

wallabies, due to deficient methylation (eventually resulting in the formation of new species) may be a widespread phenomenon in hybrid mammals. However, this idea has now been challenged by another research group, who did not find any methylation changes in the genomes of a number of mammalian hybrids they studied.<sup>12</sup>

### Evidence supports biblical model

The very rapid genetic changes caused by TEs could help explain the formation of the variants from the original kinds on Noah's Ark in the relatively short biblical time frame.<sup>1</sup> Rapid speciation apparently occurred, since early historical records already show a large variety of types similar to those present today. The various species representing the variants in e.g. the kangaroo/wallaby created kind, would all then stem from the original parent kind present on the ark.

Based on the rapid jumping of retroelements in hybrid wallabies<sup>6</sup> and fruit flies,<sup>2</sup> on their ability to cause DNA rearrangements, and on their role in gene regulation,<sup>1</sup> it is plausible that these TEs were active in the past, and were an original mechanism for expressing God's programmed variation within kinds. Today, the presence of incomplete, inactive segments of retroelements in wallaby chromosomes, which probably recombined in the hybrid to form active elements, as in the case of hybrid mice,<sup>9</sup> may be vestiges from this past mechanism.

Are retroelements involved in wallaby speciation today? The wallaby crosses described here only produce sterile males, a result which is common in interspecific hybridization in mammals.<sup>12</sup> Therefore, most male hybrids cannot produce offspring with female hybrids from a compatible crossing. In the unlikely event of a fertile male successfully mating, there is also no certainty that this will produce viable offspring. These obvious problems, and the fact that TEs are mostly inactive today and are only 'jump started'

by the unlikely events of crossing between species, indicates that the role of retroelements in speciation has been either greatly reduced or has stopped altogether.

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## How different is the cranial-vault thickness of *Homo erectus* from modern man?

John Woodmorappe

### Introduction

Are the human 'species' that preceded us real taxa, and are they evidences for evolution? A growing body of evidences suggests that they are neither.<sup>1,2</sup> Moreover, the physical features which distinguish 'primitive' from modern man can be accounted for by non-evolutionary explanations.<sup>3,4</sup> These include genetic drift in the small post-Babel populations, adaptations to diet and/or climate, changes in the rate of skeletal maturation, and other consequences of living conditions in the immediate post-Flood period which differed greatly from those enjoyed by subsequent members of the human race.

Everyone with even a remote familiarity with paleontology is aware of the fact that many of the evidences in this field are subjective, and subject to a multiplicity of interpretations. But no one can doubt that *Homo erectus* had a much thicker cranial vault than do modern humans. Or can they? Surely the distinctive cranial features of *Homo erectus* have been arrived at as a result of rigorous scientific investigation? Well, not exactly, as it turns out. Consider the following sobering statements made by Peter Brown,<sup>5</sup> an Australian evolutionary paleontologist:

*'Nearly every introductory and advanced text written on human evolution in the last four decades lists thickened cranial vault bone as one of the features distinguishing Homo erectus from H. sapiens and other hominids. However, data has rarely been presented in support of this statement and it remains unclear whether the distinction that is being drawn is relative,*

absolute, or restricted to a specific part of the neurocranium. Before concluding that relatively thickened vault walls are an autapomorphic trait of *H. erectus* [references], it would seem reasonable to examine the vault thickness characteristics of a range of hominid and hominoid primates.<sup>6</sup>

Indeed! The purpose of this article is to report on this research, as well as its fascinating findings.

### Comparing cranial-vault thickness

One way to evaluate the cranial thickness of various extinct as well as modern groups of humans is to measure the thickness of a considerable number of adult skulls, and then provide a mean and standard deviation for each group of humans thus studied. Simple statistics can then be performed to ascertain whether or not chance sampling alone can explain the differences between the means of human-skull groupings. Of course, it should be noted that groups of humans displaying statistically distinct tendencies for cranial thickness are not *ipso facto* members of different species. On the other hand, if groups of humans have skull thickness variations that are not significantly different (statistically) from each other, it then argues strongly against them having been members of different human species.

In the manner described in the previous paragraph, Brown<sup>7</sup> contrasted the cranial vault dimensions of four modern *Homo sapiens* populations amongst themselves, and against samples of Asian *Homo erectus* and Chinese archaic *Homo sapiens*. The four *Homo sapiens* populations evaluated were modern south Chinese, Romano-British, aboriginal Australians (both living and recently-dead), and the remains of Australian aborigines that had lived, according to the conventional time-scale, from about 10,000 to 30,000 years ago. The lattermost samples included the famous Kow Swamp remains, which had already been known for some time to possess considerable

similarities to *Homo erectus*.<sup>8</sup>

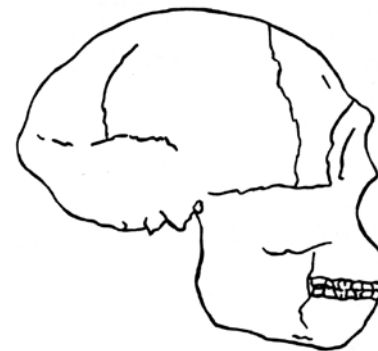
For each of these six groups of modern and ancient humans, measurements were made at each of the following seven anatomical points on the skull: mid-frontal squama, prebregmatic eminence, bregma, lambda, parietal eminence, asterion, and occipital torus or protuberance. Statistical differences were noted at both the 5 % and 1 % levels between the aforementioned six groups of humans.<sup>9</sup>

The cross-comparisons performed by Brown must be treated with some caution, for two reasons. First of all, the sample size of *Homo erectus* is not very large. Second, a sexual dimorphism exists for cranial-vault thickness, and yet the samples are not fully normalised for gender. However, the skewed distribution of the samples in favour of males is probably true of most of the samples. In any case, it is believed by Brown<sup>10</sup> that this bias is insufficient to undermine the results of his study. Hopefully, there will be a subsequent study which will use much larger samples, and these samples will be fully normalised for sexual dimorphism.

### Results of cross-comparisons

Not surprisingly, the means of cranial-vault thickness of the modern and recently dead Europeans, and *Homo erectus*, were found to be significantly different at five of the seven anatomical points mentioned above. The same held for modern south Chinese when compared with *Homo erectus*. Only the prebregmatic eminence and occipital torus were comparable between *Homo erectus* and, respectively, Europeans and South Chinese. By contrast, the so-called archaic *Homo sapiens* did not differ from *Homo erectus* at **any** of the six anatomical points (data on the prebregmatic eminence of archaic *Homo sapiens* had been unavailable).

Data from modern and ancient native Australians provided the most interesting results. Remains of Australian aborigines from the conventionally-dated time period of 10,000–



Skull profile of Peking man. Note the brow ridges, sloping forehead, and prognathous face. These features are also evident in Neandertal, archaic *Homo sapiens* and in some modern skulls such as Koy Swamp (from Mehlert).<sup>1</sup>

30,000 years ago (a mere flicker on the evolutionary time scale, even by the standards of human evolution itself) were found to differ in **only one** of the seven anatomical points of the skull (in terms of cranial-vault thickness) from their counterparts in *Homo erectus*.<sup>11</sup> This was in the parietal eminence, which was much thinner in the not-so-ancient aborigines than in *Homo erectus*. Thus, the distinctiveness of the Kow Swamp remains stands reaffirmed. Even more surprisingly, presently living Australian aborigines differed from *Homo erectus* in only four of the seven anatomical points on the skull. These were in the following: lambda, parietal eminence, asterion, and occipital torus.

### The Aborigines in a global context

Is the foregoing discussion on the temporal persistence of *Homo erectus* traits a local phenomenon? Hardly! Beasley<sup>12</sup> presents evidence that the geographic, temporal, and stratigraphic intermixtures of *Homo erectus* and *Homo sapiens* traits occur at many locations all over the world. Skulls with *Homo erectus*-like features occur not only in Australia but also at such locations as Indonesia and Africa. Buried remains themselves tell much the same story. Thick-vaulted and gracile, thin-vaulted skulls often co-

occur in the same stratigraphic interval — and sometimes even in ‘reverse’ stratigraphic order. Other problems are taxonomic in nature. Note that I had shown how the cranial thickness of Chinese archaic *Homo sapiens*, and those of *Homo erectus*, blur together. In fact, ambiguities in drawing the line between *Homo erectus* and so-called archaic *Homo sapiens* occur on a global scale.<sup>13</sup>

**What about other allegedly distinctive *Homo erectus* traits?**

Of course, cranial-vault thickness is not the only anatomical feature that is supposed to distinguish *Homo erectus* from *Homo sapiens*. An older study by MacIntosh and Larnach<sup>14</sup> attempted to enumerate the differences between *Homo erectus* and modern *Homo sapiens*. A very typological approach was taken, with specimens of Java Man, Peking Man, and East African Man taken as exemplifying the ‘real’ *Homo erectus*. Seventeen allegedly distinctive traits of *Homo erectus* were selected. Members of modern human groups were ‘scored’ as sharing a trait with *Homo erectus* only when a given individual shared

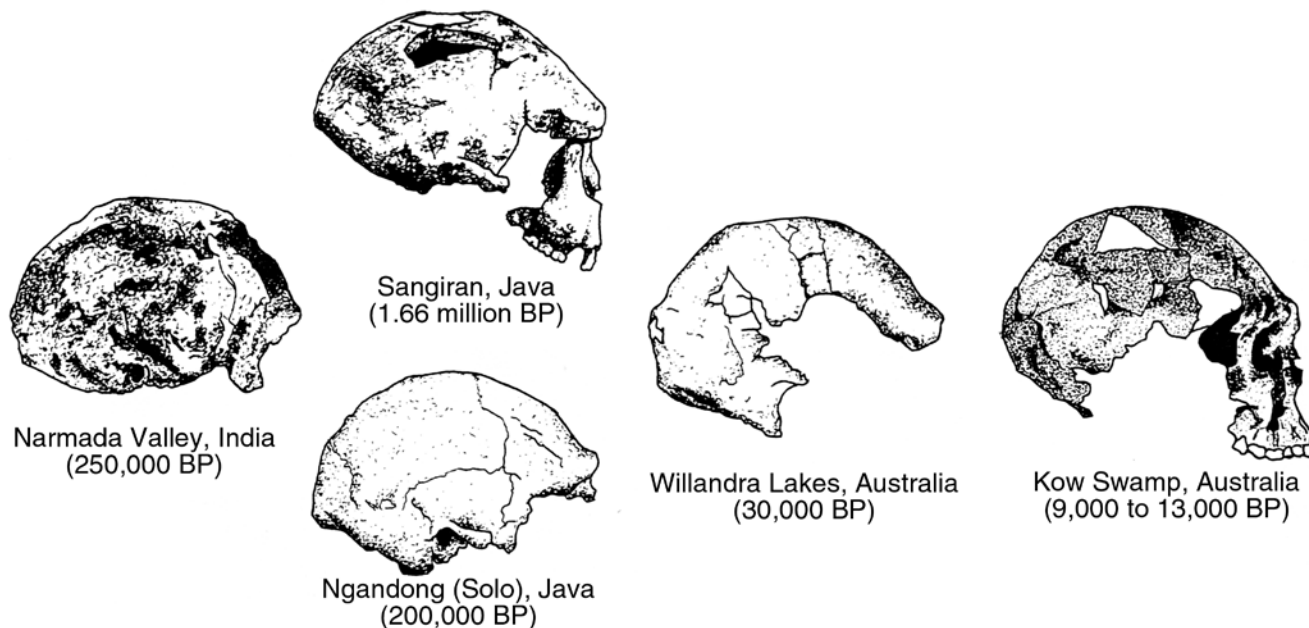
a cranio-anatomical trait to the same extent as did the aforementioned type specimens of *Homo erectus*. This eliminated borderline cases. At least 1 % of a given modern population group had to possess a given trait of *Homo erectus* in order to be considered as sharing the trait with *Homo erectus*. Of course, most *Homo erectus* traits, when they occurred, did so at frequencies much greater than 1 % of a given extant human population.

The results of this analysis are as follows: Most members of the human race were found to share only 4–5 of the 17 traits of *Homo erectus*, as defined above. However, this must be questioned since the sample sizes are very small (only 7–21 individuals for each group). The modern New Guineans had a much larger sample (95 individuals), and they were found to share 8 of the 17 presumably diagnostic traits. The modern Australian aborigines had the largest sample (202 individuals), and were found to share an astonishing 14 of the 17 *Homo erectus* traits.

The most recent evidence indicates that only a handful of features distinguish the presumed two species of man, and even these are of dubious validity. In addition, it is still recognised that most, if not all, of these

few presumably diagnostic features are present in *Homo sapiens*, albeit infrequently.<sup>15</sup>

By anyone’s time scale, the change in the Australian aboriginal population must have taken place over a time period measured in only thousands (as opposed to millions) of years. This does not remotely qualify as evolutionary transformism. The change involved is relatively minor, and the individuals involved were humans before, and they are humans now. Importantly, no significant increase in biological complexity has arisen as a result of this change. Moreover, the geographic, temporal, and biostratigraphic overlap of the two groups rules out a simple ancestor-descendant relationship between so-called *Homo erectus*, and *Homo sapiens*. And this overlap argues strongly against the two groups of humans ever having been reproductively isolated from each other. No one except a foaming racist would suggest that modern native Australian people are any less human than other humans by virtue of their similarities to *Homo erectus*. For all of the foregoing reasons, and for still others which could be discussed, *Homo erectus* should not be recognised as a different species of man. Instead, so-called *Homo erectus*



Some archaic human skulls from India, Indonesia (Java) and Australia. All of the above would readily qualify as representatives of the taxon *Homo erectus* were it not for their disparate ‘ages’ (from Beasley).<sup>4</sup>

should be regarded as little more than a variant of modern man, in much the same way as a thick-stemmed flower and its thin-stemmed counterpart can be recognised as variants of each other.

### Possible causes for diachronic changes in human cranial-vault thickness

It is difficult to escape the fact that there exists a temporal trend for the human cranial vault to be reduced in thickness with time. As noted earlier, this appears to be a global phenomenon. This seems to rule out random genetic drift as a cause. There must have been some sort of selective pressures acting on the human population, analogous to the one which might cause a hypothetical replacement of thick-stemmed flowers, to a large (but not complete) extent, with thin-stemmed ones. An accounting for the changes in cranial-vault thickness is beyond the scope of this short paper. For this, I refer the interested reader to Beasley.<sup>16</sup> He has proposed that the prolonged duration of skeletal maturation of early post-Flood humans, combined with their long life spans, facilitated the growth of thick cranial vaults. With the subsequent changes in the life spans of humans, thick cranial vaults became much less common.

### Conclusions

One is dumbfounded to learn that a major pillar of evolutionary orthodoxy (the allegedly distinctive cranial-vault thickness of *Homo erectus*) has evidently never before been comprehensively examined. One can only wonder what other manifestations of evolutionary orthodoxy are of a similar poorly supported nature.

Why has such a major paleontologic dogma gone unexamined for so long? Some of this bias is evolutionistic, and some of it stems from inadequate sampling of the entire modern human race.

*I suspect that there are several reasons why thickened cranial vault*

*bone has persisted as one of the diagnostic characteristic of H. erectus in almost every text describing the evolution of our lineage. Most importantly vault thickness in relatively thin walled European crania has been considered the norm for modern Homo sapiens.... Until recently little comparative data on geographic, sex-based and secular variation was available....*<sup>17</sup>

Clearly, the fact that the cranial vault thickness of *Homo erectus* significantly overlaps that of *Homo sapiens* is yet another reason why the former should neither be regarded as a separate species of the latter, nor as a putative evolutionary ancestor of modern man. The death knell can now be sounded for cranial-vault thickness as a diagnostic feature of so-called *Homo erectus*:

*'Now that comparable data is available it appears clear that if H. sapiens includes all the people alive in the world today, their ancestors in the Late Pleistocene and "archaic" H. sapiens like Dali and Xujiayao then vault thickness can not be used to distinguish H. erectus from H. sapiens.'*<sup>18</sup>

When we go a step further, and discard the evolutionary-uniformitarian time scale, there then remains no appreciable temporal difference between 'ancient' and modern humans. Instead, the overall paleoanthropological evidence is broadly consistent with racial-type variations which encompass both modern and ancient Australian aborigines, other extant members of the human race, and so-called *Homo erectus*. All can parsimoniously be recognised as descendants of Adam and Eve. The changes in human cranial-vault thickness with time, evidently occurring all over the world, can be comfortably understood in terms of non-evolutionary changes in post-Flood human populations.

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6. Brown, Ref. 5, p. 33.
7. Brown, Ref. 5, p. 37.
8. For a review of the Kow Swamp remains, see Lubenow, Ref. 2, especially pp. 131–133.
9. A level of 5 % means that the respective samples of modern and ancient humans are sufficiently different, according to some chosen trait, that the differences between the samples would arise by chance, on average, once every twenty tries. A 1 % level means that the differences would arise by chance, on average, only once every hundred tries. Conversely, the statistical tests mean that, respectively, we can be 19/20 and 99/100 certain that the differences we see between the two groups of human remains are real and are not an artefact of a lucky (or unlucky) combination of samples that we happened to use.
10. Brown, Ref. 5, p. 41.
11. Brown, Ref. 5, pp. 37–38, 41–42.
12. Beasley, Ref. 4, pp. 171–177.
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16. Beasley, Ref. 4, p. 199.
17. Brown, Ref. 5, p. 43.
18. Brown, Ref. 5, pp. 43–44.