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OSTEOLOGICAL REPRODUCTIONS

Human Female Asian Skeleton
SC-211

Osteological Evaluation Report

Prepared by

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Osteological Observations:
This is a complete adult human skeleton with 32 teeth. Since there are no duplicate skeletal elements, and the bones from the right and left side of the body are consistent in size and shape, it is possible to conclude that there is only one individual represented.

Dentition:
The skull exhibits full adult dentition. The upper 3rd molars are only partially erupted. There is no evidence of carious lesions, dental abscessing, or excessive dental attrition.

Features of Sex: **Female**
Biological sex was estimated using pelvic and cranial characteristics. Pelvic characteristics include the ventral arc, medial aspect of the ischiopubic ramus, and subpubic contour. Cranial characteristics include the nuchal ridge, mastoid processes, supraorbital margin, and supraglabellar ridge.

The features of the pelvis are typical of a female. Determination of sex was made by visually scoring a variety of sexually dimorphic skeletal criteria. Morphological features of the pelvis such as a ventral arc, subpubic concavity, and ischiopubic ramus ridge were all present, which suggests that this is a female (Phenice, 1969). The total pelvis shape is wide and broad, the pelvic outlet is large, and the greater sciatic notch, as well as the subpubic angle, are wide (Buikstra and Ubelaker, 1994; White and Folkens, 2000). All of these traits are consistent with female morphology.

Females tend to have smaller, slighter skulls than males. In this case, the morphology of the skull is consistent with that of the female sex. Various cranial characteristics were evaluated; such as the relative gracility of bony prominences, sharp supraorbital margins, and the pointed mental eminence on the mandible (Buikstra and Ubelaker, 1994; Bass, 1995; White and Folkens, 2000).

Note: biological sex refers to most likely sex assigned at birth, not gender or gender expression.

Features of Age: **24-44 years**
Since all of the permanent dentition was present, and epiphyseal union was complete, the skeleton was classified as an adult. It is also evident that very few degenerative changes have begun. This, coupled with the partial eruption of the upper 3rd molars, indicates that this is not an elderly individual.

Age was estimated using the pubic symphyseal face, the sternal end of rib four, and the medial end of the clavicle. The medial end of the clavicle was fully fused, which is most consistent with the individual being older than 24 years of age (Langley-Shirley & Jantz, 2010).

The left and right pubic symphyses have largely flat faces, with complete lower rims on the dorsal side of each face. Some ridges and furrows are still visible. The pubic symphyses were scored according to Hartnett (2010a) and found to be most consistent with a phase 3, the suggested age range for which is 24 to 44 years.

The sternal end of rib four exhibited a shallow pit which was a narrow U-shape. There was remnant scalloping on the wall of the pit which was becoming more irregular. The rib end was scored using Hartnett's (2010b) criteria and assigned a phase 3. The suggested age range for phase 3 is 27 to 38 years.

Taking all into account, the decedent is most consistent with an age range of 24 to 44 years.

Features of Ancestry: **Asian**
Non-metric population affinity was assessed using cranial characteristics. These cranial characteristics include somewhat rounded eye orbits, a low nasal root, a small anterior nasal spine, moderate prognathism, absent postbregmatic depression, and complex cranial sutures which include Wormian bones. These are all morphological traits indicative of Asians.

Stature Estimation: **4'6" to 4'9"**
Since all of the skeletal elements are present, the revised Fully stature estimation technique was used in this case (Raxter et al., 2006), and resulted in a stature estimation of 146.11 cm +/- 4.5 cm.

Perimortem Skeletal Trauma:
No perimortem skeletal trauma was observed.

Antemortem Conditions:
Mild osteophytic lipping was observed throughout the vertebral column.

SUMMARY:

1. Sex:	Female
2. Age:	Young- to middle-aged adult (24-44 years of age)
3. Ancestry:	Asian
4. Stature:	141.61 cm – 150.61 cm
5. Trauma/Pathology	Vertebral osteophyte development

Educational Resources:
1. This is an excellent example of an adult female skeleton.

2. All of the developmental skeletal changes are complete, but very few degenerative changes have begun. This makes this skeleton a good candidate for discussing and observing morphological traits in young- to middle-aged adults.

3. Since all of the skeletal elements are present, this is a good skeleton to use when discussing the importance of looking at the entire skeleton when assessing sex, age, and ancestry. For example, even though the pelvis is the most reliable indicator of sex, it is still important to look at other aspects of the skeleton, such as the skull.

Resources:
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.

Hartnett KM. 2010a. Analysis of age-at-death estimation using data from a new, modern autopsy sample - Part I: Pubic bone. Journal of Forensic Sciences 55:1145-1151.

Hartnett KM. 2010b. Analysis of age-at-death estimation using data from a new, modern autopsy sample - Part II: Sternal end of the fourth rib. Journal of Forensic Sciences 55:1152-1156.

Langley-Shirley N, Jantz RL. 2010. A bayesian approach to age estimation in modern Americans from the clavicle. Journal of Forensic Sciences 55:571-583.

Phenice TW. 1969. A newly developed visual method of sexing the os pubis. American Journal of Physical Anthropology 30:297-302.

Raxter MH, Auerbach BM, Ruff CB. 2006. Revision of the Fully technique for estimating statures. American Journal of Physical Anthropology 130:374-384.

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

Disclaimer:
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.