

Draft

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Physical Anthropology

The Kennewick remains have been the focus of two forensic and morphometric studies to date. DOI commissioned Powell and Rose (1999) to undertake a study of the remains as an element of this cultural affiliation investigation. Chatters, who undertook the initial examination of the remains in 1996, has recently published a detailed study (2000). He has, in addition, published with Neves and Blum (1999) a multivariate comparison of the Kennewick skull with those from modern human groups.

DOI also commissioned a related taphonomic study in March 2000 to evaluate the overall condition of the remains and to select skeletal elements for DNA testing. This taphonomic study was undertaken by Clark Larsen, Joseph Powell and Philip Walker.

Sources agree that the Kennewick remains (Chatters 2000: 312; Powell and Rose 2000), and indeed late Pleistocene and early Holocene humans in general (Jantz and Owsley 1997; Owsley and Jantz 1999) do not compare closely with any modern living populations. Powell and Rose (2000) contended that "the most craniometrically similar samples appeared to be those from the south Pacific and Polynesia as well as the Ainu of Japan..."; these observations reinforce those made in earlier studies (Steele and Powell 1992, 1994; Jantz and Owsley 1997). Chatters made the following comments on the Kennewick remains:

The man's dental and craniofacial characteristics show an affinity with Ainu and Pacific Island peoples, but make him stand out from modern American Indians, especially those who occupied Northwestern North America in later prehistory. He does, however, compare favorably with other Paleoindian males, although he is significantly taller and has a more projecting face. (2000:312)

Chatters *et al.* (1999:89) made similar observations, noting that the Kennewick skull has a morphology "close to the Polynesians when size and shape are considered" but is an outlier when shape alone is evaluated. They clearly rejected the notion that initial descriptions of the remains as "Caucasoid-like" should be interpreted to suggest European origins (2000:87):

On the other hand, our analysis dismisses the idea that Kennewick Man represents an early European immigrant, since the Kennewick skull does not show any cranial morphological affinities with Europeans, at least when quantitative analysis based on metric variation is performed. (2000:89)

Powell and Rose (2000) also addressed the question of "Caucasoid" affinities. A nearest neighbor analysis did suggest that a European group may be included among the five nearest "neighbors" to Kennewick, but the majority were from Polynesia and east Asia. They suggested that if one considers the Ainu to be "Caucasoid" the description would have some relevance, but a strict application of the term to peoples from Europe, the Near East, and India would result in the term having no validity for the Kennewick individual. They reemphasize the point that the strongest morphological affinities for the Kennewick remains are with "populations in Polynesia and southern Asia, and not with American Indians or with Europeans in the reference samples."

It is important to recognize, however, that even the "strongest" morphological affinities are not in this instance particularly robust:

The Kennewick skeleton can be excluded, on the basis of dental and cranial morphology, from recent American Indians. More importantly, it can be excluded (on the basis of typicality probabilities) from *all* late Holocene human groups. There are indications, however, that the Kennewick cranium is morphologically similar to Archaic populations from the northern Great Basin region, and to large Archaic populations in the eastern woodlands. (Powell and Rose 2000)

Although the Kennewick remains do not have a close affinity to any modern group, metric data do suggest an association with an "earlier group," specifically the limited number of early Holocene remains from Paleoindian and Early Archaic occupations that have been studied (Steele and Powell 1992, 1994, 1999; Jantz and Owsley 1997; Owsley and Jantz 1999). This early group apparently includes an unprovenienced skull dating between 8000 and 9000 BP (CWU BOX-DO1) that was examined during an inventory of human remains in the collections of Central Washington University (Hackenberger 2000; Chatters *et al.* n.d.). Steele and Powell (1992, 1994, 1999) suggest that early American remains more closely resemble southern Asian and Pacific Rim populations, while modern Native Americans bear closer resemblance to northern Asian groups. They contend that the morphological unity among early human remains in the Americas and their dissimilarity when compared with modern Native American groups indicates that early populations entered the New World before the development of modern northern Asian and North American physical characteristics.

Powell and Neves (n.d.) have examined dental evidence from early human remains in North and South America to evaluate the three-wave immigration model proposed by Greenberg *et al.* (1986) based upon linguistic-dental-genetic data. The dental evidence, when evaluated with multivariate statistical techniques, indicated that early Americans are distinct from modern northern and southern Asians. Powell and Neves observe that the three-wave model seems the least likely scenario, although the precise number of immigration "waves" remains unclear. Powell favors a model in which the differences between Paleoindian, Archaic, and late Holocene Amerindians is accounted for by "*in situ* evolutionary changes through significant genetic drift, gene flow, or selection." He argues that the model is supported by evidence of DNA diversity in the Americas (Merriwether *et al.* 1995) but acknowledges several "critical flaws" when considering phenotypic dental evolution (Powell and Neves n.d.:22). Neves (Powell and Neves n.d.:23) argues that the differences between Paleoindian and New World populations are too great to be explained by *in situ* evolutionary change, but may be accounted for by multiple migration waves from east Asia.

Jantz and Owsley (1997) concluded that the Spirit Cave Mummy does not exhibit any of the "incipient Mongoloid features" defined by Lahr (1995), such as facial flatness and a broad cranial vault. The interpretation favored by Jantz and Owsley (1997:82) was that the proposed source population in northeastern Asia in fact had "few of the features commonly associated with contemporary people of Northeast Asia." These findings were consistent with the general interpretation that the late Pleistocene occupants of eastern Asia were "not morphologically similar" to the populations currently found in that part of Asia (1997:82). Jantz and Owsley (1998) have evaluated the possibility of multiple populations of early American inhabitants. Schurr and Wallace (1999:64) have drawn upon mitochondrial DNA data from Native American and Siberian individuals, as well as archaeological evidence, to argue for an immigration prior to the late glacial ice advance c.25,000-15,000 BP, and a second immigration c.17,000-13,000 BP, although they readily acknowledge that other interpretations must be considered at present.

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