

Biological and Ethnic Identity in New Kingdom Nubia

A Case Study from Tombos

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Past studies of culture contact have often used the concepts of unidirectional modification of a subordinate population by a socially dominant group. Reevaluations of these ideas suggest that this paradigm is not appropriate for all situations. The examination of power relations in such alternative circumstances provides insights into human agency, as it highlights the dynamic, bi-directional interactions that can occur between two cultures. The relationship between the peoples of ancient Nubia and Egypt provides an excellent opportunity to study alternative power relations in a well-documented cultural context.

During the New Kingdom period (ca. 1550–1050 BC), Egypt succeeded in occupying most of Nubia. At the site of Tombos, located in northern Sudan, Egyptianization of Nubians makes it impossible to judge from textual and archaeological evidence who ruled Nubia: Egyptian colonists or Nubian leaders. Analysis of cranial measurements of individuals from Tombos and other comparable sites, in conjunction with archaeological indications of ethnicity, suggests that Tombos was inhabited by an ethnically and biologically mixed group of people who used ethnic symbols in advantageous ways.

The study of culture contact in the past has conventionally used the concepts of unidirectional change and modification of a subordinate population by a socially dominant group. The idea that authoritarian European colonial powers forced changes in submissive native cultures dominated this work. However, more recent research has reevaluated these traditional notions and suggests that this model is not appropriate for all situations of culture contact (Cusick 1998; Deagan 1998; Spence 2005). The examination of power relations in such alternative circumstances provides insights into human agency, highlighting the dynamic, bidirectional interactions that can occur between two cultures. The relationship between the peoples of ancient Nubia¹ and Egypt, especially during the New Kingdom, provides an excellent opportunity to study alternative power relations in a well-documented cultural context.

The ancient populations of Nubia and Egypt had a long, dynamic history of interaction, ranging from diplomatic co-existence to total invasion. The Egyptian New Kingdom (ca. 1550–1050 BC) occupation of Nubia is a particularly significant episode. It is during this time that the foundations of the Nubian Napatan Kingdom, which ruled Egypt as the Twenty-fifth Dynasty (ca. 750–656 BC), were first established. While past studies of this relationship have often focused on the demoralization and exploitation of Nubia by Egypt, more recent work has suggested that the New Kingdom period had positive consequences, providing mutual benefits and allowing Nubia to maintain substantial autonomy (Morkot 1987, 2001; O'Connor 1993; Torok 1995). Scholars disagree about who controlled Nubia during this important time: Egyptian colonists or native leaders (Morkot 2001; O'Connor 1993; Smith 1998). The high degree of Egyptianization in burial and other cultural features prevents Nubians from being archaeologically distinguishable from Egyptians in many cases. This paper explores these colonial agents through a bioarchaeological approach (Buzon et al. 2005), examining the conjunction of biological identity using cranial morphology with a study of the archaeological indications of ethnic identity in funerary ritual from the New Kingdom site of Tombos (located in northern Sudan [fig. 1]). The colonial site of Tombos is particularly well suited to this analysis because of its strategic setting at the Third Cataract of the Nile in Nubia and the indication of mixed ethnicity in its burials. It is hypothesized that if this colonial cemetery is indeed composed of immigrant Egyptians, the cranial morphology of the individuals should more closely resemble that of other Egyptians than that of Nubians.

Ethnic Identity

A crucial aspect of ethnicity is thought to be self-definition, though ethnicity may also be ascribed. A stereotype may be created by colonial powers to characterize a conquered people, often in order to produce or maintain power structures. Group ethnic identity is often honed and maintained by conflict. Recent research suggests that rather than a bounded, immutable concept, ethnicity is often fluid, dynamic, and situational (Eriksen 1992; Herbert 2003; Jones 1997; Jones and Graves-Brown 1996). While ethnic identity is sometimes thought of as a relatively modern concept created in response to the emergence of nation-states (Handler 1988), it is clear that some Egyptians set themselves apart from other groups through their visual depictions of various "peoples" of Egypt and surrounding cultures (Loprieno 1988; Meskell 2002; Smith 2003). One example is the drawing from the tomb of pharaoh Seti I (Rossellini 1932–44; fig. 2). In this drawing, Egyptians and others are clearly portrayed with distinctive dress as well as specific physical features, including face shape, hair, and skin color. It is apparent from this illustration and others that at least some Egyptians conceived of physical and

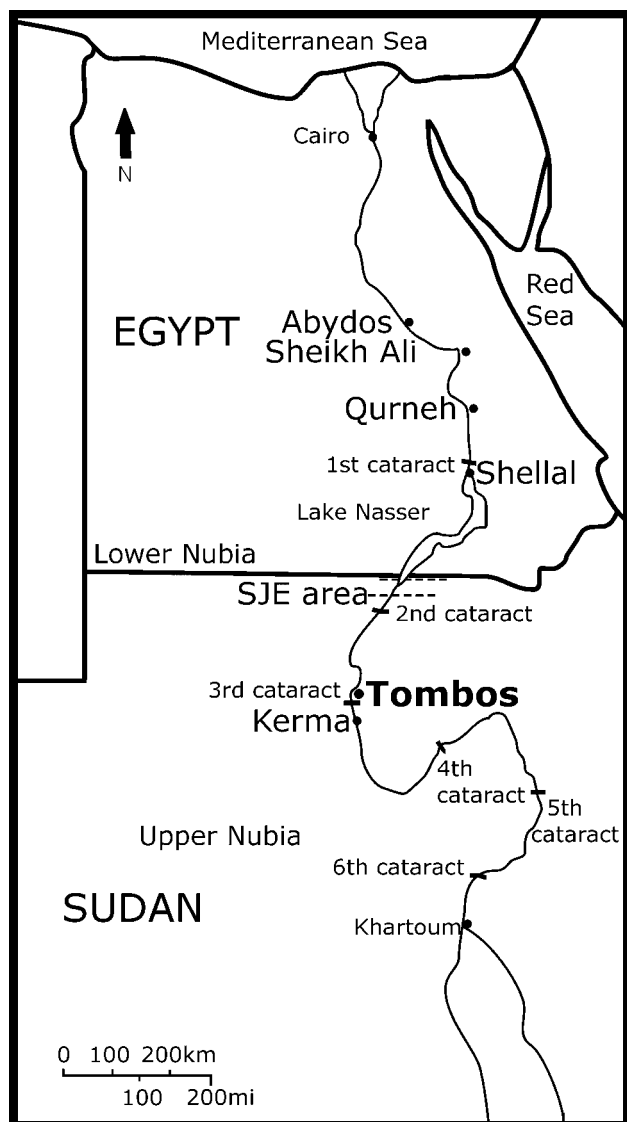


Figure 1. Location of skeletal collection excavation sites (*dashed lines*, area of sites excavated by the Scandinavian Joint Expedition).

cultural differences between themselves and others (including Nubians).

Ethnic identity of archaeological populations is predominantly based on artifact analysis. However, archaeologists have largely failed to deal with the way the objects correlate with people (Jones 1977). Because ethnicity is multidimensional and fluid, it is unreasonable to assume that an ethnic group corresponds to a neatly bounded archaeological assemblage (Herbert 2003). While the traits and forms of artifacts must be placed in the context of the cultural setting, one must keep in mind that the meanings of objects can change (Jones 1997; Smith 2003). In addition, material cultural and burial ritual make up only a portion of a group's ethnic identity during life.

In some past populations, indications of ethnicity based on artifacts can be supplemented and compared with information gleaned from ancient texts and art. This is especially true of ancient Egypt. One caveat, however, is that these sources are frequently biased toward the elite (Baines 1996). The archaeological indications of ethnic identity of Egyptians are often based on data from burials rather than settlements. Unlike settlement patterns, burial ritual is not a passive reflection of life; it is meaningfully constructed (Hodder 1982, 141). Hodder suggests that burials allow for the renegotiation of identity, providing an opportunity to reinterpret the relationship between individuals. In fact, people may become in death what they have not been in life (p. 146). Thus, while burials provide an occasion to examine the expression of one's ethnic identity, the portrayal of a person in death may not directly replicate that person's identity during life.

The burial practices of ancient Egyptians and Nubians have been shown to be quite distinct (Edwards 2004; Geus 1991; Smith 1992; Williams 1991). Despite the shared culture during the Neolithic, the material culture of these groups diverged with the formation of the Pharaonic state (Smith 2003). During the time period under study (Egyptian New Kingdom), Egyptian burials were generally found in an extended burial position (fig. 3), placed in coffins in rectilinear tomb chapels and, often, small pyramids. Mummification and specialized grave goods designed to aid in the afterlife (such as small human figures called *ushabtis*) are also characteristic of Egyptian burial practice (Smith 1992). In contrast, Nubians generally buried their dead in a flexed position (fig. 4) on a bed or cowhide and constructed a tumulus (a heap of earth) over them. Personal items such as jewelry and pottery also provided information on one's ethnic affiliation.

While this central state ideology projects an image of Egyptians as a unique and distinctive group, texts and images often reveal a more fluid situation in which ethnic and political boundaries were changed with less difficulty than ideology

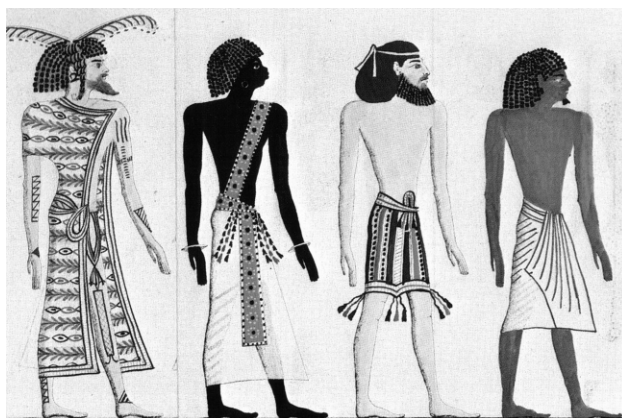


Figure 2. Drawing from tomb of Seti I depicting a Libyan, a Nubian, an Asiatic, and an Egyptian (*from left to right*; Rossellini 1832–44).



Figure 3. Egyptian-style burial at Tombos (photo by S. Smith).

would imply. Ethnic identity in life is more than what is reflected in burial practice and material culture. Clearly, an artificial dichotomy between Egyptian and Nubian ethnic identities is being made for the purpose of this research. It is likely that individuals may have identified themselves with more than one group. Although grave goods and funerary ritual make up only a portion of what comprised ethnicity in life, the distinction between Egyptian and Nubian identities is important because of how cultural symbols can be used. For instance, pharaoh tomb images (such as Seti I's) reflect

the emphasis placed on representing Egyptians as very different from other peoples (including Nubians), highlighting the value of cultural identity in this society. In burials, these symbols are also used; individuals and families may choose particular rituals because of the message they send.

Biological/Genetic Identity

Another means to gain insight into the identity of archaeological populations is through the assessment of their bio-



Figure 4. Nubian-style burial at Tombos (photo by S. Smith).

logical or genetic affinities. Generally, genetic affinities are assessed through the analysis of cranial and dental morphology. Although environmental factors such as diet and nutrition can have important influences, groups with similar craniofacial morphology tend to be more closely related to each other than groups that show greater differences. Many investigations have been conducted concerning the biological affinities of various past and present populations in the Nile Valley. If nothing else, this work has demonstrated that the differences between these populations are far from straightforward.

While some researchers support the idea of gene flow along the Nile Valley (e.g., Keita 2005; Krings et al. 1999; Lalueza Fox 1997; Lucotte and Mercier 2003), others describe a remarkable degree of genetic isolation and in situ biological evolution within Nubian and Egyptian groups (e.g., Brace et al. 1993; Carlson and Van Gerven 1979; Johnson and Lovell 1995; Prowse and Lovell 1995). When evaluating the potential impact of gene flow, it is important to note the differences in Egyptian and Nubian population size during the New King-

dom. Egypt is estimated to have had approximately 3 million people, while Nubia had only 200,000–250,000 (Butzer 1976). There is textual evidence that significant numbers of foreigners settled in Nubia during the Middle and New Kingdoms, but there is little to suggest that many Nubians settled in Egypt (O'Connor 1993). It is likely that the larger numbers of Egyptians entering the less populous Nubia would have had a more significant genetic effect than the reverse.

Nubian and Egyptian Interaction during the New Kingdom

Beginning in the New Kingdom period, the Egyptians began an intensive military campaign to regain control over areas in Lower and Upper Nubia. They were extremely successful; by the time of Thutmose III, their control of Upper Nubia extended all the way to the Fourth Cataract (fig. 1). During the Eighteenth Dynasty, towns with largely Egyptian populations were developed throughout Lower and Upper Nubia. References in texts and archaeological evidence for storage

facilities suggest that between the Second and Third Cataracts semifortified settlements were established that likely served as centers for storage and redistribution (O'Connor 1993). However, Smith (2003) contends that it is not clear whether Egyptians occupied these towns, as occurred in the fortress system during the earlier Middle Kingdom, or Egyptianized Nubians lived in them. While O'Connor (1993) and Morkot (2001) tentatively suggest that the Egyptianized Nubians dominated the administrative system in Upper Nubia, both admit that the lack of archaeological evidence and skeletal remains from this area makes this an untested hypothesis. Thus, several questions remain: How was Egyptian control exerted? Did an Egyptian high official rule over a town of Nubians or did colonists from Egypt set up towns in Nubia?

In order to understand the sociopolitical interaction between the Egyptians and Nubians during this time, skeletal material was examined from the cemetery site of Tombos. Tombos is one of only three clearly Egyptian sites in Upper Nubia (the others being Kawa and Gebel Barkal). During the Egyptian occupation, the area of Tombos was fully incorporated into the Egyptian colonial system. With its strategic location, Tombos was likely a significant Egyptian point of control in Nubia. Egyptian Pharaoh Thutmose I marked this important area of the Third Cataract at Tombos with a large stela and other inscriptions visible to anyone traveling down the river (Smith 2003).

Artifacts suggest that the people buried in the cemetery at Tombos were mostly ethnically Egyptian. However, the nearly complete Egyptianization of cultural items of Nubians at this time makes a determination of identity based solely on artifacts difficult; a person buried Egyptian-style could be either a colonist from Egypt or an Egyptianized native Nubian. The paper uses data on cranial morphology in conjunction with the mortuary ritual to help answer questions regarding the identity of the people buried at Tombos during this period of colonial occupation. Bioarchaeological data have been shown to be valuable in addressing such sociopolitical and economic research questions (Buikstra et al. 2005).

Ethnic Identity at Tombos

The architectural burial features and mortuary practices revealed indications of the ethnic identity of the Tombos population. A large pyramid tomb contained funerary cones (cones of clay stamped on the flat end with the name and title of the deceased) indicating that the tomb belonged to Siamun, a high-ranking official responsible for administering the tribute from Nubia. A nonelite component of the cemetery consisted of several pit tombs and three underground mud-brick chamber tombs (Smith 2003).

The architecture of the pyramid tomb is similar to that of contemporary elite burials in Egypt (e.g., at Thebes and Memphis). It is also comparable to that of colonial cemeteries in Nubia such as those at Aniba and Soleb. The pyramid included a superstructure that surrounded a shaft with three

chambers. An enclosure wall surrounded the complex, creating a courtyard in the rear. The funerary cones, which likely would have been placed in plaster in a decorative frieze along the tomb's façade, have been found elsewhere only at the Egyptian capital, Thebes, and the provincial capital in Nubia, Aniba. The nonelite structures reflect Egyptian burial styles as well, also seen in Egypt and other colonial cemeteries (e.g., Fadrus, located near the First Cataract of the Nile). Each underground chamber tomb contained multiple individuals, a particularly Egyptian practice (Smith 2003).

The grave goods found in the nonelite cemetery strongly reflect Egyptian customs as well. Some of the objects found in the tombs came from daily life, such as jewelry, cosmetics, furniture, and other possessions. Other objects were created especially for the burial, including coffins, statues, and amulets. Elite individuals often began building their tombs early in life; the contents to some extent reflect decisions made by the deceased. Conversely, grave goods selected by relatives may instead reflect family ideas (Smith 2003).

Many burials at Tombos showed signs of an associated coffin in the form of dark stains around the body and some remnants of organic materials such as wood and paint. Fragments of decorated plaster and ceramic fragments from mummiform coffins were also found in both the pyramid fill and the chamber tombs (Smith 2003). Coffins are not usually part of Nubian burial practices. However, coffins were the most basic requirement for Egyptian New Kingdom burials at Thebes and reflect the Egyptian belief in the afterlife (Smith 1992).

A total of four *ushabtis*, one of the hallmarks of Egyptian burial, were found in the pyramid fill (one) and the nonelite burial area (three). These small figurines were included in Egyptian burials to assist the deceased in the afterlife. The jewelry found with the burials also suggests a connection with Egyptian beliefs.² Because of termite destruction organic objects did not preserve well, and this may account for an absence of artifacts in most graves. However, this lack of inclusions is also consistent with the paucity of grave goods in the burials from the nonelite cemeteries at Thebes. Some jewelry was recovered, including ivory, shell, and quartz earrings. These objects are typically found in both Egyptian and Nubian burials (Smith 2003).

Pottery was the most common grave inclusion at Tombos. Both Egyptian and Nubian burials usually contain ceramic items. The pottery found at Tombos is, for the most part, Egyptian in style. The largest concentration of Nubian pottery at Tombos is from the courtyard of the pyramid. Specialized beer bottles and "flowerpot" forms derived from early bread molds are the most common pottery types and carry Egyptian religious connotations connected with beer and bread offer-

2. A small carnelian heart amulet, several Bes (god of childbirth) amulets, Taweret (protector of mothers and children) figurines, *ujat* (eye of Horus symbolizing rebirth) amulets, and scarabs all reflect Egyptian practices (Smith 2003).

ings to the dead (Smith 2003). Nearly all of the burials at Tombos were placed in a position associated with Egyptian ethnicity (fig. 3), extended with hands over the pelvis and head to the west. Some indications of mummification were present. A few small pieces of linen survived, in addition to impressions of fabric around the bodies.³ This evidence of mummification also indicates an adherence to Egyptian practices.

In addition to these Egyptian-style burials, four burials were uncovered that suggest Nubian burial rituals. These four burials, all women, were flexed on their sides, with heads oriented toward the east and facing north, a position typical of Nubian traditions at Kerma (fig. 4). Several additional burials in this nonelite area may have been flexed, but disturbance due to looting made the determination of their original position impossible. A Nubian bowl was found at the heads of two of the women, providing additional evidence of Nubian ethnicity. However, one of these women wore Bes amulets around her neck, suggesting belief in this Egyptian protective god and mixing of ethnic symbolism.

The vast majority of indicators of ethnicity in the Tombos cemetery are consistent with an Egyptian identity. Nearly all of the burials adhere to typical Egyptian standards. However, the presence of the four women buried following Nubian traditions indicates that some ethnic Nubians did interact with this predominantly ethnically Egyptian community at Tombos. Yet, some questions still remain unanswered. While

3. An additional indication of mummification comes from a child buried in the alleyway around the pyramid, who was found buried face down. This burial position is not a usual occurrence in either Egypt or Nubia. However, citing a burial found at Thebes (Hayes 1935), Smith (2003) suggests that after the undertakers had wrapped the body in mummification fabric they were sometimes unable to tell which side was up. Also, a small string of amulets with this child were placed as if the child were face up.

Table 1. Skeletal Samples Used in the Study

Site	Date	Location	Burial Style	Total Sample Size	Female	Male
Tombos	New Kingdom	Upper Nubia	Predominantly Egyptian, few Nubian	30	17	13
Kerma	Middle Kingdom– Second Intermediate Period	Upper Nubia	Nubian	122	74	48
Shellal	New Kingdom	Egypt/Lower Nubia border	Egyptian	33	10	23
SJE C-Group	Middle/New Kingdom	Egypt/Lower Nubia border	Nubian	17	9	8
SJE “Pharaonic”	New Kingdom	Egypt/Lower Nubia border	Egyptian	10	6	4
Qurneh	New Kingdom	Middle Egypt	Egyptian	91	38	53
Memphis	New Kingdom	Lower Egypt	Egyptian	33	14	19
Abydos ^a	New Kingdom	Middle Egypt	Egyptian	110	61	49
Sheikh Ali ^a	New Kingdom	Middle Egypt	Egyptian	79	43	36
Total				525	272	253

^aData from Thomson and Randall-MacIver (1905).

Table 2. Logistic Regression of the Egyptian-Nubian Ethnicity Variable and Four Factors (Females, $N = 235$)

Factor	Odds Ratio	Std. Error	Z	$P > z$	95% Confidence Interval	
1	0.6672211	0.1141083	-2.37	0.018	0.4771964	0.9329157
2	0.3280353	0.0616587	-5.93	0.000	0.2269477	0.4741497
3	1.968759	0.3348157	3.98	0.000	1.410696	2.747587
4	1.21323	1.28	1.28	0.201	0.9023617	1.631195

Note: Factors with odds ratios and 95% confidence intervals that do not include the value of 1.0 are useful predictors in the logistic model.

the people buried at Tombos appear to display a mostly Egyptian identity, were they in fact colonists from Egypt, or were they Egyptianized Nubians?

Materials and Methods

The primary sample comes from Tombos. Excavated during 2000 and 2002 by the University of California, Santa Barbara, team (directed by Stuart Tyson Smith), the artifacts from this cemetery range in date from the mid-Eighteenth Dynasty until the Third Intermediate Period (ca. 1400–1050 BC). A total of 30 individuals had cranial remains preserved well enough to be included this study (table 1).

The Tombos material was analyzed through comparisons with eight additional collections (tables 1 and 2). Three sets of samples come from sites in Nubia: Kerma, Shellal, and the Scandinavian Joint Expedition to Nubia Collection. Kerma, the type-site for the Kerman Nubian culture, is located ~20 km south of Tombos. This material ($N = 122$) dates from the end of the Thirteenth Dynasty until the Second Intermediate Period (ca. 1680–1550 BC). A second Nubian site, Shellal, is located at the border of Lower Nubia in modern Egypt. The burials from Cemetery 7, which are all Egyptian

Table 3. Logistic Regression of the Egyptian-Nubian Ethnicity Variable and Four Factors (Males, $N = 217$)

Factor	Odds Ratio	Std. Error	Z	$P > z $	95% Confidence Interval	
1	1.097143	0.1894389	0.54	0.591	0.78215	1.538993
2	0.2687254	0.0636972	-5.54	0.000	0.1688668	0.4276347
3	1.583002	0.2853403	2.55	0.011	1.11186	2.253787
4	1.102176	0.1938217	0.55	0.580	0.7808439	1.555744

Note: Factors with odds ratios and 95% confidence intervals that do not include the value of 1.0 are useful predictors in the logistic model.

in style and date to the New Kingdom, were examined ($N = 33$).⁴ Collections from several sites excavated by the Scandinavian Joint Expedition to Nubia (Vagn Nielsen 1970) were also included. All of the sites were located in the area stretching from the modern Egyptian border to ~60 km south, now covered by Lake Nasser. One group of remains was recovered from Nubian C-Group culture (2000–1600 BC) cemeteries ($N = 17$). The second group is from what the excavators called “Pharaonic” cemeteries (ca. 1650–1350 BC): all skeletons were buried in the Egyptian style ($N = 10$).⁵

Skeletal material from two Egyptian sites and published data from two sites—Qurneh, Memphis, Abydos, and Sheikh Ali—were also used in this study. Little is known about the materials from Qurneh, located in the necropolis at Thebes ($N = 91$), and Memphis, located approximately 19 km south of Cairo ($N = 33$), except that they likely date to the New Kingdom.⁶ Data from two additional samples, Abydos

4. The Kerma and Shellal collections are housed in the Duckworth Collection in the Department of Biological Anthropology at Cambridge University.

5. The Scandinavian Joint Expedition Collection is curated at the Biological Anthropology Laboratory at the University of Copenhagen.

6. The Qurneh and Memphis samples are both housed in the Duckworth Collection in the Department of Anthropology at Cambridge University.

Table 4. Rotated Factor Loadings and Eigenvalues for First Four Factors (Females)

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Nasal height	0.01582	0.88048	-0.00719	-0.11090
Upper facial height	-0.09107	0.88288	0.05873	-0.00499
Nasal breadth	-0.06302	-0.07508	0.08019	0.92243
Bizygomatic breadth	0.80140	-0.15905	0.29596	0.00826
Basi-bregma height	-0.53126	-0.47516	0.14538	-0.35744
Maximum cranial breadth	-0.05241	-0.17801	-0.89278	-0.11258
Maximum cranial length	-0.63084	-0.18039	0.10900	0.22809
Biauricular breadth	0.79027	-0.05237	-0.27620	-0.08021
Basi-nasion length	-0.15343	-0.24982	0.75172	-0.03400
Eigenvalue	2.23592	1.78975	1.50989	1.02333

Note: The factors used in the logistic regression prediction of group membership are represented by (most heavily weighted variables) nasal height and upper facial height (factor 2) and maximum cranial breadth (factor 3).

Table 5. Rotated Factor Loadings and Eigenvalues for First Four Factors (Males)

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Nasal height	0.02733	0.87771	-0.01345	-0.04671
Upper facial height	-0.10930	0.87713	0.03991	-0.06980
Nasal breadth	-0.00626	-0.06294	-0.00457	0.96628
Bizygomatic breadth	0.87571	-0.07018	0.07527	0.09674
Basi-bregma height	-0.53404	-0.47822	-0.08273	-0.26514
Maximum cranial breadth	-0.06911	-0.17298	-0.86548	0.02973
Maximum cranial length	-0.43714	-0.27496	0.43501	-0.03627
Biauricular breadth	0.79846	-0.14733	-0.22163	-0.20160
Basi-nasion length	-0.21217	-0.20357	0.71117	0.06335
Eigenvalue	2.20314	1.88617	1.34223	1.03243

Note: The factors used in the logistic regression prediction of group membership are represented by (most heavily weighted variables) nasal height and upper facial height (factor 2) and maximum cranial breadth (factor 3).

($N = 110$) and Sheikh Ali ($N = 79$), dating to the Eighteenth Dynasty of the New Kingdom, are those reported by Thomson and Randall-MacIver (1905). The skeletal remains were reburied following Thomson and Randall-MacIver’s examination and are therefore unavailable for further study.

For each skeleton, age and sex data were recorded using standard protocols (Buikstra and Ubelaker 1994).⁷ Nine cranial measurements that correspond to those recorded in the Thomson and Randall-MacIver (1905) study were taken on each adult cranium.⁸ The metric data were examined for normality. To avoid large measurements’ contributing more than small measurements, a Q-mode standardization was performed, with each original measurement being divided by the individual’s arithmetic mean calculated over all cranial variables used in the analyses (Corruccini 1973). Factor analysis was used to explore how individual cases clustered (principal components analysis, with varimax orthogonal rotation in order to identify each variable with a single factor, using STATA 8.0 statistical program). Factors with eigenvalues above 1.0 were used to create a logistic regression equation to produce a prediction of group membership based on these independent variables. Females and males were considered separately.

Results

For the principal components analysis carried out on the nine size-standardized cranial measurements, ethnic indicators were used to divide the sites into four groups for analysis: (1) Egyptians (Abydos, Sheikh Ali, Qurneh, Memphis; $N = 313$ [152 females, 161 males]), (2) Nubians (Kerma, C-Group;

7. Sex was determined using features of the pelvis, when available. Cranial features were used for sexing if pelvic remains were absent.

8. Measurements included nasal height, upper facial height, nasal breadth, bizygomatic breadth, basi-bregma height, maximum cranial breadth, maximum cranial length, biauricular breadth, and basi-nasion length (Buikstra and Ubelaker 1994).

$N = 139$ [83 females, 56 males]), (3) Other (Egyptian-style burials in Nubia: Shellal, "Pharaonic"; $N = 43$ [20 females, 23 males]), and (4) Tombos ($N = 30$ [17 females, 13 females]).

Four principal component factors had eigenvalues greater than 1.0. These four factors account for about 82% of the total variability. In order to determine which variables contributed most to the Egyptian-Nubian distinction, logistic regression equations using these four factors and ethnic identity as the dependent variable were calculated. Individuals from sites in Egypt buried using Egyptian practices were included in the Egyptian category; individuals from sites in Nubia buried using Nubian practices were included in the Nubian category. Factors 2 and 3 (tables 2 and 3) contribute most significantly to the Egyptian-Nubian distinction (odds ratios and 95% confidence intervals do not include the value of 1.0). Tables 4 and 5 reveal that factor 2 represents facial height size (nasal height loading = 0.87–0.88, upper facial height loading = 0.87–0.88). Factor 3 represents cranial breadth size (maximum cranial breadth loading = 0.86–0.89).

Figures 5 and 6 display the distribution of factor scores for each group, showing a consistent pattern for males and females for each factor. These graphs reveal some intergroup differences. Egyptians tend to have higher factor 2 (facial height) scores, while Nubians tend to have lower scores. Also, Egyptians tend to have lower factor 3 (cranial breadth) scores, while Nubians tend to have higher scores. For both factors, the Tombos scores appear more similar to the Nubian score means.

With factors 2 and 3, a logistic regression equation was used to predict membership in the Egyptian or the Nubian group (fig. 7). The results of the logistic regression predictions suggest some differences between the groups. Egyptian females and males appear to have a distinctive, comparatively homogeneous morphology that allows them to be classified

correctly much more frequently than the Nubians, which tend to be more evenly divided between the Egyptians and Nubians in terms of their predicted group membership. The "Other" group appears heterogeneous as well, though more individuals are calculated to be in the Egyptian category. The prediction of Tombos individuals clearly suggests that while the majority of individuals at Tombos portray an Egyptian identity in their burials, the sample is likely composed of both Nubians and Egyptian immigrants.

Figures 8 and 9 display the distribution of Tombos individuals into the predicted Egyptian and Nubian categories by factor scores. Factor 2, representing facial height, appears to play a role in predicted group membership for females and males, while factor 3, representing cranial breadth, appears to play a larger role in predicting females than in predicting males.

Discussion

On the basis of the morphological differences between Egyptians and Nubians suggested by some researchers and demonstrated in Egyptian art, it was hypothesized that if the Tombos population mainly consisted of immigrants from Egypt, their crania should morphologically resemble the Egyptian samples (Sheikh Ali, Abydos, Memphis, Qurneh) more than those from Nubia (Kerma, C-Group, Shellal, "Pharaonic"). The results of this analysis indicate that such a clear-cut, simplistic determination cannot be made. The logistic regression suggests that the Egyptian samples are more homogeneous, while the people buried in Nubian cemeteries, including the one at Tombos, are more variable or, at least, less easily assigned to one group on the basis of their cranial morphology. This suggests that the Nubians are morphologically more heterogeneous than the Egyptian samples investigated in this study. The "Other" populations (Egyptian-style

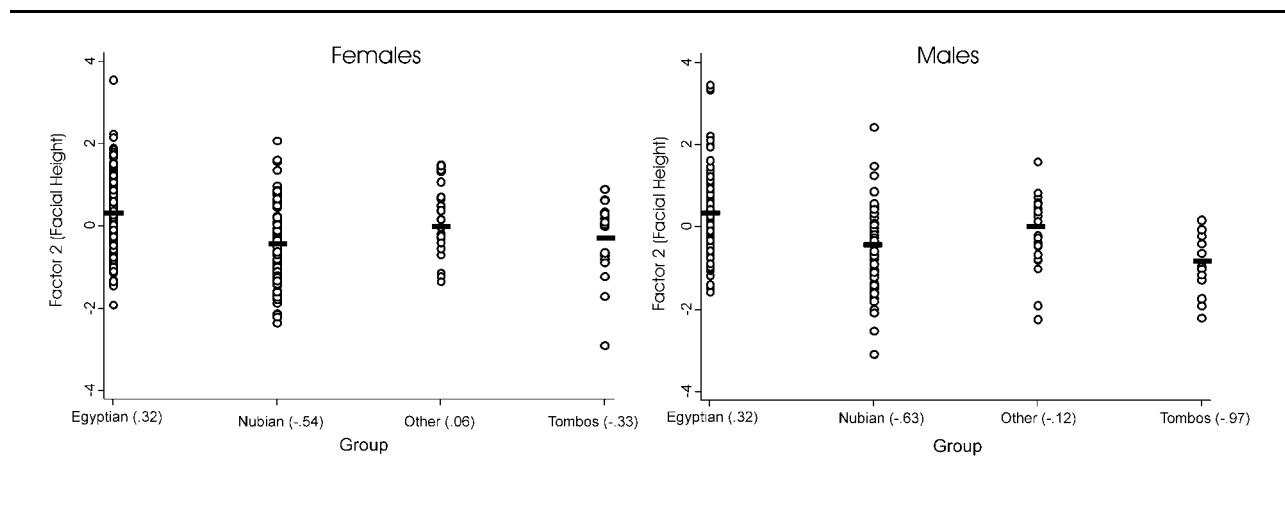


Figure 5. Factor 2 (representing facial height) scores plotted by group. Mean score in parentheses and represented by bar.

burials in Nubia) in the sample also show more variability than the Egyptian samples but less than the Nubian samples, suggesting that many of these burials may in fact be Egyptian immigrants. The morphological and ethnic heterogeneity of the Tombos population indicates a population of Nubians of local origin and Egyptian immigrants as well as the progeny of Nubians and Egyptian immigrants.

What might account for the morphological homogeneity of the Egyptian samples and the apparent heterogeneity of the Nubian samples? Mutations are rare and unlikely to have contributed much to the differences seen in the populations studied. Genetic drift is a phenomenon of small isolated populations and unlikely to be the proximate cause of the morphological differences documented. Natural selection and gene flow, in contrast, likely account for at least some of the differences seen between the Egyptian and Nubian samples.

The diets, health status, and living conditions of the samples in the study are all quite similar. This argues against phenotypic plasticity as an explanation for the differences seen between crania of the Egyptian and Nubian ethnic groups (which relate mainly to facial morphology) and suggests that these differences are likely to have a genetic basis. Differences in the selective pressures acting on the ancestral Nubian populations and the Egyptian populations to the north may account for some differences in facial features. For example, nasal bridge elevation and elongation are correlated with inhaled air with low relative humidity, for example, in north-eastern Africa (Glanville 1969; Brace et al. 1993). It is clear to a casual observer that variation in nose form exists within the modern Nile Valley population. Nubians tend to have broader and shorter noses than Egyptians. It is likely that people living during the period in which Tombos was occupied also displayed such differences.

Gene flow is the movement of alleles from one population to another. When two populations combine genetically, they

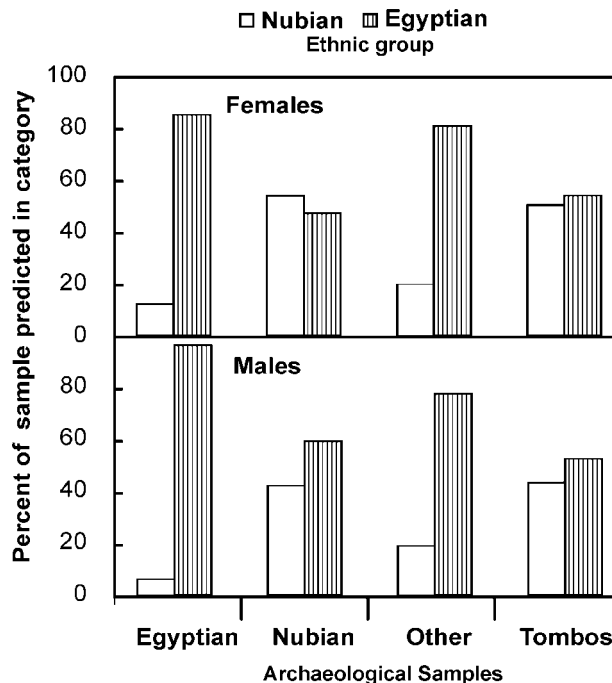


Figure 7. Group membership predicted by logistic regression using factors 2 and 3 and the ethnic identity variable (based on burial ritual) as dependent variable.

tend to become more similar. Genetic evidence suggests a significant amount of gene flow between the Nubian and Egyptian populations. Studies of Y-chromosome haplotypes (Lucotte and Mercier 2003) and mitochondrial DNA (Krings et al. 1999; Lalueza Fox 1997) and subsequent discussion of these topics (Keita 2005) all indicate that north-south and south-north migrations along the Nile have occurred for

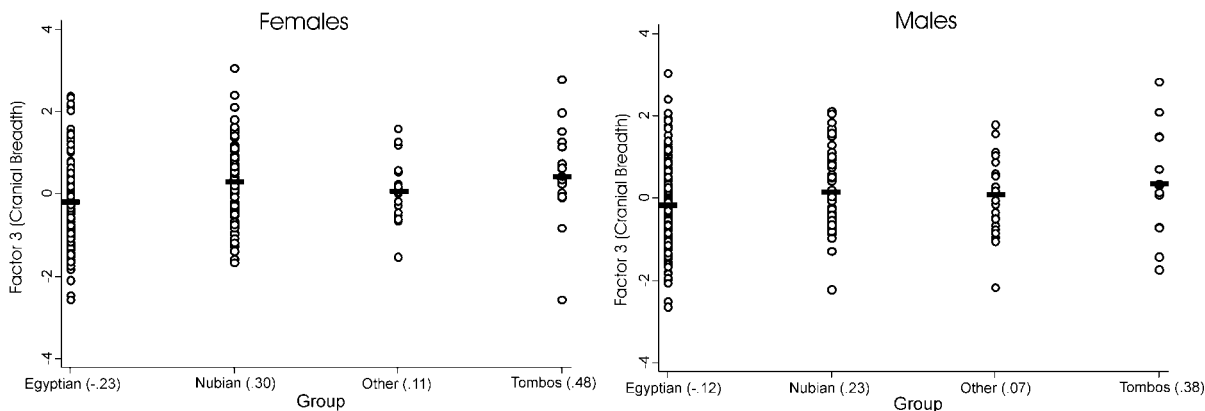


Figure 6. Factor 3 (representing cranial breadth) scores plotted by group. Mean score in parentheses and represented by bar.

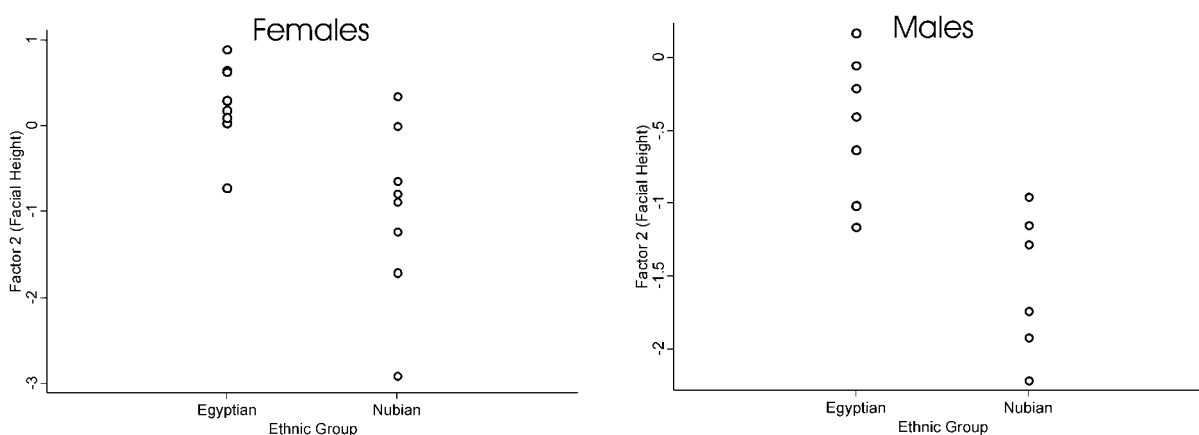


Figure 8. Distribution of Tombos individuals into predicted ethnic groups by factor 2 score.

many centuries. Mitochondrial DNA studies of modern people living in the area suggest that gene flow from the north to the south is older than gene flow in the opposite direction (Krings et al. 1999). The Y-chromosome study by Lucotte and Mercier (2003) also supports the idea of gene flow and suggests that Egyptian genes flowed into Nubia during the Middle and New Kingdom political campaigns and Nubians genes flowed into Egypt during the time of Napatan rulers of the Twenty-fifth Dynasty (and during later times).

These studies appear to corroborate the idea that Egypt may have been less genetically variable than Nubia during the New Kingdom period. It is hypothesized in these genetic studies that south-north gene flow occurred *after* the New Kingdom period (in the later Napatan and Meriotic times) when the people studied in this investigation lived. Conversely, north-south gene flow is suggested to have occurred *prior* to the time when these populations lived. Additionally, it is likely that the impact of large numbers of Egyptians moving into the less populous Nubia played a significant role in the genetic variability seen in the Nubian populations.

Archaeological evidence from Tombos also attests to culture contact between Egyptians and Nubians. While the Egyptianization of Nubians in burial during this period makes the tracing of ethnic identity difficult, the presence of four Nubian-style burials in a largely Egyptian cemetery clearly indicates the intersection of these two cultures. Three of these women had cranial remains preserved well enough to be included in the classification. Using logistic regression, two of these women are classified as ethnic Nubians and one as Egyptian, which is not unexpected in that Nubians are shown in the study to be a morphologically variable group. It is unlikely that these women who were buried using Nubian ritual were Egyptians who had adopted Nubian ethnicity.

It is important to understand the audience for which the expression of ethnic identity, in this case, burial ritual, is

intended. For example, public architecture can be seen by an extensive audience, including members of the local community (Spence 2005). The pyramid tomb of Siamun, the Overseer of Foreign Lands at Tombos, was likely built as a reflection of his power and authority in the Egyptian hierarchy. Smith (2003) suggests a further motivation for his funerary display. He contends that Siamun's emphasis on and adherence to ethnically Egyptian burial practices "promoted an in-group solidarity in the face of perceived or real Kerman threat" (Smith 2003, 196). Tombos was quite far away from other Egyptian settlements and temple towns and thus isolated from Egyptian power and surrounded by a foreign culture. Smith contends that while Siamun's funerary display likely made a statement about power and authority to the Nubians, those who buried these Nubian women at Tombos undermined that message by following rituals that declared their Nubian identity. Although the Egyptianization of biologically native Nubian populations has been recorded, the reverse (Nubianization of biologically Egyptian populations) has not. Thus, the presence of Nubian-style burials and artifacts is a strong indication of a biologically native Nubian presence at Tombos.

All four of the burials of Nubian women were found in the earliest layers of two underground chambers. Perhaps during the early years of this colonial cemetery, newly acquainted Egyptian and Nubian populations interacted but maintained some ethnic differences. Yet it is possible that in later years the descendants of these Nubians and/or other Nubian women were also buried in these chambers but conformed to the Egyptian burial practices. The combination of burial practices found at Tombos suggests that intermarriage between Nubians and Egyptians was likely. What does this say about the intersection of ethnic and biological identity? It is possible that individuals descended from native Nubians living at Tombos may have come to identify themselves, at

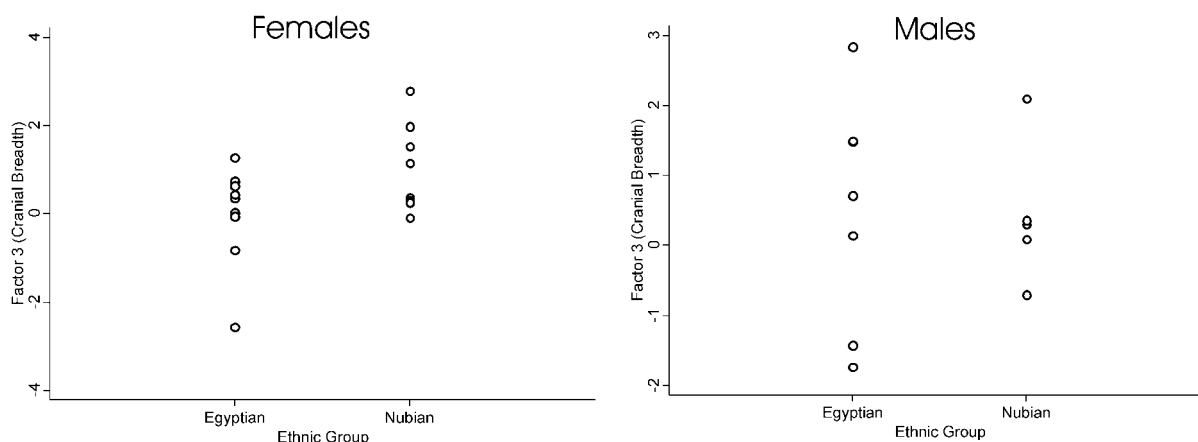


Figure 9. Distribution of Tombos individuals into predicted ethnic groups by factor 3 score.

least in their burials, as ethnic Egyptians. These possibilities strongly support the ideas that ethnicity is fluid, dynamic, and situational (Eriksen 1992; Jones 1997; Jones and Graves-Brown 1996) and that ethnic groups are not mutually exclusive.

In Egyptian documents and iconography, Egyptians are portrayed as civilized, while foreigners such as Nubians are portrayed as barbaric enemies (Loprieno 1988). Egyptian artistic renditions of Nubians depict them with stereotypical dark skin, facial features, hairstyles, and dress (Yurco 1996) that are all very different from depictions of Egyptians (fig. 2). Foreigners are also represented as cowards and, in the case of Nubians, “wretched” cowards (Smith 2003). Characteristically ethnocentric art found in Egyptian tombs suggests that foreigners were not considered people at all (Meskell 2002). Often they were portrayed in a primitive manner, like beasts. Although these ideologically charged stereotypes seem to indicate a level of government-sanctioned prejudice, it can perhaps more appropriately be considered cultural chauvinism because foreigners who followed Egyptian standards appear to have been, to a considerable extent, accepted within society (Smith 2003) while those who adhered to their foreign customs tended to belong only to the lower levels of society (Ward 1994). However, it is also likely that, at times, having the physical and cultural features of Egyptians conferred social, economic, and reproductive advantages on the people possessing them. With the clear benefits of looking and acting Egyptian during this colonial period, it is possible that, for socioeconomic reasons associated with Egyptian colonial domination, people living in Nubia may have had a preference for Egyptian spouses.

Conclusion

This paper has used bioarchaeological analyses to shed light

on the identities of the people buried at the New Kingdom site of Tombos. The analyses of cranial measurements suggest that Egyptians were a more genetically homogeneous group than contemporaneous people living in Nubia, who were buried using either Nubian or Egyptian styles. The Tombos population appears to have been a biologically and culturally heterogeneous group composed of Nubians and Egyptian immigrants. Overall, the results suggest that ethnicity at Tombos was neither bounded by physical attributes nor necessarily predictable. While the ethnicity of Nubians was ascribed by Egypt through artistic and textual representations, this study reveals that it was also self-defined, as seen in the mixed burial practices used at Tombos. This self-definition may have enabled the people of Tombos to use cultural symbols in advantageous ways, demonstrating the dynamic interactions and human agency involved in the creation and negotiation of ethnic identity.

Acknowledgments

This research was supported in part by National Science Foundation Dissertation Improvement Grant #0313247, the Graduate Division at the University of California, Santa Barbara, and the Institute for Bioarchaeology. I thank Stuart Tyson Smith for inviting me to work on this project and Director General Hassan Hussein Idris at the National Corporation for Antiquities and Museums and Ali Osman M. Salih for allowing us to excavate at Tombos. Pia Bennike at the University of Copenhagen and Marta Lahr at Cambridge University provided access to their collections for this research. I am grateful to Philip Walker, Stuart Tyson Smith, Nancy Lovell, and Christina Torres-Rouff for their helpful comments on this manuscript. I also thank the editor, Benjamin S. Orlove, and the anonymous reviewers for their useful critiques.

References Cited

- Baines, John. 1996. Contextualizing Egyptian representations of society and ethnicity. In *The study of the ancient Near East in the twenty-first century*, ed. J. S. Cooper and G. M. Schwartz, 339–84. Winona Lake, Ind.: Eisenbrauns.
- Brace, C. Loring, David P. Tracer, Lucia Allen Yaroch, John Robb, Kari Brandt, and A. Russell Nelson. 1993. Clines and clusters versus “race”: A test in ancient Egypt and the case of a death on the Nile. *Yearbook of Physical Anthropology* 36:1–32.
- Buikstra, Jane E., Paula D. Tomczak, Maria Cecilia Lozada Cerna, and Gordon F. M. Rakita. 2005. Chiribaya political economy: A bioarchaeological perspective. In *Interacting with the dead: Perspectives on mortuary archaeology for the new millennium*, ed. G. F. M. Rakita, J. E. Buikstra, L. A. Beck, and S. L. Williams, 66–80. Gainesville: University Press of Florida.
- Buikstra, Jane E., and Douglas H. Ubelaker, eds. 1994. *Standards for data collection from human skeletal remains*. Arkansas Archaeological Survey Research Series 44.
- Butzer, Karl W. 1976. *Early hydraulic civilization in Egypt*. Chicago: University of Chicago Press.
- Buzon, Michele R., Jacqueline T. Eng, Patricia M. Lambert, and Phillip L. Walker. 2005. Bioarchaeological methods. In *Handbook of archaeological methods*, ed. H. D. G. Maschner and C. Chippindale. Lanham, Md.: AltaMira Press. In press.
- Carlson, David S., and Dennis P. Van Gerven. 1979. Diffusion, biological determinism, and biocultural adaptation in the Nubian corridor. *American Anthropologist* 81:561–80.
- Corruccini, Robert S. 1973. Size and shape in similarity coefficients based on metric characters. *American Journal of Physical Anthropology* 38:743–45.
- Cusick, James G. 1998. Historiography of acculturation: An evaluation of concepts and their application in archaeology. In *Studies in culture contact: Interaction, culture change, and archaeology*, ed. J. G. Cusick, 126–45. Carbondale: Southern Illinois University.
- Deagan, Kathleen. 1998. Transculturation and Spanish American ethnogenesis: The archaeological legacy of the Quincentenary. In *Studies in culture contact: Interaction, culture change, and archaeology*, ed. J. G. Cusick, 23–43. Carbondale: Southern Illinois University.
- Edwards, David N. 2004. *The Nubian past: An archaeology of the Sudan*. London: Routledge.
- Eriksen, Thomas Hylland. 1992. *Us and them in modern societies: Ethnicity and nationalism in Mauritius, Trinidad, and beyond*. London: Scandinavian University Press.
- Glanville, Edward V. 1969. Nasal shape, prognathism, and adaptation in man. *American Journal of Physical Anthropology* 30:29–38.
- Geus, Frances. 1991. Burial customs in the Upper Main Nile: An overview. In *Egypt and Africa*, ed. W. V. Davies, 57–83. London: British Museum Press.
- Handler, Richard. 1988. *Nationalism and the politics of culture in Quebec*. Madison: University of Wisconsin Press.
- Hayes, William C. 1935. The tomb of Neferkhevet and his family. *Bulletin of the Metropolitan Museum of Art Egyptian Expedition* 30:17–36.
- Herbert, Sharon. 2003. Excavating ethnic strata: The search for Hellenistic Phoenicians in the Upper Galilee of Israel. In *The politics of archaeology and identity in a global context*, ed. Susan Kane, 101–13. Boston: Archaeological Institute of America.
- Hodder, Ian. 1982. *The present past: An introduction to anthropology for archaeologists*. London: Batsford.
- Johnson, Andrew, and Nancy C. Lovell. 1995. Dental morphological evidence for biological continuity between the A-Group and C-group periods in Lower Nubia. *International Journal of Osteoarchaeology* 5:368–76.
- Jones, Siân. 1997. *The archaeology of ethnicity: Constructing identities in the past and present*. London: Routledge.
- Jones, Siân, and Paul Graves-Brown. 1996. Introduction: Archaeology and cultural identity in Europe. In *Cultural identity and archaeology: The construction of European communities*, ed. S. Jones and P. Graves-Brown, 1–24. London: Routledge.
- Keita, Shomarka O. Y. 2005. History in the interpretation of the pattern of p49a,f TaqI RFLP Y-chromosome variation in Egypt: A consideration of multiple lines of evidence. *American Journal of Human Biology* 17:559–67.
- Krings, Matthias, Abd-el Halim Salem, Karin Bauer, Helga Geisert, Adel K. Malek, Louis Chaix, Christian Simon, Derek Welsby, Anna di Rienzo, Gerd Utermann, Antii Sajantila, Svante Pääbo, and Mark Stoneking. 1999. MtDNA analysis of Nile Valley populations: A genetic corridor or a barrier to migration? *American Journal of Human Genetics* 64:1166–76.
- Lalueza Fox, C. 1997. MtDNA analysis in ancient Nubians supports the existence of gene flow between sub-Saharan and North Africa in the Nile Valley. *Annals of Human Biology* 24:217–27.
- Loprieno, Antonio. 1988. *Topos und Memesis*. Wiesbaden: Harrasowitz.
- Lucotte, Gérard, and Géraldine Mercier. 2003. Brief communication: Y-chromosome haplotypes in Egypt. *American Journal of Physical Anthropology* 121:63–66.
- Meskill, Lynn. 2002. *Private life in New Kingdom Egypt*. Princeton: Princeton University Press.
- Morkot, Robert. 1987. Studies in New Kingdom Nubia 1: Politics, economies, and ideology: Egyptian imperialism in Nubia. *Wepwawet*, 29–49.
- . 2001. Egypt and Nubia. In *Empires: Perspectives from archaeology and history*, ed. S. E. Alcock, T. N. D’Altroy, K. Morrison, and C. M. Sinopoli, 227–51. Cambridge: Cambridge University Press.
- O’Connor, David. 1993. *Ancient Nubia: Egypt’s rival in Africa*.

- Philadelphia: University Museum, University of Pennsylvania.
- Prowse, Tracy L., and Nancy C. Lovell. 1995. Biological continuity between the A- and C-Groups in Lower Nubia: Evidence from cranial non-metric traits. *International Journal of Osteoarchaeology* 5:103–14.
- Rossellini, Ippolito. 1832–44. *I monumenti dell’Egitto e della Nubia disegnati dalla Spedizione Scientifico-letteraria Toscana in Egitto*. Pisa: Capurro.
- Smith, Stuart Tyson. 1992. Intact Theban tombs and the New Kingdom burial assemblage. *Mitteilungen des Deutschen Archäologischen Instituts Kairo* 48:193–231.
- . 1998. Nubia and Egypt: Interaction, acculturation, and secondary state formation from the third to first millennium BC. In *Studies in culture contact: Interaction, culture change, and archaeology*, ed. J. G. Cusick, 256–87. Carbondale: Southern Illinois University.
- . 2003. *Wretched Kush: Ethnic identities and boundaries in Egypt’s Nubian Empire*. London: Routledge.
- Spence, Michael W. 2005. A Zapotec diaspora network in Classic-period central Mexico. In *The archaeology of colonial encounters: Comparative perspectives*, ed. Gil J. Stein, 173–206. Santa Fe: School of American Research Press.
- Thomson, Arthur, and David Randall-MacIver. 1905. *The ancient races of the Thebaid: Being an anthropological study of the inhabitants of upper Egypt from the earliest prehistoric times to the Mohammedan conquest based upon the examination of over 1500 crania*. Oxford: Clarendon Press.
- Torok, Lazlo. 1995. The emergence of the kingdom of Kush and her myth of state in the first millennium BC. *Cahier de Recherches de l’Institut de Papyrologie et Égyptologie de Lille* 17:203–28.
- Vagn Nielsen, Ole. 1970. *Human remains: Metrical and non-metrical anatomical variation*. Copenhagen: Scandinavian University Books.
- Ward, William A. 1994. Foreigners living in the village. In *Pharaoh’s workers: The villages of Deir el Medina*, ed. L. H. Lesko, 61–85. Ithaca: Cornell University Press.
- Williams, Bruce Beyers. 1991. A prospectus for exploring the historical essence of ancient Nubia. In *Egypt and Africa*, ed. W. V. Davies, 74–91. London: British Museum Press.
- Yurco, Frank. 1996. Two tomb-wall painted reliefs of Ramesses III and Sety I and ancient Nile Valley population diversity. In *Egypt in Africa*, ed. T. Celenko. Bloomington: Indiana University Press.