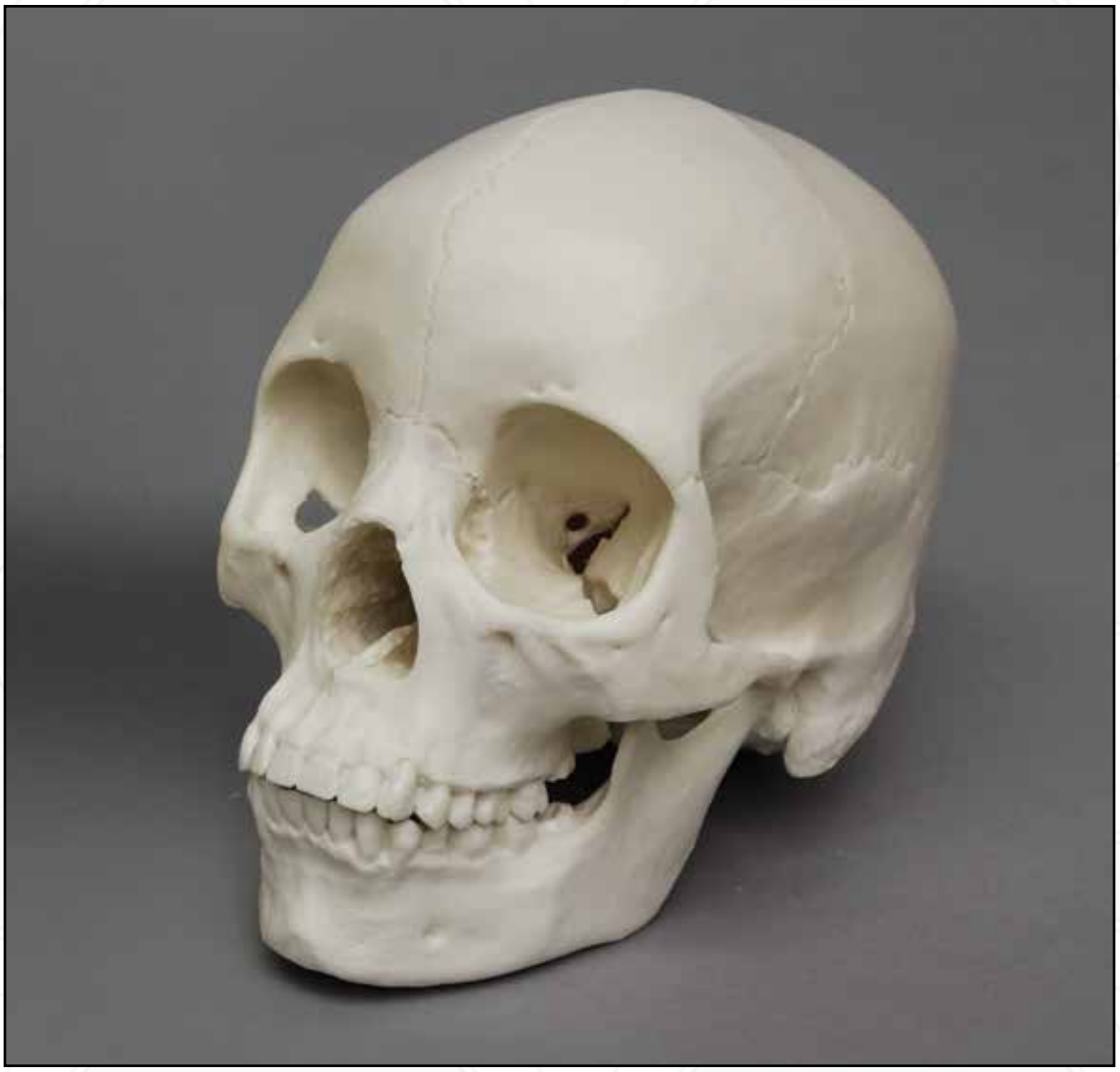
Bone Clones®

OSTEOLOGICAL REPRODUCTIONS

Human Female Asian Skull
BC-059



Osteological Evaluation Report

Prepared by

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Human, Female, Asian

Product Number: BC-059E

Specimen Evaluated: Bone Clones® replica

Skeletal Inventory: 1 intact cranium (absent middle and inferior nasal conchae)
1 intact mandible

General observations:

In general, the molding process has preserved significant details necessary for evaluation. The general shape and configuration of the skull is within normal limits. The ectocranial morphology of the individual cranial bones is within normal limits. There is a complete metopic suture, and a slight suggestion of a small segment of remnant right mendosal suture. There is the suggestion of sutural bones (Wormian ossicles) at the left parietotemporal notch, and at lambda. The foramina are of expected configuration. The skull is atraumatic.

There is slight occipital bone asymmetry with a slight bulbous protrusion to the right.

Dentition:

There are 16 teeth in the maxillary arcade and 16 teeth in the mandibular arcade. All teeth have an adult morphology and no deciduous dentition remains. The dentition is atraumatic. There are no dental restorations or prostheses. There is a mild to moderate degree of attrition. The wisdom teeth are erupting in all four quadrants.

Features of Race:

The interocular distance is slightly broad. The nasal root is depressed and the nasal angle is obtuse. The zygomatic bones retreat posteriorly from the plane of the face. The nasal aperture is narrow superiorly and slightly broader inferiorly. The anterior nasal spine is short, and the inferior margin of the nasal aperture is sharp, but there is no distinct nasal sill, nor is there a nasal gutter. The maxillary dental arcade is somewhat rounded. There is mild alveolar prognathism. The maxillary incisors are blade-like. There is no edge-on-edge incisal bite. There is a slight post-bregmatic depression. The calvarial sutures are focally complex.

The totality of features is most in keeping with those of an Asian individual.

Features of Sex:

There is no prominence of the cranial sites for musculofascial attachment. There is a narrow ascending mandibular ramus. The nasion is smooth, and the supraorbital margins are sharp. The inferior border of the mandible is rounded.

The totality of features is most in keeping with female sex.

Features of Age:

There are no identifiable fontanelles. The spheno-occipital synchondrosis is fused.

Ten ectocranial osteologic landmarks are evaluated for degree of suture closure according to the Meindl and Lovejoy method*.[1] Scores are assigned as follows:

1	1
2	2
3	2
4	2
5	2
6	1
7	2
8	2
9	1
10	3

* As is always the case with casting, there is a tendency towards overscoring.

The sum of scores for the cranial vault (landmarks 1 through 7) is 12. This corresponds to an estimated age of 45.2 +/- 12.6 years.

The sum of scores for the anterior cranium (landmarks 6 through 10) is 9. This corresponds to an estimated age of 51.9 +/- 12.5 years.

SUMMARY:

1. Asian.
2. Female.
3. 39.4 – 57.8 years; range 32.7 – 64.4 years.
4. No evidence of trauma.
5. No evidence of significant osteologic variations or primary pathology.

EDUCATIONAL RESOURCES:

1. The totality of features is most suggestive of Asian ancestry; however, non-classical features include:
    a. Sharpness of the nasal sill.
    b. Less than spectacularly round palate.
    c. Lack of shovel-shaped maxillary incisors.
2. The concept of race assessment is controversial. It may be worthwhile to review the varying schools of thought on this issue. Short summaries from the perspective of the forensic anthropologist[2] and forensic pathologist[3] are readily available.
3. This is an excellent example of a female skull.
    a. In many circumstances, the skull alone will allow an investigator to correctly determine sex.[4] However, the findings in the skull should never be treated in isolation; rather, they should be incorporated into your 'whole case' database. This database should include information obtained from all other aspects of the case. From an osteologic perspective, this includes (importantly) the bones of the pelvis.
4. This specimen may serve as a useful discussion piece for the topic of 'wisdom tooth eruption'.
5. This specimen may serve as a useful discussion piece for the topic of 'metopism'.

REFERENCES:

1. Meindl, R.S. and Lovejoy, C.O. (1985). Ectocranial suture closure: a revised method for the determination of skeletal age at death based on the lateral-anterior sutures. *American Journal of Physical Anthropology,* 68(1): 57-66.
2. Matshes, E. and Lew, E. (2006). Forensic osteology. In *Forensic Pathology: Principles and Practice*, D. Dolinak, E. Matshes, and E. Lew, Editors. San Diego, CA: Elsevier (Academic Press).
3. Gill, G. (1998). Craniofacial criteria in the skeletal attribution of race. In *Forensic Osteology: Advances in the Identification of Human Remains*, K. Reichs, Editor. Springfield, IL: Charles C. Thomas.
4. Krogman, W. and Iscan, M. (1986). *The Human Skeleton in Forensic Medicine*. 2 ed. Springfield, IL: Charles C. Thomas.

DISCLAIMERS:

This report is meant only as a teaching tool for introductory level students of the anatomical, anthropology or forensic sciences who might be using this specimen to learn human and forensic osteology. Evaluation of osteologic 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 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 race and sex are based only upon non-metric analyses. Evaluation of cranial suture closure is most accurately assessed endocranially as the sutures are known to close from the endocranial table towards the ectocranium. My opinions regarding this skull were made without access to the postcranial skeleton.

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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.