aligning with Nubian tradition (Raue 2019; Schrader and Smith 2021), and coffins, characteristic of Egyptian tradition (Aston 2009). It was not always possible to determine if the wood originally belonged to a bed or coffin, though the shape of the remains and stain were often indicative. Sometimes both beds and coffins appear together, as in Unit 22, where decayed wood provided evidence for a coffin placed upon a bed (Figure 7). The near parity of coffins and beds (16 coffins and 13 beds), as well as their co-occurrence, suggests that the two cultural threads had interwoven as an important part of burial practice. It also foreshadows the combination of coffins and beds in later Kushite royal tombs (c. 747-654 BCE).

[Figure 7]

Small fragments of textile, possibly from burial wrappings similar to those used for mummification in Egypt, were found in several of the graves. Given the state of organic preservation, the drying of the body through mummification cannot be proven or disproven, but wrapping a body, statue, or other object carried important religious symbolism within Egyptian theology—in the case of bodies arguably more important than the preservation of soft tissue through mummification (Riggs 2014). Body position also indicates tight wrapping in some cases, in particular the compression of arms to the sides of the body, legs together, and feet upright (Figures 6 and 7). In other cases, the body was loosely arranged, seen in Unit 34 (Figure 8), which also included a bed leg, so as with many other cultural features in the cemetery, this treatment was variable and entangled.

[Figure 8]

The two women buried in flexed position could be seen as evidence of a limited resurgence of this aspect of Nubian practice beginning in the Ramesside Period. However, local practices had never disappeared, with evidence for continuity at Tombos and other sites. Seven New Kingdom burials in the two older areas of the cemetery were placed in flexed positions consistent with those appearing earlier at Kerma and similar to the later interments in the tumuli. At least two of them were placed upon a bed and one in a container made of reed matting, a common form of burial for more modest interments in Egypt (Smith and Buzon 2018; Stevens 2018). In the New Kingdom cemetery at Kerma, modest graves

contained individuals using local practices in flexed positions in shallow pits (Bonnet 2019). Body position was difficult to determine at New Kingdom Debeira East, though flexed burials were noted (Säve-Söderbergh 1989). Flexed burials were also found in the large cemetery at Fadrus (Säve-Söderbergh and Troy 1991). Moving into the early Napatan period, both flexed and supine burials were recorded at Sanam, near the new capital at Napata (Geus 1991; Lohwasser 2010). The Napatan period tombs at Kerma in the Western Necropolis also featured d burials laid in a flexed position usually oriented east-west with head to west and face to north or south, as at Tombos (Bonnet 1995). In contrast, early Napatan burials at Sai were supine, but oriented head to the east like the child from Tombos (Geus 1997). At Hillat el-Arab, tombs spanning the end of the New Kingdom through the 25th Dynasty are generally Egyptian in style with shafts and side chambers and communal crypts. While human remains were poorly preserved, some suggest extended body position, although orientation was often erratic. There was no evidence for coffins, but there was at least one burial on the remains of an elaborately decorated bed. Nubian features include handmade pottery along with beds, animal burials, and paintings in the substructures drawing from local petroglyph traditions (Vincentelli 2006). At Amara West, practices and grave goods were dominated by traditionally Egyptian cultural markers, although beds and flexed burials were present after the New Kingdom (Spencer 2014). Tombos burials deviate from the earlier Kushite practice of flexed position for most individuals, with coffins and beds both routinely used. With one exception, the supine burials also contrast with Sai, which were oriented with head to the east instead of the west, thus retaining traditional Egyptian practices.

Grave Goods/Inclusions

Many of the burials were found only with only loose pottery sherds in the shaft and/or chamber/niche fill. Several burials included one or two whole or reconstructable ceramic vessels made of Upper Egyptian marl clays and thus imported, presumably containing commodities like wine or olive oil (e.g., all of the pots in Figure 4). These vessels were *in situ* or clearly associated with the substructures, while cups and bowls were primarily found as sherds in the fill and only more rarely found above, in, or next to the superstructure, never in the substructure. The practice of placing bowls atop graves goes back at least to the Kerma culture and continues today. Jewelry was found in several burials with ivory bracelets in three graves. Red Sea shell, glass, faience, and/or stone beads were found in nine graves, including jewelry, scarabs, and amulets associated with Egyptian deities. Ivory bracelets and penannular earrings both reflect local practice and represent another example of entanglement going back to the New Kingdom at the site. A few graves contained a large number of small items. For example, the child's burial in Unit 20 Shaft 7 Burial 1, included a necklace of blue faience scarabs and red-glass beads with a gold clasp along with two ivory bracelets (Figure 6). Unit 22 Burial 2 included a small basket containing several fragmentary and whole amulets, beads, a small, imported bottle, pebbles, copper fittings, and folded pieces of lead (Figure 7; Smith and Buzon 2014b erroneously marked as U 25). Unit 27 with two disturbed burials included Egyptian style beads along with amulets including Bes, Isis, the Eye of Horus, and Pataikos, but also a large number of Nubian-style Red Sea shell beads and glazed quartz crystal pendants of a type that appears earlier at Kerma (Figure 9; Smith and Buzon 2014a; Doxey 2018: 52-53). Unit 28 B

included a Bat-Hathor amulet, a scarab, Eye of Horus, beads, kohl, and copper wire (Figure 10).

[Figure 9]

[Figure 10]

Additionally, there are examples of ebony and ivory elements that appear to belong to furniture items, perhaps from the beds, and a possible wood headrest damaged by termites but retaining its shape (Figure 8). Headrests are a typical part of Egyptian burial practice, but also appear in Nubia, with several complete headrests attested at Kerma (Reisner 1923:229-42). Reisner notes that the base of the Kerma headrests is longer than their Egyptian counterparts, which is the case for the base from Unit 34. With a length of at least 35 cm, the Tombos example is consistent with the earlier headrests from Kerma, which averaged 35 cm, contrasting with their Egyptian counterparts at only 24 cm. Additionally, what is preserved of the top has the more gentle arc of the examples from Kerma (cf. Figure 10 with Reisner 1923:237, fig. 224). Items associated with Egypt were used prior to the New Kingdom colonial period in Kush, including selective importation of goods that became culturally relevant in the Kerma social milieu over time (Schrader and Smith 2021). Headrests may provide an example of such a borrowing, although given their prevalence across Africa, it is likely that they represent a shared tradition with distinctive variants.

The pattern seen in the funerary inclusions is also one of entanglement, an interweaving of traditionally Nubian and Egyptian material culture and practices. Egyptian material culture and artistic motifs may have been imbued with new meanings, reinterpreted for an emerging new Kushite context. For example, Minor (2014) suggests that earlier at Kerma Egyptian objects were used in different ways than originally conceived in Egypt in terms of placement of items, ritual objects reworked as weapon handles as well as locally produced items of similar materials (Miniaci 2019). Minor (2014) notes how borrowed imagery of the Egyptian hippo goddess Taweret used in inlays and other ornamentation was Nubianized over time with the goddess eventually acquiring wings and presumably transformed from her role in Egyptian theology, although the lack of inscriptions compared to Egypt creates the loss of key realms of social identity signaling (Spencer 2014). One might say the same about the appearance of the dwarf god Bes. This iconic Egyptian household deity was introduced during the New Kingdom, but became important as a new Kingdom of Kush emerged, extremely popular as an amulet and reinterpreted in monumental form as a god of the state (Bornemann and Smith 2020).

Sex/Gender

Archaeological and textual evidence suggests that in Ancient Nubia and Egypt there may be a strong correlation between biological sex and gender roles in particular social contexts (Robins 1993). As some have noted, there are also instances where the divisions are blurred but the concept of genders is thought to have shaped existence and organized worldview. Moreover, images and texts do not always conform to a gendered and biological binary - indicating representations of the body may convey other aspects of identity (e.g., Li 2017; Matic 2016; Phillips 2016). For the purposes of this study, sex is estimated from the skeleton and possible suggestions regarding gendered patterns are made along with a consideration of other facets of identity where possible.

In the tumulus burials, females are represented in higher numbers with twenty-five female individuals and eleven male individuals within the tombs. However, it should be noted that a higher occurrence of females has been regularly found in other areas of the Tombos site as well as many other Nile Valley sites (Buzon 2006; Buzon 2014). Yet, if the higher number of women in the tumuli is in fact a significant pattern, other practices at Tombos suggest that women may be making specific choices related to more local traditions as well as those entangled with practices associated with Egypt (Smith 2003; 2021; Smith and Buzon 2014a). While sample size may play a role, the pattern of females with local practices such as flexed body position and bed burial in the early Napatan period is consistent with earlier findings from the older part of the cemetery (Buzon et al. 2016). Males and females are both found with ceramic vessels, though female burials also include jewelry, scarabs, amulets, and other small objects. The young child was also buried with jewelry. Aston (2009) notes that amulets in Third Intermediate Period Egypt were used to protect women and children, so items like amulets dedicated to Bes, Pataikos, Isis, Hathor and other deities and symbols like the Eye of Horus may reflect continuing Egyptian entanglements mediated largely by women, interwoven with the continuing use of traditional styles of jewelry including items made from ivory, glazed quartz, and Red Sea shell (Figure 9). At Sanam, practices associated with local and Egyptian culture are found within the same grave: a male in an extended position and a female in a flexed position (Geus 1991; Lohwasser 2010), similar to the tumulus at Tombos in Unit 57b (Figure 6). Griffith (1923) interpreted the occurrence as the female adhering to tradition and the male adapting to more current ways, although the examples Griffith cites are anecdotal since too few the individuals were sexed (Lohwasser 2010). This problem hampers a gendered interpretation of amulets at Sanam, but the pattern at Tombos is perhaps suggestive of a larger phenomenon.

Smith has observed similar gendered patterns from settlement sites that point to local Nubian women entering Egyptian colonial communities and introducing Nubian foodways (Smith 2003; 2021). At the Egyptian fortress of Askut at the Second Cataract, occupied through at least the end of the New Kingdom period, Nubian cooking pottery, presumably used by women, dominates the assemblage while serving and storage vessels are largely Egyptian. The same pattern is found in the settlement at Tombos and other colonial sites, in particular Amara West, a 19th Dynasty administrative center (Spencer 2014). Smith suggests that the frequency of Nubian-style female figurines from Askut reinforces the pattern, as well as the presence of Nubian types of jewelry including a bead blank pointing towards local production (Smith 1995, 2003, 2021).

Health, Age, and Daily Life

What can we learn about the lives of the people buried in the tumuli from their remains? The integration of archaeological and bioarchaeological evidence allows us to investigate the intersection of different axes of identity and life experience, including age, health, social status, and gender. The estimated ages show that many individuals died in middle and older adult ages. In comparison with a New Kingdom sample from the Egyptian-style chamber tombs at Tombos (Buzon 2006), fewer individuals in the tumuli are dying at the youngest adult category (15-24 years). Many individuals are living relatively long lives with few indications of poor health. Compared with other groups from Tombos and other Nile Valley sites, the rates of the non-specific stress indicators—(cribra orbitalia, enamel hypoplasia,

and bilateral osteoperiostitis₇) are fairly low and similar in frequency (Buzon 2006, 2014). The majority of the individuals displaying these conditions were female, though without statistically significant differences between the sexes due to low overall frequencies. In general, those affected by conditions associated with stress during childhood are younger adult individuals, suggesting that early afflictions may have affected longevity.

The concept of the osteological paradox refers to the idea that individuals in the same group can vary considerably in their susceptibility to illness (frailty). This heterogeneity, which is not always apparent, can be caused by genetic factors, socioeconomic differences, environmental variation, and temporal trends in health and can be explored through archaeological and biological indications (Wood et al. 1992; DeWitte and Stojanowski 2015). Difference relating to access to resource by social status, such as gender or class, as well as sex differences in immune reactivity can affect overall health (Ortner 1999). It has been shown in the Nile Valley (Zakrzewski 2003) and elsewhere (DeWitte 2017) that males often have a greater overall negative response to environmental changes, are more susceptible to wide variety of diseases, and live shorter lives. In the tumuli at Tombos, individuals of all adult age ranges are represented. However, males are absent in the two older age categories, 50-69 years and 70+ years. This finding could be an indication that males had lower survival rates; alternatively, it could be an artifact of small sample bias.

Injuries are fairly common with 30% (11/37) of the individuals displaying a fractured bone. Cranial injuries are found in 6.5% (2/31); postcranial injuries are found in 25% (9/36). Males and females are not significantly differently affected. This overall rate of injury is significantly higher than in a New Kingdom sample from the chamber tombs at Tombos (Buzon 2004; Buzon and Richman 2007). Schrader and Buzon (2017) suggested that the increased rate of accidental injuries during the Third Intermediate Period at Tombos along with higher markers of heavy physical labor indicates more intensive forms of repetitive and strenuous daily physical activity. Changes in labor activities, such as quarrying, agro-pastoralism, and construction, due to transitions that occurred after the New Kingdom imperial context may provide an explanation. One important difference over this time span is the shift from colonial administrative center to an important quarry for monumental statuary, as extensive evidence of quarrying, the sourcing of extant statuary, and a monumental statue abandoned in the quarry attests (Harrell 1999; Figure 11). However, it is notable that two individuals from the tumuli have cranial fractures, which may be indicative of a higher level of intentional and interpersonal violence (Schrader and Buzon 2017; Harrod et al. 2012). Overall, the skeletal analyses of the tumulus burials indicate some differences in physical activities in comparison with the Egyptian-style chamber tombs in the north part of the cemetery, indicating some changes in lifestyle, which could relate to the chronological differences between the middle-class Egyptian-style tombs, which primarily date to the New Kingdom and the tumuli situated primarily in the early Napatan period. However, small sample sizes (early Napatan in Egyptian-style tombs and New Kingdom in tumuli) prevent extensive comparison between the tumuli and older parts of the cemetery.

[Figure 11]

The question remains, who built and used the tumulus graves adjacent to the Egyptian-style tombs at Tombos? In terms of social status and access to resources, the people from the tumuli show similar patterns of health and disease to other individuals across the site with relatively few signs of infection and nutritional deficiency. The material record supports this conclusion, with imports from Egypt to the north, including high value commodities like wine and olive oil regularly shipped south in amphorae and other vessels, and in the form of shell ornaments from the Red Sea to the south and east. There does appear to be an increase in overall levels of activity and injury compared with the middle-class Egyptian-style tombs, perhaps related to changes in lifeways after the end of the colony as the site emerged as a center for quarrying monumental statues. Data from ongoing skeletal analyses can be useful when viewed with the context of other archaeological data to explore geographic origins and biocultural relationships.

Strontium isotope values ($^{87}\text{Sr}/^{86}\text{Sr}$) vary according to age and mineralogical composition. Egyptian immigrants at Tombos would have likely originated in Middle Egypt, around Thebes, characterized by limestone, which is associated with higher $^{87}\text{Sr}/^{86}\text{Sr}$ values than the outcrops of granite at the Third Cataract of the Nile River at Tombos (Buzon and Simonetti 2013). Based on the strontium isotope data ($^{87}\text{Sr}/^{86}\text{Sr}$) available for individuals with preserved dental enamel at Tombos, none of the tumulus burials reveal non-local values, suggesting a local origin for those buried in the tumulus graves, but this alone says nothing about ancestry (Buzon et al. 2016, Schrader et al. 2019; Buzon et al. 2023). While interaction over the millennia and shared physical and cultural environments has resulted in many morphological similarities in Nile Valley groups, an exploration of cranial morphology provides a means to examine possible differences between groups that could bear on the social context for the introduction and maintenance of some social practices (Buzon et al. 2016).

The investigation of variation in cranial morphology by tomb type (tumuli, pyramid/chapel, chamber) reveals some distinctions in shape between groups at Tombos (Buzon and Torquato 2018). Shape variation of crania from Tombos was captured using a high-resolution scanner that creates a digital model. Multivariate statistical analysis reveals significant differences in shape between individuals buried in the tumuli and those buried in the pyramid/chapel tombs. There is overlap between the tumuli and individuals from the middle-class chamber tombs. This pattern in shape variation suggests that tomb type can shed light on subgroups at Tombos; there may have been little integration of people who were ultimately buried in the pyramid/chapel tombs with those in the tumuli, but middle-class chamber tombs in the north appear to have been a place where these groups overlapped, reflecting the interethnic dynamic at Tombos.

Conclusions: Entanglement and Identity in a Multi-ethnic Context

Scholars have had a tendency to create categories like Egyptian and Nubian drawing on the self-other constructs of the textual and artistic record in Egypt. But this does not justify an expectation that they would correspond to consistent and bounded material culture assemblages (Smith 2003; de Souza 2021). The archaeological record at Tombos reflects the creation of a diverse set of practices in cultural configurations that transcended these categories. Elements like the tumuli that characterize this part of the cemetery drew from older traditions but were configured in new ways. Burial practice was entangled with most individuals supine, in line with Egyptian traditions, but varying in their placement in coffins and on

beds. Two women were buried in traditionally Nubian flexed position, while other women were buried in supine position with amulets dedicated to Egyptian deities. Pulling out to the site level, radiocarbon dates suggest that these community members began to be buried under a traditional Nubian funerary monument while the Egyptian-style pyramid, chapel, chamber, and pit tombs were actively being constructed and used in other parts of the site. Most of the tumulus burials date to the early Napatan period during the time when some of the earlier Egyptian-style tombs still show evidence of reuse and remodeling. This juxtaposition was likely deliberate, signaling countervailing ancestral attachments (Smith and Buzon 2014a). While Tombos may have started out as an Egyptian settlement, it quickly became entangled in ways that defy binary self-other classifications, transforming it into a kind of third space (sensu Bhabha 1994).

[Figure 12]

While the tumuli may contain generations descended from Egyptian immigrants and local community members, it is important to consider that they may not share the same cultural associations as their respective ancestors (Silliman 2009; Van Gijseghem 2013). While the tombs in the tumulus field combine some features that are traditionally associated with both local regional traditions as well as traditions connected to the larger Nile Valley including practices found in Egypt, there is also innovation in mortuary practices and material culture, particularly within the tumulus field. For example, the large scarab found in Unit 27 is unusual in size and the motif of offering bearers on its base (Figure 12), which is otherwise unattested, [reflects](#) the creation of a new artistic tradition drawing on but not imitating Egyptian forms. The objects originally associated with Egyptian colonists may have been given altered meanings and used for different purposes. But even when meanings aligned, these elements may not have been consciously recognized as foreign by subsequent generations of mixed families (Spencer 2014; Smith 2021; cf. Silliman 2009). These entangled practices demonstrate multidirectional influence resulting in entangled forms that likely eroded the distinction between local and foreign (Smith 2021). Particular foreign products (Egyptian or Nubian depending on perspective) may have become part of local habitus and it is important to remember that ultimately, communities are composed of individuals who make their own decisions (Akmenkalns 2018). Identity at Tombos and more broadly in Nubia was not fixed into essential categories like Nubian and Egyptian but was fluid and intersectional, adapting to different social contexts, and was not static but evolved over time. Overall, the result is a novel suite of mortuary practices related to but not precisely aligning with what is found at other sites dating from the late New Kingdom into the early Napatan periods. These practices are likely a reflection of individual and community interaction and choices that occurred over hundreds of years in this socio-politically and culturally dynamic location.

Acknowledgments

The excavation of tumuli at Tombos was primarily funded by the National Science Foundation (BCS-0917815/0917824), National Geographic Society Committee for Research and Exploration, Purdue Alumni Association, and Purdue University Exploratory Research in the Social Science Grant. Permission to excavate at Tombos was provided by the National Corporation for Antiquities and Museums (NCAM) in Sudan and the community of Tombos. We gratefully acknowledge the assistance and hospitality of the people of Tombos. We thank NCAM inspectors El Hassan Ahmed Mohamed and El Tahir [Adam Elnour](#) for their collaboration and support [and Dr. Sarah Schrader for her bioarchaeological contributions for several tumulus excavations](#). Ali Osman M. Salih and David Edwards kindly allowed our work to overlap with the University of Khartoum concession and provided generous suggestions and encouragement. [Bruce Williams offered helpful regional examples and Kaitlyn Sanders assisted with Transition Analysis data.](#)

References

- Adams, W. Y. (2020). Reflections on the Archaeology of Kerma. In E. Erika, P. Karl-Heinz, R. Walter-Friedrich, & W. Steffen (Eds.), *Ägypten und Kusch* (pp. 41-52): De Gruyter.
- Agarwal, S. C., & Wesp, J. K. (Eds.). (2017). *Exploring Sex and Gender in Bioarchaeology*. Albuquerque: University of New Mexico Press.
- Akmenkalns, J. (2018). *Cultural Continuity and Change in the Wake of Ancient Nubian-Egyptian Interactions*. (PhD), University of California, Santa Barbara.
- Becerra-Valdivia, L., Leal-Cervantes, R., Wood, R., & Higham, T. (2020). Challenges in sample processing within radiocarbon dating and their impact in 14C-dates-as-data studies. *Journal of Archaeological Science*, *113*, 105043. doi: <https://doi.org/10.1016/j.jas.2019.105043>
- Binder, M., Spencer, N., & Millet, M. (2011). Cemetery D at Amara West: the Ramesside Period and its aftermath. *British Museum Studies in Ancient Egypt and Sudan*, *16*, 47-99.
- Boldsen, J. L., Milner, G. R., & Konigsberg, L. W. (2002). Transition analysis: A new method for estimating age from skeletons. In R. D. Hoppa & J. W. Vaupel (Eds.), *Paleodemography: Age Distributions from Skeletal Samples* (pp. 73-106). Cambridge: Cambridge University Press.
- Bonnet, C. (1991). Upper Nubia from 3000 to 1000 BC. In W. V. Davies (Ed.), *Egypt and Africa: Nubia from Prehistory to Islam* (pp. 112-117). London: British Museum Press.
- Bonnet, C. (1995). Archaeological Excavations at Kerma (Sudan): Preliminary Report on the 1993-1994 and 1994-1995 Campaigns *Kerma 1993-1994 1994-1995*. Geneva: Musées d'Art et d'Histoire de Genève.
- Bonnet, C. (2000). *Edifices et rites funéraires à Kerma*. Paris: Éditions Errance.
- Bonnet, C. (~~2019~~2021). [The black kingdom of the Nile](#). Cambridge: Harvard University Press.
- Bonnet, C., & Honegger, M. (2021). The Eastern Cemetery of Kerma *Oxford Handbook of Ancient Nubia* (pp. 213-226). New York: Oxford University Press.
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- Buikstra, J., & Ubelaker, D. (1994). Rational and scoring procedures for skeletal inventory *Standards for Data Collection from Human Skeletal Remains* (pp. 1-14). Fayetteville: Arkansas Archaeological Survey Research Series No. 44.

- Buzon, M. R. (2004). *A Bioarchaeological Perspective on State Formation in the Nile Valley*. (PhD dissertation), University of California, Santa Barbara.
- Buzon, M. R. (2006). Health of the non-elites at Tombos: nutritional and disease stress in New Kingdom Nubia. *American Journal of Physical Anthropology*, 130, 26-37.
- Buzon, M. R. (2014). Tombos during the Napatan period (~750-660 BC): Exploring the consequences of sociopolitical transitions in ancient Nubia. *International Journal of Paleopathology*, 7(0), 1-7. doi: <http://dx.doi.org/10.1016/j.ijpp.2014.05.002>
- [Buzon, M. R., Guilbault, K. A., & Simonetti, A. \(2023\). Exploring intersectional identities and geographic origins in ancient Nubia at Tombos, Sudan. *Bioarchaeology International*.](#)
- ~~[Buzon, M. R. \(2021\). *Intersectional Identities and Bodies: Exploring Biological, Geographic, and Mortuary Diversity in the Ancient Nile Valley*. Paper presented at the Diverse Nile Seminar Series 2021 Cultural Diversity in Northeast Africa, Munich. <https://cast.itunes.uni-muenchen.de/clips/oMhjA11F8a/vod/online.html>](#)~~
- Buzon, M. R., & Richman, R. (2007). Traumatic injuries and imperialism: the effects of Egyptian colonial strategies at Tombos in Upper Nubia. *American Journal of Physical Anthropology*, 133, 783-791.
- Buzon, M. R., Smith, S. T., & Simonetti, A. (2016). Entanglement and the Formation of the Ancient Nubian Napatan State. *American Anthropologist*, 118(2), 284-300.
- Buzon, M. R., & Torquato, M. (2018). *Variation in markers of identity at Tombos: an integrated analysis of 3-D morphometric analysis, mortuary practices and geographic origins (87Sr/86Sr)*. Paper presented at the International Conference of Nubian Studies, Paris.
- Cherkinsky, A. (2016). Can We Get a Good Radiocarbon Age from "Bad Bone"? Determining the Reliability of Radiocarbon Age from Bioapatite. *Radiocarbon*, 51(2), 647-655. doi:10.1017/S0033822200055995
- Cunningham, C., Scheuer, L., & Black, S. (2016). San Diego: Academic Press.
- Davies, W. V. (2003). Kush in Egypt: a new historical inscription. *Sudan and Nubia*, 7, 52-54.
- ~~[de Souza, A. \(2020\). *Capturing the Complexity and Diversity of Ancient Nubia*. Paper presented at the New Perspectives on Ancient Nubia. \[https://www.youtube.com/watch?v=JG_ioZ4pyns&t=1s\]\(https://www.youtube.com/watch?v=JG_ioZ4pyns&t=1s\)](#)~~
- [de Souza, A. \(2021\). After 'InBetween': Disentangling cultural contacts across Nubia during the 2nd millennium BC. *Sudan & Nubia* 25:230-242.](#)
- ~~[de Souza, A. \(2021\). The 'Nubian ness' in 'Egyptian ness': a message for Egyptology. Retrieved from <https://inbetweennubia.com/2021/01/08/the-nubian-ness-in-egyptian-ness-a-message-for-egyptology/>](#)~~
- DeWitte, S. N. (2017). Sex and Frailty: Patterns from Catastrophic and Attritional Assemblages in Medieval Europe. In S. C. Agarwal & J. K. Wesp (Eds.), *Exploring Sex and Gender in Bioarchaeology* (pp. 189-222). Albuquerque: University of New Mexico Press.
- DeWitte, S. N., & Stojanowski, C. M. (2015). The Osteological Paradox 20 Years Later: Past Perspectives, Future Directions. *Journal of Archaeological Research*, 23(4), 397-450. doi:10.1007/s10814-015-9084-1
- Dietler, M. (2010). *Archaeologies of Colonialism: Consumption, Entanglement, and Violence in Ancient Mediterranean France*. Berkeley: University of California

- Press.
- Doxey, D. (2018). *Arts of Ancient Nubia*. Boston: Museum of Fine Arts.
- Edwards, D. N., & Osman, A. (2001). New Kingdom and Kushite Sites in the Third Cataract Region, Sudanese Nubia. *Göttinger Miszellen*, 182, 7-30.
- Geus, F. (1991). Burial customs in the Upper Main Nile: An overview. In W. V. Davies (Ed.), *Egypt and Africa* (pp. 57-83). London: British Museum Press.
- Goodman, A., & Martin, D. (2002). Reconstructing health profiles from skeletal remains. In R. Steckel & J. Rose (Eds.), *The Backbone of History: Health and Nutrition in the Western Hemisphere* (pp. 11-60). Cambridge: Cambridge University Press.
- Goodman, A. H., & Rose, J. C. (1990). Assessment of physiological perturbations from dental enamel hypoplasia and associated histological structures. *Yearbook of Physical Anthropology*, 33, 59-110.
- Griffith, F. L. (1923). Oxford Excavations in Nubia, XVIII-XXVI, The Cemetery of Sanam. *Liverpool Annals of Archaeology and Anthropology*, 10, 73-171.
- Harrod, R. P., Liénard, P., & Martin, D. L. (2012). Deciphering violence in past societies: Ethnography and the interpretation of archaeological populations. In D. L. Martin, R. P. Harrod, & V. R. Perez (Eds.), *The Bioarchaeology of Violence* (pp. 63-80). Gainesville: University Press of Florida.
- Herrando-Pérez, S. (2021). Bone need not remain an elephant in the room for radiocarbon dating. *R Soc Open Sci*, 8(1), 201351. doi:10.1098/rsos.201351
- Hillson, S. (2014). *Tooth Development in Human Evolution and Bioarchaeology*. Cambridge: Cambridge University Press.
- Honegger, M. (2014). Recent Advances in Our Understanding of Prehistory in Northern Sudan. In J. R. Anderson & D. A. Welsby (Eds.), *The Fourth Cataract and Beyond: Proceedings of the 12th International Conference for Nubian Studies* (pp. 19-30). Leuven: Peeters.
- Jull, A. J., Burr, G. S., Beck, J. W., Donahue, D. J., Biddulph, D., Hatheway, A. L., Lange, T. E., & McHargue, L. R. (2002). Accelerator mass spectrometry at Arizona: geochronology of the climatic record and connections with the ocean. *The Scientific World Journal*, 2, 1579-1593. <https://doi.org/10.1100/tsw.2002.349>
- Li, J. (2017). *Women, Gender and Identity in Third Intermediate Period Egypt: The Theban Case Study*. London: Routledge.
- Matić, U. (2016). (De)queering Hatshepsut: Binary Bind in Archaeology of Egypt and Kingship Beyond the Corporeal. *Journal of Archaeological Method and Theory*, 23(3), 810-831. doi:10.1007/s10816-016-9288-9
- Mills, J. (1968). The archaeological survey from Gemai to Dal: report on the 1965-1966 season. *Kush*, CV, 200-210.
- Miniaci, G. (2019). The material entanglement in the 'Egyptian Cemetery' in Kerma (Sudan, 1750-1500 BC) Appropriation, incorporation, tinkering, and hybridization. *Egitto e Vicino Oriente*, 42, 13-32.
- Minor, E. (2014). The Use of Egyptian and Egyptianizing Material Culture in Nubian Burials of the Classic Kerma Period: Winged Sun Discs. In M. Feldman & M. Casanova (Eds.), *Luxury Goods: Production, Exchange, and Heritage in the Near East during the Bronze and Iron Ages* (pp. 225-234): De Boccard Publishing.
- Morris, E. F. (2005). *The Architecture of Imperialism: Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom*. Leiden: Brill.
- Ortner, D. (1999). Male/Female Immune Reactivity and Its Implications for

- Interpreting Evidence in Human Skeletal Paleopathology. In A. L. Grauer & P. Stuart-Macadam (Eds.), *Sex and Gender in Paleopathological Perspective*. Cambridge: Cambridge University Press.
- Phillips, J. (2016). Women in Ancient Nubia. In S. L. Budin & J. M. Turfa (Eds.), *Women in Antiquity* (pp. 280-298). Abingdon: Routledge.
- Raue, D. (2019). Cultural Diversity of Nubia in the Later 3rd-Mid 2nd Millennium BC. In D. Raue (Ed.), *Handbook of Ancient Nubia* (pp. 293-334). Berlin: De Gruyter.
- Reisner, G. A. (1923). Excavations at Kerma. Parts I-III, IV-V. Cambridge, MA: Harvard African Studies.
- Robins, G. (1993). *Women in Ancient Egypt*. Cambridge: Harvard University Press.
- Säve-Söderbergh, T. (1989). *Middle Nubian Sites*. Partille, Denmark: Paul Astrom.
- Schrader, S., & Tyson Smith, S. (2021). Archaeology of the Kerma Culture: Oxford University Press.
- Schrader, S. A. (2013). *Bioarchaeology of the Everyday: Analysis of Activity Patterns and Diet in the Nile Valley*. (PhD dissertation), Purdue University, West Lafayette, IN.
- Schrader, S. A., & Buzon, M. R. (2017). Everyday Life after Collapse: A Bioarchaeological Examination of Enthesesal Change and Accidental Injury in Postcolonial Nubia. *Bioarchaeology International*, *1*, 19-34.
- Schrader, S. A., Buzon, M. R., Corcoran, L., & Simonetti, A. (2019). Intraregional ⁸⁷Sr/⁸⁶Sr variation in Nubia: New insights from the Third Cataract. *Journal of Archaeological Science: Reports*, *24*, 373-379. doi: <https://doi.org/10.1016/j.jasrep.2019.01.023>
- Simon, A. M., & Hubbe, M. (2021). The accuracy of age estimation using transition analysis in the Hamann-Todd collection. *American Journal of Physical Anthropology*, *175*(3), 680-688. doi: <https://doi.org/10.1002/ajpa.24260>
- Smith, S. T. (1995). *Askut in Nubia: The Economics and Ideology of Egyptian Imperialism in the Second Millennium BC*. London: Kegan Paul.
- Smith, S. T. (2003). *Wretched Kush: Ethnic Identities and Boundaries in Egypt's Nubian Empire*. London: Routledge.
- Smith, Stuart T. (2014). Nubian and Egyptian Ethnicity. In J. McInerney (Ed.), *A Companion to Ethnicity in the Ancient Mediterranean* (pp. 194-212). Malden, MA: Wiley Blackwell.
- Smith, S. T. (2019). Gift of the Nile? Climate Change, the Origins of Egyptian Civilization and its interactions within northeast Africa. In Á. B. Tamás A. Bács, Tivadar Vida (Ed.), *Across the Mediterranean - Along the Nile. Studies in Egyptology, Nubiology and Late Antiquity dedicated to László Török on the Occasion of His 75th Birthday* (pp. 139-159). Budapest: Archaeolingua.
- Smith, S. T. (2021). The Nubian Experience of Egyptian Domination during the New Kingdom *Oxford Handbook of Ancient Nubia* (pp. 369-394). New York: Oxford University Press.
- Smith, S. T., & Buzon, M. R. (2014). Colonial Entanglements: "Egyptianization" in Egypt's Nubian Empire and the Nubian Dynasty. In D. Welsby & J. Anderson (Eds.), *Proceedings of the 12th International Conference for Nubian Studies* (pp. 431-450). Leuven: Peeters.
- Smith, S. T., & Buzon, M. R. (2018). The fortified settlement at Tombos and Egyptian colonial strategy in New Kingdom Nubia. In J. Budka & J. Auenmüller (Eds.), *From Microcosm to Macrocosm: Individual Households and Cities in Ancient Egypt and Nubia* (pp. 205-225.). Leiden: Sidestone Press.

- Spence, K. (2019). New Kingdom Tombs in Lower and Upper Nubia. In D. Raue (Ed.), *Handbook of Ancient Nubia* (pp. 541-566). Berlin: De Gruyter.
- Spencer, N. (2014). Creating and Re-shaping Egypt in Kush: Responses at Amara West. *Journal of Ancient Egyptian Interconnections*, 6, 42-61.
- Van Gijsegem, H. (2013). Our children might be strangers: frontier migration and the meeting of cultures across generations. *Archaeological Review from Cambridge*, 28, 169-189.
- Vercoutter, J. (1970). *Mirgissa I. Mission archéologique française au Soudan*. Paris: La Direction Générale des Relations Culturelles, Scientifiques et Techniques.
- Vila, A. (1980). La nécropole de Missiminia, I, Les sépultures napatéennes *La Prospection archéologique de la vallée du Nil au sud de la cataracte de Dal 12*. Paris: CNRS.
- Vincentelli, I. (2006). *Hillat El-Arab. The Joint Sudanese-Italian Expedition in the Napatan Region, Sudan*. Oxford: British Archaeological Reports.
- Walker, P. L., Bathurst, R. R., Richman, R., Gjerdrum, T., & Andrushko, V. A. (2009). The causes of porotic hyperostosis and cribra orbitalia: a reappraisal of the iron-deficiency-anemia hypothesis. *American Journal of Physical Anthropology*, 139, 109-125.
- Welsby, D. A. (2012). The Kerma Ancien Cemetery at H29 in the Northern Dongola Reach. *Sudan and Nubia*, 16, 20-28.
- Williams, B. B. (1991). A prospectus for exploring the historical essence of ancient Nubia. In W. V. Davies (Ed.), *Egypt and Africa* (pp. 74-91). London: British Museum Press.
- Williams, B. B. (1993). *Excavations at Serra East*. Chicago: The Oriental Institute, The University of Chicago.
- Williams, B. B. (2021). Kush in the Wider World during the Kerma Period *Oxford Handbook of Ancient Nubia* (pp. 179-200). New York: Oxford University Press.
- Wood, J., Milner, G., Harpending, H., & Weiss, K. (1992). The Osteological Paradox: Problems of Inferring Prehistoric Health from Skeletal Samples. *Current Anthropology*, 33(4), 343-370.
- Zakrzewski, S. R. (2003). Variation in ancient Egyptian stature and body proportions. *American Journal of Physical Anthropology*, 121, 219-229.