

A Bioarchaeological Study of Plastered Skulls from Anatolia: New Discoveries and Interpretations

M. BONOPOFSKY*

Archaeological Research Facility, University of California, Berkeley, CA 94720-1076, USA

ABSTRACT Skull removal and the modelling of facial features on dry human skulls occurred in central Anatolia during the late Neolithic period (ca. 6000–5000 BC) at the site of Köşk Höyük. This paper describes significant new evidence for plastered and undecorated skulls from Köşk Höyük that is inconsistent with prior interpretations of these remains as that of an ancestor cult. Rather, this new evidence strongly suggests a funerary ritual in the Near East that focused on the skulls of males, females and children. It also highlights the need for continued bioarchaeological research on such skulls. This paper describes newly discovered plastered skulls and skulls that were cached but not necessarily decorated from Köşk Höyük, Turkey. It provides the archaeological context, visual description, and osteological analysis of the remains of 12 adult skulls, ten modelled and two plain. In addition, a plastered child's skull was reported in the past. A bioarchaeological study of the primary material indicates that the skulls of males and females were removed from their bodies after natural decomposition, without manual defleshing, followed by applications of plaster modelling. The skulls of both sexes and all ages were modelled in a similar manner, although crania of three females exhibited healed depressed fractures. Plastered skulls from Köşk Höyük were recovered along with funerary offerings of beads, bone tools, and possibly copper, and derived from a variety of intramural contexts. Copyright © 2004 John Wiley & Sons, Ltd.

Key words: skulls; compression fractures; funerary offerings; Neolithic; Middle East; ritual; women; children

Introduction

The plastered skulls from Turkey are important cultural objects that are related to the regional phenomenon of modelling facial features on dry skulls (see Figure 1). This mortuary practice is known from six Early Neolithic sites in the Levant, such as Jericho and 'Ain Ghazal (ca. 7200–6000 BC), but in Anatolia it is known from only the Late Neolithic site of Köşk Höyük (ca. 6000–5000 BC; Kenyon, 1981; Rollefson & Simmons, 1984; Silistrel, 1984, 1990; Butler,

1989; Yakar, 1991: 190; Gates, 1997; Bonogofsky, 2001a; Özkan *et al.*, 2001).

In 1981, Uğur Silistrel from the University of Ankara began excavating Köşk Höyük, an 18 m high Neolithic mound in central Anatolia, in the vicinity of Niğde. He published in each successive year, 1983–1985 and 1987–1989, and reported numerous burials of children and adults under house floors, as well as plastered skulls from a variety of intramural contexts. Excavation was resumed in 1995 by Aliye Öztan, who found the northeastern part of the site disturbed by 'cuttings for a recent reservoir' (Gates, 1997: 247). This disturbance severely affected the condition of plastered skulls that were later recovered in 2000.

* Correspondence to: RPA, PO Box 11831, Berkeley, CA 94712, USA.

e-mail: jshdr@uclink4.berkeley.edu

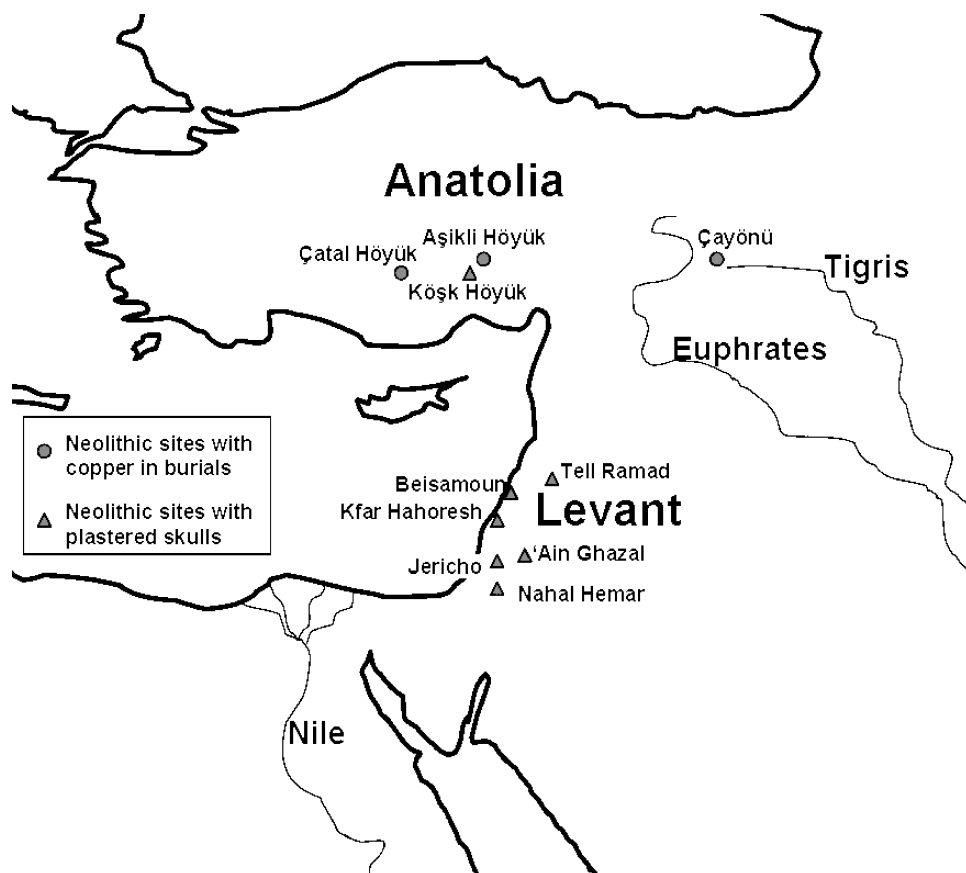


Figure 1. Map depicting Neolithic sites with plastered skulls in Anatolia and the Levant, and referenced Anatolian sites with copper in burials. Courtesy of Hernan A. Castro.

In 2001 and 2002, I examined the human skeletal material from Köşk Höyük held in the Niğde Museum. The skeletal material obtained from the 88 Neolithic/Chalcolithic intramural burials that I either excavated, studied, or inventoried, consists of 82 burials of the entire body, and six burials of skulls only. The body burials are all of subadults, primarily infants. The skull burials consist of 12 adult skulls only, of which 10 are plastered. In addition, a plastered child's skull, the existence of which I could not verify, was reportedly the first excavated from this site (Silistreli, 1986). A basic description along with published photographs exists for only one of these skulls (Silistreli, 1988: 62, Fig. 7; Silistreli, 1989: 502, Plate 5:3; Unzunoğlu, 1993: 18, Plate A:63; Bonogofsky, 2001a: 168, Plate 5 m). Photographs of an additional two plastered skulls are found in Bonogofsky (2001a: 168, Plate 5 m).

I found worked bone tools associated with human skeletal remains from both types of burials. My report focuses on the skull burials only and concerns 10 plastered adult skulls and two other adult skulls discovered apart from their corresponding bodies at Köşk Höyük between the years 1985 and 2000.

Materials and methods

I viewed all contents from among the boxes of 12 skulls under natural light, using an 8x hand-held lens to examine all exposed human bone for evidence of cutting, defleshing, sanding and pathology. There was no evidence for cuts, scratches, sanding or other ancient bone modification, except where specifically noted. I similarly viewed the faunal bone for evidence of

cultural modification. All skeletal elements were described, and associations with any decorative materials such as the application of plaster or paint were noted. All material was photographically documented. Before my arrival, an unknown person(s) had coated some of the material with modern bone consolidator, and had attempted reconstruction by employing plaster of Paris and other malleable substances.

Using the limited available cranial markers, I estimated the sex and age of the individuals based on standards set forth in Buikstra & Ubelaker (1994) and White (2000). Sexing criteria specifically included five cranial features, while the overall closure of the ectocranial sutures of the vault (coronal, sagittal and lambdoidal), and the eruption, occlusion and wear of the dentition was used to approximate gross age. While there are limitations associated with these techniques (see Galera *et al.*, 1998; White, 2000: 347–348; Bonogofsky, 2001a: 10), they were the best methods available for this material, supported by sketches, descriptions and photographs.

Bioarchaeology of 12 individuals

The plastered skull of a child was reportedly discovered at Köşk Höyük in 1985, although no osteologist was present to ascertain the biological age. According to Silistreli (1986), the child's skull, covered with a red-painted plaster substance, was found in a plain earthen grave in level 3. It is unclear whether grave goods were associated with the skull, which was relatively dated to ca. 6000–5600 BC (Yakar, 1991: 27). Unfortunately, neither additional descriptions nor photographs were published.

In 1987 a second plastered skull was found on a plastered mud brick bench inside a building in level 3 (Figure 2). It was sexed and aged by palaeoanthropologist I. Akyurt as the skull of a young adult woman, aged 21–26 years (Silistreli, 1988, 1989). The late Neolithic skull, found *in situ* and dating to the 'second half' of the sixth millennium BC (Unzunoğlu, 1993: 18), had been covered after the flesh had naturally decayed, with a mixture of plaster and clay. The plaster application was life-like, based on the remaining modelled right eye, ear and cheek



Figure 2. Plastered skull Kş1987. Frontal view with green staining on forehead (arrow).

adhering to the unbroken portion of the skull. A black line appears to represent a closed eye (Unzunoğlu, 1993: 18; Plate A:63).

My study found the right maxilla and mandible held approximately 9 mm apart, presumably to accommodate any teeth that were intact at the time the plaster modelling was applied. No teeth are visible in the damaged maxilla or the broken remains of the mandible, although the lower right third molar is obscured by plaster. There is no evidence of alveolar resorption. A green discoloration, possibly from a copper funerary offering in the form of a head ornament, covers the region above the left orbit and glabella.

This skull was interpreted by Silistreli (1989: 502, Plate 5:3) as proof of an 'ancestor cult' at Köşk Höyük, based on parallels with skulls found on benches in holy places at Çatal Höyük, and with similarly modelled skulls recovered from Jericho. It is currently on display in the Niğde Museum as specimen 8.52.87.

In 1989 fragments of plastered and red ochre-covered skulls, along with a pair of black stone eyes, were found together with pieces of red ceramic, faunal bone, beads, broken horn cores, ashes and charcoal on the floor of a destruction level in area G/8-9, levels 2 and 3. Unfortunately the excavator did not make explicit whether the objects associated with the skulls were grave goods (Silistreli, 1990). These young adult skulls were again linked with the 'ancestor cult' from the Levant. No photos or further descriptions were published.

The present study found no evidence of ancient plaster on any of the bone fragments associated with these two skulls. However, traces of ectocranial bone adhered to two pieces of white plaster that had been burnished red. Numerous other decorated and moulded fragments were present, including pieces for eyes and a nose. The first individual, K ς 1989:1, a young adult male, has minimal wear on the maxillary and mandibular teeth, with the upper

left incisors missing peri/postmortem. Dental caries are present at or below the cervico-enamel junction on two molars. The second individual, K ς 1989:2, also a young adult male, displayed evidence for dental caries on the upper right M2.

In 1990 yet another two plastered skulls, and pieces of two undecorated skulls, all of unknown age and sex, were excavated from unknown contexts. They were not published by Silistreli due to his sudden death in 1991 (Gates, 1997: 247).

The skull of the first individual, K ς 1990:1, a middle-aged adult female, is filled with soil, as observed through extensive breaks in the vault (Figure 3). Further ancient cultural evidence appears in a series of parallel and intersecting lines, impressed or incised on the pink plaster in the left parieto-temporal area. The skull appears complete. Teeth, if present, are obscured behind the plaster. Evidence for pathology consists of a single ellipsoidal depression 15 mm in width on the superior posterior portion of the right parietal (Figure 4).



Figure 3. Right lateral view of skull modelled with pink plaster. Detail of striations on plaster (inset).



Figure 4. Plastered skull Kş 1990:1. Posterior view with cranial depression on right parietal (arrows).

The facial area of the second individual, Kş 1990:2, a young to middle-aged adult female, had been modelled with pink-painted plaster to recreate the eyes and a nose (Figure 5). Extensive alveolar resorption had occurred in the premolar and molar areas in both the maxilla and mandible, at the position of the right lower molars (M1, M2 and M3), and affecting the entire area of the upper left and right buccal dentition (P4, M1, M2 and M3). The remaining teeth are virtually unworn. Other evidence for pathology consists of a single unbroken circular depression 30 mm in width on the centre of the right parietal.

The undecorated cranium of Kş 1990:3, an older adult female, displayed a single unbroken circular depression at the centre of the right

parietal. The parietal was incomplete in the area of the depression, making it impossible to determine the exact width of the depression, although it appeared to fit within the range of the depressions on the two plastered skulls. The undecorated skull of Kş 1990:4, a relatively younger adult male, included only the right temporal and a left lower P4.

In 2000, five adult skulls (Kş.00.M.1), located on a mud brick pedestal 100 × 120 cm in size, were removed from level 2 in area H/11. No other remains were found, only the skulls, which had been crushed by the modern installation of a water pump. Three necklace beads and a bone awl were also found at the time, although it was unclear to the excavators whether these objects belonged to the skulls (Özkan *et al.*, 2001).



Figure 5. Plastered skull Kş1990:2. Face modelled in pink plaster, with cranial depression on right parietal (arrows).

These skulls were not recognised as plastered skulls (Özkan *et al.*, 2001) until my study of the material the following year. It was clear that they had been heavily disturbed and broken prior to and during their excavation from the settlement. All five individuals appeared to have faced the same direction, as indicated by the portions of the skulls adhering to one another. Coarse soil filled portions of the broken crania. This heavy, dark cranial filling was significantly different from the fine, light-coloured, water-laid soil encasing these objects. There were numerous additional pieces of skull and plaster mixed along with faunal remains, pottery sherds, obsidian flakes, stone, groundstone, and a worked piece of bone. I carefully excavated the material further in the lab, using a series of brushes, wooden artist tools, dental tools, and bulb air-blowers, until the modelled remains of five individuals were more clearly evident.

White plaster had been modelled over the face and base of skull Kş 2000:1, belonging to a young adult, in the form of a face with a small nose (Figure 6). All bones of the skull appeared to be represented. The cranial vault was crushed and broken, as was the modelled face. The plaster had broken away prior to excavation to expose a portion of the mandible and one right anterior tooth.

The facial bones of skull Kş 2000:2, a young adult, were broken off where the anterior of the face remained embedded in the posterior of the first plastered skull, Kş 2000:1. Red plaster filled the orbits of this skull, having been applied in two separate sections, with pieces of an unknown substance separating them horizontally (Figure 7). All bones of the skull as well as the dentition were represented.

Skull Kş 2000:3 belonged to a young adult. The right parietal and temporal of this skull

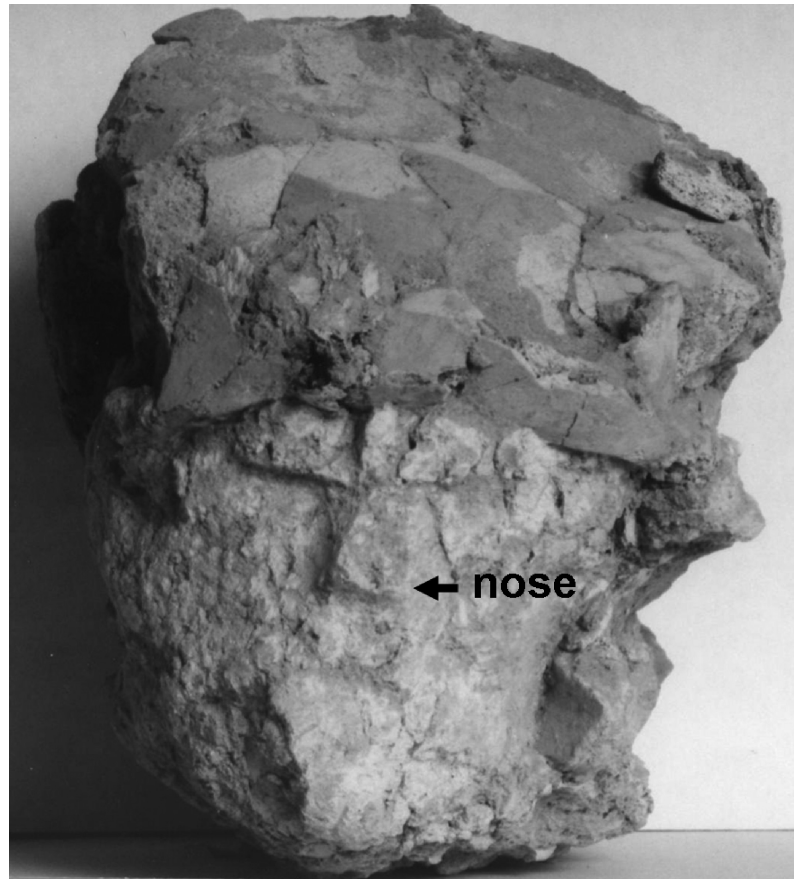


Figure 6. Plastered skull Kş 2000:1. Anterior view of skull with white plaster modelled to (re)create a face.

adhered to the left side of plastered skull Kş 2000:1 (Figure 8).

Individual Kş 2000:4 was a middle-aged adult with worn maxillary teeth. Dental caries were on the mesial aspect of the left canine. This skull overlapped and adhered to individual Kş 2000:5.

Kş 2000:5, the skull of a young adult, included teeth, the maxilla and mandible, and fragments of the cranial vault. Bone modification was visible on the mandible at the right gonial angle of the mandibular ramus (Figure 9). The uniform colour of the polished and exposed bone indicates that a portion of the mandible had been cut off perimortem, for reasons not currently clear.

Discussion

The above 12 adult skulls, plus the child's skull, separated from their corresponding bodies, have

been recovered from a variety of intramural contexts at Köşk Höyük. While none of the skulls were recovered intact or free of damage, enough was preserved at the time of this study to make some observations regarding age, sex, bone pathology and dental disease, as well as the archaeological context and their reported connection with an ancestor cult.

Age and sex

The first plastered skull, Kş 1985, excavated at Köşk Höyük belonged to a child, while the other 10 consisted of two adult males, three adult females, and five adults of unknown sex. An additional two individuals, one an adult male and the other an adult female, were not plastered. The adult skulls derived from all age groups, with eight of the 12 belonging to young adults. The

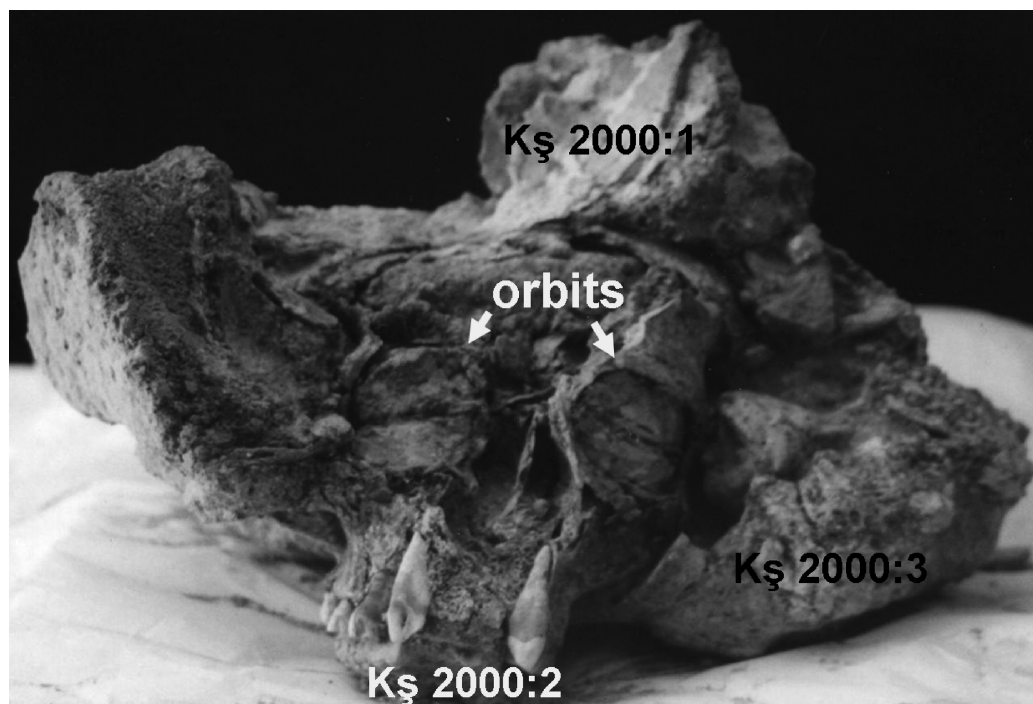


Figure 7. Plastered skull Kş 2000:2. Anterior view of skull with red plaster in orbits (arrows).

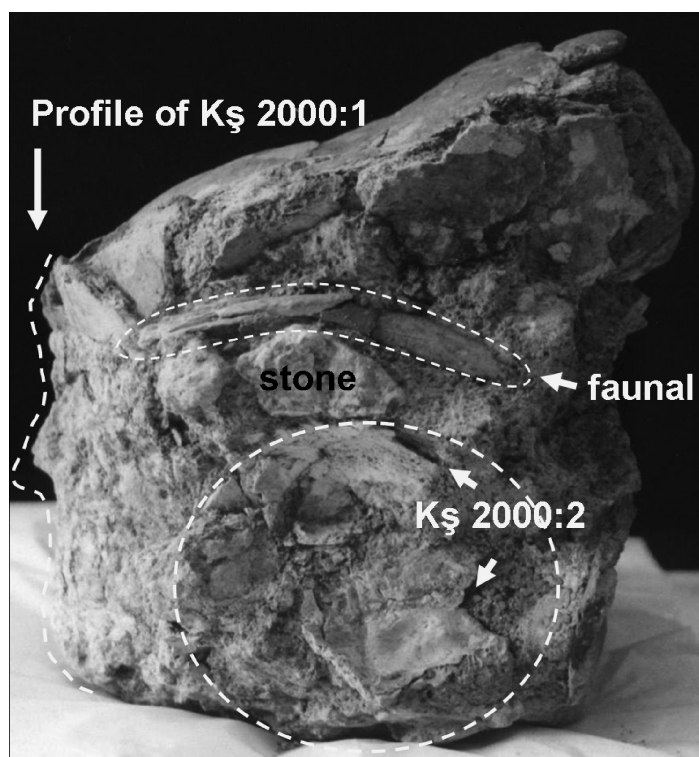


Figure 8. Plastered skull Kş 2000:3. Portions of the right parietal and temporal (arrows) adhere to the left side of Kş 2000:1.

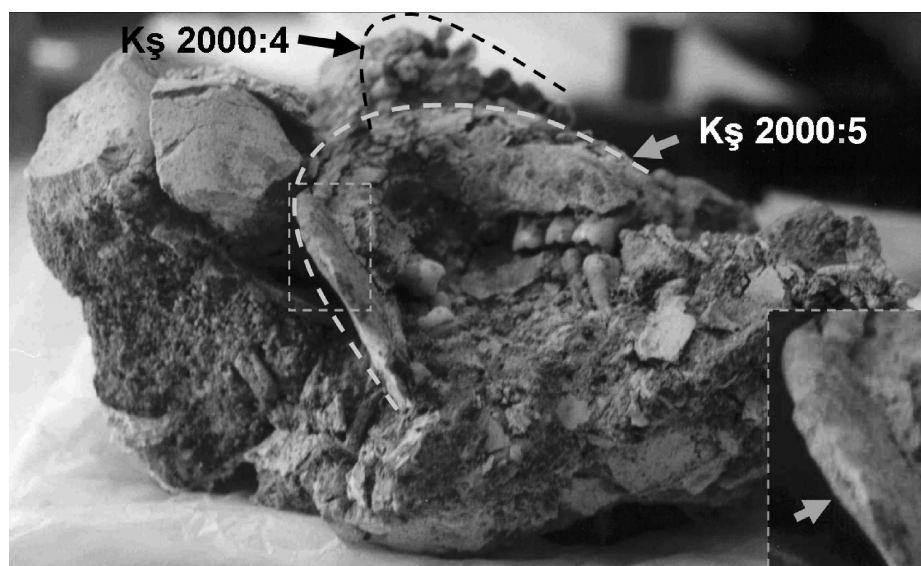


Figure 9. Plastered skulls Kş 2000:4 (left) and Kş 2000:5 (right) adhere to one another. Detail of Kş 2000:5 depicts modification on right gonial angle (insert).

age of the child's skull is unknown. This evidence indicates that skulls were removed and modelled from individuals regardless of age or sex, with an emphasis placed upon young adulthood.

Skeletal elements

While mandibles were included with all 10 of the adult plastered skulls¹ held in the Niğde Museum, their presence among the two undecorated individuals were indicated by only a lower P4 included with Kş 1990:3. In addition, it is unknown whether the mandible was actually included with the plastered child's skull, since neither an adequate description nor photographs were published. Teeth were included with nine plastered skulls: Kş 1987, Kş 1989:1–2, Kş 1990:2 and Kş 2000:1–5. Due to a number of factors including a lack of published information in the physical absence of the skull or breakage, it is unknown whether teeth were included with two of the plastered skulls (Kş 1985 and Kş 1990:1).

¹Archaeologists refer to these objects as plastered skulls, regardless of whether they are actually discussing a modelled cranium or a modelled skull. Some crania in the Levant were over-modelled to appear as if a lower jaw was present (see Bonogofsky, 2001a).

No human postcranial elements were recovered with the skulls from Köşk Höyük.

Pathology and dental disease

Seven individuals displayed signs of pathology and dental disease. Individual Kş 1990:2 had lost premolar and molar teeth *in vivo* from both her upper and lower jaws. Dental caries were present in the molars of three plastered adult skulls Kş 1989:1, Kş 1989:2 and Kş 2000:4. Three female skulls, Kş 1990:1–3, ranging in age from younger to older adult, exhibited depressions varying in size from 15–30 mm on the right parietal. The smallest depression exhibited signs of breakage and healing, while the other two showed no sign of breakage.

The morphology and size of the depressions, their anatomical placement, and the lack of evidence for systemic infection, support an interpretation of the lesions as well-healed depressed fractures (Walker, 1989). This suggestion is based on comparisons with cranial injuries among prehistoric inhabitants of southern California and Crow Creek, South Dakota, as documented and discussed by Walker (1989), Willey (1990) and

Zimmerman *et al.* (1981). These reports indicate that the depressions on the three female crania are non-lethal depressed fractures inflicted as the women were attempting to flee a right-handed attacker(s).

Archaeological context

At Köşk Höyük the plastered skulls of adult males, females and a child were recovered in various combinations, either individually or in groups of two or five, and from a variety of contexts, such as on plastered mudbrick furniture, in an earthen grave, or on a floor in a destruction level, all presumably associated with domestic architecture. The destruction level may indicate the potential for social violence at Köşk Höyük.

Due to incomplete documentation, not much more can be said about the archaeological context. Detailed field documentation by photography, drawings and notes, as well as correlation of finds, would have helped to clarify whether pieces of stone, obsidian, horn cores, faunal bone, pottery, charcoal and other materials are associated with the skulls as funerary offerings, remnants of trash, or evidence of destruction. Such documentation would have also helped to determine the significance of the various locations of the skulls.

Cultural treatment and funerary offerings

The lifelike modelling of facial features on the skulls, with varied applications of red and black paint, suggest that individual identities remained with the skulls of the deceased. Markings (or lack thereof), and their location on the plastered skulls, as well as objects included with the skulls, offer further clues to the treatment and function of the plastered skulls. No ancient cut marks or scratches were observed on any of the cranial material, with the exception of the perimortem cut on the right mandibular ramus on plastered skull Kş 2000:5. The significance of this polished cut is not currently clear. Imprinted striations are visible in the plaster on the left side of Kş 1990:1, and a green discolouration was found above the left orbit and glabella on Kş 1987. Such marks are

only visible on plastered skulls from Köşk Höyük. Funerary offerings in the form of beads, bone tools and possibly copper were recovered with the group of five plastered adults skulls Kş 2000:1–5 found on a mudbrick pedestal. Ceramics, faunal bone and beads were possibly included with the two plastered adult male skulls Kş 1989:1–2 found on a floor in a destruction level.

This study suggests varied handling and multiple functions for the skulls that could have included their use as fertility, apotropaic or celebratory devices, or as mementos of the deceased (see Bonogofsky, 2001a). The striations and imprints in the plaster on Kş 1990:1 appear consistent with marks made from contact with reed matting. This evidence implies that the modelled skull may have been laid on or been wrapped in reed matting.

Evidence for a copper funerary offering with one of the skulls is also indirect. While 'copper working in the context of a round kiln or furnace' (Gates, 1997) has been found in Chalcolithic level I at Köşk Höyük, there have been no reports of copper in either of the two Late Neolithic levels. However, copper beads were reported in Neolithic burials (see Figure 1) at Çatal Höyük dated 6200–6050 BC (Mellart, 1966: 183). Native copper beads, used as bracelets and necklaces, have been found in Neolithic female burials dated to the 8th millennium BC (calibrated) at nearby Aşili Höyük (Esin & Harmankaya, 1999: 127; Unzunoğlu, 1993: 46). Copper beads have also been found in burials at Çayönü, which date as early as 9400 BP (Özdoğan, 1999: 41, 58).

Ancestor cult connections

Although the modelled child's skull was mentioned by the excavator in a publication, Silistreli did not link it with an ancestor cult. He did, however, connect with an ancestor cult the similarly plastered adult skulls at Köşk Höyük. Silistreli (1989: 502, Plate 5:3; 1990: 96–98) based his interpretation of the adult skulls in part on similarly modelled skulls first discovered in the Levant in 1953 at the Early Neolithic settlement of Jericho. However, since ancestor worship generally involves the veneration of an

adult person from whom one is descended, it by definition does not include children. Thus in light of the comparable treatment of the skulls of individuals of all ages in both regions, the ancestor cult interpretation, as it began at Jericho, is not supported in Anatolia or the Levant (Bonogofsky, 1998, 1999, 2001a,b,c, 2002, 2003).

Nevertheless, the observations of this report provide important contextual information that bears directly on the question of funerary practices, particularly in the absence of published photographs, detailed field notes, and ancient textual information. More investigation is needed into the significance of the depressed cranial fractures on Kş 1990:1–3, the green stain on Kş 1987, and the parallel and intersecting lines on the plaster modelling of Kş 2000:5. Careful bioarchaeological study of such skulls by individuals involved in both the field excavation and the laboratory analysis will help to decipher and piece together these various cultural clues to form a more unified and plausible explanation for this type of mortuary ritual in the Near East.

Conclusion

Köşk Höyük is currently the only known site in Anatolia to produce plastered skulls. The 11 examples excavated from this site represent young and old adult males and females as well as a child. The skulls derived from a variety of intramural contexts, found either individually or in groups consisting of two or five. None of the 10 adult modelled skulls that I studied displayed evidence of intentional tooth removal or manual defleshing. However, three of the adult female skulls exhibited non-lethal depressed fractures. The fractures, along with evidence of level-wide destruction, may suggest social violence. Some of the skulls were recovered with funerary offerings such as beads, bone tools, and green stains suggestive of copper. Along with evidence from similar skulls excavated from the Neolithic period in the Levant, the present study does not support the existence of an ancestor cult veneration. Rather, the evidence as a whole supports an interpretation of a funerary practice that focused on the skulls of adult females, males, and children.

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