Title

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Journal

American Anthropologist, 118(2)

ISSN

0002-7294

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Publication Date

2016-06-01

DOI

10.1111/aman.12524

Entanglement and the Formation of Ancient Nubian Napatan State

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Abstract: Through the concept of entanglement, archaeological indications of cultural identity and skeletal evidence of biological and geographic interaction are used to explore the development of the Nubian polity who ruled as the 25th Dynasty of Egypt (Napatan Period c. 750-656 B.C.E.). In this paper, we examine the ways in which cultural and biological linkages impact the political, social, and cultural trajectories of the political entities in the ancient Nile Valley. Early studies of political developments in this region have often focused on Egypt, ignoring the aspects of power formation that may have developed independently and the long tradition of established local institutions in Nubia. The present research uses evidence from the site of Tombos, located in Upper Nubia, to investigate the processes of identity formation and population composition during the Egyptian colonial occupation and subsequent rise of the Nubian Napatan polity. We address the impact of Egyptian and Nubian immigrants on the political developments, finding strongest support for the influence of Nubian-Egyptian communities established in colonial times on the character of the Napatan polity.

The questions of identity formation and change have long challenged ethnological theorists. Archaeological studies can contribute to a comparative examination of the varied ways in which group and individual identities are created and adapted in diverse contexts, deepening our understanding of these processes. The exploration of identities in ancient groups provides a longer perspective in diverse settings (Hu 2013; Salazar et al. 2014; Weik 2014). However, a challenge for archaeologists investigating social identities is the lack of systematic correspondence between material culture and self-identification (Allaire 1987). Social, cultural, political and ethnic boundaries are inferred from differences in material culture, but the processes that direct the production and use of objects differ from those that guide identity (Hu 2013). Certain contexts, however, such as frontier zones, can be locations of transformative social change with regard to how people perceive of themselves, particularly concerning ethnic identity. These frontiers, where 'cultural mingling' (Frangipane 2015:9182) has occurred, can offer information regarding the historical and cultural background of ethnogenesis (Manzanilla 2015). The study of material cultural from a diachronic perspective can allow the tracing of identity transformations in specific sociohistoric circumstances that can aid in our knowledge of the maintenance of differences, how differences are perceived in multiethnic societies, and the contexts in which elements are rejected and recombined to create new identities and meanings (Goldstein 2015; Salazar et al. 2015; Stovel 2013).

Understanding how group members may have viewed insiders, classified outsiders, interacted with each other, and generated different identities is difficult for both contemporary observers and archaeologists. Primordial perspectives such as belief of shared common ancestry, religion, and language are not mutually exclusive with instrumental and constructivist paradigms that emphasize political and situational aspects in the creation and destruction of ethnic group

identifications (Hu 2013; Weik 2014). Using a long-term perspective, a multidimensional strategy that includes multiple indictors to tract ethnic identity and population composition provides the most robust way to study gradations in the processes by which group identities were historically negotiated (Goldstein 2015; Harrison-Buck 2014; Salazar et al. 2014; Stovel 2013). In this paper we use these approaches to investigate population dynamics and cultural transformations during a period of rapid governmental change in ancient Nubia from an Egyptian colony to the formation of the independent Nubian Napatan state (c. 1400-650 B.C.E.) based on excavations at the site of Tombos in Upper Nubia.

For the Nubian Napatan state, which produced the leaders who eventually ruled Egypt as the 25th Dynasty (c. 750-656 B.C.E), cultural symbols played a key role in legitimization and representation of the pharaohs. Napatan rulers presented themselves with all the trappings of Egyptian Pharaonic kingship despite their Nubian origins; they adhered to Egyptian cultural and religious practices while also using Nubian features such as costumes and jewelry. Within this context, the paradigm of cultural entanglement (Dietler 2010) provides a useful structure to understand the cultural and biological linkages that developed during Egyptian colonial period and the rise of the Napatan state. Strontium isotope analysis of residential mobility and craniometric analysis of biological relationships are combined with mortuary analysis of cultural change to evaluate the circumstances that led to the formation of the Napatan state. This research demonstrates that the pluralistic society developed in the Egyptian colonial period in Nubia likely influenced the characteristics of the culturally entangled 25th Dynasty Nubian Pharaohs of Egypt.

Cultural entanglement and cultural identity

Although contemporary anthropology is fully engaged with examining agency, contested culture, and borderlands in its theoretical work, the impossibility of conducing interviews with ancient inhabitants restricts possibilities for nuanced conceptions of culture. Despite earlier attempts that viewed past ethnic groups as sharing a bounded set of beliefs, many researchers now emphasize the fluid and situational nature of ethnicity, which is often maintained and honed by conflict and contact (Díaz-Andreau 1996; Eriksen 1992; Graves-Brown 1996; Herbert 2003; Jones 1997; Perry and Paynter 1999). Ancient ethnic dynamics can effectively be examined archaeologically by employing a careful contextual approach (Emberling 1997; Hodder 1982; Hall 1997; Lightfoot 2012). For example, cultural entanglement theory considers the agency of both indigenous and intrusive groups (Perry and Paynter 1999); interactions can be traced through a carefully contextualized analysis of material cultural patterning and archaeological residues of practices.

Dietler's (2010) materialist, consumption based model of cultural entanglement provides a strong theoretical framework that can be used to understand cultural and biological linkages that impacted the economic, political, social, and cultural trajectories. People interact in an active process of intercultural consumption involving appropriation and adaptation, but also indifference to and rejection of different objects or practices. Dietler (2010) argues convincingly that through a nuanced analysis of the intersection of the different social and cultural logics of the parties involved, agency is both potentially discernible and historically crucial to understanding larger developments. The participation in the development of new cultural expressions provides a means for community members to demonstrate that they are 'playing the same game.' (Blanton 2015 quoting Barth 1969:15).

As with the present study, many examinations of ancient ethnic identity focus on mortuary practices and monuments as a key arena for expression (Blake 1999; Emberling 1997; Hall 1997; Santley et al. 1987) because they provide a materialization of roles played by, or constructed by relatives of, the deceased. They also serve to materialize the primordial attachments that can play a central role in constructions of ethnic identity, inscribing them onto and into the landscape. Adopting a diachronic perspective that traces different cultural threads as they enter into specific social contexts helps to avoid reifying the groups by taking into consideration the process of adoption, adaptation, rejection or indifference that characterizes intercultural borrowing (Dietler 2010; Silliman 2009). In situations where cultural interaction plays an important role, how an object was used can be more important than the object itself, especially since the meanings of imported and even imitated goods are often adapted to a new cultural setting rather than adopted wholesale (Dietler 2010; Graves-Brown 1996; Higginbotham 2000; Author 1998). The maintenance of traditional forms and the simple replacement of local by imported objects serving a similar function could indicate cultural continuity in spite of the use of different forms (Silliman 2009). The addition of material culture and/or practices that represent completely new cultural elements and the cultural transformation of new and/or old features would indicate a significant redefinition of economic, social, and/or symbolic relations as a result of ongoing interaction.

Although they need not covary, various systems (biological, cultural, linguistic) contribute to ethnogenesis (Sapir 1949) as ethnic groups are the product of their particular context and genetic history. The role of common ancestry in ethnogenesis is debated, though the biological evolutionary history of a group can influence the perception of their ethnic identity (Barth 1969; Emberling 1997; Jones 1997). Interdisciplinary research approaches that integrate

multiple indicators can be used to observe how different cultural patterns are produced and reproduced and how biocultural markers differ at various social and spatial levels over time (Goldstein 2015; Salazar et al. 2014; Stovel 2013). Isotopic examination of geographic origin (Ericson 1985) and craniometric analysis of biological affinities (Brace et al. 1993) can provide useful information regarding the population dynamics that may have influenced the process of ethnogenesis.

FROM EGYPTIAN COLONY TO THE NAPATAN 25TH DYNASTY OF EGYPT

Egypt's first major physical expansion into Nubia (situated in modern southern Egypt and northern Sudan) was the building of fortresses from its border south to the Second Cataract of the Nile in response to the Kerma polity's increasing strength in Upper Nubia during the earlier Middle Kingdom Period (c. 2040-1690 B.C.E.) (Edwards 2004; O'Connor 1993; Author 1998, 2003, 2013). The cataracts consist of beds of granite that cross the course of the river, creating rapids that impede boat travel and therefore created natural boundaries, the northernmost being Egypt's ancient southern boundary at the First Cataract (Figure 1). While Kerma recaptured Lower Nubia (c. 1690 B.C.E.), the kingdom eventually fell to Egyptian aggression (c. 1502 B.C.E.); the Egyptian frontier extended past the Fourth Cataract, although the Third Cataract continued to be an internal boundary between zones of direct colonial incorporation and more indirect imperial control (Morkot 1995, 2000, 2001; O'Connor 1993; Török 1995). In Lower Nubia, Egyptian fortress-settlements were maintained. Egyptian government and redistribution was centered in new temple towns in Upper Nubia (Kemp 1978; Török 1995; Author 2003).

The New Kingdom ended with the decline of Egyptian power at the end of the Ramesside Period (c. 1182-1069 B.C.E.). Some scholars characterize this collapse as an Egyptian

withdrawal from Nubia, but the nature of the political transition is unclear. Inscriptions and documents from the period record that attempts to reconquer Nubia after the New Kingdom were unsuccessful, and data from new excavations like those at Tombos point towards continuity of occupation rather than a withdrawal. During the subsequent Third Intermediate Period, the region enters a so-called "dark age" with a paucity of historical records and up until now an equivocal archaeological record (Edwards 2004). Powerful leaders emerged at Napata by c. 850 B.C.E. and within a hundred years, the Napatan leaders of Nubia conquered Egypt. These rulers borrowed the symbolism of Egyptian kingship to legitimize their taking of the Egyptian throne, representing themselves as "saviors" of the Egyptian civilization, a theme that figures prominently in Pharaoh Piankhi's triumphal account of his Egyptian campaign. After defeating his opponents, Piankhi turned away all but one of his Nile Delta based rivals, who had come to pay them homage, "because they were uncircumcised and fish-eaters, and this is an abomination to the royal residence…." (Eide et al. 1994:111). Through this act of political theatre, Piankhi defined what it was to be a proper Egyptian ruler effectively asserting that they were more Egyptian than the contemporary Egyptians even though their origins were Nubian. Along with the selective adoption of Egyptian symbols, Nubian pharaohs also used elements drawn from indigenous practices and merged some aspects of Egyptian and Nubian symbolism into new forms (Török 1995, 2008; Author 1998, 2013).

Early studies of political changes in the ancient Nile Valley traditionally have focused on Egypt, a perspective that tends to ignore the aspects of power formation that may have developed independently in Nubia. Egypt is often cited as providing the direct impetus for the formation of this Nubian state (Emery 1965, David 1988), disregarding Nubia's long tradition of kings and the already established institutions, both indigenous and colonial, that likely played an important role

in the reemergence of power after Egypt lost control over its New Kingdom period colony in Nubia around 1069 B.C.E. Some Egyptologists have framed their emergence in terms of a natural acculturation toward a more sophisticated and inherently appealing Egyptian culture (e.g., Grimal 1992:334). The idea that Nubians might have influenced Egyptian culture, or indeed that Nubian culture could even have survived the colonial experience, tends to be discounted (Emery 1965; David 1988; Van De Mieroop 2011). Kemp articulated a common view of Egyptianization when he concluded "Egyptian culture must have had a considerable glamour in the eyes of Nubians… It is not hard to understand how, in an age innocent of the esoteric delights of 'folk culture', many of the local products, such as the decorated hand-made pottery and mother-of-pearl trinkets, did not survive the flood of cheap mass-produced Egyptian wares...." (1978:34-35).

Just as a number of scholars have rejected similar models of Hellenization and Romanization for a more nuanced view of colonial encounters (Gardner 2007), Török (2008:154) takes a similar point of view for the Nubian Pharaohs in arguing that "it would be a misleading simplification to describe this process…as a direct 'Egyptianization' of indigenous mortuary religion, burial and tomb types." In reality, it was a more comprehensive process in which indigenous concepts were continuously amalgamated with rather than replaced by Egyptian ideas. But simply arguing that all changes were adaptive rather than assimilative, resulting in a hybrid, fails to capture the complexities of interaction and intercultural borrowings, which can range from more imitative to selective in nature over time and between sites and even individuals.

Ideas about ethnic and cultural identity are well documented in ancient Egyptian society. Egyptians depicted themselves and people of the surrounding cultures as very distinctive from

each other in an early example of an ethnic construct (e.g., the tomb of Pharaoh Seti I c. 1390 B.C.E., Rossellini 1832-44; Author 2003). Additionally, the documented practices of burials in Egypt and Nubia are quite distinct, allowing us to identify characteristics from each culture. Egyptian burials were in an extended position and placed in coffins, with rectilinear tomb chapels for the wealthy that in the New Kingdom period often included small pyramids. Egyptian burials included specialized grave goods designed to aid the deceased in the afterlife reflecting Egyptian theology (Ikram and Dodson 1998; Author 2003). In contrast, Nubian burials at Kerma were in a flexed position, placed upon beds and/or a cowhide and buried under tumuli, circular mounds often decorated with stones. Animal sacrifices were often associated with burials, a practice nearly absent in Egyptian burials (Bonnet 1991; Author 1992; Williams 1991).

The key to understanding the phenomenon of the Nubian Pharaohs lies in adopting a bottom-up agent centered approach by replacing "Egyptianization" with a model of cultural and biological entanglement (Thomas 1991; Hall 1993; Dietler 2010), a coalescence that impacts the historical trajectories of both the colonial power and the colonized. Entanglement takes into consideration the agency of both indigenous and intrusive groups, in spite of the often unequal relationship between the two that characterize violent conquest and occupation. Cultures do not interact; instead, exchanges between individuals produce cultural change through a constant dialectic between the constraints of *habitus*, cultural predispositions to some extent shared by other members of society, and the pressure of individual adaptation and innovation, which is heightened when individuals from different cultures interact, as is the case here (Bourdieu 1977).

The origins of the Napatan rulers and the influences behind their "Egyptianization" have been hotly contested. Török (1995) posits that Nubian elite survived the collapse of the Egyptian colonial system and maintained some authority, suggesting that power expanded from the 3rd-

4th Cataract region where the former Nubian capital of Kerma (and Tombos) is located (Model 1). The Napatan state with its Egyptianized features emerged in this local context, aided by the survival of the old colonial infrastructure, including descendants of the original Egyptian expatriate communities. In contrast, other scholars have posited that an influx of people from the south led to a Nubian revival that completely replaced the old Egyptian colonial system, eventually leading to the formation of the new Nubian state whose Egyptianzed features were borrowed wholesale by the newly emerging rulers (Model 2). Nubian groups living to the south outside of Egyptian imperial boundaries may have reintroduced Nubian funerary practices, explaining the use of traditional Nubian tumuli and Nubian burial practices like interment on beds and a flexed burial position (Priese 1973; Trigger 1976). Another alternative model posited by Kendall (1999) revives the idea that a sudden infusion of Egyptian influences at the royal cemetery of el-Kurru correlates with the appointment of the Crown Prince Osorkon as High Priest of Amun at Thebes (c. 839 B.C.E.; Model 3). His suppression of a series of rebellions forced a number of Theban priestly personnel to flee south, which led to a new wave of Egyptianization. Indigenous alliances with this group and their "conversion" to the worship of Egyptian deities ultimately helped forge a new Egyptianized state. As a cemetery at a key colonial center with continuity through this still poorly understood transition, the Tombos archaeological site provides an ideal setting to address the social factors involved in state formation, in particular, the transformations of identity that led to a new set of cultural constellations in the Napatan period that were neither wholly Egyptian nor Nubian.

TOMBOS

Materials and Methods

Tombos is located on the east bank of the Nile River at the Third Cataract (Figure 1). Evidence from the University of California Santa Barbara 2000/2002 excavations documents the presence of an Egyptian colonial cemetery dating to the New Kingdom (c. 1400-1069 B.C.E.). The remains of several pyramids built as elite burial monuments, in addition to a middle-class cemetery consisting of several Egyptian-style mudbrick chamber, pit, and shaft tombs were found (Author 2003; Figure 2). The post-New Kingdom graves described here were primarily excavated in 2010/ 2011 by the UCSB-Purdue joint expedition. Dating to the Third Intermediate (3IP) and Napatan Periods (c. 1069-650 B.C.E.), structures included shaft tombs, tumuli, and chamber/pyramid tombs (Figure 2). Burial features and human remains excavated from 24 units at Tombos are included in this study (Table 1). Ceramic chronology and inscribed objects were used to date the burial features. The vast majority of New Kingdom remains examined in this study come from the middle-class chamber and pit tombs due to high disturbance in the pyramid tombs. For 3IP/Napatan remains, half are from tumulus graves and the remaining were found in pyramid or chamber tombs. Burial position could be recorded for 55 New Kingdom and 27 3IP/Napatan *in situ* burials. In order to verify chronology, 17 human bone samples were measured for radiocarbon (NSF-Arizona AMS Laboratory; Table 1).

Strontium (Sr) concentrations and ratios differ according to variations in local geology. The ratio of $^{87}Sr/^{86}Sr$ reflects the average $^{87}Rb/^{87}Sr$ ratios of the parent rocks in a particular area, which is mainly the function of the composition of the rocks and the time elapsed since formation or deposition (Faure 1986). The biologically available strontium present in soil and groundwater is incorporated into local plants and animals. Thus, the strontium isotope composition of a person's geological locale is reflected in his or her hard tissues, 1) assuming a

diet of local resources and 2) minimal chemical contamination from the burial environment (Ericson 1985).

The area where Tombos is located is complex, given that the Nile River approximates the boundary between two major metamorphic/tectonic provinces and the presence of the cataract, an outcrop of granite (Author 2007). Author and colleagues (Author 2007, 2013) have completed the analysis of seven contemporaneous Nile Valley samples and have determined that it is possible to identify nonlocal individuals at Tombos using strontium isotopes; Egyptian $^{87}Sr/^{86}Sr$ values (mean/median[0.70777], sd[0.00027]) are statistically higher than Nubian values (mean[0.70762], median[0.70757], sd[0.00036]). The examination here considers these results within a newly refined chronology over the course of the cemetery's use in order to gain an understanding of how immigration to Tombos changed over time. Dental samples for $^{87}Sr/^{86}Sr$ analysis were taken from all individual with sufficient enamel: 55 New Kingdom and 30 3IP/Napatan individuals.

Researchers have demonstrated morphometric differences in culturally distinct Egyptian and Nubian groups (Author 2006; Brace et al. 1993; Carlson and Van Gerven 1979; Irish 2005), though interaction throughout the region is evident (Keita and Boyce 2008; Zakrzewski 2002). Selective pressures may explain clinal differences observed in the Nile Valley samples (Glanville 1969; Brace et al. 1993) and it is hypothesized that population interaction accounts for variations occurring with sociopolitical actions and colonization. While craniofacial shape changes accompanied the transition from hunting-gathering to agriculture, the samples examined here come from similar environmental zones and subsistence strategies rendering dietary differences insignificant (Carlson and Van Gerven 1979).

Previous morphometric analyses of the New Kingdom Tombos sample indicated a mixed Egyptian-Nubian group in comparison with multiple Egyptian and Nubian samples (Author 2006). For this study, the Tombos samples from the New Kingdom through Napatan Period are compared with contemporaneous Egyptian and Nubian samples. Egyptian samples (N=340) are limited to those from the general area of Thebes, the capital and most likely place of immigrant origin for colonists in Nubia and include published data collected from the sites of Sheikh Ali and Abydos (Thomson and Randall-MacIver 1905) in addition to data collected from the Qurneh sample at the Duckworth Laboratory at the University of Cambridge. The Nubian comparative sample (N=187) is comprised of human remains from Kerma (also at Duckworth), the former Upper Nubian capital located ~10 km south of Tombos.

Nine cranial measurements (Tables 2-3) were used that correspond with the earlier published data from collections no longer available for study (Thomson and Randall-MacIver 1905). While multivariate analyses of cranial measurements are clearly more robust and are used here, descriptive data on the mean individual measurement values are also presented and evaluated because sample sizes for the multivariate analyses are reduced significantly due to preservation issues. Twenty-eight New Kingdom and 21 3IP/Napatan individuals had sufficiently intact cranial remains for inclusion in the morphometric study; StataSE 13 was used for all statistical analyses.

IDENTITY AT TOMBOS

New Kingdom Mortuary Practices

The New Kingdom component of Tombos consists of two main burial areas: pyramids and underground chamber and pit tombs (Table 1). The pyramids included in this study are the tomb of Siamun (1/4, partially excavated due to logistical difficulties) and a tomb dedicated to a man named Tiy (30, begun by Edwards and Osman [2001] and finished by the project). Additional pyramid tombs have been identified and excavated, along with mud brick tomb chapels built along Egyptian lines but without pyramids. The pyramid tombs at Tombos included decorated chapels and were likely the burials of titled bureaucrats (Author 1992; Morkot 2001). The tomb chapels without pyramids, which would also have been decorated, probably represent a second rank of colonial officials. Based on the inscriptions from funerary cones (clay cones stamped with the name and title of the deceased) found in the shaft fill and around the complex, Siamun held the title Overseer of Foreign Lands, placing him just below Viceroy and Military Commander of the Nubian colony (Author 2003). His tomb included a large Egyptian-style pyramid and chapel with multiple inhumations around the monument and especially within the shaft and underground burial chambers (partially excavated Minimum Number of Individuals (MNI)>18). The structure of his tomb is reflective of elite burial traditions from the Egyptian capital, Thebes, in particular the provision of cones, which appear only once elsewhere in Nubia (on one tomb at Aniba) and in Egypt only rarely outside of Thebes. The t-shaped chapel design and east-west alignment follow typical Egyptian practices associated with the solar theology (Author 2003; cf. Kampp-Seyfried 2003; Ryan 1988; Assmann 2005:317-24). Funerary cones were also found in the pyramid tomb of Tiy, simply stamped with his name. His burial was found largely intact inside the remains of a poorly preserved but high quality coffin. A finely carved Ushabiti (funerary figurine that substituted for the deceased to do work in the afterlife) still lay *in situ* by his head and was inscribed with his name and the titles Scribe and Priest.

Both Egyptian and Nubian pottery were found in association with Siamun's pyramid, with the latter appearing mainly in the courtyard, including cooking and serving pots most likely connected with feasting, which played an important role in funerals and later events commemorating the deceased. One radiocarbon date from bone excavated in the pyramid shaft is calibrated to 1391-1021 B.C.E. Diagnostic ceramics point towards the earlier end of that range for primary use of the tomb. The burials of one adult woman and four children were found in an alleyway around the pyramid. Architectural phasing and artifacts from the children's burials place them just before the completion of the pyramid (c. 1400-1300 B.C.E.). One of the child burials included an amuletic necklace that included images of Bes, a popular Egyptian household god who protected the wearer from evil spirits in life and the afterlife (Pinch 1994), and Tawaret, an Egyptian hippo goddess who protected mothers and children (Author 2003). The adult burial has a calibrated age of 1264-751 B.C.E.; while no artifacts were found, the burial's association with the tomb's architecture suggests a date on the earlier end of this range in the late New Kingdom, when the complex was still in use as a family crypt.

The majority of the human remains recovered from the New Kingdom component of the cemetery were excavated from pit (5 A-G, 6 A-F, J) and underground chamber tombs (6 G-I; 7, 8). Commonly found in Egypt, these underground communal tombs are large and designed for multiple inhumations (6: MNI>75; 7 MNI>13, 8 MNI>8 [badly disturbed]). Based on the grave goods, these tombs are associated with 'middle-class' burials, lower-ranking bureaucrats, and other skilled workers (Author 2003). The burial inclusions are consistent with Egyptian funerary beliefs such as decorated coffins, amulets, and statuary (cf. Grajetzki 2010). Several coffins originally had inscribed hieroglyphic spells to ensure that the deceased became an immortal spirit in the afterlife. Unit 7 included an entire mummiform coffin with some preserved

decoration that included the name and figure of the god, Duamutef, one of the protective sons of Horus. Three Ushabti figurines were found in this area of the cemetery.

Scarabs (three *in situ*), amulets (heart, Bes, and *ujat*—the protective Eye of Horus) and other jewelry indicate Egyptian religious beliefs, and items of personal adornment/use included items characteristic of Egyptian material culture, like faience beads, as well as those associated with Nubians, like ivory bracelets and earrings. Many of the scarabs refer to pharaohs, including Thutmose III, Amenhotep III, and Ramesses II. The Egyptian god, Amun-Re, a Theban deity who had become one of the most important gods in the Egyptian pantheon, was most often named on scarabs at Tombos (Author 2003). The most common grave good was pottery, mostly in Egyptian style. While some plates appear, most ceramics were jars, indicating the inclusion of food offerings with the burials. A few Nubian ceramics appear, including both bowls and storage vessels. In addition, imported Mycenean juglets, which indicate wealth and the long-distance exchange of luxury goods, were found in Unit 6 (Figure 3).

For the intact burials, most displayed an Egyptian extended body position (51/55 total, 15/15 males, 14/18 females, 22/22 indeterminate/juvenile). However, four females within culturally Egyptian middle-class tombs were buried using Nubian practices: their bodies were flexed, oriented with head to the east, on their right side facing north, typical of Kerma burials. The two from Unit 7 were likely placed upon a bed, and were associated with a Nubian-style fine ware bowl. All four of these burials were found in the lowest layers of the tombs, although in Unit 6 in the outer chamber. One burial had three Bes amulets still *in situ* around her neck (Author 2003). The Unit 6 tomb continued in use down to the end of the New Kingdom. A radiocarbon date from Unit 6H, a staircase leading into the first underground chamber where the last burials were placed, was calibrated to 1212-967 B.C.E., consistent with the Ramesside

period, also indicated by a large amphora found *in situ* there and by a scarab of Ramesses II worn on the hand of an individual from an earlier layer of burials. Archaeological context contradicted three radiocarbon dates from Units 6 & 7, with the incorrect readings possibly resulting from poor collagen preservation (Higham et al. 2006; Schrader 2013).

Third Intermediate and Napatan Period Mortuary Practices

Egyptian-style pyramid/chamber tombs continued to be used and created in the 3IP/Napatan period. Unit 9 is a pyramid tomb dating to the 25th Dynasty (Napatan Period) with six underground chambers, a unique substructure (Author 2014). MNI is 26, with several intact burials, though bone quality was poor due to water damage. Grave goods include fine bronze bowls, a faience goblet, jewelry, coffins, and pottery. Burial position was extended, although somewhat erratic in orientation. A large greywacke/mudstone heart scarab was found near Unit 9 dedicated to the scribe Tuwy with a copy of Spell 21 from the Book of the Dead, which compelled the owner's heart to testify to his innocence during the divine judgment. It is similar in style and quality to those found in the royal 25th Dynasty burials at el-Kurru (Author 2012).

A subsidiary tomb next to this pyramid was also excavated (9A, Author 2006). The male burial was extended, head to the west and included signs of an Egyptian-style coffin and mummification as well as a Nubian-style bed. Other artifacts include beads, amulets, two scarabs (including one of pharaoh Shabako, c. 700 B.C.E.), four bronze bowls (three with incised rows of bulls possibly imported from Syria), iron weapons, and a wooden box with a popular marsh and cow motif associated with the goddess Hathor, evocative of the traditional Nubian iconographic focus on cattle (Author 2006; Edwards 2004). The calibrated radiocarbon date from the burial is 800-507 B.C.E. The pottery and style of the jewelry point towards the earlier end of

the range. Unit 15, which represents the reuse of a ruined New Kingdom mudbrick chapel with a rectangular shaft that led to two chambers. One *in situ* burial from the shaft was supine, head to the west, and remains of both coffins and beds were found in addition to jewelry, including gold beads, scarabs (one naming Piankhi), a copper cup and fabric suggesting cloth wrapping. MNI is 16.

Also dating to this period is a new separate zone of Nubian-style tumulus grave features (23), beginning in the late New Kingdom and continuing into the 3IP/Napatan, represented by 15 units (10, 14, 16-20, 22, 24-28, 32-34; Table 1). In contrast to the communal nature of the Egyptian burials, the tumuli usually included a single individual or infrequently 2-3 individuals (reuse), which resonates with earlier Nubian burial practice at Kerma. Tumulus burials were consistently oriented east-west and with one exception had a side chamber or niche along the northern side. Almost all of the burials were in the Egyptian extended style (26/27 total, 11/12 females, 7/7 males, 8/8 indeterminate/juveniles) with head to the west, sometimes inside coffins and mummified, but often also placed on Nubian-style beds. One woman was found in a flexed position on a bed (20-S4). One child was found in an extended position but with head to the east (20-S7). All of the pottery associated with these tumuli appears 3IP/Napatan. Of the eight radiocarbon dates (Table 1), three fall within the late New Kingdom (16, 20-S1, 17-2) while the remaining overlap with the 3IP/Napatan (c. 1050-750 B.C.E.). Pottery within other tombs demonstrates that the cemetery continued in use into the 25th Dynasty.

Geographic Origins

Thirty-five percent (19/55) of the New Kingdom $^{87}Sr/^{86}Sr$ values (Table 5) are above the established local range ($^{87}Sr/^{86}Sr$=0.70710-0.70783), values that are associated with Egyptian

sites (Author 2013). Forty-eight individuals buried in Units 6 and 7 could be placed in the three broad phases within the New Kingdom based on *in situ* diagnostic pottery as well as scarab and coffin design (Figure 3): 1) the reign of Amenhotep II to Thutmose IV (c. 1427-1390 B.C.E.), 2) the reign of Amenhotep III through the Amarna and Post-Amarna Period (c. 1390-1295 B.C.E.) and the reign of Ramesses II through the late Ramesside Period (c. 1295-1069 B.C.E.).

The greatest proportion (5/12, 42%) of first generation immigrants appears in the earliest context within these units (Phase 1), the back chamber of Unit 6 (I), presumably representing the founding generation of the colony. For Phase 2, represented by the lower group of burials in the antechamber of Unit 6 (G) and Unit 7, the proportion drops to 21% (3/14). For Phase 3, the latest series of burials found in the upper layers of the antechamber and in the staircase (G and H), the proportion is slightly higher at 36% (8/22). Similar proportions of males and females (~40%) were first generation immigrants.

None of the 3IP/Napatan period samples can be associated with Egyptian $^{87}Sr/^{86}Sr$ values. Two are lower than the local range. Based on very preliminary data from the Fourth Cataract region where Napata was located, it is possible that these lower values could be reflective of origins from that area (Author 2013).

Biological Relationships

The millennia of contact and admixture between the Nubians and Egyptians complicate the ability to distinguish individuals from these groups. However, the examination of both individual measurements as well as multivariate analyses provides important data regarding the contribution of these groups to the Tombos sample (Tables 2-4). Differences between Nubians and Egyptians for both males and females are apparent ($p \leq 0.05$, Table 2). Tombos New Kingdom

and Napatan males are more similar to Nubians while females appear mixed. Few differences are found between the New Kingdom and Napatan samples at Tombos (Table 3).

Nine measurements were used in principal components analysis. For both sexes, the first three components had Eigenvalues above 1.0 (accounting for 64% [females] and 66% [males] of the total variance (Table 4)). When used in a logistic regression equation (Aguilera et al. 2006), it is evident that only component 2 contributes significantly to the Egyptian-Nubian distinction (odds ratios and 95% confidence intervals do not include the value of 1.0). Component 2 represents nasal height, upper facial height and basi-bregma height (though it should be noted that basi-bregma height may be more reflective of health status than genetics, Angel 1982). The results of the logistic regression indicate some differences between the groups (Figures 4-5). Nubian crania are predicted to be Nubian for 53% (36/68) of females and 42% (19/45) of males; Egyptian crania are predicted to be Egyptian for 86% (122/142) of females and 93% (125/135) of males. As suggested in an earlier study (Author 2006), these percentages of correct predictions may indicate that Egyptians are a more distinctive group who are morphometrically more homogeneous while Nubians appear more heterogeneous (Author 2006). For the Tombos females, there appears to be a large percentage of individuals with a more Egyptian morphometric shape in the New Kingdom (79%, 11/14) that continues into the Napatan sample (86%, 12/14). Egyptian morphometric shape is found less frequently for Tombos males in the New Kingdom (46%, 6/13) and 3IP/Napatan (29%, 2/7) periods. The difference number of individuals displaying Egyptian morphology between the sexes in the 3IP/Napatan sample is statistically significant ($p<0.05$).

Overlap in samples between the mortuary, geographic, and craniometric datasets is low due to looting that caused disturbance in burial position, extreme tooth wear that prohibited

isotope analysis for some specimens, and preservation issues that prevented the inclusion of incomplete crania. The results in the comparisons between these datasets should be interpreted with caution due to these factors that produced very low sample sizes. Table 6 presents these data; none of the differences are statistically significant, though it may be notable that none of the Nubian-style burials have immigrant strontium values.

CULTURAL AND BIOLOGICAL ENTANGLEMENT AND STATE FORMATION

The integration of these cultural, geographic, and biological data from Tombos paints an interesting and alternative picture of the people who contributed to sociopolitical changes from Egyptian imperial expansion in the New Kingdom to Nubian ascendance as the 25th Dynasty. As an Egyptian colonial community, Tombos was the site of multi-cultural interaction and the building of a new heterogeneous community through a complex process of cultural and biological entanglement. People once considered foreign to one another became central participants of a new pluralistic society (Lightfoot 2012) – through a synthesis of different cultural features in a multicultural setting, rather than a unidirectional assimilative acculturation or Egyptianization (Author 1998, 2013; Deagan 1998). Despite the overwhelmingly Egyptian nature of the cemetery, not all signs of Nubian culture were avoided. The five (5/85: 4/55 NK, 1/30 3IP/Napatan) women buried using Nubian traditions and the presence of some Nubian pottery reveal the continuance of local traditions, in an especially public way since funerals/feasts would have been events that engaged the entire community (Assmann 2005; Author 2003, 2013). Behaviors and rituals follow proper public protocol and ethnically specific material culture as a way of showing commitment to the community (Blanton 2015), or in the

case of the women buried in Nubian style providing an ethnic counterpoint to the overwhelmingly Egyptian character of the cemetery during the New Kingdom.

Strontium isotope evidence of nonlocals offers a glimpse at immigration and how it intersected with the cultural transformations taking place over the life of the community (Author 2013). Although in more recent colonial contexts immigrants tended to be male, immigrants of both sexes from Egypt arrived at Tombos (~40%). The largest proportion of settlers arrived during the earliest phase of the cemetery in the founding years of the colony (42%), numbers drop during the second phase (21%) and then rise again during the final colonial phase (36%) in the Ramesside Period. While these percentages are not statistically different, the rise in the latest phase may perhaps be related to renewed Egyptian interest in Upper Nubia as evidenced by activities at the newly established Upper Nubian administrative capital Amara West (Binder 2011) indicating that this region was still a focus for colonization late in the New Kingdom. The culturally Nubian female burials found in the chamber tombs date to c. 1450-1325 B.C.E., attesting to the early interaction between the immigrant Egyptians and local Nubians. Neither immigration from Egypt nor Nubian influences disappeared in the later history of the colony, with evidence for continuing immigration from Egypt and at least one Nubian style bed-burial appearing in the Ramesside Period. While sample sizes for the multivariate analyses of crania are small and interpretation should be accordingly cautious, the analyses suggest that the Tombos population included both biologically Egyptian and Nubian individuals, providing additional support for the mixed community that included Egyptians and Nubians buried as Egyptians (Author 2003, 2006).

In the post-colonial 3IP/Napatan periods, Egyptian immigration ceased (Author 2013) and it appears that additional local Nubians were incorporated into the community as there is an

increase in individuals displaying more Nubian features, at least for males. Analyses of paleopathological indicators (Author 2014) and signs of activity patterns (Schrader 2013) provide skeletal data that reveal relative consistency in health indicators over time at Tombos and an increase in activity levels that may be suggestive of the incorporation of additional agricultural and/or quarrying undertakings necessitated by changes in Tombos's political and economic role. This post-colonial sample likely represents the descendants of the mixed Egyptian-Nubian colonial population (Author 2014). In a similar way, cultural expressions in funerary practices clearly reflect a long history of cultural entanglements, but these interactions resulted not in an evenly blended hybrid, but rather a complex mosaic of practices and consumption of material culture that include both strong local Nubian traditions and a continuity in Egyptian features lasting long after the fall of the empire. The construction of tumuli already in the late New Kingdom created a more dramatic and public inscription of an older Nubian culture onto the cemetery's landscape that continued through the 3IP/Napatan Period. At the same time, new tombs were built and older tombs re-used in the older, Egyptian part of the cemetery, evoking a more recent, colonial past (Author 2014). In spite of Nubian style superstructures, burial practice in this section of the cemetery reflects an entangled blending of Nubian and Egyptian customs. Body position tapped into the Egyptian solar theology that linked the sun's daily dawning symbolically and magically to rebirth (Assmann 2005). There is also sporadic evidence for the use of coffins and wrapping in linen bandages, probably indicating some form of mummification. Amulets of a selective set of Egyptian deities also appear, including the dwarf gods Bes and Pataikos and the goddesses Isis and Hathor, all popular in Nubia. At the same time, the deceased were often placed upon beds in a longstanding Nubian practice. Nubian burial position, while rare, was still present in the burial of a woman in flexed

position on a bed. The use of pyramids and chapels with unique substructure arrangements and somewhat erratic burial orientation in the older part of the cemetery also indicates the blending of ideas.

In addition to providing new data about the cultural dynamics of the empire and its aftermath, the results of excavations at Tombos bear directly on the models proposed for the political, cultural and population dynamics that lay behind the emergence of the Napatan state in Upper Nubia. There is little evidence for migration either from the Egypt in the north or farther south in Nubia during the post-New Kingdom. There is no need to posit a new influx of Egyptians (Model 3) to explain the presence of Egyptian features, since these practices continue to appear at Tombos and at other former colonial sites like Amara West (Binder 2011) during the 3IP. Similarly, a wave of migration from south is not necessary to account for Nubian features (Model 2), which in fact had never completely disappeared under Egyptian colonial rule. Instead, Egyptians and their descendants clearly had long-standing ties to the local populations in Nubia (Model 1). Morphometric and isotopic indications of origin at Tombos reflect intermarriage and corresponding cultural entanglements are displayed in their burial rituals.

The Napatan pharaohs of the 25th Dynasty used a multicultural mosaic of features to represent themselves; for example, commissioning small steep sided pyramids imitating colonial era monuments while retaining the use of funeral beds from Nubian burial practice, as well as innovations like the cap-crown worn in different variants by kings and queens and the ram-imagery associated with Amun-Re, which likely represents Nubian influence on Egyptian theology (Török 2009). Through these funerary and religious practices, Napatan leaders did not merely imitate but revitalized the Egyptian *ma'at* (order, rightness) theology, legitimating their rule against the "foreign" Libyan influenced kings of the 3IP (Author 1998, 2013). Their

entangled identities could have been based in part on dynamic Egyptian-Nubian societies such as Tombos, where different combinations of Egyptian- and Nubian-style burial practice are found in the New Kingdom and continue after the empire during the period before the first Napatan royal burials at el-Kurru. Other features culled from contemporary Egyptian burial practice need not have been brought by refugees, but are more likely to have been sought out by the emerging Nubian dynasty in order to help legitimate and consolidate their conquest of Egypt, as well as enhancing their prestige at home.

The presence of Napatan pyramids indicates that Tombos remained a key administrative center during the period; the multicultural ties established centuries earlier might have enabled Tombos and other communities to serve as ideal liaisons between the Napatan leaders and Egypt. As a model for the cultural reconfiguration of Egyptian and Nubian features, these types of societies may have facilitated and advised the character of the new Napatan dynasty (Author 2013). The material remains of the cultural expressions found at Tombos and other sites trace the development of a new entangled identity that no longer simply incorporated elements of local and foreign ideas but integrated features that over time became internalized (Silliman 2009), such as Egyptian gods and pyramids. The documentation of these changes over time in the use and meaning of objects and burial practices along with the evidence for interaction between groups provides a more nuanced understanding of the ways in which cultural and biological linkages and the accumulation of individual choices impact the economic, political, social, and cultural trajectories of political entities.

CONCLUSION

Through the use of entanglement theory and multiple lines of evidence, our research has offered a useful example of the ways in which a long-term examination of changes in ethnic practices and group composition in past populations can contribute to our understanding of these processes. By examining the process of adoption, adaptation, rejection, or indifference in intercultural borrowing (Dietler 2010; Sillman 2009) in conjunction with isotopic and biological lines of evidence, a more detailed picture of how these cultural and biological entanglements contributed to sociopolitical developments in the region has emerged. The data documenting population composition at Tombos provide no support for the suggestion that Egyptian or southern Nubian immigrants played a large role in the development of the Napatan polity. Rather, these data suggest that Egyptian colonists settled there during the New Kingdom (c. 1400 B.C.E.) and worked together with local Nubians to create a multicultural and biologically heterogeneous community that continued to thrive long after the fall of Egyptian empire and end of colonial government. At Tombos, ties built during the New Kingdom between local Nubians and immigrant Egyptians resulted in a strong community that continued to play a role in the aftermath of the empire when Nubia coalesced into a unified state that extended from southern Nubia to the Mediterranean. This pluralistic society at Tombos, and probably others like it, may have played an important role in the development of the Napatan Kingdom's, and 25th Dynasty of Egypt's, culturally entangled character. The combination of Egyptian features and Nubian traditions as well as the integrated Nubian-Egyptian governmental structure may have been influenced by the already existing mixed communities established centuries earlier.

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Table 1. Description, chronology, and $^{87}Sr/^{86}Sr$ results of Tombos archaeological units

Artifactal Date	Unit#	Tomb Type	Burial Ritual	Radiocarbon Dates Calibrated 2 σ (sample number)[1]	Minimum Number of Individuals	$^{87}Sr/^{86}Sr$ Egyptian immigrants
Mid-18th Dynasty New Kingdom 1400-1300 B.C.E.	1/4	Pyramid Pyramid Alleyway	(Disturbed fill) E & N pottery E cones Egyptian	Fragment 1391-1021 B.C.E. (AA58191:2980±65 BP)	18 commingled (excavation incomplete) 4	-- 1/2
NK Amenhotep II-Thutmose IV 1427-1390 B.C.E	6 I	Chamber	Extended, E artifacts		19 commingled	5/11
NK Amenhotep III- Amarna 1390-1295 B.C.E	6 G Loci 41,46,47	Chamber	Extended 2 Flexed E artifacts	6-47-3 784-484 B.C.E.[2] (AA58194:2492±50 BP)	18 commingled	1/6
	7	Chamber	Extended 2 Flexed E artifacts Nubian pot	7-9 2680-1738 B.C.E.[1] (AA58197:3780±180 BP) 7-10 1890-1500 B.C.E.[1] (AA58195: 3389±81 BP)	13	2/8
	8	Chamber	Extended		8 commingled	0/2
	30	Pyramid	Extended		47 commingled	
NK Ramesses II-late Ramesside Period 1295-1069 B.C.E	6 G Loci 27,40	Chamber	Extended, E Artifacts		22 commingled	6/20
	6 H	Chamber entrance		H-3 1212-967 B.C.E. (AA58196:2884±46 BP)	5	1/3

NK?	5 A, C-E	Pit	Extended		4	2/3
	6 B-F	Pit	Extended		6 disturbed	--
3IP/Napatan 1068-650 B.C.E	1/4	Pyramid Alleyway	Extended	N. Alley 1264-751 B.C.E. (AA58193:2750±110 BP)	1	
	2,3,10,14,16-20,22, 24-28,32-34	Tumulus	Extended, 1 Flexed, Nubian bed, coffin	3 1056-828 B.C.E. (AA58198:2795±48 BP) 16-1 1305-1054 B.C.E. (AA95544:2964±3 BP) 16-2 1046-891 B.C.E. (AA95540:2801±35 BP) 17-1 981-907 B.C.E. (AA95543:2794±35 BP) 17-2 1216-1008 B.C.E. (AA95541:2916±35 BP) 20S1 1313-997 B.C.E. (AA95539:2937±51 BP) 20S4 1024-838 B.C.E. (AA95542:792±36 BP) 27-1 1116-914 B.C.E. (AA95546:2841±35 BP) 27-2 1134-972 B.C.E. (AA95545:2884±36 BP)	30	0/17

	5B 6A	Pit	Extended	5B 1135-898 B.C.E. (AA58192:2852±51 BP)	1 1	-- 0/1
	9	Pyramid + Pit(9a)	Extended E artifacts N bowls, bed	9A 800-507 B.C.E. (AA95538:2522±48 BP)	25 Commingled 1	0/3[3]
	15	Shaft/ Chamber	Extended, N bed		16 Commingled	0/11[3]

[1]Reimer et al. 2009
[2]Does not correspond with artifactual date from undisturbed context
[3]One lower value could be an immigrant from southern Nubia

Table 2. Descriptive statistics for cranial measurements.

Measurement	Females		Mann-Whitney[a]	Males		Mann-Whitney[a]
	Nubian $\bar{x}$(n)SD	**Egyptian $\bar{x}$(n)SD**		**Nubian $\bar{x}$(n)SD**	**Egyptian $\bar{x}$(n)SD**	
Nasal Height	46.0(105)3.0	48.6(169)2.9	**0.000**	48.4(68)3.2	51.7(162)3.2	**0.000**
Upper Facial Height	66.1(105) 3.9	66.8(163)3.8	**0.012**	66.1(68)4.8	70.1(156)3.9	0.080
Nasal Breadth	25.0(102)1.9	24.6(168)2.1	0.066	25.8(67)1.9	25.2(161)1.8	**0.023**
Bizygomatic Breadth	119.9(80)14.4	120.6(151)5.8	0.512	129.5(56)5.9	128.4(148)4.8	0.12
Basi-bregma height	130.5(110)4.9	128.3(175)4.4	**0.000**	135.6(73)5.0	133.6(162)4.7	**0.016**
Maximum Cranial Breadth	131.5(142)4.9	133.9(179)5.2	**0.000**	134.0(89)5.3	136.6(162)4.7	**0.000**
Maximum Cranial Length	179.7(145)6.6	176.9(179)5.9	**0.000**	187.3(90)6.5	184.4(163)5.7	**0.000**
Biauricular Breadth	112.1(136)4.8	113.3(173)4.3	**0.007**	118.2(85)5.46	118.1(166)4.7	0.976
Basi-nasion Length	98.8(110)4.2	96.3(171)4.0	**0.029**	102.9(72)4.2	101.7(161)4.3	**0.029**

[a]Bolded values are significantly different between Egyptians and Nubians

Table 3. Descriptive statistics for Tombos samples

Measurement	Tombos Females		Mann-Whitney (NK-Napatan)	Tombos Males		Mann-Whitney (NK-Napatan)
	New Kingdom $\bar{x}$(n)SD	Napatan $\bar{x}$(n)SD		New Kingdom $\bar{x}$(n)SD	Napatan $\bar{x}$(n)SD	
Nasal Height	47.3(27)2.7[b]	48.6(21)2.7[b]	**0.013**	49.4(23)2.8[a]	49.4(7)1.8[a]	0.883
Upper Facial Height	64.8(27)3.7[a]	69.4(21)4.8[ab]	**0.001**	68.4(23)4.7[a]	66.4(7)2.5[a]	0.540
Nasal Breadth	24.8(29)1.6	25.3(21)1.8	0.485	25.5(23)1.7	25.3(7)1.9	0.750
Bizygomatic Breadth	123.4(22)7.7	123.7(18)5.3[ab]	0.384	126.4(18)5.5	129.6(7)6.8	0.332
Basi-bregma height	126.4(24)7.5[b]	129.6(19)3.6	0.221	136.5(22)6.1[a]	136.5(7)4.7	0.799
Maximum Cranial Breadth	130.3(28)6.7[a]	130.2(19)5.0[a]	0.957	133.3(23)10.6	130.5(7)9.4	0.248
Maximum Cranial Length	177.9(31)6.5	180.0(21)6.7[a]	0.215	187.7(24)8.7[a]	189.9(7)5.9[a]	0.705
Biauricular Breadth	113.3(25)5.7	114.5(19)4.5[b]	0.254	117.6(21)6.5	121.9(8)7.7	0.188
Basi-nasion Length	98.6(18)3.5[a]	99.5(19)3.5[a]	0.4116	103.7(20)4.5[a]	107.0(7)5.9[a]	0.319

[a]Significantly different from Egyptians ($p \leq 0.05$)
[b]Significantly different from Nubians ($p \leq 0.05$)

Table 4. Principal component analysis and logistic regression statistics.

Variable	**Females**	**Males**
	Comp2 (15%)	**Comp2 (15%)**
Nasal Height	-0.5395	0.6051
Upper Facial Height	-0.4493	0.5078
Nasal Breadth	0.2087	-0.1238
Bizygomatic Breadth	-0.0020	0.0036
Basi-bregma height	0.4959	-0.3659
Maximum Cranial Breadth	-0.0758	0.1222
Maximum Cranial Length	0.2423	-0.3084
Biauricular Breadth	-0.1325	-0.0481
Basi-nasion Length	0.3683	-0.3384
Eigenvalue	1.3698	1.3689
Odds ratio	0.2316	3.8579
P>|z|	0.000	0.000
95% Conf. Interval	0.1944-0.4125	2.3612-6.3032

Table 5. Strontium Isotope ($^{87}Sr/^{86}Sr$) Values for Tombos Samples[1]

Time Period	Unit/Locus/BurCran #	Sex	$^{87}Sr/^{86}Sr$	Tomb Type	Burial position[2]	Cran Morph
NK:AII-TV	6I-c1	J	0.70751	Chamber		
NK:AII-TV	6I-c10	I	0.70778	Chamber entr		Nubian
NK:AII-TV	6I-c11	F	**0.70912**	Chamber		
NK:AII-TV	6I-c12	F	0.70757	Chamber		
NK:AII-TV	6I-c13	F	**0.70815**	Chamber		
NK:AII-TV	6I-c14	F	**0.70799**	Chamber		
NK:AII-TV	6I-c17	M	**0.70851**	Chamber		Egyptian
NK:AII-TV	6I-c18	M	0.70774	Chamber		
NK:AII-TV	6I-c3	M	**0.70888**	Chamber		Nubian
NK:AII-TV	6I-c5	M	0.70739	Chamber		
NK:AII-TV	6I-c8	J	0.70733	Chamber		
NK:AII-TV	6I-c9	I	0.70720	Chamber		
NK:AIII-Amarna	6G41-14	M	0.70728	Chamber	Egyptian	Egyptian
NK:AIII-Amarna	6G41-c26	M	0.70742	Chamber		Nubian
NK:AIII-Amarna	6G410c27	F	**0.70812**	Chamber		
NK:AIII-Amarna	6G46-1b	I	0.70777	Chamber	Egyptian	
NK:AIII-Amarna	6G47-2	F	0.70779	Chamber	Nubian	Egyptian
NK:AIII-Amarna	6G47-3	F	0.70712	Chamber	Nubian	Nubian
NK:AIII-Amarna	7-2	I	0.70733	Chamber	Egyptian	
NK:AIII-Amarna	7-3	M	0.70734	Chamber	Egyptian	
NK:AIII-Amarna	7-4	F	**0.70793**	Chamber	Egyptian	
NK:AIII-Amarna	7-5	F	0.70762	Chamber	Nubian	Egyptian
NK:AIII-Amarna	7-6	F	0.70734	Chamber	Nubian	
NK:AIII-Amarna	7-8	F	0.70736	Chamber	Egyptian	
NK:AIII-Amarna	7-9	F	0.70741	Chamber	Egyptian	
NK:AIII-Amarna	7-10	M	**0.70791**	Chamber	Egyptian	
NK:AIII-Amarna	8-1a	I	0.70735	Chamber	Egyptian	
NK:AIII-Amarna	8-2	M	0.70737	Chamber	Egyptian	
Ramesside	6G27	I	0.70741	Chamber	Egyptian	
Ramesside	6G27-c1	M	**0.70798**	Chamber		Egyptian
Ramesside	6G27-c10	M	0.70758	Chamber		
Ramesside	6G27c-12	F	0.70756	Chamber		
Ramesside	6G27-c13	F	0.70759	Chamber		Egyptian
Ramesside	6G27-c18	F	0.70732	Chamber		Egyptian
Ramesside	6G27-c19	I	0.70741	Chamber		
Ramesside	6G27-c20	F	0.70759	Chamber		Nubian
Ramesside	6G27-c23	F	0.70744	Chamber		
Ramesside	6G27-c24	F	**0.70815**	Chamber		Egyptian
Ramesside	6G27-c25	F	**0.70844**	Chamber		Nubian
Ramesside	6G27-c4	F	0.70728	Chamber		Egyptian

Ramesside	6G27-c5	F	**0.70884**	Chamber		
Ramesside	6G27-c8	M	**0.70843**	Chamber		Nubian
Ramesside	6G39-1	I	**0.70798**	Chamber	Egyptian	
Ramesside	6G40-6	F	0.70735	Chamber	Egyptian	
Ramesside	6G40-7	F	0.70744	Chamber	Egyptian	
Ramesside	6G40-8	M	0.70763	Chamber	Egyptian	
Ramesside	6G40-9	F	**0.70907**	Chamber	Egyptian	
Ramesside	6G40-12	F	0.70778	Chamber	Egyptian	Egyptian
Ramesside	6H-3	F	0.70774	Chamber entr	Egyptian	Egyptian
Ramesside	6H-5	F	**0.70793**	Chamber entr	Egyptian	Egyptian
NK	1S.Alley	J	0.70777	Pyramid Alley	Egyptian	
NK?	5A	I	**0.70837**	Pit	Egyptian	
NK?	5D	M	**0.70813**	Pit	Egyptian	Nubian
NK?	5E	M	0.70774	Pit	Egyptian	
NK?	1-3N.Alley	F	0.70935	Pyramid Alley	Egyptian	
3IP/Napatan	2-1	M	0.70765	Tumulus		
3IP/Napatan	3	F	0.70768	Tumulus	Egyptian	
3IP/Napatan	6A	M	0.70771	Chamber	Egyptian	
3IP/Napatan	9-29	I	0.70661	Pyramid		
3IP/Napatan	9-33-280	I	0.70726	Pyramid		
3IP/Napatan	9-33	I	0.70767	Pyramid		
3IP/Napatan	10	F	0.70742	Tumulus	Egyptian	Egyptian
3IP/Napatan	14-2	F	0.70758	Tumulus	Egyptian	
3IP/Napatan	15-5c1	M	0.70727	Shaft/Chamber		Nubian
3IP/Napatan	15-6c14	F	0.70780	Shaft/Chamber		Nubian
3IP/Napatan	156-c3	M	0.70760	Shaft/Chamber		Egyptian
3IP/Napatan	156-c4	F	0.70781	Shaft/Chamber		Egyptian
3IP/Napatan	15-6c6	F	0.70734	Shaft/Chamber		Egyptian
3IP/Napatan	15-6c7	M	0.70738	Shaft/Chamber		
3IP/Napatan	15-8-1	F	0.70735	Shaft/Chamber	Egyptian	
3IP/Napatan	15-9c10	F	0.70773	Shaft/Chamber		Egyptian
3IP/Napatan	15-9c11	M	0.70739	Shaft/Chamber		
3IP/Napatan	15-9c12	M	0.70770	Shaft/Chamber		Nubian
3IP/Napatan	15-2	J	0.70705	Shaft/Chamber		
3IP/Napatan	16-2	F	0.70753	Tumulus	Egyptian	
3IP/Napatan	17-1	M	0.70781	Tumulus	Egyptian	Nubian
3IP/Napatan	20Shaft1-1	F	0.70752	Tumulus	Egyptian	Egyptian
3IP/Napatan	20Shaft4-1	F	0.70736	Tumulus	Nubian	Egyptian
3IP/Napatan	20Shaft7-1	J	0.70752	Tumulus	Egyptian	
3IP/Napatan	22-3-2	I	0.70789	Tumulus	Egyptian	
3IP/Napatan	25-4-1	M	0.70746	Tumulus	Egyptian	Nubian
3IP/Napatan	27-1	F	0.70721	Tumulus	Egyptian	Egyptian
3IP/Napatan	27-2	F	0.70730	Tumulus		Egyptian

3IP/Napatan	28A-1	F	0.70752	Tumulus		Egyptian
3IP/Napatan	28B-1	F	0.70771	Tumulus		Egyptian

[2]Author 2007, 2003
[1]Blank indicates disturbed context

Table 6. Comparisons of Burial Position, Cranial Morphology and $^{87}Sr/^{86}Sr$

	E pos E Cran	N pos E Cran	E pos N cran	N pos N Cran		E pos E Sr	N pos E Sr	E pos local Sr	N pos local Sr		E cran E Sr	N cran E Sr	E cran local Sr	N cran local Sr
New Kingdom	5	2	2	1		7	0	16	4		4	4	8	4
Male	2	0	2	0		2	0	5	0		2	3	1	1
Female	3	2	0	1		3	0	6	4		2	1	7	2
3IP/Napatan	2	2	3	0		1	0	12	1		0	0	11	5
Male	0	0	2	0		0	0	3	0		0	0	1	4
Female	2	2	1	0		1	0	7	1		0	0	10	1