



Physical Anthropology Section – 2004

H2 Nonmetric Characteristics of the Skull for Determining Race in Blacks and Whites

Nicole D. Truesdell, BA*, 1933 South Brightside View Drive, Apartment E, Baton Rouge, LA 70820

This presentation has two objectives: to demonstrate the reliability of nonmetric morphological observations of the human skull for race attribution; and to illustrate secular trends found in frequency differences between the temporally divergent samples.

The results of this study are useful for forensic anthropology by showing the relative reliability of seven nonmetric traits used for attribution of race in the skull. A forensic anthropologist often uses nonmetric morphological characteristics for race assessment in the field. This study confirms that this method is still applicable. The results of this study should also be of interest to bioanthropologists by the resulting quantification of morphological change in the facial and cranial form due to secular trends.

Physical anthropologists have used morphological traits in the cranium, dentition, and mandible as a means of assessing race from the skull. Variance in reliability of these nonmetric traits are thought to be due to social and genetic group change, making racial identification much more difficult in modern cases. But does admixture inhibit nonmetric morphological characteristics as a means for identifying race in the skeleton? An evaluation of a group of these traits and influences from secular change in these traits needs to be determined.

Three different temporal samples were evaluated from collections at the Smithsonian Institution, totaling 324 crania. Morphological criteria were assessed from Hooton's 1949 "Harvard List" and Gill's 1986 Craniofacial Criteria in Forensic Race Identification, and seven traits were selected. Six assess facial features and one describes braincase form. The facial region was emphasized because previous research has shown this region to be the most accurate for race attribution.

The Terry Collection was initially used (100 Blacks and 107 Whites) to test the nonmetric criteria for accuracy and repeatability. Reliability testing of the traits was conducted using two sets of 25 crania blindly selected from the Terry Collection evaluated by the author and a second test independently evaluated by an intern. Each test obtained 84% accuracy in correctly attributing race from the cranium. These results indicate the reliability of these traits to attribute biological race without significant inter-observer error.

Four American Colonial sites were then evaluated: The Armor and Drummond Harris Sites, Governor's Landing, Virginia (nine Whites); Cliffs Plantation, Westmoreland County, Virginia (nine Blacks, five Whites); Catoctin Furnace, Thurmont, Maryland (nine Blacks) and a Colonial Cemetery from Deep River, Maryland (one Black, three Whites). An assortment of West African and Caribbean crania from the collections were also selected in order to obtain an originating "African" population from which to compare and assess admixture to later American Black groups.

Results from the research found that the Terry Blacks exhibited typical Negroid characteristics in orbital shape (oblong), nasal bridge (wide 50% of the sample), cranial form (long, 65% of the sample), nasal spine (small, 46% of the sample), and nasal sill (dull to no sill for 84% of the population). Alveolar prognathism was not a strong characteristic in the Black population with only 32.5% having pronounced and 38.6% having slight prognathism. Total nasal form was also not as expected, with only 44% having a broad nasal form.

Whites in the Terry Collection, exhibited strong typical Caucasoid characteristics for each of the traits. There was no alveolar prognathism, the orbits were rhomboid with a narrow nasal bridge large nasal spine and sharp nasal sill, the total nasal form being narrow and cranial form is high. Terry Whites also tended to exhibit a much more prominent chin than Blacks as well as greater brow ridging in the medial orbital region than Blacks. This most likely due to the pinched nasal bridge morphology.

Race attribution accuracy in the Terry Collection overall identified Blacks at 90% while Whites were correctly classified at 94.4%. When divided sex, Black females yielded 90% correct, White females yielded 88% accuracy and White males had 100% accuracy while Black males were lower at 90% correct.

The American Colonial Blacks displayed higher frequencies for alveolar prognathism, wide nasal bridge, long cranial form, insipient nasal spine, lack of nasal sill, and total nasal form. As such, this group presents more strongly "typical" Negroid features than the Terry Blacks. Orbital shape was exactly 50/50, indicating that this trait is not as useful as a racial criterion for this group. The White Colonial population was decidedly more difficult to identify. Colonial Whites tend to have elongated crania, which make their faces appear more rectangular. This gives the suggestion of African origins. Subsequently, accuracy for the Colonial Whites was only 50% while for the Colonial Blacks it was 100%.

The African and Caribbean skeletal material overall gave the strongest typical Negroid results, as was expected. Alveolar prognathism was clearly present, along with a wide nasal bridge, long cranial form, small to absent nasal spine, absent to dull nasal sill, and a broad nasal form. As was found before, orbital shape was not a distinctive feature.

Frequency comparisons of the three sample clearly show differences in facial form between these groups, illustrating the secular trends present due to significant admixture in the American Black sample, especially after the American Civil War. The Terry Blacks displays morphological form that is much more intermediate to the frequencies in the Colonial Blacks and certainly divergent from the frequencies of the African Blacks.



Physical Anthropology Section – 2004

Conversely, the American Terry Whites are not as distinctly different from their temporally earlier counterparts, other than in facial height, as discussed above.

Nonmetric Traits, Race Attribution, Cranial Morphology