

A Note on Early Cranial Studies from the Gulf of Georgia Region: Long-heads, Broad-heads, and the Myth of Migration

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... the osteological evidence gathered from these middens seems to support ... the invasion of a hostile people. (Hill-Tout 1895:106)

The above quotation is a late nineteenth-century expression of a concept that is still commonly held regarding the prehistoric period of the Gulf of Georgia region in general and the Fraser River delta in particular. Though the terms "invasion" and "hostile" have not been applied more recently, there is still some archaeological and physical anthropological evidence to suggest that major population movements may have occurred and that various models of dislocation must be considered in any detailed discussion on the prehistory of the region (Burley 1978, Beattie 1981). However, the theories of Hill-Tout (and others) were developed from cursory analyses of often poorly preserved human skeletal materials of questionable provenience. These materials have had no direct influence on the determinations of prehistoric population stability versus dislocation made within the last decade. The discussion which follows reviews and clarifies the two-population theory for the Gulf of Georgia region developed during the closing years of the last century and the first half of the present century. This early theory, relying almost solely on the interpretation of human cranial remains, was responsible for the concept of the "long-heads" and "broad-heads" as representing, respectively, the first and second occupants of prehistoric south-coastal British Columbia.

One of the first investigators to publish data on prehistoric human skeletal materials from the Northwest coast was Charles Hill-Tout (1895). His archaeological interests had been focused primarily on the lower delta region of the Fraser River and in particular at a large midden deposit located at Eburne, now known as Marpole (DhRs-1), in south Vancouver. Skeletons which he and others excavated at this site were used to develop a theory of the populating of the delta and the eventual dislocation of these peoples by an invading and hostile population from another region. Yet this important osteological information is not presented in his 1895 report. The only specific reference to skeletons is

restricted to a very general discussion of crania. It was the cranial morphology which Hill-Tout suggested provided irrefutable evidence for the occurrence of two distinct physical types. One type was "decidedly" brachycephalic (the head width was 80 percent or more of the head length: broad-headed) and did not, in his estimation, differ from the present day Indians inhabiting the lower Fraser area. His explanation for their presence in the Eburne midden was that they were intrusive burials into deposits yielding the second physical type, which were described as "no less decidedly" dolichocephalic (the head width was less than 75 percent of the head length: long-headed). This dolichocephalic group appeared to be wholly unlike the present day Indians. He goes on:

They are too decidedly dolichocephalic to be classified among any of the typical groups of this region as given by Dr. Franz Boas, and suggest affinity rather with the Eskimo or eastern stocks, or with the southern dolichocephali than with anything in this region north of California. The cephalic index of one in the possession of the Art and Science Association of New Westminster, B.C., is 73.85, and that of one in the writer's possession is practically the same, being 73.84. . . . Both of these crania are undeformed and normal and those of adults. (Hill-Tout 1895:112)

It would appear that the only osteometric evidence for a dolichocephalic population hinges on cranial indexes from two individuals with unstated proveniences. A description of the methods used in making the cranial measurements is not included. In the same report, Hill-Tout notes that he observed similar dolichocephalic crania from "one or two" other sites on the Fraser River between Port Hammond and the river mouth (1895:112), though actual site locations and skeletal descriptions are not provided. The two-population theory originates with this argument proposed by Hill-Tout. It is an understatement to suggest that the evidence he provided is totally insufficient to support the theory.

In 1898, further excavations were conducted at Eburne, this time by members of the Jessup North Pacific Expedition. Under the direction of Harlan I. Smith, seventy-five human skeletons were recovered (Smith 1903). The published account of the excavations include the observation that two distinct types of skeletons were found which belonged to co-existent but morphologically different peoples (Smith 1903:134, 139). In Smith's words:

There was nothing to show that one type . . . was of an earlier or later period than the other or that one was a slave people, the other of a master, as both were found unaccompanied by artifacts, in the same positions, and in the same layers of the heap. (1924:450)

It must be stressed that osteometric or even descriptive evidence for there being two types of skeletons is never provided. Smith's statements rely completely on the interpretation of the Eburne crania by Franz Boas, who detected two distinctive cranial shapes in the material. He describes these as follows:

The one type is characterized by a narrow head, the narrowness of which was emphasized by lateral pressure, with a marked median ridge on the forehead, narrow and high nose, and rather narrow face . . . ; the other, by a wide head (produced partly by antero-posterior pressure) and a wide face. (Smith 1903:189)

Boas acknowledges some deformation effects with the terms "emphasized" and "produced partly," though the general impression is definitely of two cranial (read biological) types. Another observation included by Smith is that the "narrow" head type differed greatly from that of the modern Indians of the delta, whereas the "wide" head type seemed to have been of the same derivation (1903:188-89). No mention is made of any post-cranial differentiation between the two proposed types. Superficially, these findings are similar to those made by Hill-Tout; that is, the evidence supporting the occurrence of two distinguishable physical types at the Eburne site was derived from the identification of two different cranial shapes. This similarity breaks down under closer scrutiny.

Boas compiled two tables of cranial metric data (cranial length, breadth, height, and minimum frontal breadth), one each for the "wide" and "narrow" cranial types (Smith 1903:189, 190). Each table contains data on three males and three females, for a total of twelve crania. Obviously, the crania were individually selected by Boas and therefore represent a certain degree of unintentional bias. However, one observation is very clear: cranial indexes calculated from these tables show that there was no dolichocephalic group at Eburne (table 1).

The published line-drawings made by Boas of two skulls representing the two cranial types show crania with easily identifiable deformation (Smith 1903:188; Heglar 1958a). Both crania have lambdoidal deformation (a vertical flattening of the posterior part of the cranium), and this is most evident in the "narrow" cranium. In addition, the "narrow" type possesses a unique altering of the anterior cranial shape produced by some form of restriction to the lateral growth of the frontal bone, resulting in a narrow and peaked appearance when viewed from the front or top. The "wide" type does not appear to display any evidence of the anterior pressure alluded to by Boas (Smith 1903:189).

TABLE 1

Cranial indexes calculated from the metric data given by Boas in Smith (1903:189, 190) for the two types of crania from Eburne.

Narrow type (Catalogue number, sex)						Wide type (Catalogue number, sex)					
1816	1544	1752	1813	1812	1810	1762	1780	1760	1788	1770	1747
M	M	M	F	F	F	M	M	M	F	F	F
79.0	79.8	82.6	82.5	76.9	77.9	85.8	98.8	99.4	91.3	89.1	96.8
—						—					
x = 79.8						x = 93.5					

Boas' presentation of the data is unfortunate in a number of ways. His drawings representing the lateral views of the two cranial types are somewhat misleading, producing the impression of greater physical differences than may actually exist. The Frankfort horizontals (ear-eye plane) are not properly depicted as parallel for the two crania: the two planes diverge anteriorly at an angle of 10 degrees. A visual comparison of the incorrectly illustrated specimens results in the identification of apparent morphological differences that simply relate to the misorientation of the figures. In addition, there are obvious sex and age differences between the two crania: the "narrow" cranium is male and the "wide" cranium is female. The depiction of cranial sutures and dental status supports the conclusion that the male is a young adult or adult and the female is an old adult. In reference to the Eburne materials, Oettinger observed that the "intensity of deformation is rather variable . . ." (1926:422). Therefore any meaningful comparison of the proposed cranial types cannot be made from these two specimens or from Boas' craniometric data.

It is unfortunate that the word "narrow" was selected to describe those crania with bilaterally restricted frontal bone growth. Many later readers and researchers have erroneously equated this term with "long," implying the occurrence of dolichocephalic skulls and therefore a general agreement between Boas' interpretations and those of Hill-Tout (e.g., C. Robinson 1935; Drucker 1943, 1963, 1965; Vancouver Art, Historical and Scientific Association 1948). What Boas accomplished was to define two physical types (Smith had referred to these as two types of skeletons) produced by two forms of artificial cranial deformation, a major interpretive error first pointed out in 1958 by Heglar in an unpublished report

(1958a; see also Cybulski 1976). A significant degree of irony is present in Boas' analyses. In some of his earlier and later work, he is very critical of the cranial index and its diagnostic value in determining the degree and significance of population variation (Boas 1899, 1911).

Even though Boas seemed content with his interpretations of the Eburne materials, a certain scepticism is detectable in Smith's later writings (E. W. Robinson 1976). Initially, migration of the "narrow" headed population from the Interior was suggested as a possible explanation for the presence of two morphologically distinct peoples coexisting at Eburne (Smith 1903:190). Later the two types are referred to more specifically (and certainly more accurately) as "two forms of skull," and the admission is made that the "narrow" type is rare, though the actual ratio of "narrow" to "wide" skulls is not given (Smith 1924:450, 452). And in 1929 the cranial material is further brought into focus with a curious and enlightening statement: "... even the strange [i.e., 'narrow' head] type of Indian might be found today if we made a closer study of the surviving natives" (Smith 1929:3). Though in these later papers it is unclear whether he is purposefully not mentioning the possibility of migration or strong influence from the Interior to explain these physical differences, it is evident that he had weighed Boas' original concepts, found them inadequate and concluded that the two cranial types were from a single population.

The "narrow" type crania noted by Smith were from middens associated with the mouth of the Fraser River: Eburne (Smith 1903), and Point Roberts (Smith 1924). No occurrences of the type were discovered among thirty-three prehistoric skeletons excavated 35 kilometres upriver at Port Hammond (Smith 1903, 1924).

In 1933 G. E. Kidd completed a report on human skeletal material excavated at the Eburne site in 1931. Two hundred skeletons were recovered during the excavations, though Kidd's report concentrates on the forty-one crania intact enough for analysis. Seventeen crania were determined to be without cranial deformation, and the reported cranial indexes for these average 86.7, with a range of 72.2 to 98.0. The suspiciously high values in the brachycephalic range indicate without question that Kidd was including a significant number of deformed crania. In reference to the total sample of crania, he does note that a majority were lambdoidally deformed, and admits that he may have called some of these undeformed. He mentions the difficulty he encountered in observing occipital flattening in its more subtly expressed forms (Kidd 1933:6). There was only a single occurrence of a dolichocephalic cranium (in-

dex = 72.2), and this was described as abnormal (Kidd 1933:6). All other crania had indexes above 78.7.

Kidd himself never suggests the presence of more than one physical type at Eburne, though crania with contrasting morphological features are noted. The interpretation of this morphological differentiation is left to another authority:

Two, at least, of these Eburne skulls are so essentially different as to be placed in a different class. These were examined by Prof. Boaz [*sic*] who took measurements. . . . They are not deformed, and while the cranial indices (cephalic are 83.8 and 82.5) place them in the brachycephalic class, they have the following characteristics: the maximum breadth of the skull is in the lower temporal region and not in the parietal region as is general to the rest of the series. Again, the mid-frontal area is slightly elevated, suggesting a crest along the mid-line of the top of the skull. Prof. Boaz suggested that these skulls represented a tribe of Indians who at some time cut through to the Coast from the Interior. (Kidd 1933:5)

Curiously, Kidd first refers to these undeformed crania earlier on the same page, describing them as showing evidence of frontal pressure and suggesting that they may have been intrusive burials. The two crania described are obviously representative of the "narrow" type originally identified from Eburne by Boas (Smith 1903). It is interesting and important to note the adherence of Boas' belief in migration from the Interior to account for this cranial type, whereas by then Smith had retreated from this viewpoint (Smith 1924, 1929).

From the time of Kidd's report, there was no substantial addition to the knowledge of the physical anthropology of prehistoric south-coastal British Columbia until the work of Heglár in the late 1950s (1957, 1958a,b,c). In these reports Heglár identified the problems Smith and Boas had encountered in understanding the full importance of cranial deformation in creating the impression of two physical types, commonly described as "long-heads" and "broad-heads." As these reports were never intended for publication, Heglár's important observations were (at the time) ineffective in countering the inertia of the head-shape hypothesis.

A recent osteometric analysis of a large sample of prehistoric human skeletons from the Gulf of Georgia region has identified all of the cranial deformation types described by Hill-Tout, Boas, Smith and Kidd (Beattie 1981). This analysis suggests that cranial deformation was rare or absent among the earliest inhabitants of the south coast (predating ca. 500 B.C.: Locarno Beach Phase and earlier), but in more recent times

(postdating ca. 500 B.C.: from the Marpole Phase through to the present) deformation had become a universal cultural practice (Beattie 1981:60-61). It is obvious that cranial shape (or metrics) cannot be used as good supporting evidence for interpreting population dislocation in the Gulf of Georgia region. The effects of cranial deformation on skeletal samples artificially alter the expression of metric and non-metric characteristics, greatly reducing their value in the assessment of biological affinities (Beattie 1981).

This paper has not attempted to interpret the origins of the native groups of south-coastal British Columbia. It has reviewed a major problem relating to the conclusions of earlier physical anthropologists and archaeologists made from the assessment of craniological features of pre-historic skeletons from the region. Within an historical context, the late nineteenth and early twentieth centuries saw at its zenith the popularity of using cranial features (especially the cranial index) as genetic and racial indicators (Gould 1981). Out of these interpretations came the scenarios of migration, population dislocation and even hostile interaction between two populations of independent origins, all focused on or near the Fraser delta. Though it has been demonstrated on a number of occasions that these populations were manufactured from the interpretation of cranial differences based on the various forms and expressions of artificial cranial deformation, and not on genetic criteria, the concepts of Hill-Tout, Boas, Smith and Kidd endure.

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