An Osteological Study of Nasca Trophy Heads Collected by A. L. Kroeber During the Marshall Field Expeditions to Peru

Sloan R. Williams
Kathleen Forgey
Elizabeth Klarich

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An Osteological Study of Nasca Trophy Heads Collected by A. L. Kroeber During the Marshall Field Expeditions to Peru

Sloan R. Williams*,†
Kathleen Forgey*
Elizabeth Klarich‡

*Department of Anthropology
University of Illinois at Chicago
1007 West Harrison Street
Chicago, Illinois 60607-7139 U.S.A.

†Adjunct Curator
Department of Anthropology
Field Museum of Natural History
1400 South Lake Shore Drive
Chicago, Illinois 60605-2496 U.S.A.

‡Department of Anthropology
University of California, Santa Barbara
Santa Barbara, CA 93106-3210 U.S.A.

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Table of Contents

OVERVIEW .................................................. 1
NASCA TROPHY HEADS ........................................ 1
ARCHAEOLOGICAL BACKGROUND ................................ 2
The Kroeb er Expeditions ..................................... 4
PREVIOUS STUDIES ............................................. 5
THE KROEBER COLLECTION .................................... 7
Methods ......................................................... 10
The Material .................................................... 10
Aja ................................................................. 10
Cahuachi .......................................................... 12
Cantayo ............................................................ 20
Las Cañas ........................................................ 23
Majoro Chico .................................................... 24
Paredones ......................................................... 27
RESULTS .......................................................... 93
DISCUSSION ...................................................... 105
ACKNOWLEDGMENTS ........................................... 114
LITERATURE CITED ............................................. 114
APPENDIX: LIST OF ARTIFACTS FOUND WITH TROPHY HEADS .................... 117

Maps

1. South coast of Peru ....................................... 3
2. Sites where trophy heads were found .............. 5
3. Aja ............................................................. 11
4. Cahuachi: orientation of subsites .................. 12
5. Kroeb er’s Cahuachi locations ....................... 13
6. Mound A at Cahuachi .................................... 13
7. Upper Cantayo, Area A .................................. 21
8. Cax, at Cantayo .............................................. 22
9. Majoro Chico ............................................... 24
10. Area A at Majoro Chico .................................. 25

Charts

1. Chronology of the Nazca Valley .................... 4
2. Size distribution of frontal bone perforations .... 99

Specimens and Grave Artifacts

1. Frontal view of specimen 1 ......................... 29
56. Frontal view of specimen 16 .............. 84
57. Lateral view of specimen 16 .............. 85
58. Superior view of specimen 16 .............. 86
59. Inferior view of specimen 16 .............. 87
60. Frontal view of specimen 17 .............. 88
61. Lateral view of specimen 17 .............. 89
62. Superior view of specimen 17 .............. 90
63. Posterior view of specimen 17 .............. 91
64. Superior view of vault fragment of specimen 18 ........................................... 92
65. Cut marks along squamosal suture on specimen 2 ........................................... 106
66. Horizontal cut marks on right orbital process of frontal bone of specimen 9 ... 107
67. Cut marks on orbital process of right frontal bone of specimen 17 .................. 108
68. Cut marks on nasal bones and maxilla of specimen 17 ................................. 109
69. Vertical cut marks on frontal bone of specimen 17 ........................................... 110
70. Cut marks on mandible of specimen 17 ............................................................ 111
71. Grave artifact associated with specimens 17 and 18, Paredones: “Proto-
    Nazca” bowl ............................................. 119
72. Grave artifact associated with specimens 17 and 18, Paredones: sheet copper
    around wood ........................................... 120
73. Grave artifact associated with specimens 17 and 18, Paredones: Epigonal
    jar ........................................................... 121
74. Grave artifact associated with specimens 17 and 18, Paredones: Epigonal
    jar ........................................................... 122
75. Grave artifact associated with speci-
    mens 17 and 18, Paredones: jar frag-
    ments ....................................................... 123
76. Grave artifact associated with specimens 17 and 18, Paredones: plate frag-
    ments ....................................................... 124
77. Grave artifact associated with specimens 17 and 18, Paredones: incomplete
    flaring bowl ............................................ 125
78. Grave artifact associated with specimens 17 and 18, Paredones: plate ...... 126
79. Grave artifact associated with specimens 17 and 18, Paredones: plate ...... 127
80. Cloth fragments and sherds associated with specimen 15, Grave 6, Majoro
    Chico ...................................................... 128
81. Grave artifacts associated with specimen 13, Grave 17, Cantayo Cax ....... 129
82. Tapestry wool cloth, Epigonal type, associated with specimens 3-8, Mound
    A, Cahuachi. .......................................... 130
83. Grave artifact from Cahuachi: cloth ........................................... 131
84. Grave textiles from Cahuachi ........................... 132

Tables

1. Inventory of specimens ....................... 94
2. Summary of trophy head information .. 96
3. Age and sex distribution by site ........ 97
4. Summary of frontal bone perforation
    and cranial base breakage areas .......... 98
5. Evidence of trophy head preparation ... 100
6. Cut mark characteristics and distribu-
    tion ....................................................... 101
7. Distribution of trophy heads in archae-
    ological contexts ............................... 104
An Osteological Study of Nasca Trophy Heads Collected by A. L. Kroeber During the Marshall Field Expeditions to Peru

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Overview

Trophy head iconography is common throughout western South America, especially along the Peruvian coast and in the highlands around Lake Titicaca. In contrast, actual trophy head finds are largely confined to Peru's south coast, and more specifically to the river valleys populated by the Paracas and Nasca cultures. The trophy heads found in this area are characterized by a frontal bone perforation and the removal of some portion of the posterior cranium.

A. L. Kroeber recovered 18 trophy heads from the Nazca Valley during the Marshall Field Expeditions he led in 1925 and 1926. This collection is particularly important because the heads were recovered from well-documented archaeological excavations. The heads were recovered from both Early Intermediate Period (A.D. 1–800) and Late Intermediate Period (A.D. 1000–1476) contexts and were found in three settings: as grave goods in tombs, in caches, and in pits inside structures.

An osteological analysis of these trophy heads forms the basis for this study. All of the heads are now skeletalized, although many retain traces of soft tissue and hair. Fourteen of the heads belong to adults, two are subadults, and two are children. Eight of the adult trophy heads are young males, two are females, and the sex of the remaining specimens cannot be determined. Very little disease is observed. A healed cranial fracture is observed in one specimen, and only one cranial fracture exhibits characteristics typical of perimortem trauma.

Many of the trophy heads show signs of extensive preparation, including multiple cut marks at muscle attachment sites, gauze pads placed in the orbits, the nasal cavities, or both, and resinous substances applied to the cut bone margins. A wig remains attached to one specimen. Evidence of prolonged use is seen in the wear around the perforation caused by the rubbing of the suspensory cord and in bone polishing where the mandibles were reattACHED to the crania.

Considerable variation in the size and placement of the frontal perforation is noted in this collection. The amount of posterior cranium removed ranges from a slight expansion of the foramen magnum to the complete removal of the occipital bone and posterior portions of the parietal and temporal bones. This variation in preparation represents distinct preparation styles. Unfortunately, the small sample size prohibits identification of temporal or spatial trends that might account for this variation.

The analysis of this collection provides new information concerning the preparation and treatment of trophy heads and contributes to the ongoing debate over their function in Nasca society. The considerable diversity in methods and the care with which they were prepared indicates that trophy heads played a complex and important role in the social and ritual practices of the Nasca people.

Nasca Trophy Heads

Trophy heads held a special fascination for human societies of the past, and continue to do so in the present. Trophy heads are human skulls that have been removed from the rest of the body at or after death.\(^1\) Tello (1918) identified two general types

\(^1\) Because the source and purpose of these heads is hotly debated, Coelho (1972) argued that they should be more appropriately termed "ritual" heads. Nonetheless, it has become common practice to refer to them as "trophy" heads or skulls (Proulx 1989; Verano 1995), so they will be designated as such here.
of trophy heads: (1) those in which the skull is removed in order to "shrink" the remaining soft tissues, such as those made by the Jivaro tribe of the Amazon jungle, and (2) those in which the skull is conserved along with the soft tissues, such as those found among the Mundurucu of Brazil. The Paracas and Nasca2 trophy heads fall into the latter category. They are defined by characteristics that include a perforation of the frontal bone and removal of some portion of the base of the skull (Baraybar 1987: Coelho 1972; Drusini and Baraybar 1990; Seeman 1988; Verano 1995). The frontal perforation allowed a suspensory cord to be attached to the skull. It is generally believed that the foramen magnum was widened to facilitate the removal of the brain and other soft tissues.

Browne and colleagues (1993:275) described the following soft tissue characteristics of Nasca trophy heads: the lips or eyelids (or both) of the individual may or may not be sealed with cactus spines (Acacia macracantha); the eye sockets may be stuffed with plain-weave cotton cloth; and the skin (when preserved) may be cut under the jaw, lifted, and stuffed with plain-weave cotton. Although soft tissue is limited in the collection described here, evidence of similar preparation is present. Gauze pads are found in the orbits and nasal cavities of several specimens, and a rudimentary "wig" (consisting of a cotton head covering to which human hair is attached) adheres to one specimen.

Although trophy "skulls" refer to remains that are primarily skeletalized and trophy "heads" to specimens found with preserved soft tissues, the distinction becomes blurred in the archaeological record, where preservation often determines the category into which a specimen is placed. The specimens in this collection will be termed "trophy heads" because, although the remains are now primarily skeletal, soft tissues remain on the majority of heads, indicating that disintegration, not intentional removal, is responsible for their present condition. Paracas and Nasca iconography, which depicts only trophy heads, never skulls, provides further indirect evidence for their original state (Verano 1995).

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2 This text will follow the convention (Silverman 1993a:ix) of using the spelling "Nasca" to designate the archaeological culture and "Nazca" for the modern town and valley.

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Archaeological Background

The Nazca Valley is located inland from the San Nicolás Bay on the dry southern coast of Peru (Map 1). It is one of ten tributaries forming the Río Grande de Nazca drainage. These numerous rivers have highly variable and scarce water supplies. They are separated from one another by narrow mountain spur ds and desert expanses. The river valleys are generally widest where they emerge from the mountains, but soon narrow to 500 meters or less.

Uhle (1914) discovered the first evidence of the Nazca culture in 1901 in the Ica Valley and in the Nazca drainage a short time later. Based on ceramic stylistic similarities, he considered this culture to be a continuation of the Paracas tradition but sufficiently unique to warrant its own style. Its pottery was characterized by prefire slip painting depicting complex iconographic themes.

In the decades following Uhle's discovery, several researchers in addition to Kroeber explored the region. Tello first visited the region in 1915 (Tello 1917). He also joined Kroeber during his 1926 expedition and then returned the following year to excavate 537 tombs in the Nazca drainage (Tello and Mejía Xesspe 1967). Farabee (1922; Mason 1926) explored some 30 miles along the Río Nazca but focused the majority of his efforts on Cahuachi. In 1932, the Doering expedition excavated a number of burials at Cahuachi and Huayurí, located along the Río Santa Cruz (Doering 1958).

A lull followed, but the area became the focus of research again in the 1950s. Strong surveyed parts of the Ica and Nazca Valleys and conducted stratigraphic excavations at several sites, including Cahuachi (Strong 1957). In the mid-1950s, Rowe, Menzel, Wallace, and Dawson conducted extensive investigations on the south coast of Peru, focusing primarily on the Ica Valley (Rowe et al. 1956).

Dawson's widely accepted seriation of Nasca ceramic style, published in a series of articles by Rowe (1959, 1960, 1961), defines eight Nasca stylistic phases or epochs (Chart 1). The lengths of these epochs vary and have not been absolutely dated, but each probably spans 40–150 years, depending on the specific epoch in question (Carmichael 1988:20). Absolute dates have been collected for the Nasca sequence, but upper and lower boundaries have proved difficult to establish with certainty (see Silverman 1993a:Ch. 3). Most
researchers now agree that the Early Intermediate Period begins around A.D. 1 (Schreiber 1998; Silverman 1986). However, the dates given for the end of the period depend on whether the later phases 6–8 (600–800 A.D.) are considered to be the end of the Early Intermediate Period or the beginning of the Middle Horizon (Schreiber 1998; Silverman 1988a, 1993a:Ch. 3).

Gayton and Kroeber (1927) developed an earlier sequence of four phases, A, X, B, and Y, using a quantitative method of stylistic analysis based on shape, color, and design. Although Kroeber (1956) later revised it, this sequence has never been fully accepted by Andean scholars because of "persistent ambiguities and discrepancies inherent in his approach" (Carmichael 1988:16). Although Schreiber (1998:262) has assembled a table that loosely correlates Kroeber’s and Dawson’s sequences (see also Rowe 1960:41; Silverman 1993a:31), Carmichael argues that the differences between the two sequences are substantial (Kroeber and Collier 1998:20–21). Also worth noting are Kroeber’s use of the term “Epigonal” to define a period post-Wari but pre-Ica (Silver-
man 1993a:219), and his use of “Ica” to indicate the Late Intermediate Period.

In recent years numerous scholars have conducted research programs in the area, and extensive surveys have covered most of the region (Browne et al. 1993; Schreiber 1998; Silverman 1993b). Large architectural features such as the Nazca lines (Aveni 1990; Hadingham 1987; Reich 1968) and filtration galleries (Schreiber and Lancha Rojas 1995) have become important foci of interest as well. Orefici (1993) began an ambitious research program in 1983 that has included excavations at Cahuachi and Agua Santa (also known as Pueblo Viejo; Schreiber 1998). Silverman as well has undertaken large-scale excavations at Cahuachi (Silverman 1986, 1993a). Her work is particularly noteworthy for our purposes because the mound Silverman designates as Unit 19 corresponds to Kroeber’s unit Ed, where specimen 9 was found. During the course of excavations there, Silverman discovered two trophy heads (see the discussion under Previous Studies for more information).

Carmichael’s (1988, 1992, 1995) extensive mortuary study of Nasca graves made use of several large collections, including the Farabee collection at the University of Pennsylvania, the Kroeber collection at the Field Museum of Natural History, Chicago, and the Strong collection at Columbia University. His analysis of the tomb contents from the Kroeber collection provides additional information for several of the graves and all of the cemeteries discussed in this study. Also, although we relied on Kroeber’s original manuscript and field notes for the work described here, Carmichael’s recent editing of Kroeber’s 1926 expedition monograph, co-authored with Donald Collier, finally makes Kroeber’s important contribution publicly accessible (Kroeber and Collier 1998).


<table>
<thead>
<tr>
<th>Some Dates</th>
<th>Standard Chronology</th>
<th>Culture Names</th>
<th>Kroeber Phases</th>
<th>Cultural Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.D. 1476</td>
<td>Late Horizon</td>
<td></td>
<td>Late</td>
<td>Inka conquest</td>
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<tr>
<td></td>
<td>Late Intermediate</td>
<td></td>
<td></td>
<td>Regional cultures re-established</td>
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<tr>
<td>Period</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>A.D. 750</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Middle Horizon</td>
<td>Huaca del</td>
<td>Nasca Y</td>
<td>Societal collapse</td>
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<td></td>
<td></td>
<td>Loro</td>
<td></td>
<td></td>
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<tr>
<td>A.D. 1</td>
<td>Early Intermediate</td>
<td>Late Nasca</td>
<td>Nasca B</td>
<td>Reorganization</td>
</tr>
<tr>
<td>Period</td>
<td></td>
<td>Middle Nasca</td>
<td>Nasca A2</td>
<td>Transition</td>
</tr>
<tr>
<td>A.D. 1</td>
<td></td>
<td>Early Nasca</td>
<td>Nasca A1</td>
<td>Emergence of</td>
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<tr>
<td>A.D. 1</td>
<td></td>
<td></td>
<td>Nasca A0</td>
<td>Nasca culture</td>
</tr>
<tr>
<td>1000 B.C.</td>
<td>Early Horizon</td>
<td>Paracas</td>
<td></td>
<td>Initial permanent occupation</td>
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<td>(1–10)</td>
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<td>Initial</td>
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<tr>
<td>Preceramic</td>
<td></td>
<td></td>
<td></td>
<td>Temporary hunter-gatherer occupations</td>
</tr>
</tbody>
</table>
cause Nazca ruins and structures are very modest in comparison with the fine ceramics and textiles contained in Nazca cemeteries” (Kroeber and Collier 1998:25).

Accompanied by William Schenck, Kroeber arrived in the Nazca Valley on July 26 and completed the field season on October 11. Excavations were undertaken at eight sites: Agua Santa, Aja, Cahuachi, Cantayo, La Huayrona, Majoro Chico, Ocongalla, and Soisongo (Map 2). During the first part of the season, Schenck directed excavations first at Ocongalla, then at Majoro Chico, Agua Santa, La Huayrona, and Soisongo, while Kroeber concentrated on exploration. Schenck returned to the United States after completing excavations at Soisongo, and Kroeber directed the later excavations at Aja, Cantayo, and Cahuachi. Tello, leading an expedition from the Museo Nacional de Arqueología, joined the expedition for the month of September, and the two groups worked cooperatively at Soisongo, Aja, and Cantayo. By prior agreement, the artifacts recovered by the Field Museum team were sent to the United States and the artifacts excavated by Tello’s Museo Nacional group were taken to Lima for analysis and curation. Kroeber completed the field season, leading a solo excavation at Cahuachi.

Previous Studies

Direct information concerning the preparation and function of Nasca trophy heads comes from two sources, physical evidence and iconography. Although the osteological remains are rare and largely confined to the Nasca and Paracas periods in the Nazca Valley, trophy head iconography is common and widespread throughout the area in virtually all time periods.

Depictions of trophy heads appear on ceramic vessels, textiles, and sculpture throughout the pre-Columbian Andes (Blasco Bosque and Ramos 1974; Paul 1990; Proulx 1968; Tello 1918; Tousaint-Devine 1984; Uhle 1914). Trophy head images in ceramic and textile collections can be identified by the following five features: a carrying cord, pinned lips, bodiless presentation of the motif, rolled eyes (representing eyeballs rolled upward in death or closed eyes), and locks of hair extending from the head (Carmichael 1994). Carmichael considers the first two features to be “highly diagnostic” because they exactly parallel the physical remains. He views the last three as “secondary features” that indicate “an association with death” (Carmichael 1994).

Trophy head images first appear during the Ear-
ly Horizon (Chart 1), usually in stone sculpture (Proulx 1971). The earliest images appear as components of the “Decapitator theme” in scenes depicting mythical beings carrying a tumi knife in one hand and a trophy head in the other. On the north coast, the Decapitator first appears in Cupisnique ceramics (Early Horizon) and continues into Moche culture (Early Intermediate Period; Cordy-Collins 1992). In fact, in 1999 Verano and colleagues reported the first trophy head find outside the Nasca Valley from this area. South coast trophy head iconography begins in late Paracas (Early Horizon) and similarly continues into the later Nasca period (Early Intermediate Period). On the northwest side of Lake Titicaca, Early Horizon Pukara textiles and monumental sculptures often depict realistic humans carrying trophy heads (Chavez 1992; Moseley 1992). During the Middle Horizon, trophy head images are found in both Wari and Tiwanaku iconography. Wari trophy heads are usually shown being carried in the hands of individuals, while Tiwanaku trophy heads are shown either worn on belts or carried in hands (Klarich n.d.). Trophy head imagery declines dramatically after the Middle Horizon in most areas. The exception is the north coast, where trophy head iconography continues through the Late Intermediate Period and into the Late Horizon Chimú culture (Lapiner 1976). Although trophy head iconography is not found in Inka ceramics or textiles, there are accounts and depictions of trophy head taking and display in the chronicles (Guaman Poma de Ayala 1980:130, 168).

On the south coast, trophy head images begin to appear in Late Paracas, Epochs 9 and 10. Ann Peters has written that trophy head images in Late Paracas and Early Nasca iconography occur in three main contexts: “with hunter/warriors, with beans and feline/monkey figures, and with condors and images of human sacrifice” (Peters 1991:311). In these Late Paracas and Early Nasca periods, trophy heads are often associated with mythical beings such as the Killer Whale and the Oculate Being (Menzel et al. 1964). Trophy head depictions are most prevalent in the early Nasca epochs and begin to decline in frequency in the Nasca Valley toward the end of Epoch 4 (Proulx 1968:89). A strong association between war images and trophy heads begins in Middle Nasca times (Epoch 5) and continues throughout the later phases and into the Middle Horizon. Militaristic themes dominate these later phases, and trophy heads are seen associated with individuals and depicted in battle scenes.

Trophy head iconography is rich, and the literature devoted to trophy heads is abundant. Unfortunately, because trophy head finds are relatively rare, studies on the physical evidence of human trophy head collecting are correspondingly uncommon. Many specimens lack detailed contextual information, so that provenience and date are often uncertain. Even in cases where more information exists, some of the heads attributed to these early periods may come from later periods, such as the Middle Horizon and Late Intermediate Period (for example, specimens 3–8 in our study). We will briefly touch on some of the contexts in which trophy heads have been recovered.

Pezzia Assereto (1968) and Riddell and Belan (Riddell 1986) reported trophy head finds from some of the earliest contexts, in Late Paracas/Early Nasca times. Pezzia Assereto reported the excavation of two caches of trophy heads at the Hacienda Ocucaje in the Ica Valley. The first cache, found in 1956, consisted of two heads buried in a shallow pit, on a bed of pacay leaves, at the base of Cerro Max Uhle. Pezzia Assereto’s second cache, recovered from a looted Paracas cemetery on Cerro de la Cruz in 1966, contained 13 heads covered by a large cloth. Riddell and Belan discovered five trophy heads buried in ceramic jars beneath the floors during the excavation of several rooms at Tambo Viejo, in the Acari Valley.

Many of the better-documented examples of Nasca period trophy heads were found at the site of Cahuachi. Doering (1958, 1966; burial 28 in Carmichael 1988:482–483) recovered nine trophy heads in a high-status tomb dating to Early Intermediate Period 8. The grave also contained the incomplete remains of an adult male seated on a basketry throne. The head and upper body of the individual were missing and the grave goods were in disarray, leading Doering to conclude that the grave had been looted, although he could find no exterior evidence of that disturbance (Carmichael 1988:374). Unfortunately, because Doering was unclear about the grave location, later researchers were unable to find it, and the exact location of this tomb remains unknown (Carmichael 1988:139). Strong (1957:36) briefly reported the recovery of two trophy heads (burials 12 and 14) from excavations at Cahuachi, but a full report was never published. Silverman (1993a), using Strong’s original field notes, has provided the following descriptions of their contexts. Burial 12, believed to date to Nasca 5 or 6, contained a tro-
phy head buried in a pit near a globular vessel in burial area 1 (Silverman 1993a:219). Some hairs, a tooth, and some small pieces of bone were found inside the vessel, which we interpret as indicating that the pit had been disturbed. An adult male of about 20 years of age was buried in burial 14 (Silverman 1993a:206). He was found leaning forward, seated in a cross-legged position. His head was not attached to the spinal column. A trophy head had been placed upside down on the neck. The portion of the occipital bone that had been removed during the trophy-making process was found in the individual’s lap. Four ceramic vessels were found in the grave, dating the contents to Nasca 5. Silverman recovered two trophy heads during her 1983 excavations in a series of rooms on terrace IV of Unit 19 (Kroeber’s Unit E). The soft tissues were well preserved. Both were adult males. One trophy head was found in a cist, in the uppermost floor of one of the rooms, and probably dates to Nasca 5. The other specimen had been placed in the corner of a different room sometime after Nasca 3. Both were wrapped in plain-weave cloth and were not associated with other artifacts. Drusini and Baraybar (1989) described seven trophy heads recovered from a looted context during Orefici’s excavations at Cahuachi. Orefici’s crew believed that looters had taken trophy heads from other graves and buried them in a shallow pit, where they were later found.

Neira Avedaño and Coelho (1972) excavated 11 trophy heads from a Nasca cemetery at Chavín in the Acari Valley. The heads were arranged in a linear fashion along the western face of a mud-brick wall. Nine were placed in small circular pits dug through a hard caliche floor, and two were found on the hardened surface, covered with sand and domestic refuse. Most of the heads were wrapped in textiles, like Pezzía’s cache of 13 trophy heads at Hacienda Ocuajae and the Riddell and Belan finds at Tambo Viejo. Neira Avedaño and Coelho were unable to determine the exact nature of the wall with which the heads were associated because they performed only limited excavations. However, they believed that the wall was part of a ceremonial structure.

Browne et al. (1993) recovered 48 trophy heads from a salvage operation at Cerro Carapo in the Palpa Valley. Looting activity had exposed the cache. Although it was clear that the trophy heads had been buried together in one large pit, the salvage nature of the excavation did not permit further expansion outside the pit to determine its context. Browne and colleagues found a Nasca 5 sherd in the fill above the pit, indicating a similar or earlier date for the pit contents. The trophy heads were included in an osteological study undertaken by Verano (1995). He reported that the 47 trophy heads belonged to males aged 20–45 years at death. The remaining head belonged to an adolescent 12–15 years old at death. Verano (1995:213) stated that the observed cranial deformation was of the “Nasca” type and that all specimens exhibited similar patterns of cut marks and perimortem modification.

### The Kroeber Collection

Eighteen trophy heads were collected during Kroeber’s two expeditions. Five trophy heads were collected in 1925: two from Cahuachi (specimens 2 and 3), one from Las Cañas (specimen 14), and two from Paredones (specimens 17 and 18). Thirteen trophy heads were recovered during excavations the next year: one from Aja (specimen 1), eight from Cahuachi (specimens 4–11), two from Cantayo (specimens 12 and 13), and two from Majoro Chico (specimens 15 and 16).

This collection is frequently cited (Baraybar 1987; Carmichael 1992; Coelho 1972; Doering 1966; Kroeber 1956; Kroeber and Collier 1998; Lothrop and Mahler 1957; Neira Avedaño and Coelho 1972; Proulx 1989; Silverman 1993a; Strong 1957), and many of the trophy heads have been documented to varying degrees (Konigsberg n.d.; Verano 1995). Nevertheless, the collection has never been systematically described or studied. Below we provide a brief methodological overview, followed by a detailed description of each specimen. The results of the analyses are then summarized and discussed in the context of the ongoing controversy over the role of trophy heads in Nasca society.

### Methods

A set of standard observations was recorded for each specimen, using the format described below. Unless otherwise specified, the criteria selected

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3 Strong’s burial area 1 is located in an open area north of Kroeber’s Locations F and H.

4 An additional trophy skull was discovered but was left in the field because of its fragmentary nature.
for evaluation follow those proposed by Buikstra and Ubelaker (1994). Each specimen description is organized into seven sections: presence and condition, age determination, sex determination, cranial deformation, other features, perimortem modification, and archaeological contents and associated artifacts.

Presence and Condition—A general inventory of the remains, including the presence and condition of the cranium and mandible for each individual, is presented here. The majority of these specimens are incomplete cranial because portions were intentionally removed during the perimortem modification process. Therefore, the designation “complete” as used in this study refers to whether the trophy head is complete. Elements removed during the process of trophy head making are discussed under Perimortem Modification. Elements lost or broken since then are described here. Taphonomic alterations such as color changes and surface weathering are noted. Any postmortem damage not resulting from trophy head preparation is included in this section as well.

Determination of Age—Age-at-death determinations for children and subadults were based on dental calcification and eruption rates, following Ubelaker (1989). Age estimates were obtained by counting the number of teeth erupted, observing the degree of cusp and root development, and relating these to standard figures. In humans, the deciduous dentition erupts from approximately 6 months to 2 years, and the permanent dentition erupts from about 6 years to 13 years. For specimens ages 2 through 13 years, stages of dental calcification of the crown and root in mandibular canines and molars were used to estimate chronological age (Moorrees et al. 1963a,b; Ubelaker 1989).

Postcranial skeletal morphology and histology provide the best estimates of age at death in adults (Brothwell 1981; Buikstra and Ubelaker 1994; Krogman 1962; Ubelaker 1989). However, in the absence of postcranial remains, changes in skull morphology allow reasonably reliable age estimations to be made (Ferembach et al. 1980).

Because age-at-death determinations were based solely on skull data in this study, the age ranges are necessarily broad. Each specimen was assigned to one of these categories based on three features: dental eruption, molar occlusal surface wear, and cranial suture closure:

DENTAL ERUPTION—Third molar eruption is the most basic indicator of developmental maturity.

DEGREE OF OCCLUSAL SURFACE WEAR OF MOLARS—Scoring was done by recording the degree of wear in each quadrant of the two dental arcades. The degree of wear was scored from minimal (no wear) to maximal wear (roots only). Although this method is very general, it allows age determinations to be made rapidly and reliably (Brothwell 1981).

DEGREE OF CRANIAL SUTURE CLOSURE—The cranial suture closure was evaluated according to the degree of fusion of endocranial (Ascádi and Nemeskéri 1970), ectocranial (Meindl and Lovejoy 1985), and palatal sutures, according to the methods outlined in Buikstra and Ubelaker (1994). Seventeen sutural regions were scored on a scale of 0 to 3, representing open to complete fusion. In this study, incomplete assemblages of all crania prohibited composite scoring, necessitating assessment of age based on sutures that are present and observable. Overall size and development were used to reinforce individual assignments to the general category of “adult” in cases where the remains are very incomplete.

Determination of Sex—Sex identification based on adult skull morphology can be accurate (Hrdlička 1939; St. Hoyme and Iscan 1990) but depends on specimen completeness and population sexual dimorphism (Konigsberg and Hels 1998). An additional analysis of more complete skeletons recovered from these sites has indicated that these populations are quite sexually dimorphic (unpublished data).

Five basic features emphasized in Buikstra and Ubelaker (1994) were used in this study:

NUCHAL CREST—This point of muscle attachment on the occipital bone is generally larger and more robust in males.

MASTOID PROCESSES—This feature is scored by relative volume rather than length and is more substantial in males.

SUPRAORBITAL MARGINS—This feature, which can be most readily evaluated by palpating the lateral aspect of the supraorbital foramen, appears thicker and more rounded in males than in females.
**Prominence of Glabella**—Glabellar prominence is most easily observed from a lateral view. It is more pronounced in males and appears smooth, with little or no projection, in females.

**Mental Eminence**—The feature is found at the midpoint of the external mandibular surface and is maximally expressed in males.

Mandible traits such as the angle of the ascending ramus and the lateral expansion of the gonial angle were also considered. Overall rugosity or gracility, as determined by relative bone size and weight, provided further support for the estimates.

**Artificial Cranial Deformation**—Culturally induced cranial deformation, either intentional or unintentional, results from the application of external forces that alter the normal contour of the skull (Ubelaker 1989). External forces do not alter intrinsic neurocranial growth but do alter its direction (Moss 1958).

The final cranial shape is affected by many factors, including the type of deforming device used, differences in deforming duration and intensity, and individual variation in cranial growth. Buikstra and Ubelaker (1994) have attempted to standardize the description of cranial deformation, but identifying the deforming practices used by specific groups remains difficult. Cranial morphological variation observed in a particular sample may indicate that more than one deformation practice was employed or that individual variation exists within a single deforming method.

Hrdlička (1912), and later Imbelloni (Dembo and Imbelloni 1938; Imbelloni 1937) divided deformation into two basic categories, designating crania as either tabular, if pads or boards were used, or annular, if wrappings were used. Later, Weiss (1961), as Imbelloni himself realized, argued that the combination of bandages and pads could produce either tabular or annular forms. Consequently, a simple classification based on the material used is not possible, and defining these categories by the distribution of applied pressures is more appropriate. Therefore, Anton’s (1989) general categories of “anteroposterior” and “circular” will be used here. The anteroposterior style is characterized by a flattening of both frontal and occipital bones or, less commonly, by a flattening of the occipital region alone. Lateral parietal expansion is observed when the temporal and parietal bones become foreshortened from the pressures exerted by anterior and posterior forces.

This appearance is often called “bilobated” (Buikstra and Ubelaker 1994:160–161). Circumferentially deformed crania are characterized by elongated, cylindrical, or “conical” (Anton 1989:254) vaults that extend posteriorly. Lateral parietal expansion is not seen in this type of deformation; rather, the cranial vault appears long and “loaf-like.” Both forms may be further divided, depending on whether subsequent cranial growth follows a vertical or oblique orientation. This further distinction is often impossible in this collection because the posterior portions of the crania are frequently absent as a result of the trophy-making process.

Frontal flattening, occipital flattening, degree of lateral parietal expansion, bregmatic elevation, and postcoronal depression are among the traits we observed and describe here, following Buikstra and Ubelaker’s (1994) recommendations (see also Hoshower et al. 1995). Variants such as asymmetric flattening or reshaping are also noted.

**Other Features**—Any pathologies, traumas, and anomalies are described in this section. Our observations are grouped into the following categories:

**Pathology**—We examined specimens for evidence of anemia (cribra orbitalia and porotic hyperostosis), infectious disease (periostitis), and degenerative joint disease (Buikstra and Ubelaker 1994; Ortner 1985; Roberts and Manchester 1995; Schwartz 1995; Ubelaker 1989). The observed dental pathologies included abscesses, antemortem tooth loss, alveolar resorption, and caries (Brothwell 1981; Buikstra and Ubelaker 1994; Ortner 1985; Schwartz 1995; Scott and Turner 1997).

**Trauma**—Both antemortem trauma, such as healed or healing fractures, and perimortem trauma, or injuries sustained immediately before or at the time of death (Buikstra and Ubelaker 1994; Ortner 1985; Roberts and Manchester 1995), are observed in the collection. Postmortem damage is described under Presence and Condition.

**Anomalies**—Congenital anomalies such as missing permanent teeth are described here. The nonmetric traits (Buikstra and Ubelaker 1994:87–94) scored as part of the study are on file at the Field Museum of Natural History. However, metopic sutures, which affect cranial deformation, are noted here.
Perimortem Modification—Skeletal alterations related to trophy-making activities are discussed in this section. The following features are described:

Perforation of the Frontal Bone—We measured minimum and maximum diameters of the perforation and recorded the location by measuring the distance from the inferior margin of the frontal perforation to nasion and the distance from nasion to bregma. Any associated cut marks or evidence of wear or polish resulting from rubbing by the carrying cord are recorded here as well.

Posterior Breakage—This highly variable modification was scored by the extent of involvement of cranial bones. Breakage ranged from a minimal widening of the foramen magnum to the removal of posterior half of the cranium. Any evidence of how the posterior breakage area was removed is noted when possible, as well as any associated cut marks.

Cut Marks—The size, location, and general pattern of cut marks are recorded for each cranium and mandible. Cut mark size can be roughly divided into two groups: short (averaging less than 15 mm) and long (averaging anywhere from 15 mm to approximately 30 mm), and then further categorized as deep or shallow. A correspondence between cut mark distribution and expected patterns of removal of overlying soft tissue due to defleshing activities is noted in some cases.

Curation (or Preparation) of Soft Tissue—Other material involved in the processing or display of presumed trophies, such as gauze found in orbital and nasal cavities or associated carrying cords and crossbars, is noted. Polish and discolored areas are described in this section as well. Although the fragile bones of the nasal cavity and orbit are frequently lost or broken in museum specimens, their loss is described here because of the evidence of their intentional removal in some specimens. Undoubtedly most of the breakage resulted from more recent handling, but the bones are too delicate to permit confident assessment of time of occurrence. The zygomatic arch damage observed in several specimens is treated under Presence and Condition, however, because the broken edges are clearly due to recent breakage.

Associated Artifacts and Archaeological Context—Each specimen is placed within its associated context using Kroeber’s field notes and his final report. His report of the excavations, co-written with Donald Collier, has since been edited by Patrick Carmichael and published by AltaMira Press (Kroeber and Collier 1998). The artifacts recovered from each grave are listed and illustrated in the Appendix (page 117), and photographs have been provided where possible.

The Material

The trophy head analyses are grouped and presented by site. Each section begins with a brief description of Kroeber’s excavations at that site and the context in which the heads were discovered. Each specimen is then summarized individually.

Aja

Tello, while accompanying Kroeber’s group, found the site of Aja at the base of a pyramidal foothill known as Cerro San Luis, at the northern margin of the Nazca Valley (Map 2). Kroeber and Tello located three spatially discrete cemeteries within this area. No habitation features were observed. Sites A and C were post-Nasca cemeteries. Site B was an early Nasca cemetery, located at the south or southwest base of a rocky knoll. Its location near the edge of cultivated land at the base of the wide mouth of a dry gully meant that the site experienced intermittent moisture, resulting in relatively poor preservation.

Kroeber noted one looted tomb at Aja B. It was stone-lined and measured 2 meters square by 2 meters deep. A cluster of eight intact graves was excavated, all within 10 meters of the looted tomb. The intact graves contain material from Early Intermediate Period phases 2 and 3 (Carmichael 1988). No later materials were found in the area, implying that the looted tomb dates to this early period as well. The trophy head (FMNH 170912) was found beneath a large ceramic fragment in a pit designated Grave 8 in Cemetery B (Map 3).

Specimen 1 (FMNH 170912) (Figs. 1–3)

Presence and Condition—Kroeber noted that this specimen was discovered intact, but it was so decayed and covered with salt crystals that the
cranium fragmented during its recovery (Kroeber and Collier 1998:79). Although the cranium is now fragmentary (and partially glued), the mandible is complete and in very good condition. No soft tissues remain.

**Age**—Young adult. Three erupted third molars are present (one molar was lost postmortem), and all show moderate to significant wear. Although substantial tooth wear is observed, a younger age is suggested by the fact that no observable endocranial, ectocranial, or posterior and transverse palatine sutures are completely fused.

**Sex**—Probable male. The cranium is too fragmentary to allow sex determination, but the masculine mandibular characteristics include a broad mental eminence, vertical ascending rami, and lateral expansion at the gonial angles.

**Cranial Deformation**—Anteroposterior type. The cranium is fragmentary and the occipital and posterior portions of parietal bones are absent. However, the frontal bone is flattened, and the anterior parietal bones exhibit slight lateral expansion.

**Other Features**—The two mandibular central incisors were lost prior to death, and the area exhibits extensive alveolar resorption. Mild periodontal disease is observed on both dental arches. There is no other evidence of pathology or trauma.

**Perimortem Modification**—The frontal bone, although fragmented, exhibits an area suggesting intentional drilling approximately midline on the lower third of the bone. This opening is at least 9.5 mm in diameter, but its maximum diameter and distance from nasion cannot be determined. The posterior half of the crania has been removed, including the entire occipital bone and the posterior half of both the parietal and the temporal bones on each side, including both mastoid processes. The surface of the cranium is too deteriorated to allow the detection of cut marks, but none are observed on the well-preserved mandible.

**Archaeological Context and Associated Artifacts**—This specimen was recovered from Cemetery B, in a pit designated Grave 8 (Kroeber and Collier 1998:67). Grave 8 was located about 3 meters south of the east edge of the looted stone tomb designated Grave 1 (see Map 1). The pit contained no evidence of other human remains. The head was found at a depth of 110 cm, covered by the upper portion of a three-handled jar with vertical stripes (FMNH 170911; see Fig. 155 in Kroeber and Collier 1998:118). Kroeber identified the cranium as a trophy head, based on the perforation in the frontal bone and the missing occipital and basal portions. Unfortunately, the skull was in very poor condition and fragmented when they attempted to remove it. A polished blackware sherd (FMNH 170913, no photograph) was found in the pit fill. Kroeber identified these ceramic finds as early Nasca A. Carmichael has stated that
the artifacts recovered from the surrounding graves date to Early Intermediate Period phases 2 and 3 (Carmichael 1988:464). However, because polished blackware disappeared rapidly after Early Intermediate Period (Silverman 1993a:231), the trophy head may date to an earlier phase than the surrounding graves.

**Cahuachi**

Cahuachi, located on the Río Nazca, about 20 km west of the modern town of Nazca, is the largest known Nasca site (see Map 2). Its architectural remains consist of a series of artificially leveled and terraced hills. Several low (<50 cm in height) adobe walls demarcate large areas of the site. The most densely clustered group of mounds is found on the south side of the river, stretching for about 3 km and 200–400 meters wide (Map 4). Although no formal studies have been undertaken on the north side of the river, Carmichael (1988) has suggested that the site continues for an additional 50 hectares there.

The archaeological remains indicate that parts of Cahuachi were in use in the previous Paracas Period and in later Early Intermediate Period phases 4, 5, and 8. The site grew dramatically during Early Intermediate Period phases 1–3 as it gradually changed from a dispersed agricultural village to a large ceremonial center, reaching its apogee during Early Intermediate Period phase 3 (Silverman 1986, 1988a,b, 1990, 1993a; Strong 1957). Although its importance as a ceremonial center declined dramatically afterward, it continued to serve as a cemetery throughout the remaining Early Intermediate Period, Middle Horizon, and Late Intermediate Period.

The cemeteries dating to the early Early Intermediate Period occupation phases were generally placed on top of mounds (Kroeber and Collier 1998). Apparently, Strong (1957) found evidence of a cemetery from this period in an open area between mounds, but this case is poorly documented (Carmichael 1988:138). Burials from the later periods were generally located at the base of mounds or in open areas away from the mounds (Kroeber and Collier 1998).

Kroeber divided the site into a series of “locations,” followed by a capital letter, which designated mounds, terraces, and other important features (see Map 4). Lowercase letters were used to designate subunits (Map 5), such as cemetery terraces within Mound A (Map 6). Kroeber conducted surface collections in 11 of these locations, A–E and G–L. He excavated graves in three areas: Mounds A and E, and Location O. Excavations in burial terraces g, j, and l on top of Mound A yielded 15 features: ten burials and five caches. Two burials were excavated in Mound E, subunit d. Two more graves were excavated in the Location O cemetery. Kroeber believed that although the majority of the burials they excavated were intact, several graves had been looted (Graves Ag 2, Aj 11, and Ed 2).

In total, Kroeber recovered ten trophy heads at Cahuachi, nine of which came from mound A and two (specimens 2 and 3) of which were collected during surface reconnaissance the first year. Specimen 2 was found in a jar containing another unmodified skull at the edge of a tomb on the summit of Mound A. Specimen 3 was retrieved from a large rectangular tomb in Cemetery n at the base of Mound A. The following year, the rectangular tomb where specimen 3 had been found the previous year yielded five more heads (specimens 4–8). The placement of the tombs at the base of the mound, combined with the recovery of a fragment
Map 5. Kroeger's Cahuachi locations.

Map 6. Mound A at Cahuachi.
of textile wrapping that Kroeber described as "Epigonal," suggested that these trophy heads were interred later, possibly during the Late Intermediate Period. Two more trophy heads were found in a cache or offering in cemetery Ag (specimens 10 and 11). The cache contained a third trophy head that was not collected because of its heavily fragmented condition. These latter two trophy heads were recovered from the summit of Mound A, suggesting that they were buried there during earlier Early Intermediate Period epochs.

The tenth trophy head (specimen 9) was part of the grave goods excavated from a partially disturbed burial (Grave 2) in section d near the heavily looted Location E (also called Area E; see Map 5). The tomb also contained the partially articulated remains of another individual (FMNH 171135). Parts of Area E were later excavated by Silverman (1993a:Ch.12). Kroeber's section d corresponds to Silverman's Unit 19, terraces IV and V. Silverman recovered two trophy heads from the rooms of the structure she and her crew excavated in Unit 19.

Specimen 2 (FMNH 170222) (Figs. 4–6)

Presence and Condition—This specimen consists of a cranium and mandible in excellent condition. Some soft tissue fragments remain on the palate and on the cranial vault. A small depression (12 mm long) is located in the middle of the frontal bone immediately to the right of the sagittal plane.

Age—Young adult. All third molars have erupted, but only one remains in its socket. Minimal dental attrition is noted. Internal vault sutures are significantly closed, while external vault sutures remain open. The basilar suture is not closed, suggesting that this individual was less than 25 years old at death.

Sex—Male. The brow ridges are prominent with blunt supraorbital margins. The mandible is extremely rugose with a broad mental eminence and massive, vertical ascending rami with pronounced gonial angle lateral curvature.

Cranial Deformation—Anteroposterior type. Bilateral flattening of the frontal bone is observed on both sides of an incompletely fused metopic suture. The parietal bones exhibit pronounced lateral expansion.

Other Features—Periodontal disease is evident. Abscesses are noted on all maxillary right molars. The left first molar and all second and third molars of the mandible were lost prior to death, and the alveoli are completely resorbed and remodeled. The posterior alveoli around the third molars extend buccally on the mandible. A metopic suture, completely fused along the lower third of the external surface and along its entire length on the internal surface of the frontal bone, is observed. A deviated nasal septum is noted.

Perimortem Modification—The frontal bone perforation measures 7 × 8 mm² and lies 33 mm above nasion. The diameter of the perforation in the outer table is larger than the perforation of the cancellous bone beneath it, and slight wear is noted. No wear is present on the inner surface. The posterior half of the cranium has been removed. The posterior breakage margin extends laterally from the posterior wings of the sphenoid bones to the external auditory meati, then superiorly through the midportions of the temporal and parietal bones. The jagged margin of the breakage area is smooth and worn. Several short (less than 5 mm), deep cut marks are present on the right temporal line, just above the orbit. Several long (30–50 mm), deep, vertical cut marks lie parallel to the breakage margin on the left parietal bone. Additionally, numerous short, shallow cut marks cover the external vault surface (see Fig. 65). The mandible exhibits very short (less than 5 mm) horizontal cut marks on the labial and lingual surfaces of the body, particularly at the point of tongue attachment. Tiny but deep horizontal cut marks are located on the posterior borders of both rami.

Archaeological Context and Associated Artifacts—This trophy head was collected during the 1925 trip to Cahuachi, when only minimal surface collection was undertaken. Kroeber noted in the catalogue that this specimen was found with another skull inside a jar at the edge of a tomb on the summit of Mound A (see Map 6). Neither the other skull nor the jar is listed in the catalogue, so it is assumed that they were not collected.

Specimen 3 (FMNH 170224) (Figs. 7–10)

Presence and Condition—The cranium is in good condition, but the mandible is absent. The cranium shows fairly extensive signs of weathering but little deterioration of the outer table. Most of the zygomatic process of the right temporal
bone is absent. Some soft tissues remain on the occipital bone between the occipital protuberance and the lambdoid suture. There is a crushing fracture approximately 20 mm in diameter on the lateral side of the right parietal bone (Fig. 8). The fracture shows no evidence of healing. A textile fragment is wedged inside the fracture. The textile fragment suggests that this fracture did not occur at the time of the individual’s death but is more likely the result of later postmortem damage. The crushing pattern indicates that the bone was fairly fresh at the time the fracture occurred, but it is not a “classic” perimortem fracture (L. A. Beck, pers. comm.).

Age—Young adult. The first and second molars have erupted and the third molars appear to be congenitally absent. Tooth wear is minimal; dentin is exposed only on the first molars. All vault (both internal and external) and palatine sutures are open. The basilar suture is closed. The posterior portion of the sagittal suture is obliterated because of healed trauma (see discussion under Other Features).

Sex—Indeterminate. The cranial features are ambiguous, but the skull bones are somewhat heavy and rugose, suggesting that the individual may be male.

Cranial Deformation—Anteroposterior deformation. Asymmetric flattening and lateral parietal expansion of the posterior cranium is noted. Pressure was applied to the posterior cranium at an angle perpendicular to the transverse plane, suggesting an erect type of deformation.

Other Features—There is healed depression measuring 35 mm in diameter, located superior to lambda that obliterates the posterior half of the sagittal suture (Fig. 9). The upper third molars of this individual are congenitally absent. Oddly, the frontal sinus, which should be observable through the frontal perforation, is absent. No other evidence of pathology or trauma is noted.

Perimortem Modification—The frontal perforation, obviously drilled from the outside, is large and measures 21 × 24 mm². Edges of the perforation are straight, with no evidence of wear. It is located 9 mm above nasion. Oddly, no frontal sinuses are present. A substance, possibly a resin of some kind, has been applied to the surface of the hole. The posterior breakage is minimal. The foramen magnum is slightly enlarged, and both condyles have been removed. No cut marks are observed.

Archaeological Context and Associated Artifacts—This specimen was collected during the 1925 expedition from Cemetery n on the north-west side of the base of Mound A (see Map 6). Three large rectangular tombs measuring 3 × 4 meters and lined with flat semicylindrical adobe bricks were located in this area. These tombs were described both in the report (Kroeber and Collier 1998:80) and in more detail in Kroeber’s field notes. They were arranged along an east-west axis. The trophy head was found on the south side of the westernmost tomb designated Tomb 1. Five additional trophy heads (specimens 4–8) were recovered from the same tomb in 1926. See specimen 4 for more information.

Specimen 4 (FMNH 171096) (Figs. 11–14)

Presence and Condition—The cranium is in very good condition, but the mandible is absent. Thin layers of soft tissue are present on both outer and inner vault surfaces.

Age—Young adult. All molars have erupted, but they exhibit little wear. The single remaining third molar shows no wear. Most sutures are obscured by soft tissue, but all observable internal and external vault sutures are significantly fused. Significant closure of the palatine sutures (with the exception of a minimally fused transverse suture) indicates that this individual was less than 35 years old at death.

Sex—Male. The cranium is large, with pronounced brow ridges and rounded supraorbital margins.

Cranial Deformation—Anteroposterior deformation. There is flattening of both frontal bones lateral to the metopic suture. The parietal bones show posterior lateral expansion.

Other Features—A closed but not obliterated metopic suture is present. Degenerative joint disease is evidenced by a slight porosity on the anterior surface of both occipital condyles. Mild periodontitis is present, with alveolar porosity around the first molar. No other evidence of pathology or trauma is noted.

Perimortem Modification—The frontal perforation measures 5 × 9 mm² and lies 44 mm above
nasion. Wear approaching polishing is noted on the outer surface of the perforation. Some breakage is also seen on the internal edge of the hole. The posterior breakage margin is jagged, and it crosses the posterior third of both parietal bones. The breakage line begins in the basicranium at the posterior border of the occipital condyles, follows the occipitomastoid suture, and cuts through the parietal bones immediately anterior to the lambdoid suture. The same resinous substance noted in specimen 3 is applied to the cut edges of the posterior breakage of this specimen. Short cut marks are found on the parietal, temporal, and zygomatic bones. The ethmoid bone, including the cribiform plate, and the nasal bones have been removed and replaced with gauze material (Fig. 11). Both orbits are filled with gauze pads. Faint polishing is observed on the superior border of the left zygomatic arch. Soft tissues obscure portions of the frontal bones, zygoma, maxilla, and cranial base.

Archaeological Context and Associated Artifacts—Specimens 4–8 were collected in 1926. They were recovered from the same tomb, designated No. 1 by Kroeber, which yielded specimen 3 the previous year. The trophy heads were all found “lining the tomb” (Kroeber and Collier 1998:80) in the southern or southwestern corner at a depth of 40 cm. A wool tapestry fragment, which Kroeber judged to be of “Epigonal type” (FMNH 171101; Fig. 82), was recovered from the same tomb. Four ears of red maize (FMNH 171102) were found in one of these tombs, either in the northwest corner of Tomb 1 or in the southeast corner of the easternmost tomb designated No. 3 (the field notes are unclear). See also specimen 3.

Specimen 5 (FMNH 171097) (Figs. 15–18)

Presence and Condition—The cranium is in good condition. The mandible is absent. Some soft tissues are present on the palatine and maxillary surfaces.

Age—Young adult. The third molars have erupted. The teeth show moderate wear. Soft tissues obscure most sutures, but the palatine sutures are significantly closed. The posterior median palatine is completely fused.

Sex—Male. The cranial features are rugose. The right supraorbital margin is blunt, the glabellar eminence is pronounced, and the right mastoid process is large.

Cranial Deformation—Slight anteroposterior deformation. The frontal bone is slightly flattened.

Other Features—Antemortem loss of the upper right second and third molars is noted, accompanied by substantial remodeling of the alveoli and moderate periodontal disease. No other evidence of pathology or trauma is seen.

Perimortem Modification—This specimen exhibits extensive processing. The frontal perforation measures 7 × 8 mm² and is located 31 mm above nasion. A little wear is noted on the perforation edges. The exterior surface of this opening is larger than the perforation. Several short cut marks are present around the perforation. Both parietal and the left temporal bones have been removed. A resinous substance covers the cut surfaces of the breakage area. Long cut marks (15–25 mm) are found on the left sphenoid and parietal bones between the coronal and squamosal sutures. The cut marks cross the sphenoparietal suture and run parallel to the coronal suture. Tiny cut marks are also observed on the posterior aspect of the orbital process of the frontal bone just superior to the sphenofrontal suture. Gauze pads are present in both orbits (Fig. 16; the pad has been removed from the left orbit). The orbital plates of the ethmoid bone are absent. A wig is attached to this specimen, consisting of cloth material with hair and scalp attached to it (Figs. 16 and 17). Accompanying this specimen is a stick with cord wrapped around it (Fig. 15). A thinner cord is wrapped around the greater wing of the left sphenoid (Fig. 18).

Archaeological Context and Associated Artifacts—Specimen 5 is one of six trophy heads found in tomb No. 1 in Cemetery n. See the discussion of specimens 3 and 4 for more information.

Specimen 6 (FMNH 171098) (Figs. 31–33)

Presence and Condition—This specimen consists of a cranium and right mandible. The left side and face of the cranium is sun-bleached, and the outer table has begun to flake off in places, indicating that the bone lay exposed on the surface for some time. The right cranium and mandible were protected from the elements, however, and these bones are well-preserved and darker in color.
Age—Young adult. Both maxillary and the right mandibular third molars have erupted. There is moderate to significant dental attrition. All the internal vault, external vault, and palatine sutures that remain are open or minimally fused.

Sex—Indeterminate. The poor condition of the cranium makes it difficult to assess the cranial features; however, the oblique angle of the ascending ramus suggests that the individual may have been female.

Cranial Deformation—Anteroposterior deformation. The frontal bone is slightly flattened. Bregmatic elevation and lateral parietal expansion are observed. Asymmetric reshaping of the cranium has resulted in more pronounced flattening of the left vault.

Other Features—The second left maxillary premolar appears to be congenitally absent. The mandibular right third molar has a single root. No evidence of pathology or trauma is noted.

Perimortem Modification—The frontal perforation on this specimen measures 8 × 9 mm² and is located 19 mm superior to nasion. The opening extends into the frontal sinus. Both external and internal surfaces are the same size as the perforation. The posterior breakage area involves the posterior portions of both parietal bones, the left temporal bone, and the posterior half of the right temporal bone, including the mastoid process. Cut marks averaging 10 mm in length are observed on the right parietal bone near the squamosal suture and roughly parallel to the breakage. Several tiny but deeper cut marks are located on the right temporal bone along the breakage area as well. Cut marks may be present on the maxilla, but the poor condition of the bone prohibits certainty. Tiny cut marks are noted on the right nasal bone. Several long cut marks (24 mm long) are present on the buccal surface of the ascending ramus and coronoid process of the right mandible. The lacrimal bones and the orbital plates of the ethmoid bone are absent.

Archaeological Context and Associated Artifacts—Specimen 6 is one of six trophy heads found in Tomb 1 in Cemetery n. See specimens 3 and 4 for more information.

Specimen 7 (FMNH 171099) (Figs. 22–24)

Presence and Condition—This specimen consists of a cranium and mandible in very good condition. Bone composition is excellent.

Age—Young adult. The third molars have erupted, and there is moderate to extensive tooth wear. Remaining internal and external vault and palatine sutures are open or minimally fused.

Sex—Indeterminate. The cranial features are ambiguous. The mental eminence is slightly more substantial than those generally present in females, but all other traits are neutral.

Cranial Deformation—Anteroposterior deformation. The frontal region is flattened, with bregmatic elevation and postcoronal depression observed. Lateral parietal expansion is seen as well.

Other Features—An unfused metopic suture is present. A large carious lesion involves the entire crown of the lower left second molar. Antemortem loss and remodeling of the lower left first premolar alveolus is observed. Antemortem loss of lower right molars and significant alveolar remodeling are observed.

Perimortem Modification—The frontal perforation measures 9 × 9 mm² and is located 39 mm above nasion. The external surface is wider than the actual perforation, and wear is noted on the right side of the opening. Cut marks are observed around the outer surface of the hole. The interior surface is also slightly wider than the opening. The posterior breakage area involves both parietal regions. Breakage begins along the posterior sphenoid bones and extends through the middle of both temporal bones. The occipital bone and the posterior portions of both parietal bones have been removed. A resinous substance covers the cut areas of the posterior breakage area. Numerous long (20 mm), shallow cut marks are observed above the right supraorbital ridge and on the surfaces of both parietal, right sphenoid, and left temporal bones. Cut mark orientation varies. A gauze pad is present in the left orbit. Cut marks are also present on the lingual surface of the body of the mandible. These cut marks occur in all directions and are of various lengths and depths. There are a few short cut marks located at the midpoint of the right mandibular notch.
Archaeological Context and Associated Artifacts—Specimen 7 is one of six trophy heads found in Tomb 1 in Cemetery n. See specimens 3 and 4 for more information.

Specimen 8 (FMNH 171100) (Figs. 25–27)

Presence and Condition—This specimen consists of a complete but very fragmented cranium. The bone quality is good. The mandible is in excellent condition.

Age—Child, aged 4–6 years. The permanent first maxillary molars are erupting, but their roots are incomplete, suggesting an age of 5 or 6 years. Second maxillary molar crowns are incomplete, suggesting an age range of 4–6 years.

Sex—Indeterminate. The remains are those of a young child.

Cranial Deformation—Anteroposterior deformation. The frontal bone is sloped. A postcoronal depression and lateral expansion of the parietal bones are noted.

Other Features—No evidence of pathology or trauma is observed.

Perimortem Modification—The frontal perforation measures 7.5 × 9 mm² and is located 21.5 mm above nasion. The external and internal edges are slightly larger than the actual perforation. The margin of the posterior breakage area is very jagged. The posterior portion of the parietal bones, both temporal bones, and the entire occipital bone are absent. Multiple long cut marks (15–25 mm) are present on the frontal bone and on the left parietal, sphenoid, zygomatic, and maxillary bones. Numerous short cut marks (8 mm) are concentrated on the lingual surfaces of the mandible, near the mylohyoid grooves. Additionally, cut marks are observed on the buccal surfaces of the mandible on the borders of both rami.

Archaeological Context and Associated Artifacts—Specimen 8 is one of six trophy heads found in Tomb 1 in Cemetery n. See specimens 3 and 4 for more information.

Specimen 9 (FMNH 171136) (Figs. 28–31)

Presence and Condition—The cranium and mandible are complete and in very good condition.

Age—Young adult. The third molars have erupted, and there is only minimal tooth wear. External vault and all palatine sutures except incisive suture show minimal fusion. The internal vault sutures are significantly fused.

Sex—Female. The supraorbital margins are sharp, the glabellar eminence is smooth, the left mastoid process is small, and the cranium is generally gracile. The mental eminence is small.

Cranial Deformation—Anteroposterior deformation. This cranium exhibits slight lateral parietal expansion only.

Other Features—Antemortem loss of the upper left third molar is observed, with significant alveolar remodeling and periodontal disease. Antemortem loss of all lower right molars is noted, along with complete remodeling of the first molar alveolar region and considerable remodeling in the second and third molar regions. Additionally, the loss of the lower left first and second molars is observed, with complete alveolar remodeling. No other evidence of pathology or trauma is noted.

Perimortem Modification—The frontal perforation measures 8.5 × 10 mm² and lies 34 mm above nasion. The outer surface is larger than the opening, and the inner surface is approximately the same size as the perforation. No obvious wear is present on the surfaces, but there is some suggestive flaking. The posterior breakage area includes the posterior portions of both parietal bones, the posterior left temporal bone, and the occipital bone. The perforation is surrounded by several short cut marks. Multiple horizontal cut marks are located directly above each supraorbital ridge (see Fig. 66). More cut marks are present on the right ridge. Multiple additional cut marks of various lengths (4–23 mm) are seen on the right frontal, right and left parietal, and temporal, sphenoid, and zygomatic bones, within the area of the temporalis muscle attachment. Several short, shallow horizontal marks are seen bilaterally on the anterior and posterior borders of both mandibular rami. Deep horizontal cut marks are also seen anterior to inferior borders of both rami. The lacrimal bones and orbital plates of the ethmoid bone are absent, and the inferior edges of the nasal bones are broken.

Archaeological Context and Associated Artifacts—Specimen 9 was found during the 1926
season in a tomb designated Grave 2, in Unit Ed (Kroeber and Collier 1998:81) (see Map 4). The grave was initially believed to be intact, but Kroeber later concluded that the tomb had been somewhat disturbed. The contents revealed the slightly scattered, skeletonized remains of an adult male with a slightly deformed skull. Only the individual’s skull (FMNH 171135) was collected. Several cloth fragments were found, including some red cloth fragments with border and crocheted fringe (FMNH 171137; Fig. 83); a tubular cloth band with a yellow, red, and blue pattern (FMNH 171138; Fig. 84); and a blue-and-white-striped cloth fragment (FMNH 171139; Fig. 84). The base of the grave was 250 cm below ground surface.

Specimen 10 (FMNH 171185) (Figs. 32–35)

Presence and Condition—This specimen consists of a fragmented cranium in fair condition, with some pieces glued together. The superior portion of the nasal and medial orbit region is missing. The sphenoid and posterior palate is incomplete as well. A well-preserved mandible is present.

Age—Young adult. Two of the four third molars remain in place. Both molars have erupted, and they show only minimal wear. The outer table is too incomplete to allow evaluation of external cranial suture closure. However, the internal vault and posterior median palatine sutures are completely fused.

Sex—Female. The glabellar prominence and mental eminence are both small. The gonial angles of the mandibular rami exceed 90°.

Cranial Deformation—Anteroposterior deformation. Frontal flattening is observed, but no lateral parietal expansion is noted. The cranial vault is elongated, suggesting an oblique type of anteroposterior deformation.

Other Features—Anatemortem tooth loss of the maxillary right second and third molars with accompanying alveolar remodeling is observed. Antemortem loss of the mandibular left second and third molars with significant alveolar remodeling is also noted. The upper and lower teeth are unusually worn for such a young adult. Carious lesions are observed on the lower left second premolar and lower right second and third molars. No periodontal disease is noted. No other evidence of pathology or trauma is noted.

Perimortem Modification—Because of the fragmented condition of the cranium, only the superior half of the frontal perforation remains, measuring 15.5 mm. The distance from nasion cannot be measured, but the opening is located in the lower third of the frontal bone, at or immediately above glabella. The internal surface is the same size as the opening, and the extent of the outer surface cannot be determined. The posterior breakage area is confined to the occipital bone. The area of bone removal is defined anteriorly by the posterior margin of the foramen magnum and occipital condyles, laterally by the occipitomastoid sutures, and posteriorly by the nuchal crest. The poor bone preservation of the cranium prohibits the observation of cut marks there. However, some short, deep horizontal cut marks are present on the posterior border of the left mandibular ramus.

Archaeological Context and Associated Artifacts—Two trophy heads (FMNH 171185 and 171186) were found in “Grave” or Cache 9 in Cemetery g on the summit of Mound A (see Map 6). Kroeber (1998:79, n.d.a.:III-87) stated that a cache of three heads, from a young female, a middle-aged male, and a child, were found side by side in a pit “looking southeast and somewhat up.” They were found at a depth of 15 cm. No other grave goods were found in the pit. See specimen 11 for further information.

Specimen 11 (FMNH 171186) (Figs. 36–39)

Presence and Condition—This specimen consists of a fragmented calvarium and mandible in good condition. Almost all of the facial bones are absent. Four unusual, long (at least 27 mm), deep cut marks are located on the left parietal bone. The bone surrounding these cut marks is much lighter in color, indicating that the cut marks occurred long after the individual’s death.

Age—Subadult, around 15–16 years of age. The maxillary third molars have erupted, but both lower third molars remain in their crypts. None of the remaining molars show any wear. In addition, observable sutures exhibit only minimal fusion, and the cranial bones are thin. The basioccipital suture is absent.

Sex—Indeterminate because of an incomplete assemblage and young age.

WILLIAMS ET AL.: NASCA TROPHY HEADS 19
Cranial Deformation—Anteroposterior deformation. The cranium exhibits frontal and occipital flattening. The parietal regions exhibit slight lateral expansion. An oblique type is suggested because posterior pressure is centered below theinion, at an obtuse angle relative to the transverse plane.

Other Features—A carious lesion is observed on the mandibular left second molar. No other evidence of pathology or trauma is observed.

Perimortem Modification—The frontal perforation is missing, although a curved, broken edge suggests that it was originally located at glabella. This opening would have measured no less than 10 mm. The distance from nasion cannot be determined because of the specimen’s fragmentary condition. The posterior breakage area does not involve either parietal bone, but it is difficult to determine the total extent of basicranial involvement, owing to the incompleteness of the assemblage. The temporal bones are apparently unmodified, although the right mastoid process appears to have been broken more recently. The basicipital area of the occipital bone from the basilar suture to the nuchal crest is absent. Some or all of the area may have been removed in the process of perimortem modification. Medium-length (20-mm) vertical cut marks are present on portions of the frontal and parietal bones. Three long areas of discoloration are located approximately 40 mm posterior to the coronal suture. One discolored area is on the right parietal bone, 18 mm from the sagittal suture. The other two stains are on the left parietal bone about 10 and 30 mm from the sagittal suture respectively. Each discolored area runs parallel to the sagittal plane. A dark, reddish-brown coloring is observed around the perimeter of each of these areas. This pattern is identified in one other specimen in this study (see specimen 16, Figs. 58 and 60, where the discolored areas can be see more easily). No cut marks are observed within these areas on this specimen. No cut marks are observed on the mandible.

Archaeological Context and Associated Artifacts—This specimen was recovered from Cache 9 in Cemetery g on Mound A along with specimen 10 (Kroeber and Collier 1998:79) (see specimen 10 for more information). Kroeber stated that the child’s skull fell to pieces and was left behind, so only two of the three trophy heads were collected. Although the facial bones of this specimen are no longer present, Kroeber noted the presence of a frontal perforation in the field. He identified the specimen as a trophy head, based on the frontal perforation combined with the enlarged foramen magnum. Kroeber’s catalogue lists specimen 10 as an adult male and specimen 11 as a young female; however, we find the remains of a young adult female (specimen 10) and a subadult (specimen 11) whose sex cannot be determined. Although other explanations are possible, the most likely one is that the age and sex of the specimens were incorrectly determined in the field. No other artifacts were present.

Cantayo

The Hacienda Cantayo (also known as Cantalloq) is located 2 km east of modern-day Nazca, on the south side of Río Tierras Blancas, near its confluence with Río Aja (see Map 2). A series of cemeteries is found in the hills and washes along the sides of the valley, just outside the region of current cultivation. It covers an area of more than 4 km. Kroeber and Tello divided the region into two parts, upper Cantayo (sections A–F; see Map 7) and lower Cantayo (sections L–M). They tested sections C, D, and E in upper Cantayo and sections L and M in lower Cantayo.

Cax, a structure located within section C on a high area well back from cultivated areas (Map 8), had been systematically looted. Kroeber believed that this activity indicated that the area had been a productive one for looters. Kroeber excavated a series of adobe walls at Cax, and noted that he encountered a great deal of debris, representing either domestic refuse or scattered tomb offerings. Some of the burials were found beneath the walls, while others were located just above the foundations. Although it could not be determined whether the burials predated or postdated the construction, clearly all activity had ceased by Early Intermediate Period 3. Carmichael’s (1988:58) examination of the artifacts confirmed Kroeber’s impression that the site was early, indicating an Early Intermediate Period 2 component with the strong possibility of earlier activity as well. Schreiber (1998:269) commented that the remains of architectural fill, including layers of corn stalks, can still be seen today. She stated that this typical Early Nasca construction technique suggests that the structure was some sort of platform.

Kroeber found two trophy heads in section C. The first trophy head (specimen 12) was found in
Grave 2 in Area Cb. It had been placed inside an enormous ceramic vessel measuring 100 cm high and 110 cm in diameter. Similar vessels were used to bury adults in two burials found at Majoro Chico A (Graves 2 and 4), and an adult woman was found in Cax burial 13. The second trophy head was found in Cax burial 17 (specimen 13). Additionally, a child’s cranium was found with a large number of grave goods. Carmichael suggested that this latter grave was a looted burial from which the main cadaver had been removed (1988, p. 482).

**Specimen 12 (FMNH 171008) (Figs. 40–43)**

*Presence and Condition—*The cranium and mandible are in fair condition. Some scattered soft tissues are present on the inside of the vault and on the external surface of the basicranium. Some strands of hair are found inside the cranium. The superior surface of the specimen has experienced extensive weathering. The cranial vault is bleached and moderately weathered, exhibiting only minimal cracking with no flaking. There is a large opening (21 mm in diameter) located above the left supraorbital ridge (Fig. 40). The poor condition of the bone prevents confident determination of when the damage occurred, but the smooth edges and lack of spiral fractures are more suggestive of weathering processes than of perimortem trauma. Recent cut and scrape marks on the left frontal and temporal bones indicate locations where the specimen has been labeled and relabeled.

*Age—*Subadult, aged 14–18 years. The maxillary third molars are erupting and the mandibular third molars have not yet erupted. The first molars show moderate wear, but there is only minimal wear on the second molars. Minimal suture closure is observed on the internal and external cranial vault, with most sutures classified as “open.” Soft tissues cover most of the palate.

*Sex—*Indeterminate because of this individual’s young age.

*Cranial Deformation—*Anteroposterior deformation, erect form. The frontal bone is slightly flattened and there is a slight postcoronal depression. The parietal bones are slightly expanded and asymmetrical. Pressure is centered at lambda at a perpendicular angle relative to the transverse plane, indicating an erect type of deformation. The left side of the cranial vault is more deformed.
CANTAYO CAX (Part)

Other Features—The posterior cranium exhibits well-healed porotic hyperostosis. As in specimen 3, no frontal sinuses are observable in the frontal perforation. No other evidence of pathology or trauma is noted.

Perimortem Modification—The frontal perforation measures 16 × 21.5 mm² and lies directly at glabella. The outer surface of the opening is slightly larger than the actual perforation, and a resinous substance coats the margins. The posterior breakage area involves only the occipital bone around the foramen magnum. There is minimal breakage of the posterior rim of the foramen. The right condyle and the articular surface of the left condyle have been removed. Several short cut marks are present on the vault midway along the sagittal suture. There are also several cut marks (approximately 10 mm long) located bilaterally on the parietal and temporal bones above and posterior to the external auditory meati. One tiny cut mark is present on the right zygomatic bone, just above the midpoint of the inferior border. Several short cut marks are visible on both the anterior and posterior borders of the left ramus of the mandible. The lacrimal bones, nasal conchae, and posterior borders of the nasal bones are absent.

Archaeological Context and Associated Artifacts—This specimen was removed from Grave 2 in section Cb (Kroeber and Collier 1998:70–71) (see Map 7). The trophy head had been buried in an enormous ceramic vessel about 100 cm tall by 120 cm in diameter. The rim of the vessel was encountered about 70 cm below the ground surface. The vessel broke during excavation, so it was left in the field. Tello collected its engraved rim for the Museo Nacional. The trophy head was lying in the western part of the jar about 30 cm from its base, and faced north. Remnants of a black cord were associated with the specimen. The mandible was separate and located in the eastern half of the vessel. A guinea pig skull and hair and a piece of black wool or a hair band fragment were found inside the trophy head. The vessel fill also contained some Nasca sherds, braided string, gypsum (FMNH 171009), and fragments of an incised gourd (FMNH 171034). Although the notes do not explicitly say so, a disturbed context is suggested by the weathered condition of the cranium, the location of the cranium in one part of the vessel and the mandible in another, and Kroeber's characterization of the area around Cax as heavily looted.

Specimen 13 (FMNH 171058) (Figs. 44–47)

Presence and Condition—The cranium and mandible are both in very good condition. The right and posterior portions of the external vault
are covered with soft tissues. Soft tissues are also found internally on the sphenoid and nasal bones. The zygomatic process of the right maxilla is absent. There is an uneven red stain (probably vegetal) measuring about $30 \times 50$ mm$^2$ on the left parietal and temporal bones.

**Age**—Child, aged 8–10 years. This individual possesses both deciduous and permanent teeth. The deciduous incisors have been lost, and the lower left permanent canine has not yet erupted. The permanent first molars have erupted, but the second molars remain in their crypts.

**Sex**—Indeterminate because of the young age of this individual.

**Cranial Deformation**—Anteroposterior deformation. The frontal bone is slightly flattened. The parietal bones show slight lateral expansion with a postcoronal depression. The slightly elongated vault suggests an oblique form of anteroposterior deformation.

**Other Features**—A slight, active peristiotial reaction associated with dental eruption is seen on the left mandible between the condyle and coronoid process. A partial metopic suture, fused but not obliterated, is observable for a distance of 10 mm from glabella.

**Perimortem Modification**—The frontal perforation is somewhat jagged and measures $8 \times 12$ mm$^2$. It lies slightly to the left of the metopic suture, 23 mm above nasion. Some resinous material is present around the margins. Cut marks radiate out from the perforation. The posterior breakage area extends into the posterior portions of both parietal and temporal bones, and all but the most anterior portions of the mastoid processes have been removed. The margins are jagged. Slight breakage is observed on both gonial angles of the mandible. Slight polishing is present on the left gonial angle. Both lacrimal bones and portions of the nasal septum are absent.

**Archaeological Context and Associated Artifacts**—This specimen was recovered at Cax in Grave 17 about 170 cm below the ground surface (Kroeber and Collier 1998:72–73) (see Map 8). The head, resting on a bed of pacay leaves, was covered with a piece of red bordered cloth about 20 cm$^2$ (FMNH 171059; Fig. 81; also shown in O'Neale 1937, Plate 43). The following artifacts were arranged around the head: a wisp of cotton on a stick (FMNH 171057); a wad of cotton (FMNH 171060); wool cord with three metatarsal bones attached (FMNH 171061; Fig. 81); two-colored wool cords (FMNH 171062; Fig. 81); some strips of cotton mesh (FMNH 171063); a double-barreled pottery whistle in the form of a bird (FMNH 171064; Fig. 81); and a small blackware bowl (FMNH 171065) containing food remnants covered by a fragment of a plain jar (FMNH 171066). Carmichael (1988:482) believed that this feature was not a cache but a grave from which a cadaver had been removed by looters.

**Las Cañas**

Las Cañas is located on the north side of the Rio Nazca about 18 km west of the modern town of Nazca (see Map 2). It is only 2 km east of Ca-huachi and may be an extension of that site on the north side of the river. In 1925, Kroeber undertook a general survey and limited surface collection at Las Cañas. He found the trophy head at this time but did not note its exact location or map the site. Kroeber collected some surface sherds there the next year, but performed no excavation.

**Specimen 14 (FMNH 170223) (Figs. 48–51)**

**Presence and Condition**—This specimen consists of a cranium in fair condition. Significant weathering and bleaching of the external surface is observed. Substantial portions of the left maxilla and palatine structure are missing, and most of the left zygomatic arch is absent. No mandible is present.

**Age**—Young to middle-aged adult. Both third molars have erupted. Significant external, internal, and palatine suture closure is noted. Dental wear cannot be scored because of complete postmortem tooth loss.

**Sex**—Male. The glabellar eminence and supraorbital ridge are prominent. The supraorbital margins are very blunt.

**Cranial Deformation**—Anteroposterior deformation. Pronounced frontal bone flattening extends from the supraorbital ridges to the coronal suture. Lateral parietal expansion is present. An oblique form of anteroposterior deformation is suggested by the sharp angle at lambda caused by pressure applied to the inferior occipital bone.
Other Features—Lytic lesions, either inactive or in the process of healing, are observed on the posterior vault. Weathering makes it difficult to determine disease state. An abscess is present beneath the upper right first molar with pronounced periodontal disease. A tiny button osteoma is observed on the frontal bone. No other pathology or trauma is observed.

Perimortem Modification—The frontal bone perforation measures 6 × 8 mm² and lies to the left of the midline, 63 mm above nasion. There may be slight wear around the margins, but no resin is observed. The outer surface of the perforation is wider than the actual opening, and the interior rim exhibits minimal breakage. Short cut marks are present on the right side of the perforation. The posterior breakage area includes the posterior third of both parietal bones. Lacrimal bone and ethmoid breakage is observed, and the nasal septum is absent.

Archaeological Context and Associated Artifacts—According to the notes in Kroeber’s 1925 catalogue, this trophy head was found on the surface. No associated artifacts were noted.

Majoro Chico

Majoro Chico covers an area about 200 × 600 m² along a ridge, located on the south side of the Río Tierras Blancas, about 4 km west of the modern town of Nazca (see Map 2). Kroeber and Schenck spent about two weeks at Hacienda Majoro. Kroeber identified five loci at Majoro Chico, designated A–E (Map 9), all of which were extensively looted. He stated that Areas A and E dated to the Early Intermediate Period and Area B to the Late Intermediate Period. The other two areas were not dated.

Kroeber and Schenck focused most of their efforts on locus A (Map 10), an area comprising about 60 square meters, uncovering a series of adobe walls associated with Early Intermediate Period burials. They attempted to delineate the outline of the structure, but looting activity had destroyed the walls in some areas. The area between the western and central wall was filled with layers of corn stalks, loose adobe, and other refuse. The burials, dating to Early Intermediate Period phases 3–8, were found near the adobe walls, but the walls were not directly incorporated into any tomb structure. At the south end of the west wall, a rectangular area covered with two layers of adobe was excavated. Kroeber believed this rectangular structure to be the remains of an elaborate tomb.

Twenty-two burials were located during Kroeber and Schenck’s excavations at Majoro Chico A. Graves 6 and 11 contained trophy heads. Both graves were located along the northeast portion of
Majoro Site A
Adobe Walls and Graves

MAP 10. Area A at Majoro Chico.

the northern wall of the large adobe structure. Grave 6 contained the incomplete postcranial remains of an adult male, a trophy head (specimen 15), and a number of other grave goods. Carmichael (1988:346, 482) identified the incomplete skeleton as a secondary bundle interment, stating that the innominates and long bones were wrapped in several layers of fine textiles. The second trophy head (specimen 16), found in cache or Grave 11, was buried in a simple pit with no associated grave goods.

**Specimen 15 (FMNH 170463) (Figs. 52-55)**

Presence and Condition—This specimen consists of a cranium in good condition and a mandible in excellent condition. Many teeth are broken and have been glued in place. The midsections of both zygomatic arches are absent because of postmortem breakage. Separate hairs accompany this specimen.

Age—Young adult. All third molars have erupted. Minimal wear is noted. All internal vault and the majority of palatine sutures are significantly fused. However, external vault suture fusion is inconsistent and asymmetric, with the right lateral sutures exhibiting a greater degree of fusion than those on the left side.

Sex—Male. Both cranium and mandible are large, with prominent muscle attachment sites. The supraorbital margins are very blunt. The mental eminence is large and rectangular. The ascending rami are vertical and exhibit lateral deviation at the gonial angles.

Cranial Deformation—Anteroposterior deformation. The upper two-thirds of the frontal bone is flattened and the angle of pressure is pronounced. Posterior pressure was centered at lambda, with some additional flattening of the inferior
occipital region. The latter suggests an erect type of anteroposterior cranial deformation.

Other Features—A large hole measuring 84 × 62 mm² is present on the left parietal bone. Its radiating fracture pattern and the uneven breakage of the inner and outer tables suggest perimortem damage. Curious lesions are present on the lower right first and second molars and the lower left second molar. Slight periodontal disease is noted. Both maxillary second molars are absent and may have been congenitally absent, given the close proximity of the first and third molars to each other.

Perimortem Modification—The frontal perforation measures 17.5 × 22 mm² and lies 24 mm above nasion. The external surface of the perforation is the same size as the actual opening. No evidence of wear or resin around the perforation is observed. The internal surface is wider than the perforation and extends inferiorly to include the area just superior to the cribiform plate. The posterior breakage area comprises the inferior occipital bone. Its margin extends posteriorly and superiorly from the foramen magnum to the base of the mastoid processes, leaving about 30 mm of the superior occipital bone intact. No cut marks are observed.

Archaeological Context and Associated Artifacts—Grave 6 was located immediately north of the midpoint of the adobe structure’s northern wall (Map 10) (Kroeber and Collier 1998:49). The irregular walls appeared to be of Nasca form but were not part of the burial. The grave was filled with sandy, gravelly soil. At 140 cm below the ground surface, a bundle of upright maize stalks was found in the southwest corner, with a few canes to the north. Between the maize stalks and cane, the midsection of a camelid, including the vertebral columns and ribs, three kinds of cloth (FMNH 170462; Fig. 80), and some pacay leaves were found. Some of the camelid ribs were bound with human hair. A number of large, irregular adobes were found at 160 cm. At 200 cm, a mandible was found in the center of the grave, and a bundle of caña brava tied at the base was found on the northwest side of the grave. The trophy head was found lying behind and beneath the bundle of caña brava. An incomplete human skeleton of an adult male (FMNH 170464), consisting of long bones and innomates, was recovered from the north side of grave at 240–260 cm. The bones were wrapped in several kinds of cloth (FMNH 170465). Additional photographs of the cloth fragments (FMNH 170462–170465) can be found in O’Neale (1937:Pls. 36, 37, 57, and 67). Other grave goods included some Nasca sherds (FMNH 170466; Fig. 80) and an intact jar filled with sand too fragile to save. Kroeber believed that the incomplete skeleton and the trophy head “belonged together,” possibly meaning that they belonged to the same individual (Kroeber and Collier 1998:49). Both the trophy head and the postcranial remains are those of an adult male aged 35–42 years, which is consistent with Kroeber’s hypothesis (Forgey and Williams, manuscript in preparation). Carmichael (1988:482) noted that this burial was a secondary “bundle” interment of an older adult male and dated to EIP 3 (Carmichael 1988:463).

Specimen 16 (FMNH 170489) (Figs. 56–59).

Presence and Condition—This specimen consists of a cranium, left ascending ramus, and a right mandibular condyle in fair to good condition. The left orbit is incomplete because of postmortem damage. The left maxilla has separated from the cranium, but most of the bone is intact. The left zygomatic bone is absent. A postmortem fracture, 18 mm long × 6 mm wide, is observed on the left posterior parietal bone approximately 15 mm superior to the midpoint of the lambdoidal suture.

Age—Young adult. Both upper third molars have erupted. There is minimal closure of several external cranial vault sutures, and the superior and midcoronal sutures and the inferior and superior sphenotemporal sutures remain open. The palatine suture is unfused as well.

Sex—Male. Several features of the cranium are very rugose. The mastoid processes are large, the supraorbital margins are blunt, and the supraorbital ridges are prominent.

Cranial Deformation—Anteroposterior deformation. Posterior flattening is observed, with asymmetric reshaping of the left lambdoid region. Some lateral parietal expansion is noted. An erect type of anteroposterior cranial deformation is suggested because pressure was centered at lambda.

Other Features—Small bilateral anomalous folds (20 mm long) occur along the posterior squamosal suture in the parietal notch of both
temporal bones. No evidence of pathology or trauma is noted.

Perimortem Modification—The frontal perforation is large, measuring $18 \times 21\, \text{mm}^2$ and located 9 mm above nasion. The borders of the perforation are straight. Multiple short cut marks and possible wear are observed above the superior border of the perforation. The posterior breakage area is small. The right and part of the left occipital condyles have been removed. The posterior margin of the foramen magnum is enlarged, and approximately 20 mm of bone has been removed from the right basioccipital bone. There are several long cut marks, approximately 30 mm long, that transect the right coronal suture just superior to the temporal line. Also, there are two discolored areas, similar to those observed on specimen 11, which look like glue marks (Fig. 58). These marks are bilaterally located, parallel to the sagittal plane on the superior aspect of the frontal bone. There are several large cut marks, 19–20 mm long, in each discolored area. The perimeter of the area is defined by a dark reddish-brown discoloration.

Archaeological Context and Associated Artifacts—This trophy head was found in Grave 11 at a depth of 25 cm (Map 10). Kroeber (Kroeber and Collier 1998:50) noted that a carrying cord was attached to the trophy head and that the right eye had some type of covering in it when the specimen was first found, but no evidence of these artifacts remains. Grave 11 was located along the north wall as well, about 5 m east of Grave 6 on the south side of the wall. No grave goods or human remains were found with this specimen.

Paredones

Paredones, located 1 km south of the modern town of Nazca (see Map 2), is believed to have been the main Inka installation in the Nazca Valley during the Late Horizon (Kroeber and Collier 1998:53). The area immediately east of the ruin is a cemetery from earlier periods dating back to at least Early Intermediate Period phase 4. The extensive Inka deposits have made it impossible to determine whether the site was occupied or functioned only as a cemetery in earlier times (Carmichael 1988).

Kroeber visited Paredones in 1925 but made no map of it. While there, he purchased some artifacts from looters, including the two trophy heads listed below (Kroeber’s 1925 catalogue, p. 16). He declined to excavate there the following year because of the extent of looting activity, but returned to collect some surface sherds from the main area. Kroeber stated that the surface material around the ruin was from the Ica period (Late Intermediate Period), but that Nasca A material predominated in the eastern portion of the site.

Specimen 17 (FMNH 170157) (Figs. 60–63)

Presence and Condition—This specimen consists of a cranium and a mandible in good condition, but both are missing some elements. Although much of the cranium has been removed as part of the trophy head preparation, some of the missing bones are probably absent because of postmortem damage. The right zygomatic bone and adjoining maxilla and temporal processes are missing. The left temporal bone and half of the left zygomatic bone are absent, as is the left ascending ramus of the mandible. There is a small depression fracture, measuring 21 mm, to the left of the sagittal suture (Fig. 62). The fracture appears to be the result of postmortem damage, as there is no evidence of healing.

Age—Young adult. All third molars have erupted, but all the molars present show minimal wear. The majority of the cranial vault sutures present are open except those at pterion. The incisive palatine sutures show minimal closure.

Sex—Male. The supraorbital margins are rounded, and the glabellar eminence is prominent. The mandible is also masculine in appearance, with a bilateral mental eminence and vertical right ascending ramus.

Cranial Deformation—Anteroposterior deformation. Slight flattening of the superior frontal bone and lateral expansion of the parietal bones are observed.

Other Features—Antemortem loss of the lower left third molar with resorption of the alveolus is seen. No other evidence of pathology or trauma is noted.

Perimortem Modification—The frontal bone perforation measures $8 \times 13\, \text{mm}^2$ and is located slightly to the right of the sagittal plane, 29.5 mm above glabella. The exterior surface is wider than the actual opening, with slight wear, but the in-
terior border is the same size with a smooth margin. Slight wear is noted on the exterior surface. The posterior breakage area is large. At least two-thirds of the parietal bones have been removed, leaving only 30–40 mm of the anterior parietal bones present. The border of the breakage area is very light in color where the resinous substance observed on other specimens was removed during a later cleaning process. The entire occipital and both temporal bones are absent. The numerous cut marks observed on this specimen suggest extensive postmortem processing. They cover the entire surface of the cranial vault and face, and are particularly concentrated on the left side. Multiple long (32 mm) vertical cut marks are located to the left of the frontal perforation (Fig. 69). Many small cut marks are observed on the left sphenoid and left parietal bones in the region of the temporalis muscle attachment. The right side of the vault exhibits several short, shallow cut marks along both sides of the coronal suture. Cut marks are present on the face and mandible as well. Several short, deep cut marks are visible on the lateral edge of the right orbit (Fig. 67). Cut marks are also present on the medial aspect of the left orbit. Medium-length horizontal and vertical cut marks are observed on the lingual, buccal, and labial surfaces of the body of the mandible. On the lingual surface, fairly deep cut marks run parallel to the body of the right mandible. Tiny but deep cut marks are present on the right condyle and coronoid process (Fig. 70).

Archaeological Context and Associated Artifacts—Kroeber purchased a grave lot from looters that included two trophy heads. The grave lot is described as coming from Grave 3, but there is no further information about this grave. Kroeber stated in a 1959 addition to his manuscript (Kroeber and Collier 1998:53) that he was visiting the site when looters opened a tomb east of the adobe ruin. Kroeber returned later in the day and purchased the items the looters recovered from the tomb. The trophy heads (specimens 17 and 18) are described in the field catalogue (p. 16) as having been found “held by a mummy.” The other grave goods purchased include a red, white, and black bowl (FMNH 170147; Fig. 71); a fragment of a sheet of copper wrapped around wood (FMNH 170148; Fig. 72); a minute fragment of cloth (FMNH 170149); an “Epigonal” jar depicting a man’s head, painted faces, and limbs (in many fragments, but complete; FMNH 170150; Figs. 73 and 74); fragments of a double-spouted jar (FMNH 170151; Fig. 75); a plate in two pieces (FMNH 170152; Fig. 76); a flaring bowl, painted outside, fragmented and incomplete (FMNH 170153; Fig. 77); a red plate with a white zigzag border (FMNH 170154; Fig. 78); a plate with a fish pattern (FMNH 170155; Fig. 79); and a plate with a geometric pattern, along with some fragments of the previous three items (FMNH 170156). Carmichael (Kroeber and Collier 1998:228) assigned the “Epigonal” jar to Nasca 7, according to Dawson’s seriation scheme.

Specimen 18 (FMNH 170158) (Fig. 64)

Presence and Condition—This specimen consists of a fragmented calva and is treated as a trophy head here because Kroeber described it as such in his notes (Kroeber’s 1925 field catalogue, p. 16). Because Kroeber was well aware of trophy head criteria in other cases, his identification was considered sufficient reason to include the specimen here. Only portions of the superior frontal and anterior parietal bones in the bregma region are present now, and these bones have been pieced together and glued. The outer table has flaked off in several places. The mandible is absent.

Age—Middle-aged to older adult. The large size clearly indicates adulthood, and complete fusion is observed in the following sutures: the anterior sagittal, bregma, and midcoronal regions of the external vault sutures, and the sagittal and left coronal sutures of the internal vault.

Sex—Indeterminate because of insufficient assemblage.

Cranial Deformation—Indeterminate because of insufficient assemblage.

Other Features—No evidence of pathology or trauma is observed.

Perimortem Modification—The frontal bone is too fragmentary to allow observation of presence or absence of a perforation. However, there may be evidence of intentional breakage, on the external surface of the posterior border of the parietal bones. No cut marks are observed.

Archaeological Context and Associated Artifacts—This trophy head was part of a grave lot purchased from looters. See specimen 17 for more information.
Fig. 1. Frontal view of specimen 1 (FMNH 170912). (FMNH neg. no. A113618.)
Fig. 2. Superior view of specimen 1 (FMNH 170912). (FMNH neg. no. A113617.)
Fig. 3. Specimen 1 mandible (FMNH 170912). (FMNH neg. no. A113619.)
Fig. 4. Frontal view of specimen 2 (FMNH 170222). (FMNH neg. no. A113611.)
Fig. 5. Lateral view of specimen 2 (FMNH 170222). (FMNH neg. no. A113634.)
Fig. 6. Posterior view of specimen 2 (FMNH 170222). (FMNH neg. no. A113635.)
Fig. 7. Frontal view of specimen 3 (FMNH 170224). (FMNH neg. no. A113587.)
Fig. 8. Lateral view of specimen 3 (FMNH 170224). (FMNH neg. no. A113588.)
Fig. 9. Superior view of specimen 3 (FMNH 170224). (FMNH neg. no. A113589.)
Fig. 10. Inferior view of specimen 3 (FMNH 170224). (FMNH neg. no. A113590.)
Fig. 11. Frontal view of specimen 4 (FMNH 171096). (FMNH neg. no. A113597.)
Fig. 12. Lateral view of specimen 4 (FMNH 171096). (FMNH neg. no. A113599.)
Fig. 13. Superior view of specimen 4 (FMNH 171096). (FMNH neg. no. A113598.)
Fig. 14. Inferior view of specimen 4 (FMNH 171096). (FMNH neg. no. A113600.)
Fig. 15. Overview of specimen 5 (FMNH 171097). (FMNH neg. no. A113633.)
Fig. 16. Frontal view of specimen 5 (FMNH 171097). (FMNH neg. no. A113639.)
Fig. 17. Lateral view of specimen 5 (FMNH 171097). (FMNH neg. no. A113641.)
Fig. 18. Posterior view of specimen 5 (FMNH 171097). (FMNH neg. no. A113640.)
Fig. 19. Frontal view of specimen 6 (FMNH 171098). (FMNH neg. no. A113620.)
Fig. 20. Lateral view of specimen 6 (FMNH 171098). (FMNH neg. no. A113632.)
Fig. 21. Posterior view of specimen 6 (FMNH 171098). (FMNH neg. no. A113631.)
Fig. 22. Frontal view of specimen 7 (FMNH 171099). (FMNH neg. no. A113602.)
Fig. 23. Lateral view of specimen 7 (FMNH 171099). (FMNH neg. no. A113629.)
Fig. 24. Posterior view of specimen 7 (FMNH 171099). (FMNH neg. no. A113630.)
Fig. 25. Frontal view of specimen 8 (FMNH 171100). (FMNH neg. no. A113585.)
Fig. 26. Lateral view of specimen 8 (FMNH 171100), superior vault only. (FMNH neg. no. A113586.)
Fig. 27. Superior view of specimen 8 (FMNH 171100). (FMNH neg. no. A113584.)
Fig. 28. Frontal view of specimen 9 (FMNH 171136). (FMNH neg. no. A113625.)
Fig. 29. Lateral view of specimen 9 (FMNH 171136). (FMNH neg. no. A113627.)
Fig. 30. Superior view of specimen 9 (FMNH 171136). (FMNH neg. no. A113626.)
Fig. 31. Inferior view of specimen 9 (FMNH 171136). (FMNH neg. no. A113628.)
Fig. 32. Frontal view of specimen 10 (FMNH 171185). (FMNH neg. no. A113665.)
Fig. 33. Lateral view of specimen 10 (FMNH 171185), superior vault only. (FMNH neg. no. A113666.)
Fig. 34. Superior view of specimen 10 (FMNH 171185). (FMNH neg. no. A113667.)
Fig. 35. Inferior view of specimen 10 (FMNH 171185). (FMNH neg. no. A113664.)
Fig. 36. Frontal view of specimen 11 (FMNH 171186). (FMNH neg. no. A113591.)
Fig. 37. Lateral view of specimen 11 (FMNH 171186), superior vault only. (FMNH neg. no. A113606.)
Fig. 38. Superior view of specimen 11 (FMNH 171186). (FMNH neg. no. A113605.)
Fig. 39. Inferior view of specimen 11 (FMNH 171186). (FMNH neg. no. A113605.)
Fig. 40. Frontal view of specimen 12 (FMNH 171008). (FMNH neg. no. A113621.)
Fig. 41. Lateral view of specimen 12 (FMNH 171008). (FMNH neg. no. A113624.)
Fig. 42. Superior view of specimen 12 (FMNH 171008). (FMNH neg. no. A113622.)
Fig. 43. Inferior view of specimen 12 (FMNH 171008). (FMNH neg. no. A113623.)
Fig. 44. Frontal view of specimen 13 (FMNH 171058). (FMNH neg. no. A113616.)
Fig. 45. Lateral view of specimen 13 (FMNH 171058). (FMNH neg. no. A113615.)
Fig. 46. Superior view of specimen 13 (FMNH 171058). (FMNH neg. no. A113613.)
Fig. 47. Posterior view of specimen 13 (FMNH 171058). (FMNH neg. no. A113614.)
Fig. 48. Frontal view of specimen 14 (FMNH 170223). (FMNH neg. no. A113612.)
Fig. 49. Lateral view of specimen 14 (FMNH 170223). (FMNH neg. no. A113609.)
Fig. 50. Superior view of specimen 14 (FMNH 170223). (FMNH neg. no. A113608.)
Fig. 51. Inferior view of specimen 14 (FMNH 170223). (FMNH neg. no. A113610.)
Fig. 52. Frontal view of specimen 15 (FMNH 170463). (FMNH neg. no. A113593.)
Fig. 53. Lateral view of specimen 15 (FMNH 170463). (FMNH neg. no. A113595.)
Fig. 54. Superior view of specimen 15 (FMNH 170463). (FMNH neg. no. A113596.)
Fig. 55. Inferior view of specimen 15 (FMNH 170463). (FMNH neg. no. A113594.)
Fig. 56. Frontal view of specimen 16 (FMNH 171489). (FMNH neg. no. A113603.)
Fig. 57. Lateral view of specimen 16 (FMNH 171489). (FMNH neg. no. A113583.)
Fig. 58. Superior view of specimen 16 (FMNH 171489). (FMNH neg. no. A113582.)
Fig. 59. Inferior view of specimen 16 (FMNH 171489). (FMNH neg. no. A113581.)
Fig. 60. Frontal view of specimen 17 (FMNH 170157). (FMNH neg. no. A113607.)
Fig. 61. Lateral view of specimen 17 (FMNH 170157). (FMNH neg. no. A113637.)
Fig. 62. Superior view of specimen 17 (FMNH 170157). (FMNH neg. no. A113636.)
Fig. 63. Posterior view of specimen 17 (FMNH 170157). (FMNH neg. no. A113638.)
Fig. 64. Superior view of vault fragment of specimen 18 (FMNH 170158). (FMNH neg. no. A113601.)
Results

Presence and Condition

Kroeber’s field notes from the 1926 expedition demonstrate that he was well aware of the criteria necessary for a cranium to be labeled a trophy head. Frontal perforation location and the extent of the posterior cranium removed were carefully recorded for each specimen collected during that trip. Although three (specimens 1, 11, and 18) of the 18 skulls he brought back to the Field Museum no longer meet the minimal skeletal criteria necessary to be termed trophy heads because of incompleteness or poor preservation of remains, or both, Kroeber was confident in his assessments. In the field, specimen 1 was described as a large male, with a hole in the frontal bone and a posterior breakage area that included the removal of occipital and basal portions (Kroeber and Collier 1998:67). The specimen was in very poor condition and fragmented during the recovery process, so the complete frontal perforation is no longer present. Nonetheless, a curved area of breakage of the appropriate size can be observed immediately superior to glabella on the frontal bone. The entire posterior portion of the cranium is missing, but no resin or cut marks are present to clearly demonstrate intentional removal. Kroeber also identified specimen 11 as a trophy head in his field notes, noting the presence of a frontal hole and an enlarged foramen magnum (Kroeber and Collier 1998:79). Specimen 11 is now very fragmentary, making identification of a frontal perforation and posterior breakage difficult, but a curved broken border on the frontal bone suggests the original position of the frontal perforation. The external vault surface exhibits cut marks and discolored areas similar to those observed on other trophy heads. Cut marks are present on the mandible as well. Specimen 18 is the most problematic specimen because it is very incomplete now, and no conclusive evidence of either a frontal bone perforation or intentional posterior cranial breakage remains. Furthermore, it was collected during the 1925 expedition, when less detailed information was recorded. Because Kroeber recorded the specimen as a trophy head in the inventory and was clearly well aware of the diagnostic criteria, it has been included in the study. The condition of each specimen is summarized in Table 1. All 18 specimens are represented by at least some portion of the cranium, but only 13 specimens retain mandibles. Eight of the crania are complete and in fair to excellent condition (specimens 2, 4, 5, 7–9, 13, and 15). Five of the remaining cranial are fragmentary and often missing elements, but the bone is in good condition (specimens 10, 11, and 16–18). Specimen 18 is the least complete of these cranial, represented only by a calva. The bone of the five remaining specimens is in poor condition. Specimen 1 is encrusted with salt crystals and fragmented during recovery. The other four cranial had lain exposed on the surface and show signs of weathering (specimens 3, 6, 12, and 14). Ten of the 13 mandibles are complete and in fair to excellent condition. The other three mandibles are incomplete: specimen 6 is missing the left half of the mandible, specimen 16 consists of a left ascending ramus and the right condyle, and specimen 17 is missing the left ascending ramus. Soft tissue fragments still cling to six of the cranial. Strands of hair are found with specimens 12 and 15. A red stain (probably vegetal) is observed on the left parietal and temporal bones of specimen 13.

Cranial damage occurring at or sometime after death, but unrelated to trophy making, is observed in five heads (specimens 3, 12, and 15–17). Only the fracture observed in specimen 15 exhibits the spiral fractures and adhesion fragments characteristic of perimortem trauma. Specimen 12 is too sun-bleached to determine the cause of the large opening above the left orbit. However, its smooth edges and lack of radiating fractures suggest postmortem damage. The crushing fractures observed in the three remaining specimens are relatively short and narrow (each less than 22 mm long). Specimen 3 has a textile fragment wedged tightly inside the fracture, indicating that the cranium was probably skeletalized at the time the damage occurred. Neither of the other two fractures exhibits spiral fractures typical of fresh bone breakage, suggesting that the damage occurred some time after death.

It is often difficult to determine when postmortem damage occurred. Both old and recent damage are clearly evident in the collection. For example, the wear observed around the frontal perforations in six heads (specimens 2, 4, 5, 7, 14, and 17) and the polishing observed on specimens 4 and 13 most likely result from their use during Nasca times. However, the removal of the resin from specimen 17 and new cut and scrape marks on several specimens clearly resulted from the cleaning and labeling of those specimens by laboratory assistants sometime during their 75-year curation period.
# Table 1. Inventory of specimens.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Cranium elements present</th>
<th>Condition</th>
<th>Mandible elements present</th>
<th>Condition</th>
<th>Soft tissues present</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>fragmented but complete</td>
<td>salt encrusted</td>
<td>complete</td>
<td>very good</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>complete</td>
<td>excellent</td>
<td>complete</td>
<td>excellent</td>
<td>palate and vault</td>
</tr>
<tr>
<td>3</td>
<td>missing elements</td>
<td>weathered</td>
<td>absent</td>
<td>N/A</td>
<td>posterior vault</td>
</tr>
<tr>
<td>4</td>
<td>complete</td>
<td>very good</td>
<td>absent</td>
<td>N/A</td>
<td>outer and inner vault</td>
</tr>
<tr>
<td>5</td>
<td>complete</td>
<td>good</td>
<td>absent</td>
<td>N/A</td>
<td>palate and maxilla</td>
</tr>
<tr>
<td>6</td>
<td>complete</td>
<td>weathered</td>
<td>right side</td>
<td>good</td>
<td>—</td>
</tr>
<tr>
<td>7</td>
<td>complete</td>
<td>very good</td>
<td>complete</td>
<td>very good</td>
<td>—</td>
</tr>
<tr>
<td>8</td>
<td>fragmentary but complete</td>
<td>good</td>
<td>complete</td>
<td>excellent</td>
<td>—</td>
</tr>
<tr>
<td>9</td>
<td>complete</td>
<td>very good</td>
<td>complete</td>
<td>very good</td>
<td>—</td>
</tr>
<tr>
<td>10</td>
<td>missing elements</td>
<td>fair</td>
<td>complete</td>
<td>very good</td>
<td>—</td>
</tr>
<tr>
<td>11</td>
<td>missing elements</td>
<td>good</td>
<td>complete</td>
<td>good</td>
<td>—</td>
</tr>
<tr>
<td>12</td>
<td>complete</td>
<td>weathered</td>
<td>complete</td>
<td>fair</td>
<td>basicranium, hair strands</td>
</tr>
<tr>
<td>13</td>
<td>complete</td>
<td>very good</td>
<td>complete</td>
<td>very good</td>
<td>internal and external vault</td>
</tr>
<tr>
<td>14</td>
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<td>weathered</td>
<td>absent</td>
<td>N/A</td>
<td>—</td>
</tr>
<tr>
<td>15</td>
<td>complete</td>
<td>good</td>
<td>complete</td>
<td>excellent</td>
<td>unattached hair strands</td>
</tr>
<tr>
<td>16</td>
<td>missing elements</td>
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<td>fragmentary</td>
<td>fair to good</td>
<td>—</td>
</tr>
<tr>
<td>17</td>
<td>missing elements</td>
<td>good</td>
<td>missing elements</td>
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<td>—</td>
</tr>
<tr>
<td>18</td>
<td>superior vault fragment only</td>
<td>fair</td>
<td>absent</td>
<td>N/A</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: A dash (—) means no soft tissue was observed. N/A = not applicable.
The bones of the nose and orbits, such as the lacrimal, nasal conchae, ethmoid, and nasal bones, are fragile and can be broken if handled extensively. Many of the heads (specimens 1–5, 7, 8, 10, and 11) exhibit this type of damage. The crushed orbital plates observed in these specimens may have occurred as the result of repeated handling during ritual use of the heads by the Nasca people, or much later in the laboratory. Broken edge coloration must be compared with surrounding bone to estimate the break’s time of occurrence, but these edges are difficult to observe in these tiny, fragile bones. The damage in most cases exhibits the asymmetric crushing that typically results when fingers are placed in the orbits to hold the cranium. Further corrosion comes from the fact that the orbital plates are more extensively damaged than the structures beneath them. Some of this damage may have resulted from the process of trophy head modification as well, though, because these delicate bones were removed and replaced with cloth in specimen 4.

The broken zygomatic arches and processes observed in several specimens, notably specimens 14 and 15, can result from handling as well. These specimens have been handled extensively by both the Nasca people and later researchers. The broken ends observed here are lighter in color than the surrounding bone, however, indicating fairly recent postmortem damage.

Finally, some ethnographic reports of trophy head preparation (Redmond 1994) have described the intentional removal of anterior teeth. Sixteen of these heads (specimens 1–7 and 9–17) have lost anterior teeth, and specimens 14 and 16 exhibit some alveolar breakage around the incisors. Unfortunately, since anterior teeth are single-rooted, they are often lost from skeletonized remains, no matter how carefully curated. Consequently, determining whether any of the anterior teeth in this collection were intentionally removed during the trophy-making process is not possible.

Age and Sex

Table 2 records age, sex, cranial shape, and pathology by individual. Table 3 summarizes the age and sex determinations for each of the trophy heads and presents them by site. There are 14 adults, two subadults, and two children. Seven of the adults are male, one is probably male, two are female, and the sex of the remaining four adults could not be determined.

The adult age estimates are necessarily conservative because of the absence of postcranial material. Specimens are assigned to broad age classes (young, middle-age, or older adult) based on third molar eruption (observed in 13 individuals), extent of molar wear (observed in 13 individuals), and degree of cranial suture closure (observed in all 14 adult individuals). Specimens 11 and 12 are classified as subadults because, although their maxillary third molars have erupted, their mandibular molars remain in their crypts. Most of the subadults’ cranial sutures are unfused. Additionally, little to no wear is observed on their molars. Age assessment for the two children was based primarily on root and crown development in specimens 8 and on dental eruption of permanent first molars in specimen 13. The small size of their crania and mandibles is consistent with a young age as well.

Several factors make sex assignment in this collection difficult. First, an obvious problem is the lack of postcranial remains—particularly the best indicator of sex, the pelvis. Second, because perimortem modification results in the loss of much or all of the posterior cranium in many specimens, traits such as nuchal crest development can only be observed in two individuals. Consequently, increased emphasis is placed on facial and mandibular traits here. Finally, the cranial deformation observed in 17 of the 18 specimens makes sex assignment more difficult because of its potential for influencing sexually dimorphic traits. Fortunately, a study of sex differences undertaken in more complete remains recovered from these sites (Forgey and Williams, unpublished data) indicates that this population exhibits a fair degree of cranial sexual dimorphism. Consequently, sex can be assigned to the majority of the adult specimens despite these problems. Previous age and sex assignments from inventory undertaken by Konigsberg in 1987 (n.d.) are in good agreement with our independent observations. All of his age assessments are in accordance with ours, as are all but one of the sex determinations. Konigsberg considered the sex of specimen 10 to be “indeterminate,” whereas we designate it “female” on the basis of its flat glabellar eminence, rounded orbital margins, small mental eminence, and obtuse gonial angles.

Cranial Deformation

The “Nasca” style of cranial deformation is widely cited in the literature, but in fact it is an am-
Table 2. Summary of trophy head information.¹

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Site</th>
<th>Sex</th>
<th>Age</th>
<th>Deformation form</th>
<th>Pathology/trauma</th>
<th>Dental disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aja</td>
<td>male?</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>—</td>
<td>mild</td>
</tr>
<tr>
<td>2</td>
<td>Cahuachi</td>
<td>male</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>—</td>
<td>teeth lost</td>
</tr>
<tr>
<td>3</td>
<td>Cahuachi</td>
<td>indeterminate</td>
<td>young adult</td>
<td>anteroposterior vertical</td>
<td>healed depression fracture</td>
<td>mild</td>
</tr>
<tr>
<td>4</td>
<td>Cahuachi</td>
<td>male</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>degenerative joint disease</td>
<td>teeth lost</td>
</tr>
<tr>
<td>5</td>
<td>Cahuachi</td>
<td>male</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>Cahuachi</td>
<td>indeterminate</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>—</td>
<td>teeth lost</td>
</tr>
<tr>
<td>7</td>
<td>Cahuachi</td>
<td>indeterminate</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8</td>
<td>Cahuachi</td>
<td>indeterminate</td>
<td>4–6 years</td>
<td>anteroposterior</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>9</td>
<td>Cahuachi</td>
<td>female</td>
<td>young adult</td>
<td>anteroposterior oblique</td>
<td>—</td>
<td>teeth lost</td>
</tr>
<tr>
<td>10</td>
<td>Cahuachi</td>
<td>female</td>
<td>young adult</td>
<td>anteroposterior oblique</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11</td>
<td>Cahuachi</td>
<td>indeterminate</td>
<td>15–16 years</td>
<td>anteroposterior oblique</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>12</td>
<td>Cantayo</td>
<td>indeterminate</td>
<td>14–18 years</td>
<td>anteroposterior vertical</td>
<td>healed porotic hyperostosis</td>
<td>—</td>
</tr>
<tr>
<td>13</td>
<td>Cantayo</td>
<td>indeterminate</td>
<td>8–10 years</td>
<td>anteroposterior oblique</td>
<td>slight periostial reaction</td>
<td>—</td>
</tr>
<tr>
<td>14</td>
<td>Las Cañas</td>
<td>male</td>
<td>young-middle aged adult</td>
<td>anteroposterior oblique</td>
<td>inactive lytic lesions</td>
<td>pronounced</td>
</tr>
<tr>
<td>15</td>
<td>Majoro Chico</td>
<td>male</td>
<td>young adult</td>
<td>anteroposterior vertical</td>
<td>cranial fracture</td>
<td>mild</td>
</tr>
<tr>
<td>16</td>
<td>Majoro Chico</td>
<td>male</td>
<td>young adult</td>
<td>anteroposterior vertical</td>
<td>—</td>
<td>caries</td>
</tr>
<tr>
<td>17</td>
<td>Paredones</td>
<td>male</td>
<td>young adult</td>
<td>anteroposterior</td>
<td>—</td>
<td>teeth lost</td>
</tr>
<tr>
<td>18</td>
<td>Paredones</td>
<td>indeterminate</td>
<td>middle-older adult</td>
<td>unknown</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: A dash (—) means the feature under discussion was not observed (may include bones that are missing or too deteriorated to allow observation).
TABLE 3. Age and sex distribution by site.

<table>
<thead>
<tr>
<th>Site</th>
<th>Adult</th>
<th>Subadult</th>
<th>Child</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aja</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cahuachi</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Cantayo</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Las Cañas</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Majuro Chico</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Paredones</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 3. Age and sex distribution by site.

<table>
<thead>
<tr>
<th>Site</th>
<th>Male</th>
<th>Female</th>
<th>Sex</th>
<th>Subadult</th>
<th>Child</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aja</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Cahuachi</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Cantayo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Las Cañas</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Majuro Chico</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Paredones</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>18</td>
</tr>
</tbody>
</table>

Temporal variations of custom within the geographical and chronological limits of a larger culture. The trait of frontal deformation is however constant for the culture as a whole (n.d.b:26).

Anteroposterior cranial deformation is observed in 17 of the 18 individuals (Table 2). Specimen 18 is too incomplete to be scored. Although deformation is of this type, both vertical and oblique forms are observed in this sample. Unfortunately, the occipital and parietal bones critical for accurate classification are often missing from these trophy heads, making subtype assignment difficult. Eight specimens possess sufficient posterior and/or lateral vault assemblages to allow subtype classification. Four specimens are assigned to the vertical subtype (specimens 3, 12, 15, and 16) and four are assigned to the oblique subtype (specimens 10, 11, 13, and 14). Whether the observed variation in deformation results from temporal or geographic differences cannot be determined at this time.

Other Features

Relatively little pathology or trauma is observed in this collection (Table 2). The young age of many of the individuals in this sample contributed in part to the generally good levels of health noted. One healed depression fracture is observed in specimen 3. Healed porotic hyperostosis is present on the posterior vault of specimen 12. No cases of cribra orbitalia are observed. Inactive or healing lytic lesions are observed on the superior vault of specimen 14. Slight active periostitis is observed on the left mandibular notch on specimen 13, probably related to imminent dental eruption. Degenerative joint disease is observed in specimen 4, where slight porosity is present on both occipital condyles. Periodontal disease rang-
Table 4. Summary of frontal bone perforation and cranial base breakage areas.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Site</th>
<th>Relative size</th>
<th>Diameter (mm) of perforation</th>
<th>Distance (mm) from perforation to Cranial base breakage</th>
<th>Maximum area removed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Minimum</td>
<td>Nasion</td>
<td>Bregma</td>
</tr>
<tr>
<td>1</td>
<td>Aja</td>
<td>small?</td>
<td>9.5</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>2</td>
<td>Cahuachi</td>
<td>small</td>
<td>7</td>
<td>8</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>Cahuachi</td>
<td>large</td>
<td>21</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Cahuachi</td>
<td>small</td>
<td>5</td>
<td>9</td>
<td>44</td>
</tr>
<tr>
<td>5</td>
<td>Cahuachi</td>
<td>small</td>
<td>7</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td>6</td>
<td>Cahuachi</td>
<td>small</td>
<td>8</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>7</td>
<td>Cahuachi</td>
<td>small</td>
<td>9</td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>8</td>
<td>Cahuachi</td>
<td>small</td>
<td>7.5</td>
<td>9</td>
<td>21.5</td>
</tr>
<tr>
<td>9</td>
<td>Cahuachi</td>
<td>small</td>
<td>8.5</td>
<td>10</td>
<td>34</td>
</tr>
<tr>
<td>10</td>
<td>Cahuachi</td>
<td>large?</td>
<td>15.5</td>
<td>19?</td>
<td>NP</td>
</tr>
<tr>
<td>11</td>
<td>Cahuachi</td>
<td>large?</td>
<td>&gt;10</td>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>12</td>
<td>Cantayo</td>
<td>large</td>
<td>16</td>
<td>21.5</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>Cantayo</td>
<td>small</td>
<td>8</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>14</td>
<td>Las Cañas</td>
<td>small</td>
<td>6</td>
<td>8</td>
<td>63</td>
</tr>
<tr>
<td>15</td>
<td>Majuro Chico</td>
<td>large</td>
<td>17.5</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>16</td>
<td>Majuro Chico</td>
<td>large</td>
<td>18</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>17</td>
<td>Paredones</td>
<td>small</td>
<td>8</td>
<td>13</td>
<td>29.5</td>
</tr>
<tr>
<td>18</td>
<td>Paredones</td>
<td>small?</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
</tr>
</tbody>
</table>

Note: NP = measurement not possible.

The perforation to nasion. The distance from nasion to bregma is included to provide a measure of size variation, to allow comparisons between trophy heads. The perforations can be roughly divided into two categories by size. The small perforations range from 5 to 12 mm in diameter, while the large perforations vary from 15.5 to 24 mm in diameter (Chart 2). The small perforations are located in the center of the frontal bone, placed approximately on the midline of the bone. The large perforations are located roughly at glabella. Six specimens (2, 4, 5, 7, 14, and 17) show wear around the perforations, generally more pronounced on the right edge.

The amount of bone removed from the base of each cranium differs widely (see Table 4). In four specimens (specimens 1, 10, 12, and 16), minimal bone was removed. The foramen magnum was enlarged in each specimen by removing one or both of the occipital condyles and the posterior margin. The entire basioccipital portion of the occipital bone was removed in two cases (specimens 11 and 15). The remaining 11 crania show the most extensive modification of the inferior and posterior regions of the cranial vault. In these cases, the entire occipital bone and the posterior portions of both the parietal and temporal bones were re-

Perimortem Modification

Skeletalized Paracas and Nasca trophy heads are identified by the presence of two characteristics: a perforation in the frontal bone and an enlargement of the foramen magnum. The frontal perforation may vary in size and location. The posterior enlargement similarly varies in size and shape, from the simple widening of the foramen magnum to the complete removal of the entire posterior cranium.

Table 4 lists the minimum and maximum diameters of each perforation and the distance from
moved, essentially resulting in removal of the entire posterior half of the cranium. Cranial base breakage cannot be observed in specimen 18 because of the minimal assemblage present and its fragmentary nature.

The perimortem modification of the frontal bone and posterior cranium observed in this sample can be organized into three groups: 1) a very small frontal perforation about 10 mm in diameter in the middle of the forehead, combined with the removal of most of the posterior cranium, including the posterior half of the parietal bones; 2) a large hole about 20 mm in diameter at glabella combined with an enlargement of the foramen magnum and very little posterior region involvement; and 3) a large hole similar to that found in the previous group (2), but with the basioccipital portion of the occipital bone removed. Eleven trophy heads are included in the first group, four heads are of the second type, and two heads are of the third type (see Table 4). Specimen 18 is too incomplete and fragmentary to assign to a group.

No obvious pattern of distribution is apparent among these three trophy head types. The common first type was found in all archaeological contexts and at every site except Majoro Chico. The less common second and third types were found at Cahuachi, Cantayo, and Majoro Chico. One trophy head of the second type was found in the Late Intermediate Period tomb at the base of Cahuachi Mound A. A cache in Cemetery g on the summit of Cahuachi Mound A contained one of each of the latter two types. Of the two trophy heads buried along an adobe wall at Majoro Chico, one head was of the second type and the other of the third type. The fourth trophy head of the second type was found in a looted grave at Cantayo.

Cut marks are observed on 14 of the 18 specimens in this study (Tables 5 and 6). They are present on the crania of 13 individuals (specimens 2, 4–9, 11–14, 16, and 17) and on eight of the available 13 mandibles (specimens 2, 6–10, 12, and 17) (Fig. 70). They are commonly seen around the frontal perforation (specimens 5, 7, 9, 13–14, and 17) (Fig. 66) and along the posterior breakage areas (specimens 2, 6, and 12). Cut marks are frequently observed on the internal surface of the mandible where muscles of the tongue attach (specimens 2, 7, and 17). In specimens from other collections, where soft tissues are better preserved (Verano 1995:208), the tongue has been removed and attached to the carrying cord. Cut marks are common where the chewing muscles attach to the mandible (Fig. 70) and cranium (zygomatic, sphenoid, and temporal bones; Fig. 65), and on the mandibular condyle near the temporomandibular joint (specimens 2, 4, 6–10, 12, and 17; Fig. 70). These cut marks indicate that the mandible was removed from the skull. Long
<table>
<thead>
<tr>
<th>Specimen</th>
<th>Site</th>
<th>Cut marks*</th>
<th>Resin</th>
<th>Wear</th>
<th>Gauze pads</th>
<th>Polishing</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aja</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Cahuachi</td>
<td>present</td>
<td>—</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>Cahuachi</td>
<td>—</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4</td>
<td>Cahuachi</td>
<td>present</td>
<td>present</td>
<td>present</td>
<td>orbits, nose</td>
<td>—</td>
<td>zygomatic arch</td>
</tr>
<tr>
<td>5</td>
<td>Cahuachi</td>
<td>present</td>
<td>present</td>
<td>present</td>
<td>both orbits</td>
<td>—</td>
<td>wig</td>
</tr>
<tr>
<td>6</td>
<td>Cahuachi</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7</td>
<td>Cahuachi</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8</td>
<td>Cahuachi</td>
<td>present</td>
<td>present</td>
<td>present</td>
<td>left orbit</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>9</td>
<td>Cahuachi</td>
<td>present</td>
<td>—</td>
<td>possible</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10</td>
<td>Cahuachi</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11</td>
<td>Cahuachi</td>
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<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>12</td>
<td>Cantayo</td>
<td>present</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>13</td>
<td>Cantayo</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>14</td>
<td>Las Cañas</td>
<td>present</td>
<td>—</td>
<td>possible</td>
<td>—</td>
<td>—</td>
<td>gonial angle</td>
</tr>
<tr>
<td>15</td>
<td>Majuro Chico</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>16</td>
<td>Majuro Chico</td>
<td>present</td>
<td>—</td>
<td>possible</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>17</td>
<td>Paredones</td>
<td>present</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>18</td>
<td>Paredones</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

* See Table 7 for a more detailed description of cut marks.
Note: A dash (—) means the feature under discussion was not observed (may include bones that are missing or too deteriorated to allow observation).
Table 6. Cut mark characteristics and distribution.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Site</th>
<th>Frontal perforation</th>
<th>Face</th>
<th>Vault</th>
<th>Rami</th>
<th>Lingual</th>
<th>Buccal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Aja</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>short, deep, entire surface posterior breakage area</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>long, deep, entire surface posterior breakage area</td>
<td>posterior</td>
<td>entire surface, tongue attachment</td>
<td>—</td>
</tr>
<tr>
<td>3 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>multiple short, entire surface</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>long, vertical, left sphenoid parallel to posterior</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5 Cahuachi</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>coronoid process</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>nasal bones breakage area</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7 Cahuachi</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>right supraorbital ridge</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>zygoma, maxillae</td>
<td>—</td>
<td>—</td>
<td>buccal surfaces</td>
</tr>
<tr>
<td>9 Cahuachi</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>long, horizontal, above orbits</td>
<td>—</td>
<td>—</td>
<td>near mylohyoid grooves</td>
</tr>
<tr>
<td>10 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>frontal, parietales</td>
<td>left posterior</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11 Cahuachi</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>parallel sagittal and lamboid sutures</td>
<td>left borders</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>12 Cantayo</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>right zygomatic</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>13 Cantayo</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>right coronal suture, and in discolored areas</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>14 Las Cañas</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>entire surface</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>15 Majoro Chico</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>left posterior</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>16 Majoro Chico</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>17 Paredones</td>
<td>present</td>
<td>—</td>
<td>—</td>
<td>coronoid process, condyle</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>18 Paredones</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: ? = bone is missing or too deteriorated for observation. A dash (—) means feature under discussion was not observed.
Cut marks are sometimes present on the cranial vault. Cut marks lying parallel to the breakage area may be associated with the removal of that area. Vertical cut marks found on the frontal bone may result from the removal of the skin, the making of incisions similar to those described by Baraybar (1987), or from some other unknown process (specimen 16; Figs. 56 and 58). The tiny cut marks found on the bones of the face most likely result from the removal of the skin (Fig. 68; specimens 2, 5-9, and 17).

Verano (1995; Verano et al. 1999) described the presence of numerous cut marks on trophy head crania and mandibles that he argued resulted from the removal of the skin and underlying tissues. Once the underlying tissues were removed, the skin was replaced with gauze pads inserted beneath the skin to replace the missing tissues. The pads, combined with cactus spines that were used to pin the lips together, helped to maintain a lifelike appearance. Verano used evidence from his examination of the Cerro Carapo skulls to support this interpretation of the cut marks. Although those trophy heads were skeletalized, he reported hair and tissue impressions in the surrounding soil matrix that showed that the soft tissue had been lost because of poor preservation. The trophy heads' current skeletalized condition enabled Verano to identify cut marks, and the soil attested to their previous state as mummmified heads.

Six of the trophy heads in the Kroeber collection (specimens 2, 4, 5, 7, 9, and 17) show evidence of extensive processing, similar to the preparation described by Verano, with cut marks found over most of the cranial vault and mandible surfaces. Additional evidence of processing includes the application of resin to cut margins, the placement of gauze pads in orifices, and the presence of wear-polish where mandibles were reattached to crania.

A resinous material has been rubbed into the cut edges of the frontal perforations, the posterior breakage areas, or both in four of the more extensively processed cases (specimens 4, 5, 7, and 17) and in three others (specimens 3, 12, and 13). Specimen 17 clearly shows where the substance has been removed much later during cleaning, revealing the white bone beneath. The application of resin to the cut edges of bone would be a practical way to prevent the oozing typical of fresh bone. A similar practice using clay has been observed in trophy heads from Mesoamerica (L. A. Weyer, pers. comm.).

Gauze pads are observed in three of the six heads (specimens 4, 5, and 7). These pads were placed in the orbits of all three individuals and in the nasal cavity of specimen 4. Textile fibers are found in specimen 3. The excellent condition of the nasal turbinates in specimen 4, which lie anterior to the gauze pad, indicate that the pad was inserted into the nasal cavity from the internal posterior aperture. Verano (1995) and Guillaumé (cited in Silverman 1993a:224) proposed that the purpose of the gauze pads found in the orbits and beneath the skin of the cheeks was to “maintain a lifelike appearance” of the trophy head. However, the gauze pad found in the nasal cavity of specimen 4 was inserted through the posterior aperture, and would therefore have had no effect on the appearance of the face (Fig. 14). Consequently, this pad suggests an additional function for gauze pads, consistent with ethnographic reports of plugging orifices to keep an individual’s spirit from escaping (Proulx 1971, 1989; Weyer 1958).

A primitive “wig” is attached to specimen 5 (Fig. 15). Hair and possibly skin are attached to one of two textile fabrics, which is then affixed to the external vault of this individual. Because little soft tissue remains on this specimen, the exact relationship between hair, scalp, and textile is difficult to ascertain. It may be a wig, or the fabric may have been placed there to retain a more lifelike appearance, similar to gauze pads (Verano 1995:210). The latter possibility seems somewhat less likely, given the small amount of tissue present in this region of the cranium during life, but subsequent soft tissue disintegration makes evaluation difficult.

Specimens 11 and 16 exhibit discolorations on the upper third of the frontal bones, lying parallel to the sagittal plane. These markings measure approximately 30–35 mm in both specimens. Cut marks approximately 20 mm in length are present in the discolored areas on specimen 16. These discolorations and associated cut marks may have been made while affixing some type of ornamentation to the skull. Alternatively, these areas may be associated with the scalp lacerations that Drusini and Baraybar (1990) observed in other specimens and attributed to sacrificial bleeding rituals.

Clear evidence of prolonged use of some of these specimens suggests an ongoing ritual function. Wear on the frontal perforations is observed where the cords rubbed against the bone in six cases (specimens 2, 4, 5, 7, 14, and 17). Polishing is noted on the zygomatic arch of specimen 4 and the left gonial angle of specimen 13. The making
of wigs like the one found with specimen 5 may reflect extended use as well. The discolored areas observed on specimens 11 and 16 may be evidence of glues used to attach similar items to those heads.

Archaeological Context and Associated Artifacts

In contrast to many previously described collections of trophy heads, a significant fraction of the Field Museum specimens are from the early Nasca epochs. Although a wealth of iconography exists from this early period, most trophy heads have come from later Nasca times (Browne et al. 1993). Seven of the heads can be dated to the Early Intermediate Period phases 1–4 (specimens 1, 9–13, and 15), based on associated artifacts or surrounding tombs (Table 7). Two heads are from late Nasca, based on the accompanying ceramics (Kroeber and Collier 1998). Specimen 16 can be generally assigned to the Early Intermediate Period, based on surrounding material. Six are from a tomb that probably dates to the Late Intermediate Period (specimens 3–8). Contextual information is insufficient to date two of the heads (specimens 2 and 14).

These trophy heads were found in three main archaeological contexts: 1) in architectural features, 2) included as grave goods in the burials of others, and 3) buried alone or in small caches in cemeteries. Three trophy heads (specimens 13, 15, and 16) were found in architectural features. Ten of the trophy heads (specimens 3–9, 12, 17, and 18) were found in tombs. Three trophy heads (specimens 1, 10, and 11) were recovered from caches in cemeteries. The original placement of the remaining two heads is unknown because they were found on the surface. Specimen 2 was found in a jar with another cranion on top of Cahuachi Mound A, lying on the surface at the edge of a tomb. The trophy head was collected, but the other cranion was left in the field. Specimen 14 was found on the surface at Las Cañas.

Three trophy heads were found near architectural features, in pits dug near walls. Specimen 13 was found at Cantayo Cax. Specimens 15 and 16 were recovered from Majoro Chico. Although Kroeber excavated a series of walls at Cantayo Cax, the nature of the architecture remained unclear. He found a great deal of material, but whether it was domestic refuse or the debris from looted tombs could not be determined (Carmichael 1988). Schreiber (1998) states that the layered cornstalks visible on the surface today suggest that the Cax structure is the remains of a platform. The original contents of the pit in which specimen 13 was found were uncertain. The pit contained a trophy head, covered by a cloth and lying on a bed of pacay leaves, surrounded by numerous artifacts. Although Kroeber did not identify the pit as disturbed, Carmichael (1988) believed that the pit had been looted and the body removed, presumably because of the number of other artifacts present was unusual for a trophy head cache. Kroeber believed that the walls at Majoro Chico were of a more clearly ceremonial nature than those at Cax and included the remains of an elaborate rectangular tomb at the south end of the walled area. Like specimen 13, specimen 15 was found in unusual circumstances. Incomplete human remains were found in this grave, which Carmichael described as a secondary burial (Carmichael 1988:482). Kroeber believed that the incomplete human remains, consisting mostly of long bones, and the trophy head belonged to the same person. Again, although Kroeber did not address the issue, his description of the contents indicates that artifacts were found at multiple levels throughout the grave, which suggests that this pit might be a disturbed burial. Specimen 16, found alone in a pit near one of the walls at Majoro Chico, was one of only four specimens recovered from seemingly intact contexts.

As the previous paragraph illustrates, determining whether trophy heads have been included in the grave of another individual is difficult in the case of looted graves from which some of the original contents, including the deceased’s body, may have been removed. Even the identification of graves as intact or disturbed may be difficult in this area of the world, where looting has occurred for centuries. The amount of disturbance may range from severe, in which the entire tomb contents have been removed, to mild, in which the only evidence of entry is the disarray of some of the grave artifacts. Fortunately, even severely disturbed tombs can still yield useful data if the information is interpreted cautiously. Here, the most difficult task is to determine whether a burial containing only a trophy head at the time of excavation ever contained the remains of another individual.

Ten trophy heads (specimens 3–9, 12, 17, and 18) were recovered from what are believed to be the graves of other individuals. Three of these specimens were recovered from graves where ev-
TABLE 7. Distribution of trophy heads in archaeological context.

<table>
<thead>
<tr>
<th>Spec.</th>
<th>Phase*</th>
<th>Basis for date</th>
<th>Site</th>
<th>Cemetery</th>
<th>Association</th>
<th>Disturbed/ intact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EIP 2-3</td>
<td>sherd found in grave</td>
<td>Aja</td>
<td>Area B, grave 8</td>
<td>cache</td>
<td>intact</td>
</tr>
<tr>
<td>2</td>
<td>unknown</td>
<td>N/A</td>
<td>Cahuachi</td>
<td>Mound A, cemetery h</td>
<td>on surface, in ceramic vessel with skull</td>
<td>disturbed</td>
</tr>
<tr>
<td>3</td>
<td>MH/LIP</td>
<td>textile found in tomb</td>
<td>Cahuachi</td>
<td>Mound A, cemetery n, tomb 3</td>
<td>lining a tomb</td>
<td>disturbed</td>
</tr>
<tr>
<td>4</td>
<td>MH/LIP</td>
<td>textile found in tomb</td>
<td>Cahuachi</td>
<td>Mound A, cemetery n, tomb 3</td>
<td>lining a tomb</td>
<td>disturbed</td>
</tr>
<tr>
<td>5</td>
<td>MH/LIP</td>
<td>textile found in tomb</td>
<td>Cahuachi</td>
<td>Mound A, cemetery n, tomb 3</td>
<td>lining a tomb</td>
<td>disturbed</td>
</tr>
<tr>
<td>6</td>
<td>MH/LIP</td>
<td>textile found in tomb</td>
<td>Cahuachi</td>
<td>Mound A, cemetery n, tomb 3</td>
<td>lining a tomb</td>
<td>disturbed</td>
</tr>
<tr>
<td>7</td>
<td>MH/LIP</td>
<td>textile found in tomb</td>
<td>Cahuachi</td>
<td>Mound A, cemetery n, tomb 3</td>
<td>lining a tomb</td>
<td>disturbed</td>
</tr>
<tr>
<td>8</td>
<td>MH/LIP</td>
<td>textile found in tomb</td>
<td>Cahuachi</td>
<td>Mound A, cemetery n, tomb 3</td>
<td>lining a tomb</td>
<td>disturbed</td>
</tr>
<tr>
<td>9</td>
<td>EIP1-3?</td>
<td>surrounding graves</td>
<td>Cahuachi</td>
<td>Mound E, cemetery d, grave 2</td>
<td>buried with person</td>
<td>disturbed</td>
</tr>
<tr>
<td>10</td>
<td>EIP1-3</td>
<td>surrounding graves</td>
<td>Cahuachi</td>
<td>Mound A, cemetery g, grave 9</td>
<td>cache of 3</td>
<td>intact</td>
</tr>
<tr>
<td>11</td>
<td>EIP1-3</td>
<td>surrounding graves</td>
<td>Cahuachi</td>
<td>Mound A, cemetery g, grave 9</td>
<td>cache of 3</td>
<td>intact</td>
</tr>
<tr>
<td>12</td>
<td>EIP1-3</td>
<td>sherds found in grave</td>
<td>Cantayo</td>
<td>Cb grave 2</td>
<td>in a large ceramic vessel</td>
<td>disturbed?</td>
</tr>
<tr>
<td>13</td>
<td>EIP1-2</td>
<td>grave contents</td>
<td>Cantayo</td>
<td>Cax grave 17</td>
<td>buried with person?</td>
<td>disturbed?</td>
</tr>
<tr>
<td>14</td>
<td>unknown</td>
<td>N/A</td>
<td>Las Cañas</td>
<td>surface</td>
<td>on surface</td>
<td>disturbed</td>
</tr>
<tr>
<td>15</td>
<td>EIP3</td>
<td>sherds found in grave</td>
<td>Majoro Chico</td>
<td>Location A grave 6</td>
<td>in a grave along a wall</td>
<td>disturbed?</td>
</tr>
<tr>
<td>16</td>
<td>EIP</td>
<td>surrounding graves</td>
<td>Majoro Chico</td>
<td>Location A grave 11</td>
<td>in a pit along a wall</td>
<td>intact</td>
</tr>
<tr>
<td>17</td>
<td>EIP7/MH</td>
<td>tomb contents</td>
<td>Paredones</td>
<td>in LIP area</td>
<td>buried with person</td>
<td>disturbed</td>
</tr>
<tr>
<td>18</td>
<td>EIP7/MH</td>
<td>tomb contents</td>
<td>Paredones</td>
<td>in LIP area</td>
<td>buried with person</td>
<td>disturbed</td>
</tr>
</tbody>
</table>

* Phase assignment is based on Carmichael 1988.
Note: N/A = not applicable; EIP = Early Intermediate Period; LIP = Late Intermediate Period; MH = Middle Horizon.
idence of the grave's original inhabitant remained (specimens 9, 17, and 18). Specimen 9 was found in Cahuachi Unit Ed Grave 2. Although Kroeber initially believed the tomb to be intact, once inside the tomb, they found the remains only partially articulated and the contents disturbed. Kroeber observed looters opening a tomb at Paredones and purchased specimens 17 and 18 from them. The two trophy heads were found in the arms of the individual with whom they were entombed. We believe that specimen 12 was recovered from a disturbed burial. Although no body was found, the area had been looted; the trophy head was found in a large ceramic vessel used elsewhere to hold human remains the cranium and mandible were not found together, and the trophy head is weathered. Some grave goods were found in the looted Middle Horizon/Late Intermediate Period adobe tomb at Cahuachi that contained six trophy heads (specimens 3–8), but no other human remains were recorded. Unfortunately, these large adobe tombs have been very systematically looted (Silverman 1993a:Ch. 7). Doering (1958, see also Carmichael 1988:374) excavated two similar tombs at Cahuachi and found the remains of the individual originally buried there still inside, providing evidence that these rectangular features were used as tombs. One of Doering's tombs also contained nine trophy heads.

Finally, two trophy head caches were found in cemeteries, unassociated with other grave goods. A single trophy head (specimen 1) was found in the Aja B cemetery, buried in a pit beneath a large jar fragment. A cache of three trophy heads was found on the summit of Cahuachi Mound A in Cemetery g. Two of these heads, specimens 10 and 11, were collected, but the remaining head was left behind when it fragmented in the field (FMNH 171187). These two pits were among the only three intact burials Kroeber's crew excavated.

Discussion

Uhle first coined the term "trophy head" in 1914, assuming that the heads were trophies taken in battle from fallen enemies. Almost immediately, Tello (1918) analyzed several trophy heads and argued that the heads were important symbols of religious and social power, not simply war trophies. Tello argued that the presence of women and children in his sample, in conjunction with the fact that all heads showed the "Nasca" deformation, indicated that the heads were unlikely to have been taken from slain enemies. Thus, these two fathers of Peruvian archaeology first framed the arguments of a controversy that has waged ever since.

Coelho outlined the following potential reasons for the collection of heads: trophy heads as fertility symbols, enemy trophies of warfare, cult objects, serving a religious purpose, or the cause or result of human sacrifice (Coelho 1972). The iconographic record provides support for each of these explanations. Both Silverman (1993a:Ch. 15) and Carmichael (1995) have argued that the imagery of Paracas and early Nasca iconography demonstrates a relationship between trophy heads, ancestors, and the principles of cyclical death and regeneration-rebirth-fertility. Proulx (1989) concurs, noting that the mysterious power of trophy heads seems to be an iconographic theme underscoring the principles of birth, regeneration, fertility, and death. Nonetheless, the frequent depictions of trophy heads in war-related contexts have been used to argue for slain enemies as the source of these heads as well (Roark 1965; Sawyer 1966, 1972; Zuidema 1972).

At the heart of the controversy lies the question of whether the heads were taken from members of the same community, as would be the case in ancestor worship, or were taken from people defined as "enemies," who would be likely candidates for war trophies. The small number of trophy heads about which sufficient information exists to place them in time and space has made it very difficult to determine their ethnic identity. Biodistance studies using metric and nonmetric traits could provide information regarding the genetic relationship between the heads and the head takers, but these types of analyses require more complete samples, larger sample sizes, and comparative skeletal samples. Consequently, researchers have attacked the problem more indirectly, utilizing the following sources of information: demography, cause of death, burial context, shared cultural traits, and preparation methods.

The sex and age distribution of trophy heads has been argued as evidence both for and against
Fig. 65. Close-up of cut marks along squamosal suture on specimen 2 (FMNH 170222). (FMNH neg. no. A113659.)
Fig. 66. Close-up of horizontal cut marks on right orbital process of frontal bone of specimen 9 (FMNH 171136). (FMNH neg. no. A113660.)
Fig. 67. Close-up of cut marks on orbital process of right frontal bone of specimen 17 (FMNH 170157). (FMNH neg. no. A113661.)
Fig. 68. Close-up of cut marks on nasal bones and maxilla of specimen 17 (FMNH 170157). (FMNH neg. no. A113662.)
Fig. 69. Close-up of vertical cut marks on frontal bone of specimen 17 (FMNH 170157). (FMNH neg. no. A113663.)
Fig. 70. Close-up of cut marks on mandible of specimen 17 (FMNH 170157). (FMNH neg. no. A113658.)
enemies as the source of the heads. Many researchers have argued that the predominance of young males indicates that warfare is the source of many trophy skulls. Verano (1995) has presented the strongest case for this argument, indicating that the vast majority (85%) of trophy heads he studied \((N = 84)\) were adult males. On the opposing side, Coelho (1972; Neira Avedaño and Coelho 1972) noted that, like Tello's sample, the Chavínā sample she excavated and studied included both women and children. Drusini and Baraybar (1990) presented a cache of trophy heads from Cahuachi that included two males, four females, and one child. The Kroeber collection described here also includes both women and children. Two (20%) of the adults whose sex can be determined are females. Four heads (22%) are of subadults and children. The presence of women and children in the sample may merely indicate that raiding was a common practice and does not necessarily mean that the heads were obtained through practices unrelated to warfare.

Trauma indicating violent death has been used to argue that the heads were taken in battle. Violent death, however, can occur by many means that do not result in cranial trauma and classic compression fractures. Only three of the previously studied Cerro Carapo trophy head cache \((N = 48)\) exhibited cranial fractures (Silverman 1993a:223): two antemortem fractures that had healed completely and one perimortem fracture that occurred at or near the time of death. With regard to the Kroeber collection, two cranial fractures possibly resulting from violence are observed. One specimen exhibits a healed fracture, while the spiral fracture of another specimen may indicate perimortem trauma.

In another issue related to cause of death, Baraybar (1987; Drusini and Baraybar 1990) has suggested that ritual bleeding prior to decapitation could explain the carefully cut incisions observed in some trophy head scalps. He therefore contends that human sacrifice may account for at least some of the heads. However, as Verano (1995) has noted, it is extremely difficult to tell the difference between pre- and postmortem cuts. It is also important to remember that human sacrificial victims do not have to be enemy prisoners, and in Andean prehistory frequently were not (Verano 1995:190). Thus, although the identification of ritual bleeding is important in documenting cultural practice, its presence cannot be used as evidence for a victim's identity.

Coelho (1972; Neira Avedaño and Coelho 1972) has argued that burial context reveals aspects of the intentions of the makers of trophy heads. She considers the placement of Chavínā heads in what she believes to be a ceremonial structure, and therefore evidence of a ritual function not necessarily related to warfare. Additionally, the two heads Silverman found at Cahuachi are associated with ceremonial architecture. The Kroeber collection also includes trophy heads recovered from structures at Majóro Chico and Cantayo Cax. Verano (1995) has noted that trophy heads are frequently found either in architectural features or in caches, and only infrequently are buried in graves. He argues that this implies corporate ownership of heads, which he considers evidence of a role more complex than that of a simple war trophy.

Both Coelho (1972; Neira Avedaño and Coelho 1972) and Tello (1918) have argued that the "Nasca deformation" style characteristic of the Nasca trophy heads demonstrates a shared ethnic identity. By contrast, Verano (1995) rightly argues that warfare in this area might easily be intraethnic in nature, meaning that groups could share the same preferences in cranial deformation and yet consider each other "enemies." We further suggest that the "Nasca" deformation style encompasses too much variation to make arguments based on cranial deformation to identify ethnic identity possible without more careful study. Finally, Coelho has pointed out that trophy heads often were accorded burial treatment similar to Nasca individuals, which she suggest indicate a shared ethnic identity as well.

Guillén (1992) and Verano (1995) have both emphasized the importance of the time and effort invested in the making of trophy heads. Guillén (1992) believes that this kind of attention would more likely be lavished on relatives than on enemies, and argues that these heads are better explained as evidence of an ancestor cult. Verano, on the other hand, although agreeing that the heads have important ritual significance beyond that of a simple battle trophy, remains convinced that enemies were the most likely source of the heads. Although a better understanding of the process of trophy making is clearly important, elaborate preparation is not necessarily an argument for or against slain enemies as the source of heads. Donald Proulx (1971, 1989) has used ethnographic analogy to argue forcefully for warfare as the main source of the heads, noting the similarities between the elaborately prepared Nasca trophy heads and the shrunken heads made by the
Jivaro Indians of Ecuador. Proulx has suggested that, like the Jivaro, who practiced raiding and headhunting to gain control of the soul of another. Nasca individuals believed that head taking increased their personal power.

None of these arguments can answer the fundamental question concerning the origin of the heads. A predominance of young males is a good indirect argument for war dead, but the presence of women and children cannot be used to argue against warfare as the source. Evidence of violent death is telling, but its rarity in the osteological record is to be expected and cannot be used to argue against warfare. Context and the investment costs of trophy making both indicate a larger role for the heads than that of mere war trophy. However, no one is really arguing that these were private keepsakes collected by individual warriors and that they did not serve some larger ceremonial function. Guíllén (cited in Browne et al. 1993) has proposed that the elaborate preparation involved in trophy making indicates the importance of their role in ceremonial practices, specifically in ancestor cults. Indirect evidence for the "ancestor cult" position comes from Carmichael's reports (1988, 1995) of a head removed from a body long after mummification had occurred. Other examples of seemingly intact tombs containing decapitated or partial remains, such as the tombs Doering excavated at Cahuachi (if they are in fact undisturbed remains), also suggest the use of human body parts as objects of veneration during this period. Carmichael points to two ceramic vessels bearing images suggestive, in his view, of ancestor worship (Carmichael 1988:379–381). These possible examples of the ritual use of human body parts, combined with iconographic depictions and a long history of ancestor worship in the Andes, are the strongest argument for ancestor cults as the source of these trophy heads at this time. The evidence for warfare includes numerous iconographic references, a preponderance of young male trophy heads, and ethnographic analogy. Reliable indicators of ethnicity are critical to resolving the argument but are currently unavailable.6

Silverman and Browne (Browne et al. 1993; Silverman 1993a) have noted the increasing frequency of trophy head remains through time and correlate it with changing iconography. Trophy heads are shown in association with mythical beings in early periods but in association with warriors and warfare in later periods. The frequency of trophy head imagery is also inversely proportional to the number of actual trophy head finds. Imagery is most common in the early periods, but there are more heads from the later periods. Silverman (1993a:223) has suggested that headhunting became more "secularized" through time. She and Browne et al. (1993:291) also emphasize the association of trophy heads with "big men" or "chiefs." They speculate that head taking may have been used to enhance status and consolidate power of these important persons. Silverman and Browne have also suggested that head taking may have been a means for augmenting claims to territory and resources based on kinship, with elite individuals holding positions as "head conservators" in an ancestor cult. These trends, they argue, would have resulted in larger numbers of heads being collected in the later periods.

Silverman and Browne's attempts to relate changing iconographic depictions through time to changes in social and political organization are intriguing. Corroborative osteological evidence for changing practices may be found in the difference in sex and age ratios in comparisons of earlier and later trophy head finds. The earlier trophy head collections described by Tello, Coelho, Drusini, and Baraybar and those in this study contain men, women, and children. The later trophy caches, such as the Cerro Carapo cache described by Browne and colleagues and Verano, are predominantly young males. Whether these changes in sample composition are due to changing warfare patterns or indicate more significant shifts in the role and meaning of trophy heads in Nasca ideology is not yet clear.

This evidence of temporal change may help explain the variation in trophy head preparation seen in this sample. Unfortunately, small sample size and incomplete control over context make the observation of temporal or geographic correlations difficult. Such trends may be further obscured if the trophy heads are being archived for long-term ritual use. However, the observed variation in preparation is also consistent with the use of trophy heads in more than one context (i.e., serving multiple functions). Trophy heads may have been prepared differently, depending on their intended use in specific ceremonies or situations. Clearly, the heads Verano and colleagues (1999) describe

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6 Cranial deformation variation cannot be used until the methods become more sophisticated and the studies more intensive. DNA studies have the potential to address ethnicity. We are currently initiating a study using this method.
from the Moche Valley served a function quite different from the Nasca heads, as evidenced by the presence of an opening at the top of the skulls instead of a frontal perforation and posterior breakage area.

The trophy heads that Kroeber excavated in the Nazca Valley are an invaluable source of information concerning the social and ritual practices of the Nasca people. The differences observed in the preparation and treatment of these trophy heads confirms the fact that "we should not seek or propose a single, simple, lineal explanation of this complex phenomenon (Browne et al. 1993: 276)." Future studies incorporating new techniques and increasing the sample size are likely to reveal the significance of the fascinating patterns of variation observed in this collection.

Acknowledgments

This research was supported through a cooperative agreement between the Departments of Anthropology at the Field Museum of Natural History and the University of Illinois at Chicago. We wish to thank the following individuals for their contributions: Jonathan Haas, who gave us permission to study the collection; Will Grewu-Mullins and Janice Klein, who were helpful in providing us with access to the osteological and ethnographic material; John Weinstein, Field Museum photographer; Lane A. Beck, for examining the heads and offering advice and comments; Alanda Tremmel, for her help with data collection; and Charles Stanish, for initially suggesting the study. Finally, we appreciate the comments and suggestions of three reviewers.

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———. n.d.b Culture stratifications in Peru. Unpublished manuscript on file at the Field Museum of Natural History, Chicago.
Annual Chacmool Conference. Archaeological Association, University of Calgary, Alberta, Canada.


Appendix: List of Artifacts Found With Trophy Heads

1926 Expedition

Specimens 17 (FMNH 170157; field no. 1974) and 18 (FMNH 170158; field no. 1975)

Location: Purchased from looters observed opening a grave at Paredones, Grave 3.

<table>
<thead>
<tr>
<th>Field</th>
<th>no.</th>
<th>Artifact description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMNH</td>
<td>170147 1964</td>
<td>Proto-Nazca bowl, red, white, and black (Fig. 71)</td>
</tr>
<tr>
<td></td>
<td>170148 1965</td>
<td>Fragment of sheet copper around wood (Fig. 72)</td>
</tr>
<tr>
<td></td>
<td>170149 1966</td>
<td>Fragment of cloth, minute</td>
</tr>
<tr>
<td></td>
<td>170150 1967</td>
<td>Fine Epigonial jar, man's head, painted faces and limbs, in many fragments, but complete (Kroeber describes this vessel as “Epigonal” in his 1925 catalogue, but later includes it in his Y phase (Kroeber and Collier 1998, 228). On the same page, Carmichael classified it as Nasca 7, according to the Dawson seriation (Figs. 73 and 74)</td>
</tr>
<tr>
<td></td>
<td>170151 1968</td>
<td>Fragments of a double-spout jar (Fig. 75)</td>
</tr>
<tr>
<td></td>
<td>170152 1969</td>
<td>Plate, in two pieces (Fig. 76)</td>
</tr>
<tr>
<td></td>
<td>170153 1970</td>
<td>Flaring bowl, painted outside, fragments, not complete (Fig. 77)</td>
</tr>
<tr>
<td></td>
<td>170154 1971</td>
<td>Red plate, white zigzag border (Fig. 78)</td>
</tr>
<tr>
<td></td>
<td>170155 1972</td>
<td>Plate, fish pattern (Fig. 79)</td>
</tr>
<tr>
<td></td>
<td>170156 1973</td>
<td>Plate, geometric pattern</td>
</tr>
</tbody>
</table>

Specimen 2 (FMNH 170222; field no. 2041)

Location: Found on the summit of Mound A with another skull in a ceramic vessel at the edge of a tomb, Cahuachi South. The jar and the other skull were not collected. No other associated artifacts.

Specimen 3 (FMNH 170224; field no. 2043)

Location: Cahuachi South, west part.

Specimen 15 (FMNH 170463; field no. 103)

Location: Majoro Chico, Grave 6.

<table>
<thead>
<tr>
<th>Field</th>
<th>no.</th>
<th>Artifact description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMNH</td>
<td>170462 102</td>
<td>Cloth fragments: several kinds; 140 cm above tomb roof (Fig. 80)</td>
</tr>
<tr>
<td></td>
<td>170464 104</td>
<td>Major bones of a skeleton; probably part of #103; 260 cm deep</td>
</tr>
<tr>
<td></td>
<td>170465 105</td>
<td>Cloth fragments: several kinds; wrapped about #104</td>
</tr>
<tr>
<td></td>
<td>170466 106</td>
<td>Sherds (Nasca?) from 160–250 cm deep (Fig. 80)</td>
</tr>
</tbody>
</table>

Specimen 16 (FMNH 170489; field no. 129)

Location: Majoro Chico, Grave 11. No associated artifacts.

Specimen 1 (FMNH 170912; field no. 551)

Location: Aja, Grave 8.

<table>
<thead>
<tr>
<th>Field</th>
<th>no.</th>
<th>Artifact description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMNH</td>
<td>170911 550</td>
<td>Upper part of large, striped, three-handled pot covering 551; 110 cm deep</td>
</tr>
<tr>
<td></td>
<td>170913 552</td>
<td>Blackware sherd, polished; one incision</td>
</tr>
</tbody>
</table>

Specimen 12 (FMNH 171008; field no. 647)

Cloth band and guinea pig inside skull.
Location: Cantayo, Section Cb, Grave 2.

<table>
<thead>
<tr>
<th>Field</th>
<th>no.</th>
<th>Artifact description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMNH</td>
<td>171009 648</td>
<td>Nazca sherds, “chalk,” braided string; 70–170 cm deep</td>
</tr>
</tbody>
</table>

WILLIAMS ET AL.: NASCA TROPHY HEADS
Fragments of an incised gourd found in jar fill

Note: FMNH 171010 was originally assigned to the engraved rim. However, Tello collected the rim for the Museo Nacional, and the number 171010 was reassigned to a shell bead.

Specimen 13 (FMNH 171058; field no. 697)
Location: Cantayo Cax, Grave 17.

<table>
<thead>
<tr>
<th>Field</th>
<th>Artifact description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMNH 171057 696</td>
<td>Wisp of cotton on stick; south of wall J</td>
</tr>
<tr>
<td>FMNH 171059 698</td>
<td>Red-bordered cloth (Fig. 81)</td>
</tr>
<tr>
<td>FMNH 171060 699</td>
<td>Wad of cotton</td>
</tr>
<tr>
<td>FMNH 171061 700</td>
<td>Wool cord and three metatarsal bones on cord (Fig. 81)</td>
</tr>
<tr>
<td>FMNH 171062 701</td>
<td>Two-colored wool cords (Fig. 81)</td>
</tr>
<tr>
<td>FMNH 171063 702</td>
<td>Strips of cotton mesh</td>
</tr>
<tr>
<td>FMNH 171064 703</td>
<td>Double-barreled pottery whistle, bird form (Fig. 81)</td>
</tr>
<tr>
<td>FMNH 171065 704</td>
<td>Blackware bowl, small</td>
</tr>
<tr>
<td>FMNH 171066 705</td>
<td>Fragment of plain jar, covered</td>
</tr>
</tbody>
</table>

Specimens 4–8 (FMNH 171096, field no. 734; FMNH 171097, field no. 735; FMNH 171098, field no. 736; FMNH 171099, field no. 737; and FMNH 171100, field no. 738)
Location: Cahuachi, rectangular tomb, base of Mound A.

Specimen 9 (FMNH 171136; field no. 774)
Location: Cahuachi, unit Ed, grave 1.

<table>
<thead>
<tr>
<th>Field</th>
<th>Artifact description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMNH 171135 773</td>
<td>Skull, somewhat deformed</td>
</tr>
<tr>
<td>FMNH 171137 775</td>
<td>Fragments of red cloth, with border and crocheted fringe (Fig. 83)</td>
</tr>
<tr>
<td>FMNH 171138 776</td>
<td>Tubular cloth band in yellow, red, and blue pattern (Fig. 83)</td>
</tr>
<tr>
<td>FMNH 171139 777</td>
<td>Fragment of striped cloth, blue and white (Fig. 83)</td>
</tr>
</tbody>
</table>

Specimens 10–11 (FMNH 171185, field no. 823; FMNH 171186, field no. 824)
Location: Cahuachi, Cemetery g, Cache 9. Found with a third trophy head that was not collected. No other associated artifacts.
Fig. 71. Grave artifact associated with specimens 17 and 18, Paredones: a red, white, and black “Proto-Nazca” bowl (FMNH 17014). (FMNH neg. no. A113651.)
Fig. 72. Grave artifact associated with specimens 17 and 18, Paredones. A fragment of sheet copper around wood (FMNH 170148). (FMNH neg. no. A113653.)
Fig. 73. Grave artifact associated with specimens 17 and 18, Paredones. An Epigonal jar, side one (FMNH 170150). (FMNH neg. no. A113655.)
Fig. 74. Grave artifact associated with specimens 17 and 18, Paredones. An Epigonal jar, side two (FMNH 170150). (FMNH neg. no. A113654.)
Fig. 75. Grave artifact associated with specimens 17 and 18, Paredones. Fragments of a double-spout jar (FMNH 170151). (FMNH neg. no. A113656.)
Fig. 76. Grave artifact associated with specimens 17 and 18, Paredones. Plate fragments (FMNH 170152). (FMNH neg. no. A113650.)
Fig. 77. Grave artifact associated with specimens 17 and 18, Paredones. An incomplete flaring bowl (FMNH 170153). (FMNH neg. no. A113657.)
Fig. 78. Grave artifact associated with specimens 17 and 18, Paredones. A red plate with a white zigzag border (FMNH 170154). (FMNH neg. no. A113649.)
Fig. 79. Grave artifact associated with specimens 17 and 18, Paredones. A plate with a fish pattern (FMNH 170155). (FMNH neg. no. A113648.)
FIG. 80. Cloth fragments (FMNH 170462) and sherds (FMNH 170466) associated with specimen 15, Grave 6, Majoro Chico. (FMNH neg. no. A113645.)
FIG. 81. Grave artifacts associated with specimen 13, Grave 17, Cantayo Cax. A red-bordered cloth (FMNH 171059), a wool cord, and three metatarsal bones on cord (FMNH 171061); two-colored wool cords (FMNH 171062); and a double-barreled bird-form pottery whistle (FMNH 171064). (FMNH neg. no. A113643.)
Fig. 82. Tapestry wool cloth, Epigonal type (FMNH 171101), associated with specimens 3–8, rectangular tomb, base of Mound A, Cahuachi. (FMNH neg. no. A113644.)
Fig. 83. Artifact associated with specimen 9, Unit Ed, Grave 1, Cahuachi. Fragments of red cloth, with a border and crocheted fringe (FMNH 171137). (FMNH neg. no. A113646.)
Fig. 84. Grave textiles associated with specimen 9, Unit Ed, Grave 1, Cahuachi. A tubular cloth band of yellow, red, and blue pattern (FMNH 171138) and a blue-and-white-striped cloth fragment (FMNH 171139). (FMNH neg. no. A113642.)