

OSTEOLOGICAL EVALUATION

Prepared by
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Product No. BC-203

Human Male African-American Skull



Bone Clones, Inc.

OSTEOLOGICAL REPRODUCTIONS

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Human, Male, Black

Product Number: BC-203

Specimen Evaluated: Bone Clones® replica

Skeletal Inventory: 1 intact cranium
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. The sutural patterns are of expected configuration. There is a left epipteric bone, and the suggestion of a sutural bone at the left parietal notch. The foramina are of expected configuration. There are deep ectocranial vascular grooves on the lateral (right and left) cranium. There are mild maxillary buccal exostoses.

The skull is atraumatic.

Dentition

There are 16 teeth in the maxillary arcade and 14 teeth in the mandibular arcade. All teeth have an adult morphology and no deciduous dentition remains. There are no dental restorations or prostheses.

There is a mild degree of attrition.

The 3.6 (19) and 4.6 (30) teeth are absent, and their gomphoses are healed. A small portion of buccal enamel is missing from the 4.2 (26) tooth; the teeth are otherwise atraumatic.

Features of Race:

The interocular distance is 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 broader inferiorly. The anterior nasal spine is short, and the inferior margin of the nasal aperture has a bilateral gutter. The maxillary dental arcade has a somewhat rectangular shape. There is prominent alveolar prognathism, and the skull is elongated in the anteroposterior plane. The maxillary incisors are blade-like. There is no edge-on-edge incisal bite. There is a post-bregmatic depression. The calvarial sutures are focally complex.

The totality of features is most in keeping with those of a Black individual.

Features of Sex:

There is moderate prominence of the cranial sites for musculofascial attachment including especially:

- the nuchal lines
- the external occipital protuberance
- the mastoid processes of the temporal bones
- the temporal lines
- the supraorbital tori
- the masseteric tuberosities of the mandible
- the supramastoidal crest

There is a broad ascending mandibular ramus. The nasion is somewhat rough, and the supraorbital margins are blunted. The inferior border of the mandible is square.

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

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

* 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 7. This corresponds to an estimated age of 39.4 +/- 9.1 years.

The sum of scores for the anterior cranium (landmarks 6 through 10) is 5. This corresponds to an estimated age of 41.1 +/- 10 years.

SUMMARY:

1. Black.
2. Male.
3. Most likely 31.1 to 48.5 years of age; range – 30.3 to 51.1 years.
4. No evidence of trauma.
5. Antemortem loss of 3.6 (19) and 4.6 (30) teeth.
6. Focal loss of enamel on 4.2 (26) tooth suggestive of postmortem defect.

EDUCATIONAL RESOURCES:

1. This is an excellent example of a skull from a Black (African American) individual.[2]
 - a. 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[3] and forensic pathologist[2] are readily available.
2. 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.
3. Age assessment of skeletal remains is best done in the context of the entire skeleton. Assessment of the degree of suture closure can be used with some degree of success[1]; however, there is tremendous variability in the degree of closure process. Students must be cautioned that statistical data is based on **populations**, and may not necessarily be reflective of reality in an **individual**.
4. It may be appropriate to discuss the concept of sutural (Wormian) bones and what role they may play in the forensic evaluation of cranial remains. It is most important that students understand sutural bones are normal variants which may be present with somewhat increased frequency in some racial groups; they must not be misdiagnosed as fractures.
5. When assessing palate shape, be sure to use the lingual margins of the maxillary arcade as your guide, and to mentally subtract such obscuring factors as buccal and/or lingual exostoses.

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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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