

CASE REPORT

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Metropolitan Forensic Anthropology Team (MFAT) Case Studies in Identification: 2. Identification of a Vietnamese Trophy Skull

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ABSTRACT: A Vietnamese trophy skull, apparently a victim of the Vietnam war, was recently received for analysis in a New York State homicide case. The skull, which is well preserved except for the missing mandible and maxillary dentition, is compared to trophy skulls of Japanese military personnel, also brought back to the United States by American soldiers following war-time duty in Asia.

KEYWORDS: physical anthropology, human identification, musculoskeletal system, odontology, skull, Vietnam war

In a recent case study, Bass [1] called attention to the occurrence of Japanese trophy skulls in two forensic science cases in Tennessee. Both skulls represented Japanese armed forces personnel killed in action in the Pacific theater during World War II and brought back to the United States by American soldiers. The objective of Bass's publication was to alert specialists in forensic skeletal identification to the possibility of similar discarded trophy skulls "turning up" in their investigations. The present case study reports on a well preserved Vietnamese trophy skull, apparently brought to the United States by an American soldier following a tour of duty during the Vietnam War. The Vietnamese skull augments Bass's Mongoloid material in that it preserves the face. It is expected that this report will supplement that of Bass as an aid to the identification of Mongoloid trophy skulls in particular, and broaden the basis for defining trophy skull characteristics in general.

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Case History

During a homicide investigation in Westchester County, New York, police entered the suspect's house with a search warrant. During the course of their search, they came upon a box in the basement that contained a skull. It was a well preserved skull without soft tissue, mandible, or teeth. A bullet wound of entrance is seen on the right midparietal region with bevelling inward (Fig. 1). No exit wound was found in the skull. No bullet was found in the cranial cavity. Subsequent investigation revealed that the suspect returned from military duty in Vietnam several years before and had found the skull in the field and brought it back as a souvenir. The police referred it to the Medical Examiners Office for analysis.

Dental Analysis

Although this skull is edentulous, information could be derived from analysis of the dental arch (see Figs. 1, 2, and 3). The shape of the dental arcade is ovoid with a flat broad palate. The tooth sockets of the six anterior teeth are inclined in a prognathic position. The combination of these features suggests a mongoloid pattern (Table 1).

The dentition has fully erupted including the third molars. However, the alveolar bone exhibits marked destruction from periodontal disease. The buccal plates over the right and left cuspids are nonexistent. Generally, the sockets are shallow indicating 50 to 80% bone loss. The third molar sockets are very shallow and the remaining bone is quite porous. The configuration of the bases of these sockets showed that the root apices of the third molars had fully formed. The socket of the upper left first molar is 90% remodeled. Either the tooth was highly mobile in life or had avulsed before death. There is a perforation in the buccal plate in relation to the upper right first molar, representing a fistula caused by this tooth abscessing. The midline suture of the palate is not completely fused.

The foregoing evidence indicates that the deceased had reached adulthood. It is recognized that an attempt to age an individual from an edentulous arch is speculative, however, because the dentition was fully formed; and, because the midline suture of the palate is not tightly



FIG. 1—Right lateral aspect of the Vietnamese skull.

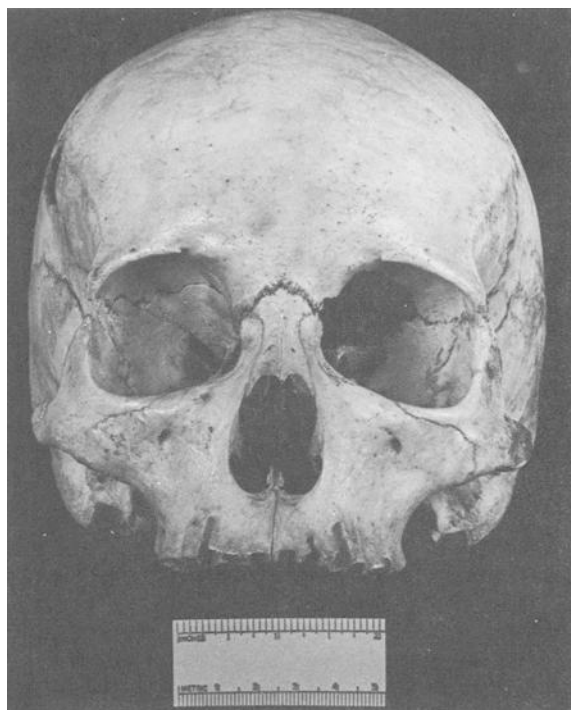


FIG. 2—Anterior aspect of the Vietnamese skull.

fused, it is felt that the individual was 18 to 25 years of age. This investigator acknowledges no experience with the eruption sequence of the Vietnamese population. The age assessment is, therefore, based upon experience with populations of the United States.

Why someone so young was so ravaged by periodontal disease is again speculative. Poor nutrition is certainly a factor to consider.

Also note that the right zygoma is fractured in the midportion. This is consistent with the trauma sustained in the right parietal bone and the right orbital rim.

Race

An explicit point regarding race assessment from the skull should be made at the outset. The state of the art of inspectional analysis, employed by an experienced investigator, does not generally permit confidence in individual classification below the level of the major races or stocks (Caucasoid, Negroid, and Mongoloid, with the latter represented in the New World by the American Indian). Although some anthropologists, accustomed to handling a variety of skull samples in museum collections will learn to recognize and distinguish individuals of some subracial populations (that is, local races), the learning process usually requires considerable time and the bases for these assessments often remain subjective and undefinable when quantitatively based discriminant functions are not available.

Thus, the Japanese and Vietnamese trophy skulls are defined and compared morphologically and anthropometrically as examples of the same major race. The primary basis for identifying them subracially as Japanese and Indonesian (Vietnamese), however, is information received with the remains.

Race assessment of the skull by inspectional analysis is considered the most difficult anthro-

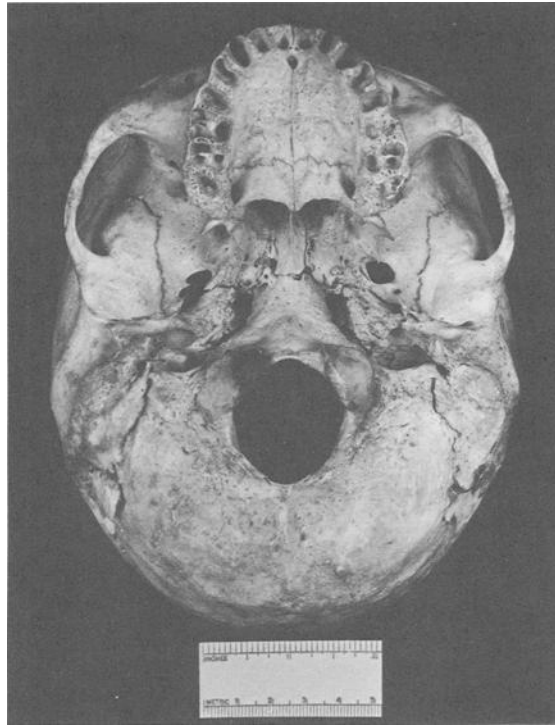


FIG. 3—*Inferior aspect of the Vietnamese skull.*

TABLE 1—*Mongoloid inspectional traits of the Vietnamese trophy skull.*

Trait	View
Arched high cranial vault	lateral
Feeble glabellar eminence	lateral
No depression at nasion	lateral
Low nasal bridge with slight concavity	lateral
Greater anterior projection of inferior orbital margin relative to superior	lateral
High (hypsiconch) orbits	anterior
Zygomatics flare laterally and jut anteriorly	anterior, inferior
Canine fossa slight, alveolar prognathism	anterior, lateral
Nasal aperture narrow with dull borders and small anterior nasal spine	anterior
Moderately broad vault	superior
Keeling along sagittal suture	posterior, inferior
Wormian bones at lambda and asterion	posterior and lateral
Short, broad (elipsoid) dental arcade	inferior

pological determination. This is because there are no racially discontinuous cranial traits. For this reason, race assessment is based on the total morphological pattern of the skull. While it is acknowledged that various authorities dispute the relative weights of some widely employed Mongoloid classificatory traits, the total morphological pattern that they comprise is agreed upon, and is clearly exhibited in the present case (for a survey of the Mongoloid skull "type," see Hooton [2], Krogman [3], Garn [4], Stewart [5], and Brothwell [6]).

Finally, because information received with the skull indicated a Vietnamese origin (see Case History), a reference series of Indonesian skulls from The American Museum of Natural History in New York City was used as a test series. The craniology of the skull under study is entirely in accord with this reference series.

The several inspectional traits that comprise a Mongoloid cranial pattern in the present case, and are apparent in the photographic views of the skull (Figs. 1 to 4), are presented in Table 1.

Several of the inspectional traits listed in Table 1 are quantifiable as craniometric measurements in Table 2.

Sex

The general gracility and smoothness of the skull, the bulbous frontal, and the weak definition of the supraorbital ridges and areas of muscle attachment, such as the mastoid processes and occipital lines, permit confidence in assessing the sex as female.

Age

The age at death is estimated on the basis of the open condition of all cranial sutures, including the spheno-occipital synchondrosis, and the complete and recent eruption of the maxillary third molars, as late teens. The skull exhibits an osteoporotic loss of cortical bone on the parietals and the roofs of the orbits and a degree of periodontal disease not commonly encountered in young American adults. This combination of pathologies is more characteristic of times and regions of the world where poverty produces malnutrition and low levels of hygiene. The cranial pathologies therefore tend to support the suggested Vietnamese wartime origin of the skull.

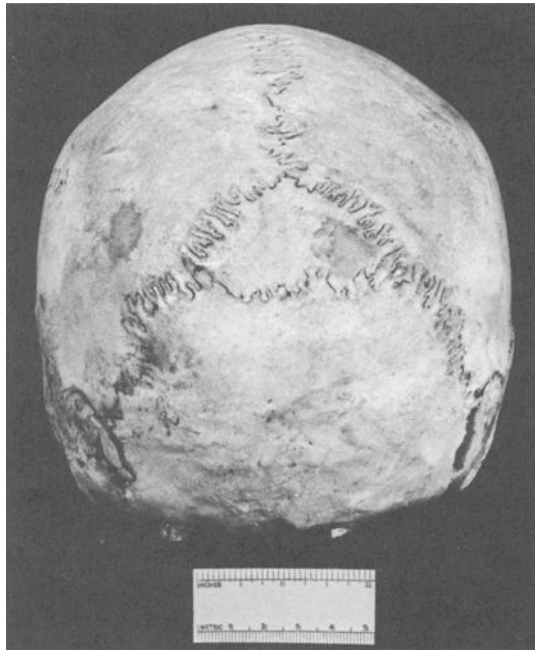


FIG. 4—Posterior aspect of the Vietnamese skull.

TABLE 2—Craniometric measurements in millimetres of the Vietnamese skull.

Maximum length (glabella-opisthocranion)	178.0
Maximum breadth (eurion-aurion)	141.0
Maximum height (basion-bregma)	136.0
Orbital height	34.5
Orbital breadth (maxillo-frontal point)	39.0
Nasal height	53.5
Nasal breadth	23.0
Upper facial height (nasion-prosthion)	68.5
Bizygomatic diameter	130.5
Palate—external breadth	63.5
Palate—length (prosthion—posterior extremities of maxillary tuberosities)	54.5

Discussion

Some trophy skulls of armed forces personnel or civilians killed in military actions may present interesting paradoxes to the forensic scientist. The bullet wound of entrance on the right side of the coronal suture in the present case is a familiar lesion to the forensic pathologist. The Asian Mongoloid racial type, the osteoporosis and advanced periodontal disease relative to the age at death, and the "clean" condition of the skull are more unusual and suggest a foreign trophy skull context. This impression is supported by several findings: like the Japanese trophy skulls described by Bass, the age at death is a young, military one; postmortem rough handling has broken the styloid processes and pterygoid plates, as in the Japanese trophy skulls; and the broken and burned right occipital condyle suggests that, like one of Bass's cases, a candle may have been placed on or in the skull, although the absence of wax or smoke stain suggests, alternatively, that the burned condyle may be the result of using the skull as an ashtray, and, in any case, indicates postmortem rough handling. The clearest evidence for a trophy context is the use of glue to stabilize the vomer and loose bones of the cranial vault. Like the paint on the Japanese skulls, the glue on the Vietnamese skull indicates skull modification in a "dry" postmortem condition.

The two most striking differences between the present case and the trophy skulls reported by Bass are degree of preservation and sex. Clearly the more complete preservation of the cranial base, and especially the face of the Vietnamese skull permit greater confidence in race classification. Also, in contrast to the Japanese soldiers, the Vietnamese skull is female. Vietnamese military and civilian war casualties were not sex limited, and the discovery of a female gunshot victim is not unexpected.

The recent report of Bass suggests that Japanese trophy skulls from World War II are beginning to "turn up" in forensic science cases, as the American soldiers who brought them back have discarded them or have died and their trophies have been discarded by their next of kin. The present case indicates that Vietnamese trophy skulls have also begun to appear in a forensic science context.

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