Bone Clones®

OSTEOLOGICAL REPRODUCTIONS

Human Male European Skull
BCM-892

Osteological Evaluation Report

Prepared by

Tori D. Randall, Ph.D.

Bone Clones • 9200 Eton Ave., Chatsworth, CA 91311
info@boneclones.com • www.boneclones.com • (818) 709-7991 / (800) 914-0091 *(USA only)*

Human Male European Skull

Product Number: BCM-892

Known Information:
This skull is associated with a skeleton of a 34-year-old European male, who stood 5' 8" and weighed 185 pounds at time of death. Cause of death was a gunshot wound to the right arm and chest. Information about this individual was documented at the time of his death.

Maxwell Museum of Anthropology:

The Maxwell Museum of Anthropology's Laboratory of Human Osteology, at the University of New Mexico, specializes in numerous facets of physical anthropology. The laboratory serves as a repository of human remains and includes prehistoric, historic, documented, and forensic remains.

Established in 1984 by Dr. J. Stanley Rhine, the Maxwell Museum's Documented Skeletal Collection has grown to include 237 individuals (as of July 2005) encompassing both sexes, all ages, and many population groups. The skeletal remains are obtained by donation, either by the individual before death, or by the family of a deceased loved one. Information on the sex, age, population affinity, and cause of death is available for the majority of these individuals, allowing students and visiting researchers to develop and test new techniques and theories.

Since 1995, prospective donors or their families have been asked to provide health and occupational data as well. With this information, researchers are able to examine the skeletal manifestations of particular diseases including degenerative joint and disc diseases, lymphoma, and osteoporosis, as well as the reaction of bone to repetitive motions and trauma. Recent research has included efforts towards the identification of handedness in individuals, determination of body mass from the skeleton, and variation in cranial damage from various projectiles. The importance of the Documented Collection cannot be overstated. No other institution in the American West has as large a collection of human skeletal remains with such extensive demographic data.

Bone Clones is grateful to the Maxwell Museum for allowing us to select specimens for reproduction from their valuable collection and granting us exclusive casting rights to these pieces.

Human Male European Skull

Product Number: BCM-892

Specimen Evaluated: Bone Clones® replica

Skeletal Inventory: 1 cranium with full dentition
1 mandible with full dentition

General Osteological Observations

Dentition:

The skull exhibits full adult dentition. There is no evidence of carious lesions or dental abscessing. The right mandibular premolars and first molar show signs of wear, as does the left mandibular M1, but there is not excessive dental attrition. There is slight root exposure, which is evidence of periodontal disease (**See Figure 1**).

Features of Sex:

Males tend to have larger, more robust skulls than females. In this case, the morphology of the skull was consistent with that of the male sex. Various cranial characteristics were evaluated: the presence of a robust nuchal crest, large mastoid processes, a blunt supraorbital margin, and the square mental eminence on the mandible (Buikstra and Ubelaker, 1994; Bass, 1995; White and Folkens, 2000). Note: The determination of sex was made in conjunction with an analysis of the pelvis.

Features of Age:

The entire skeleton was available for analysis in the estimation of age. Since all of the permanent dentition was present, and epiphyseal union was complete, the skeleton was classified as an adult. Although there is considerable variability in closure rates (Meindl and Lovejoy, 1989), the partial obliteration of the coronal and sagittal sutures is consistent with a person in his late 20s to early 30s (**See Figure 2**).

Figure 1: Right mandibular dentition with evidence of attrition and periodontal disease.

Figure 2: Superior aspect of the skull showing partial obliteration of the coronal and sagittal sutures.

Features of Ancestry:

Several morphological traits of the skull were used to determine the European ancestry of this individual. For example, the nasion is depressed (**Figure 3**), the nasal aperture is narrow/vertical (**Figure 4**), and there is poor dental occlusion (overbite), which are all morphological traits indicative of Europeans. An inion hook is also present (**Figure 5**), another trait occurring in males of European ancestry.

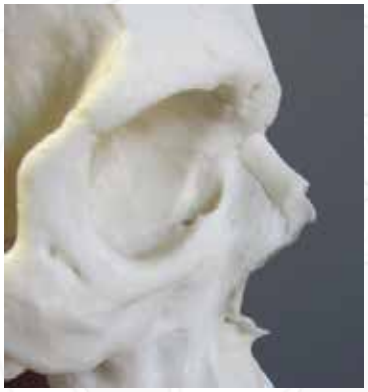

Figure 3:
Depressed nasion.

Figure 4:
Narrow nasal aperture.

Figure 5:
Inion hook.

SUMMARY:

(Note: Determinations are based upon examination of postcranial skeleton in addition to skull (see skeleton SCM-192)

1. Sex:	Male
2. Age:	Young adult (late 20s to early 30s)
3. Ancestry:	European

Educational Resources:

1. This is an excellent example of an adult male skull. While in some circumstances the skull alone may be a reliable indicator of sex, the importance of examining the entire skeleton (particularly the pelvis) when assessing sex should be stressed. Integrating data from a variety of sources is a good practice, and it will give the most reliable results.

2. Estimating age is best accomplished through analysis of the entire skeleton rather than the skull alone. The degree of suture closing can be suggestive of an age range, but the great variability in closure rates must be recognized. Other morphological criteria, including the morphology of the pubic symphysis, are significant in age estimation.

References:

Bass WM. 1995. *Human osteology: A laboratory and field manual of the human skeleton*. Columbia: Missouri Archaeological Society.

Buikstra JE, Ubelaker DH. 1994. *Standards for data collection from human skeletal remains: Proceedings of a seminar at the Field Museum of Natural History*. Fayetteville: Arkansas Archeological Survey Press.

Meindl RS, Lovejoy CO. 1989. Age changes in the pelvis: Implications for paleodemography. Isçan MY, editor. *Age markers in the human skeleton*. Springfield, Illinois: Charles C. Thomas. 137-168.

White TD, Folkens PA. 2000. *Human osteology*. San Diego: Academic Press, Inc.

Disclaimers:

This report is meant only as a teaching tool for introductory level students of the anatomical, anthropology, or forensic sciences who may be using this specimen to learn about human osteology. Evaluation of skeletal material is best done with original specimens. My evaluation was based solely upon studies of a Bone Clones® replica. My opinions are based solely upon the material presented to me. This is somewhat artificial as in real forensic or archaeological investigations, additional studies would be undertaken prior to the formulation of diagnoses and the production of a report. These studies might include plain film radiography, computed tomography (CT) studies, histology, etc. My opinions regarding sex and ancestry are based only upon non-metric analyses.

Bone Clones Disclaimer on Ancestry Assessment

The assessment of ancestry from human skeletal remains, particularly the skull, is a component historically included in the creation of a biological profile for forensic purposes. This practice involves the analysis of morphoscopic traits and metric variables that may exhibit population-specific patterns of variation. However, it is important to recognize the significant scientific and ethical limitations of this practice.

Race is not a biologically valid concept. Contemporary biological anthropology holds that race is a social construct with no discrete biological basis. Human variation exists on a continuum, shaped by complex interactions between genetics, environment, and culture—not distinct "racial" categories. Therefore, the identification of "race" or "ancestry" based solely on skeletal features is scientifically problematic and cannot be performed with high accuracy or precision.

Although some morphological traits of the cranium may reflect broad population-level patterns due to shared evolutionary history, these traits do not map neatly onto socially defined racial categories. Furthermore, categories such as "Asian," "European," or "African" are socially constructed labels that do not fully capture genetic or phenotypic diversity, and they should not be interpreted as exact or absolute identifiers. As such, ancestry estimation based on skeletal features should not be interpreted as the identification of race, and results should be presented with appropriate caution and clear communication of limitations.

Historically, law enforcement agencies have requested ancestry estimations as part of forensic reports. However, many biological anthropologists today are increasingly hesitant to include this component, as doing so may inadvertently reinforce outdated and harmful typological thinking—the idea that humans can be classified into discrete biological "types" based on physical features. Such typologies have a long and problematic history and are not supported by modern science.

In cases where ancestry estimation is included, it is done with the understanding that it is a probabilistic assessment—not a definitive classification—and it must be contextualized within a broader ethical framework that prioritizes scientific integrity, individual dignity, and the avoidance of reinforcing racial stereotypes.