Archaic Fossil Human Remains — an Update

GREG J. BEASLEY

ABSTRACT

In 1992 the present writer developed a model for interpreting archaic fossil human remains within a biblical framework of earth and human history.[1] The following paper attempts to build upon this model by presenting new evidence in support of the author's contention that modern man derived from a physically superior ancestral stock. This rootstock embraced several highly variable forms of fossil humans—whose skeletal robustness and archaic traits have been misinterpreted by transformists as derived traits or vestiges (primitive retentions) of a common ancestry with the African apes.

INTRODUCTION

> *'Regarding him now more closely, he found it difficult to guess his age; his smallish and somehow undetailed features, together with the moist-clay texture of his skin, gave him a look that might either have been that of a young man prematurely old or of an old man remarkably well preserved. '*

So wrote James Hilton in his famous novel, **Lost Horizon**.[2] An interesting analogy can be drawn between this passage and the interpretation of fossil human remains. An evolutionist and a creationist can examine the same fossil evidence and come to vastly different conclusions concerning their interpretation. These conclusions will be contingent upon the investigator's presuppositions. For instance, because of his or her commitment to the principle of uniformitarianism and the belief that modern man shared a common ancestor with the living anthropoid apes in the remote past, an evolutionist will constrain the longevity of archaic human remains to somewhere between 40 and 70 years; the average life expectancies of the great apes of Africa and modern man respectively.[3,4] A recent creationist, on the other hand, will interpret the fossil evidence within a biblical framework of human and earth history. This leads him to consider the possibility that many of the *'archaic'* or *'primitive'* traits observed in Pleistocene and early Holocene humans may be the by-product of substantially greater longevity potential and deferred skeletal maturation.[5,6]

In an earlier paper[7] the present writer developed a model which interpreted archaic fossil human remains within a biblical framework of earth and human history. This model drew attention to several factors which may have contributed to the so-called 'archaic' morphology of many of our early post-Flood ancestors.[8]

An otherwise 'modern' skeleton can be severely distorted by pathologies such as rickets/osteomalacia, acromegaly, Paget's disease (or osteitis deformans) and osteoarthritis. Such distortions can produce 'primitive' traits. The human skeleton can also be modified as a consequence of:

(1) Repetitive forces acting upon a relatively 'plastic' skeleton during infancy, childhood and adolescence,[9]
(2) Continuing periosteal apposition during adulthood,[10-12] and
(3) Bone resorption during senescence.[13]

The degree of modification and distortion *would* be amplified if coupled with a deferment of skeletal maturation and substantially greater longevity potential.

Now, the lifespans of the early post-Flood patriarchs were, according to the Old Testament Scriptures, substantially greater than the norm for the modern-day era (70 to 80 years) (see Figure 1). They hint at a time in human history when greater longevity was the rule rather than the exception. Indeed, the respective ages of the post-Flood patriarchs Arphachshad through to Isaac exceed even the upper limits

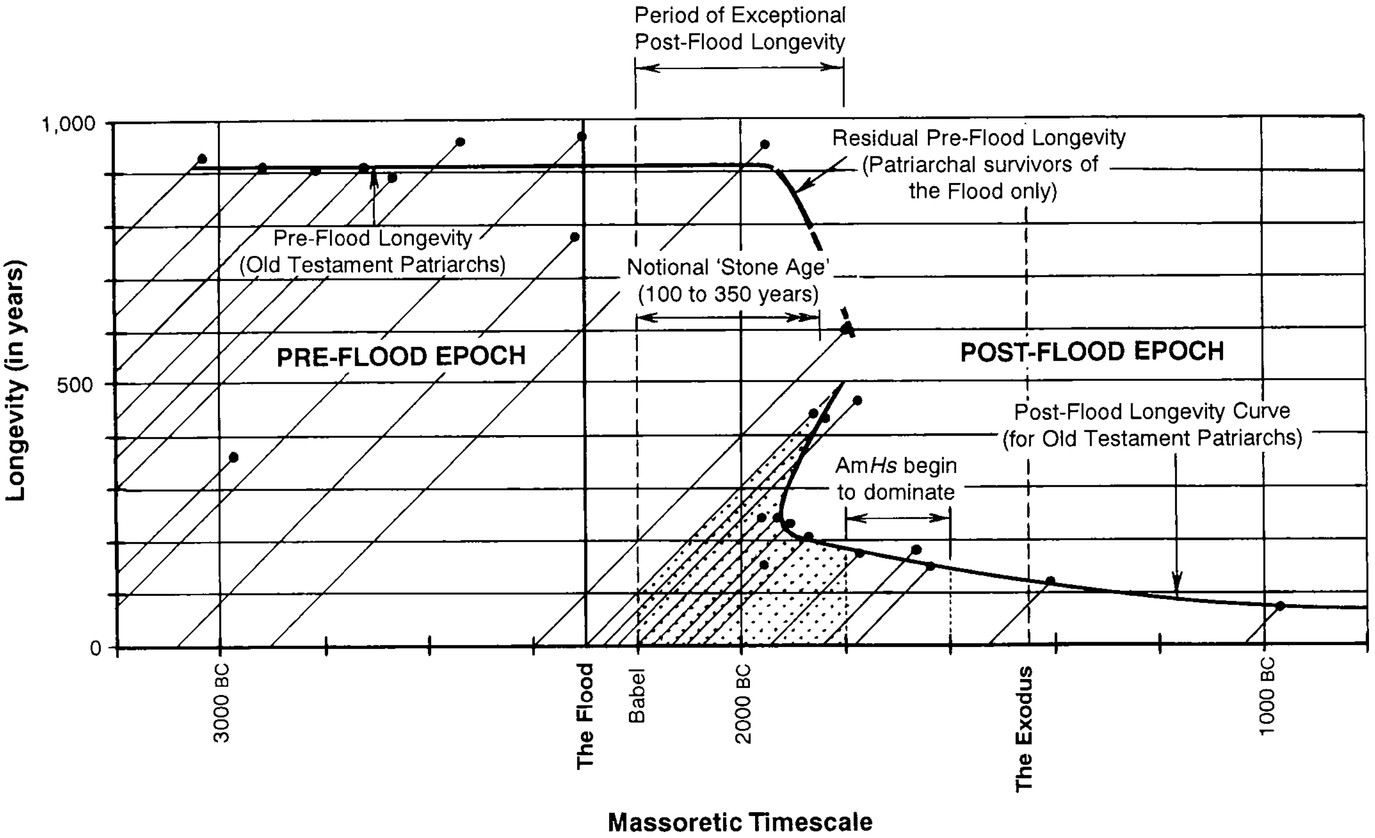

Figure 1. *Pre and post-Flood patriarchal lifespans according to the Massoretic text of the Old Testament. Many of the so-called 'archaic' traits we observe in our fossil ancestors can be explained in terms of greater longevity (potential or actual) and an extended period of skeletal maturation early in the post-Flood epoch.*

of present-day human longevity, as exemplified in individuals from the earth's three remaining bastions of longevity — the Abkhazian region of Soviet Georgia, the Hunza province of north-western Kashmir (Pakistan) and Vilcabamba in Ecuador. In each of these three regions lifespans well in excess of 100 years are not uncommon.[14] Elsewhere, and in relatively recent times, there have been unsubstantiated claims of even greater longevity, such as that of Englishman, Henry Jenkins, who is said to have died in 1670 at the age of 169,[15] and Shirali Mislimov from Soviet Azerbaijan, who, in 1973, was reputed to be in his 168th year of life.[16]

There can be no question that concentrated physical activity, exerted over a lifetime, will have a profound effect on the human skeleton. One need only examine the deformed footbones of natives from Vilcabamba to appreciate this fact.[17] Nevertheless, can we be certain that prolonged human ontogeny and skeletal maturation, consistent with greater longevity in the past, can account for many of the purportedly 'primitive' characteristics observed in *archaic* humans? Indeed, can the progression from 'archaic' to 'modern' skeletal morphology be largely attributed to declining longevity and earlier skeletal maturation? The present paper attempts to address these issues.

Since publication of the earlier paper there have been a number of important palaeoanthropological discoveries, some of which shed new light on our early post-Flood ancestors. Some of these discoveries have forced palaeoanthropologists to re-evaluate and modify their own hypotheses concerning human origins.[18-24] The present paper examines in detail some of these discoveries, their implications for the transformist view of human origins, and their possible relevance to a biblical model of human origins.

THE MODEL REVISITED AND ELABORATED

According to recent molecular-based cladistic studies of human origins man shared a common ancestor with the African apes six to eight million years ago.[25] This view has been restated most recently by Bunney.[26] For much of the intervening period down to historical times there is precious little, if indeed any, evidence — either physical or cultural — for the presence of man's ancestors. The physical evidence is confined to a rather obscure group of ape-like creatures — the australopithecines. The cultural evidence, on the other hand, is restricted to a small number of (questionable) stone implements — which are said to herald greater things to come.

The so-called 'Stone Age' is said to have lasted no more than 2.6 million years according to standard evolutionary chronology. The earliest phase of the Stone Age — the Lower Palaeolithic period — is said to have commenced some 2.6 million years ago and concluded approximately 130,000 years BP. It is during this period that the earliest representatives of the genus *Homo* are said to have appeared. The group comprises Homo *habilis,* a variety of forms loosely described as *Homo erectus,* and various forms of *'archaic ' Homo sapiens,* including the so-called ante- (or early) Neanderthals. An ever-increasing number of fossils have been attributed to this period.[27-33] The morphological diversity of this group poses great problems for advocates of strictly linear views of human evolution, for a not too insignificant number of these individuals possess a relatively 'modern' skeletal morphology.[34]

The middle phase of the Stone Age, extending from c. 130,000 to c. 35,000 years BP, includes a variety of human fossil types, including Neanderthal man and a regime of Near Eastern fossils, which have subsequently become known as proto-Cro-Magnoids.[35] Again, there is much skeletal diversity during this period.[36]

The terminal phase of the Stone Age — the Upper or Late Palaeolithic period — is said to have extended from c. 35,000 years BP right down to c. 10,000 years BP.[37,38] This period corresponds roughly with the emergence of various 'modern', Cro-Magnoid types throughout Europe, Asia and northern Africa. Like the other periods there are a number of anomalous fossils which fail to fit strictly linear views of human evolution. For instance, were it not for their relatively recent datings the Kow Swamp, Mossgiel, Cossack, Lake Nitchie, Cohuna, Coobal Crossing and Willandra Lakes fossils from Australia, the Ngandong (Solo) people from Indonesia and the Temara fossils from Morocco would be classified as *Homo erectus.*[39]

Now, according to Lubenow[40] the total number of fossil hominids recovered the world over and prior to the mid-1970s approximated 4,000 individuals. This number comprised various representatives of the genus *Homo* as well as several hominoid taxa, including the contentious ramapithecine and australopithecine apes. (The sum total would reduce only slightly were these hominoids excluded from the sample.) Most of the remaining fossils are of decidedly 'modern' appearance; the exceptions being the various forms of archaic *Homo sapiens* (including the Near Eastern proto-Cro-Magnoids), the neanderthals and *Homo erectus.* A more recent count by Lubenow[41] puts the respective sub-totals of archaic *Homo sapiens,* neanderthals and *Homo erectus* at 80, at 300 plus and at 220 plus, respectively.

Whilst such a sample size is not skimpy by any means, it nevertheless remains rather paltry if we are talking about an ancestry stretching back at least several million years. Indeed, Humphreys,[42] with reference to the middle and late Palaeolithic periods and work carried out by Deevey[43] and Dritt,[44] has recently stated that:

> '. . . *during* [this] *time the world population of Neanderthal and Cro-magnon men was roughly constant, between one million and ten million............... By this scenario they would have buried at least four billion bodies. If the evolutionary time-scale is correct, buried bones should be able to last much longer than 100,000 years. So many of the supposed four billion Stone Age skeletons should still be around (and certainly the*[ir] *buried artefacts). Yet only a tiny fraction of this number has been found. '*

He then concluded that:

> *'This implies that the Stone Age was much shorter than evolutionists think,* ***a few hundred years in many areas****.'*[45]

Taken one step further, such observations also raise the possibility of an 'origin' of humanity in the quite recent past — an 'origin' measured in thousands, rather than millions, of years ago.

However, the paucity of fossil human remains is but one of many problems confronting advocates of transformist theories of human origins.

There are many fossil humans exhibiting so-called 'archaic' traits, some of which occur quite late in the fossil record.[46] Such fossils belie the notion that there is a clear transition from 'archaic' to 'modern' skeletal form in our ancestral lineage. Indeed, they may well point to the possibility that there is something inherently wrong with the entire evolutionary framework of human history.

Furthermore, whilst the Palaeolithic fossil record is replete with a variety of forms of fossilised human remains, these forms are seldom found in any well-defined stratigraphic sequence.[47] This impedes the palaeoanthropologist in establishing the precise order of appearance of the various forms. Consequently, he or she will be forced to resort to inferred sequences based on artefactual remains. But even this does not always guarantee consistency in the sequence of fossil forms. For instance, the association of Mousterian blade technologies with Israel's proto-Cro-Magnoid populations posed immense problems for earlier evolutionary chronologies that placed the Mugharet-es-Skhūl and Jebel Qafzeh hominids later in time than their purported evolutionary ancestors — the neanderthals at Mugharet-et-Tabūn and Zuttiyeh (Galilee).[48,49] Likewise, the association of the Saint Cesaire neanderthal skeleton with an ostensibly 'modern' (Châttelperronian) culture has also caused great pain to evolutionists.[50] A third such anomaly involves the discovery at Haua Fteah (Libya) of a whistle carved from animal bone in pre-Aurignacian deposits. These deposits are ***well below*** a Mousterian culture, which is said to have included a number of hominid mandibles. Yet the whistle is said to resemble closely instruments deriving from Upper Palaeolithic deposits in Europe.[51]

Finally, it is not altogether uncommon to find a variety of morphological types (forms) at a single site and common stratigraphic level.[52-59] This suggests that the various forms were contemporaries of one another and that there is an urgent need for an alternative explanation to account for such morphological diversity.

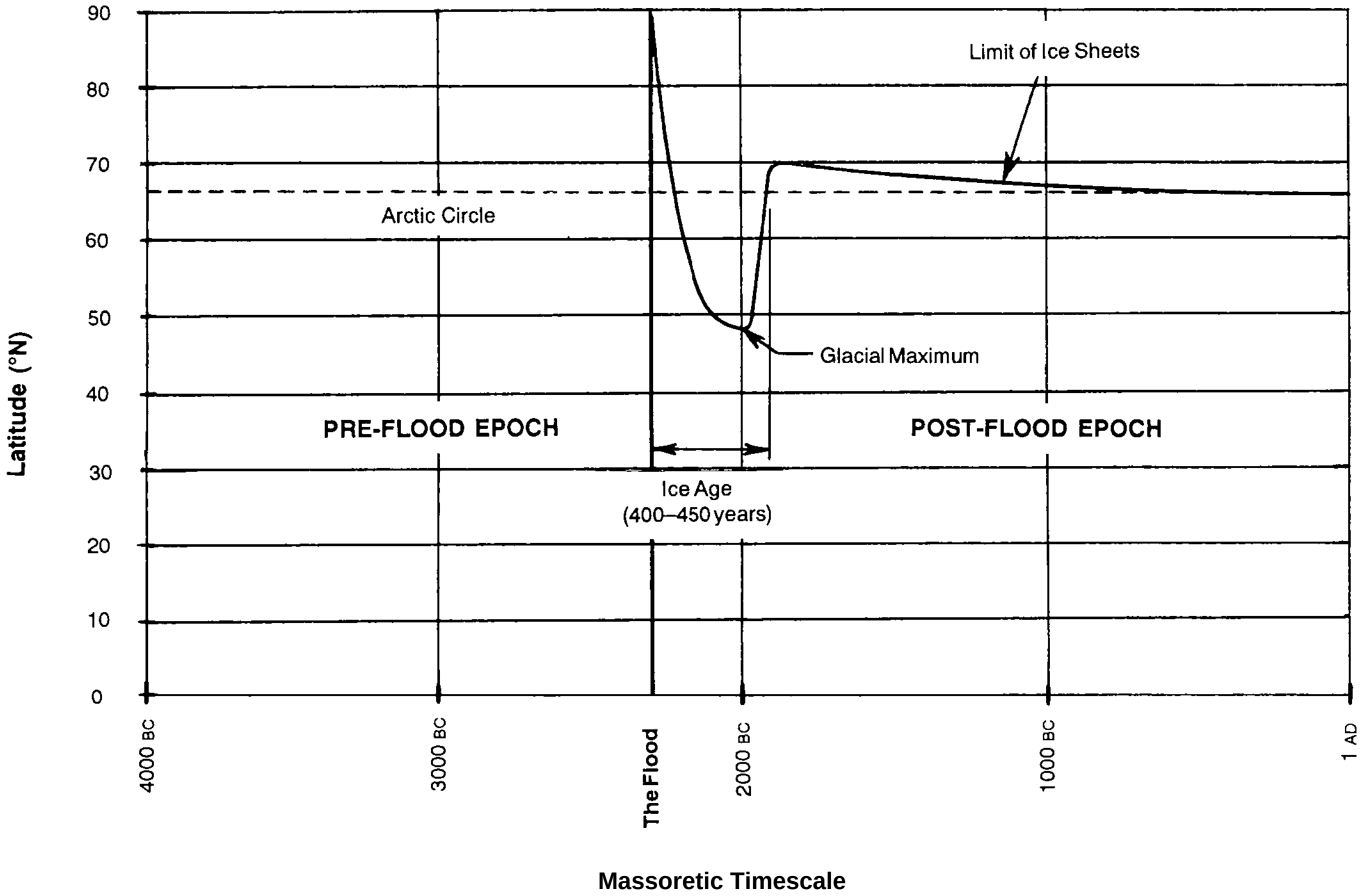

Figure 2. *A short, but intense, post-Flood Ice Age impeded settlement of Northern Europe. It was during this same period that individuals possessing remarkable longevity potential spread out across the face of the earth.*

Given these apparent problems, contradictions and deficiencies, the present writer set about developing a model based upon a biblical framework of earth and human history. The model presupposed that:

(1) All of the fossilised human remains recovered to date belong to the early post-Flood epoch;
(2) These remains and associated 'stone age' artefacts post-date the confusion of tongues at Babel;
(3) The initial post-Flood 'origin' of humanity commenced from the Anatolian region of Eastern Turkey and was followed by a migration into Mesopotamia *(biblical* Sumer) shortly thereafter;
(4) A rapid dispersion of humanity commenced from Babel approximately 100 years after the Flood;
(5) Dispersion coincided with the onset of a post-Flood Ice Age of some 400 to 450 years duration — the recessional phase of which was of short duration (perhaps as little as 100 years);
(6) The initial period of dispersion coincided with a period of human history during which time great longevity (potential or actual) was still very much the norm; and
(7) Many of the so-called 'archaic' traits observed in our early post-Flood ancestors could be put down to a combination of factors including: deferred skeletal maturation, greater longevity potential, climatic influences, hunter-gatherer and other related life-style influences, and the exaggeration of degenerative disorders arising from extended life-expectancy.

To this list we need to add the duration for a post-dispersion 'Stone Age'. This is not as straight-forward as it might first seem. For instance, the duration may have varied from one region of the earth to another.

The model presupposes that the division of the earth took place during the life-time of the post-Flood patriarch, Peleg.[60] A tight chronology of earth history, derived from numerical data contained in the Massoretic text of Genesis 11, suggests that Peleg was born approximately 100 years after the Flood (c. 2203 BC). He died some 239 years later (1964 BC).

If division of the earth was by means of water,[61] then we might assume that migration to the more remote regions of the earth — such as the Americas and Australia — was completed prior to the submergence of inter-continental land-bridges at the end of the post-Flood Ice Age. Were division of the earth to have been completed within Peleg's lifetime, it would be necessary for **glacial maximum** to have occurred towards the end of Peleg's life; that is, approximately 300 to 350 years after the Flood. Allowing an additional 100 years for a rapid recessional phase of the Ice Age, we arrive at an approximate duration for the Ice Age of between 400 and 450 years (see Figure 2).

Now, for regions of the earth subjected to colder climatic regimes during the Ice Age — for example, Central and Northern Europe — there is likely to be **a strong correlation between the recessional phase of the Ice Age and the abandonment of hunter/gather (essentially 'stone age') lifestyles.** Put another way, the hunter/gatherer lifestyle would persist until such time as the climate moderated sufficiently to allow a resumption of farming practices (including the cultivation of crops and the domestication of cattle).

On the other hand, a 'Stone Age' of shorter duration might be anticipated for regions of the Old World where more moderate climatic conditions prevailed; for example, the Near East, and Northern and Eastern Africa.

Accordingly, an upper limit for the 'Stone Age' in Central and Northern Europe has been set, albeit tentatively, at 250 to 350 years (see Figure 1). By way of comparison, a duration of, perhaps, as little as 100 years may be applicable for regions adjacent to the Mesopotamian dispersion point (for example, the Levant, Anatolia, South-West Asia and Egypt). The basis for the latter estimate is to be found in revised datings of the commencement of the Old Kingdom in ancient Egypt — which Courville[62] has set at approximately 2100 bc. This is a mere 100 or so years after our posited dispersion from Babel. The differing durations for the 'Stone Age' would go a long way to explaining the early rise of farming practices in the Near East (specifically, the region known as the Fertile Crescent).[63-65] On the other hand, there also remains the possibility of a slight overlap in time between so-called pre-Dynastic cultures and the 1st Dynasty of ancient Egypt.

Of course, it remains possible that quasi-'Stone Age' lifestyles may have persisted in some of the more remote regions of the earth for some considerable time after the recessional phase of the Ice Age, for example, in parts of South-East Asia, Australia and the Americas. Prolongation, in such cases, would be due to a variety of factors, including ecological considerations as well as cultural isolation and degeneration.

The model also presupposes that the total human population at the conclusion of the Flood-year was eight persons, and that the earth's present-day population derived from no more than six survivors of the Flood; Noah's three sons and their respective wives. It follows that the total human population alive at the time of dispersion from Babel — perhaps as few as three generations later (see Table 1) — would have been quite small. This, in turn, explains why there is an absence of 'Stone Age' cultures in southern and central Mesopotamia and a paucity of fossil human remains in the Middle East (including the Levant), Anatolia and South-West Asia.

Finally, the model postulated a direct correlation between the habitation of continents and prevailing climatic conditions — especially in Europe. By the time of the dispersion from Babel the effects of a post-Flood Ice Age would already be felt in Scandinavia. The more moderate climatic conditions of Central and Southern Europe would have been more conducive to an initial migration influx from the Near East. Shortly thereafter, however, much of Central Europe and even parts of Southern Europe would also have come under the influence of the Ice Age. As food sources disappeared under a cover of snow and ice, and game became increasingly scarce, life would have become a day-to-day fight for survival. The comforts and luxuries of a cultured society would have had to have taken a back-seat to the immediate demands of finding one's next meal.

It, therefore, comes as no surprise that cultural deterioration takes place well before (and for a short time after) glacial maximum is reached. This deterioration is reflected, in part, in the finish of Acheulean and Levallois inspired forms[66] of Mousterian tools and hunting equipment produced by Europe's earliest immigrants — the neanderthals and archaic *Homo sapiens.* It is also reflected in a shift to a meat-based diet;[67] something foreshadowed in the timely expansion of the human diet to include the flesh of animals

	POST-FLOOD HUMAN POPULATION (including pre-Flood survivors)				
Children per Generation	Generation 1	Generation 2	Generation 3	Generation 4	Generation 5
4	20	44	92	188	380
6	26	80	242	768	2,226
8	32	128	512	2,050	8,194
10	38	188	938	4,688	23,438
12	44	260	1,556	9,332	55,988

Table 1. *Postulated increases in human population after the Flood. The current model proposes that dispersion from Babel took place prior to, or concurrent with, the fourth generation; when the human populace was still very small. The dispersion of such a small population would have resulted in a number of genetic bottlenecks which, in turn, may have contributed to the continued decline in human longevity after Babel. The calculated values assume no deaths (either natural, accidental or deliberate) prior to the sixth generation and that all offspring eventually marry and have their own children. Therefore, each range of values represents an upper limit in human population at each generation.*

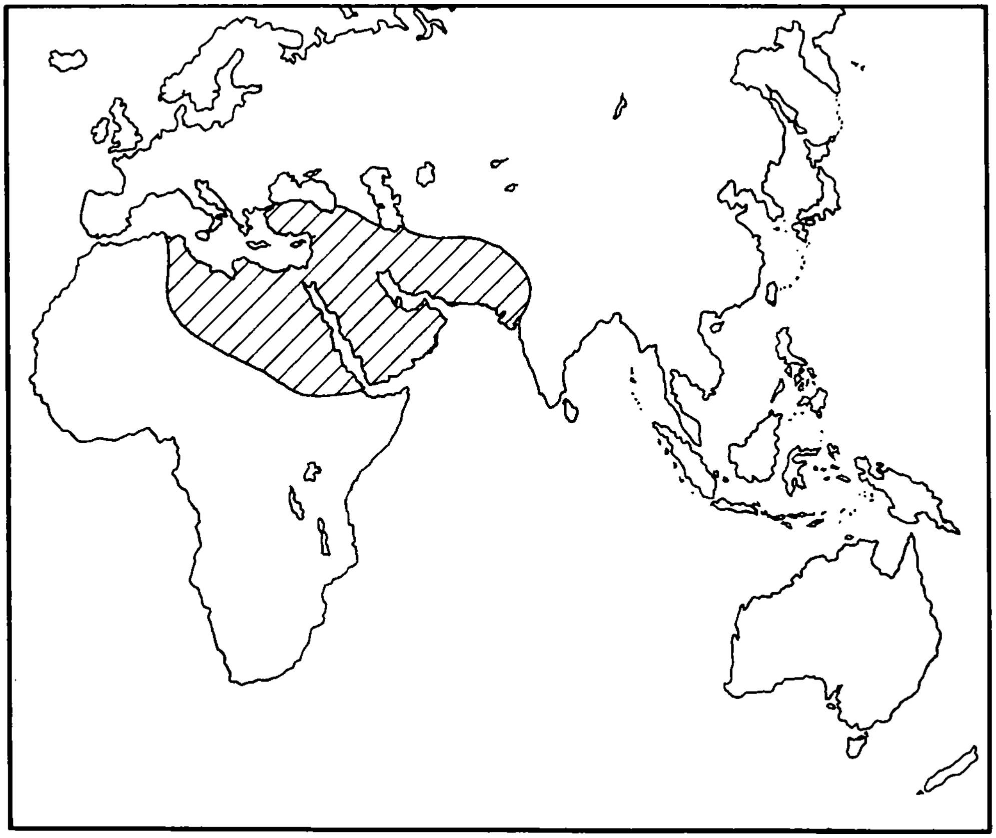

***Figure 3.** The Near East has been described as the 'Crossroad' between three continents; yet* no Homo erectus *fossils are to be found in Stone Age contexts within this region and much of North Africa and South-West Asia.*

shortly after the Flood.[68]

An obvious corollary to this scenario is that a return to a more cultured lifestyle must await the abatement of the Ice Age. And this is precisely what is in evidence in Europe. As such, late Palaeolithic stone age tool cultures, such as the Perigordian/Châttelperonian, Gravettian, Solutrean and Magdalenian,[69] would emerge towards the middle or even in the early part of the latter half of the recessional phase of the Ice Age, and generally in Southern Europe before Northern Europe. Coincidentally, this refinement of tool cultures is also paralleled with other evidences of a more relaxed lifestyle —including the appearance of cave paintings[70-71] and the manufacture of amulets, ornaments and other items of jewellery.[72-73]

Thus, the termination of the great Ice Age in Europe, at least, is denoted by a sudden proliferation of Mesolithic and Neolithic cultures; the transition from an essentially Mousterian to Neolithic culture being achieved in as little as two or three generations and almost certainly less than 100 years (the duration of the recessional phase of the Ice Age).

FOCUSSING IN ON THE DISPERSION

Given our presupposition that post-Flood dispersion of humanity commenced from Mesopotamia, we shall now proceed to examine various stone age fossil humans as they migrated away from Babel. We should, however, note in passing that there is little, if any, evidence of a Stone Age in much of Mesopotamia.[74] On the other hand, well-developed Palaeolithic cultures have been found immediately to the north, east and west of Mesopotamia.[75]

This same region is an integral part of the Near East —a region described by advocates of the Out-of-Africa hypothesis as the 'Crossroad' between three Old World continents.[76] Yet *Homo erectus* — the hominid stock who, according to advocates of the same hypothesis, ventured out of the African continent during the Lower Palaeolithic period — is not to be found anywhere in this or adjacent regions (see Figure 3). **Indeed, the very region where the evolutionist should be finding significant numbers of *erectus* specimens is the one area where they are conspicuous by their absence.** On the other hand, the region has yielded not too insignificant numbers of neanderthals and proto-Cro-Magnoids, along with their associated Mousterian cultures, and a lesser number of hominids tentatively described as **archaic** *Homo sapiens.*

Purported Acheulean (Lower Palaeolithic) cultures are few and far between in the Near East, and **no human fossils have been found at all from this same period.**[77] Moving up the purported evolutionary timescale, we come to the Pre-Aurignacian (late Lower Palaeolithic/early Middle Palaeolithic) period. Again, there are few cultures present, **of which only one site** (Mugharet-el-Zuttiyeh) **has yielded a human fossil** — the so-called **Galilee skull.**[78] This skull has been variously described as early neanderthal (Wolpoff[79]), pre-neanderthal (Bräuer[80]) and archaic *Homo sapiens* (Stringer[81] and Lasker and Tyzzer[82]). Concerning this skull, Stringer and Gamble[83] have recently expressed that:

> *'The only informative human fossil from this time is an enigmatic front of a skull with part of the face preserved below. . . . . Despite its fragmentary nature, the specimen has been much discussed, for attempts have been made to link it to the evolution of either modern*

> *humans or Neanderthals. It has a strong brow ridge and a narrow frontal bone, both primitive characters, but a rather domed front, which gives a somewhat modern appearance to the profile of the forehead. The upper face is transversely very flat, and the fragmentary cheek bone is angled as in modern humans. So in this last respect, the fossil is quite different from Neanderthals with their swept back cheek bones. Arguments have centred on whether this therefore makes the Zuttiyeh fossil modern. Unfortunately the angled morphology of the cheek bone is an ancestral characteristic which modern humans have retained, and it is therefore impossible to say whether the Zuttiyeh fossil is fundamentally modern or —as seems more likely —primitive.* ***Most probably it lies close to the evolutionary divergence of the Neanderthal and modern groups****, which is why its affinities are so difficult to ascertain.* '

On the other hand, Brauer,[84] quoting Vandermeersch,[85] suggests that the Zuttiyeh skull is '. . . ***probably the most ancient Homo*** **sapiens sapiens** ***in the Near East.***' In other words, in spite of its obvious affinities with Neanderthal man, Bräuer prefers to consign the Galilee skull to *Homo sapiens sapiens* (modern man). This suggests that the differences between so-called 'archaic' humans and modern man **may not be all that great.**

Indeed, Vandermeersch,[86] in a more recent paper dealing with the Zuttiyeh skull, has gone so far as to suggest that:

> '*Whilst there are no specific Cro-Magnon features on the preserved portion of the Zuttiyeh skull, the morphological changes that would be necessary to approach the morphology of the crania from Qafzeh, Skhūl V or even Predmosti III are* ***not great.*** '

Thus, the earliest Near Eastern representative of the genus *Homo* exhibits a curious mixture (or mosaic) of 'modern' and 'archaic' characteristics. Nevertheless, the Galilee skull is not the only early Near Eastern skull to exhibit a mosaic of 'modern' and 'archaic' craniofacial traits. For instance, Bräuer has also noted that, whilst

> '. . . *Zuttiyeh lacks the strong mid-facial prognathism and the retreating zygomatic profile typical of most Neanderthals, . . . this pattern* ***can also be found with the early Shanidar Neanderthals 2 and 4****.* '[87]

Curiously, (for transformists at least) other stratigraphically younger neanderthals from the Shanidar cave — including Shanidar 1 and 5 — are said to have exhibited an extreme development of midfacial prognathism.[88] This would seem to infer that the neanderthals of the Near East **were becoming more-'archaic' with the passage of time**; the very converse of conventional transformist theory.

Elsewhere, and intermediate in time between the Zuttiyeh and the earlier Shanidar fossil remains, we find another neanderthal site at Mugharet-et-Tabūn. This cave has so far yielded remains of two individuals; the skeletal remains of a young[89] neanderthal woman (Tabūn 1) and a second, larger (and presumably male) mandible (Tabūn 2).[90,91] Again, we are confronted with a curious mix of archaic and modern traits in these individuals. The Tabūn woman, for instance, possessed a somewhat flattened cranium and a receding forehead atop prominent brow-ridges, thick incisors and a receding chin.[92] She also possessed the distinctive neanderthal pelvis.[93] In other respects, however, she was of quite 'modern' skeletal morphology. For instance, her facial region has been described by Lambert[94] as being of a 'modern' morphology, whilst the back of her cranium was well-rounded and devoid of the distinctive neanderthal 'bun'.[95] Furthermore, her limb bones have been described by McCown as being of 'slight' (as opposed to 'robust') appearance.[96] The Tabūn 2 mandible (in contrast to Tabūn 1) is said to have exhibited a number of 'advanced' characteristics,[97] including a slight chin and reduced retromolar spaces.[98,99] These traits have led some authorities to conclude that the Tabūn 2 mandible might belong to a primitive modern rather than a neanderthal.[100] Thus, at Tabūn we are confronted with individuals of both 'modern' and somewhat 'archaic' morphology; the Tabūn woman exhibiting a mosaic of 'modern' and 'archaic' traits (not unlike the earlier Zuttiyeh cranium).

That we are possibly dealing with an ongoing process of '**neanderthalisation**' becomes even more evident when we stop to consider the Kebara skeleton. This partial skeleton, which is said to be of comparable age to the earlier of two populations of neanderthals from Shanidar, possesses a mosaic of characteristics that may be found in modern populations, but also to some extent in Middle Palaeolithic ***or*** **even earlier groups**.[101] Arensburg,[102] for instance, has indicated that:

> '. . . *typical Neanderthal traits in the metacarpal bones, the pelvis or the cervical vertebrae appear concurrently with modern features in the vertebral column, hyoid, ribs, sternum,* ***together with seemingly*** **more-archaic** ***morphological traits in the mandible.***'

He then adds that:

> '. . . *The overall morphology of the Kebara skeleton is, generally speaking, so robust that the robust skeletons described by Trinkaus from Shanidar seem almost gracile by comparison.* '[103]

More recently, Stringer and Gamble have described the Kebara skeleton as having been 'cold adapted'.[104] In other words, in the Kebara skeleton we have an individual whose skeletal morphology approaches that of the so-called 'classical' neanderthals of Western Europe. Nevertheless, Arensburg also cautions that:

> '. . . *it is safer, in the present state of research, to avoid the use of compromising terminology such as "Neanderthal Man" in referring to the Middle Palaeolithic hominids in the Middle East—partly because of the high degree of anatomical variability apparent within the Middle Eastern samples. It may well be that this variability reflects a wide range of factors including evolution from the local* [yet so far elusive] *populations of* Homo erectus, *combined with*

> *varying degrees of gene flow, population migrations, and associated evolutionary changes,* ***related at least in part of*** [sic] ***changing environmental conditions.*** '[105]

It, therefore, appears that a somewhat brief period of pronounced skeletal robustness ('archaic' morphology) coincided, in part, with a shift towards a colder climatic regime throughout the Near East. Yet it is also apparent that the 'archaic' morphology never quite reaches the extremes of the European neanderthals. Nevertheless, it is also apparent that many of the so-called archaic traits present in *both* Near Eastern and European neanderthals (for example, cranial flattening, bunning, brow-ridging, retromolar gaps, pubic bone lengthening, squatting facets of the shin bones, broadened toes, etc.) *cannot* be accounted for solely on the basis of cold-adaption theory.

It is also apparent that the *inferred* evolution of various forms of 'archaic' humans, from an *erectus*-like precursor, is made without any evidence for the presence of *Homo erectus* in the Near East. Nevertheless, the Kebara mandible would seem to hint at a possible transition **in the direction of a more *erectus*-like jaw morphology (with the passage of time)**; quite the converse of contemporary evolutionary theory.[106] This latter view would seem to be reinforced by the remains of even later and more-'archaic' quasi-'neanderthal' hominids from the Wadi Amud (Israel).

According to Wolpoff[107] the fragmentary remains of at least four individuals were recovered from the Wadi Amud site, near Lake Tiberias (Israel) — the most familiar one of which is the Amud 1 male. These hominids are regarded as the latest (most recent) of the Near Eastern neanderthals; dated by ESR to 41.5 kyr BP. More recently (1992), however, the fragmentary skeletal remains of two infants — one 10 months old and a second, six to nine months old — have been recovered from the same site.[108,109] These infants are said to derive from older deposits — perhaps approaching, in age, the Kebara neanderthal (c. 64 kyr BP).

The mandible of the 10-month-old shares a number of morphological traits with juvenile neanderthals from Eastern Europe and the Near East. In particular, mention has been made of the extra-strong muscular attachments on the inside of the infant's jaw and the conspicuous absence of a chin.[110] These traits also seem to foreshadow a more *erectus*-like morphology. Yet when we examine the later hominids from Wadi Amud, we are confronted with individuals whose morphology is decidedly more-'gracile'. For instance, Stringer and Gamble[111] have noted that the Amud 1 male featured a relatively slender brow-ridge and a more marked development of the chin. Furthermore, the Amud male, with an estimated height of 1.780 metres (or 5'10"), is clearly one of the tallest neanderthals ever to have been recovered.[112] This seems to indicate that the period between 65 kyr and 40 kyr BP — in the Near East at least (and based on conventional evolutionary timescales) — was one in which great morphological change was taking place; not only in terms of a general trend of increasing **'gracilisation'**, but also **stature 'rebound'**.

That these morphological changes appear to have been coincident with a return to warmer climatic conditions in the Near East is abundantly clear. Several Middle Palaeolithic populations exhibit traits which are clearly attributable to changing climatic regime. For instance, the brachial and crural indices of the Amud 1 and Shanidar 5 neanderthals indicate that they matured skeletally under moderate climatic conditions.[113] They were *not* nearly as 'cold-adapted' as many of their Near Eastern contemporaries or near-contemporaries; many of whom exhibited a dramatic shortening of the distal limb bones. Indeed, the variability of the brachial and crural indices of the Shanidar neanderthals pales into insignificance when compared with those of the proto-Cro-Magnoids from Skhūl.[114] The limb bones of three of the adult individuals yielded a range of brachial and crural indices suggestive of maturation under differing climatic conditions. Indeed, the upper limb bones of Skhūl 5 fall well below the mean for a combined European and Near Eastern sample of neanderthals, whilst the lower limb bones approximate the mean for the combined neanderthal sample. This indicates an individual who was cold-adapted. On the other hand, the limb bones of Skhūl 4 approximate more closely those of later Cro-Magnoids from Southern Europe; thus suggesting that skeletal maturation took place under much warmer climatic conditions.[115]

The presence in the Near East of populations comprising both cold- and warm-adapted neanderthals and proto-Cro-Magnoids seems to suggest one of two possibilities:

1. That climatic conditions **varied greatly *and* rapidly** in the Near East during the post-Flood epoch; or
2. That the above populations comprise individuals who **matured skeletally in different places and under a variety of climatic regimes.**

Under the first scenario (which can be loosely described as the 'stationary tribe' model), the variability in brachial and crural indices reflects rapid changes in regional climate. This implies a much shorter Ice Age than that advocated by supporters of transformist theory.

On the other hand, the second scenario (which can be dubbed the **'migrating tribe' model**), speculates that variations in stature and limb bone proportions can be accounted for on the basis of short-term migrations through a variety of climatic regimes. These changes could embrace *both* changes in latitude during migration and changes in climate regime during maturation.

Regarding the latter model, it is possible that some tribal families (proto-nations) alive at the time of the Babel dispersion would have migrated away from Mesopotamia in a generally northerly direction. This migration would have involved passage through alpine regions, such as the eastern margins of the Taurus mountains and the Caucasus mountain range beyond, before reaching the Ukraine.

By the time of the Babel dispersion post-Flood ice sheets would likely have extended southwards into Scandinavia, Lithuania, Estonia, Belorussia and northern Poland. By the time glacial maximum was reached — perhaps as little as

200 years later — the ice sheets would have advanced further southward, covering parts of Northern Europe, the Ukraine and western Kazakhstan. This would have a profound effect on migration — effectively precluding occupancy of latitudes north of the 55th parallel. Indeed, it is highly probable that, as conditions deteriorated, some of these migrating tribes would have retreated southwards into warmer regions such as the Crimea, Georgia, and perhaps even northern Mesopotamia. This would serve to explain the presence of late Middle Palaeolithic cultures and neanderthal remains in such regions as Kiik-Koba, Staroselye, Dzhruchula and the Zagros Mountains (Shanidar).

The initial migration out of Mesopotamia might also account for the early presence of mankind in Soviet Georgia — as evinced in the Lower Palaeolithic Dmanisi jaw.[116-118]

Whilst a cold-adapted individual such as the Tabūn female may, at first, seem incongruous with the presumed post-Flood climatic conditions of the Levant — especially given her relatively early appearance in the Middle East fossil record — it is well to remember that we could already be 100 or so years into the onset phase of a post-Flood Ice Age at the time of dispersion from Babel. And according to our model, interment of all of the Near Eastern 'stone age' hominids (including the Tabūn female) post-date this dispersion. On the other hand, she may simply have been numbered amongst those retreating from the advancing, colder climatic regimes of more northerly latitudes.[119]

Now, whilst rapid changes in the stature of contemporaneous populations are not an altogether uncommon phenomenon,[120] the neanderthalisation and gracilisation processes defy explanation solely on the grounds of climate change. Nor does it appear possible to distinguish various Near Eastern populations on the basis of racial differences. Whilst morphological diversity is great in the Near East, the variability within each neanderthal (for example, Shanidar and Tabūn) and proto-Cro-Magnoid (for example, Skhūl and Qafzeh) population is so great that the boundaries between these morphotypic subsets become rather blurred. For instance, Bower (quoting Arensburg) states that:

> '"*The use of the label 'Neandertal' in the Middle East has caused confusion. . . . In Israel, the fossils represent one population of early modern* H. sapiens *with a Middle East or African origin.* " '[121]

Bower then goes on to add that:

> *'Arensburg argues that anatomical features of the Amud, Kebara and Tabūn remains vary considerably from one cave to another* ***and in some ways resemble Skhūl and Qafzeh residents more than European neandertals.****'*[122]

Such similarities may hint at an early emergence of distinctive proto-national (racial?) traits.

But what of the anatomical variability within these same regional subsets?

The answer to this intriguing question, I believe, lies in a rapid decline in post-Flood longevity and, associated with this phenomenon, earlier skeletal maturation. Given that the human skeleton remains 'plastic' until maturation is complete, it is possible that many of the distinctive neanderthal and archaic *Homo* sapiens traits (for example, cranial flattening, brow ridge development, prognathic jaws, deformation of the pelvic region and limb bones) arose as a consequence of a stretched out period of skeletal maturation. Other features, such as thickening of the cranial bones and suture obliteration, frontal sinus development, thickening of the axial and limb bones, etc., may be a consequence of an extended period of post-pubescent periosteal apposition. (We shall examine some of these characteristics shortly.) If longevity potential plummeted towards modern-day values in a relatively brief period of time (say, a few centuries) we might anticipate a range of different morphotypes in line with changing longevity potential. Indeed, the presence of regional variants of the basic morphotypes (for example, neanderthal, *Homo erectus* and Cro-Magnoid, etc.) across the entire Old World would point to the fact that widely dispersed populations underwent similar reductions in longevity potential.

What, then, caused the sudden decline in longevity after the Flood?

A GENETIC BASIS FOR DECLINING LONGEVITY

If we are to countenance declining longevity and reduction in the period of skeletal maturation as a means of explaining many of the archaic traits in our early post-Flood ancestors, we must first put forward a credible explanation for these phenomena.

The persistence of longevity in certain extant cultures suggests that environmental influences had little, if anything, to do with the extremes of pre- and early post-Flood longevity.

In a recent paper, Wieland[123] suggests that great longevity may have been a genetically-based artefact of early human history; one which has been diminished as a consequence of several population 'bottlenecks' during the course of post-Flood history. He states:

> '. . . *our ancestors simply possessed genes for greater longevity which caused this "genetic limit" to human ages to be set at a higher level in the past.* '[124]

He attributes the loss of some of these genes to the phenomenon of **genetic drift**.

Now, according to **The Encyclopedia of Evolution**, genetic drift

> '. . . *is a random process, a chance factor in evolution, that is tied to the size of a breeding population. If a small population becomes reproductively isolated* [such as what might have happened in the aftermath of the Flood and subsequent dispersion from Babel], ***its gene pool may no longer represent the full range of genetic diversity found in the parent gene pool*** [that is to say, the combined gene pool of Noah's three sons and their respective wives] *It operates when a very small group of individuals become founders of a new, larger population, producing a "genetic bottleneck". This*

> *founder's effect . . . occurs in humans when a small tribal band splits up, and a few families migrate to colonize a new territory* [as was the case after Babel], *Founder populations can also be the remnant* [survivor]s *of harsh winters, wars or famines.* '[125]

This is precisely the situation with which we are dealing in the aftermath of the Flood and the dispersion from Babel. As Wieland notes:

> *'The human population went through a severe genetic bottleneck at the time of the Flood—only eight individuals. The phenomenon of "genetic drift " is well-known to be able to account for "random", selectively neutral changes in gene frequencies (including loss or "extinction" of genes from a population) which may be quite rapid. Also loss of genes is far more likely in a small population Such a loss may account for the major drop in the* [longevity of the] *descendants of the Flood survivors, from the 600+ range to the 400s in one swoop.* '[126]

We will subsequently refer to this as the **Pre to Post-Flood Patriarchal bottleneck** (see Figure 4).

Wieland then goes on to describe the second bottleneck:

> *'The second-stage drop to the 200s may be the result of a second such loss. It should also not be forgotten that the dispersion at Babel in effect caused a number of bottlenecks once again, although we have no definite indication just how tight these were.* '[127]

This second (multiple) bottleneck will subsequently be referred to as the **Babel bottleneck** (see also Figure 4).

Not only were (proto-national) tribal families rapidly dispersed throughout the Old and New Worlds after Babel, but language barriers imposed ensured that dispersion and racial separation/segregation continued to take place. Thus, when we come to examine Middle Eastern fossil human populations, it seems likely that great morphological diversity within already isolated populations **must be accounted for by some explanation other than racial differentiation.** Such variation we would put down to differing longevity potentials and duration of skeletal maturation.

That many of the so-called 'archaic' traits seem to have been wide-spread also seems to imply that they are related to a universal anatomical phenomenon, rather than being racially based. For instance, craniofacial characteristics such as prominent brow-ridges, receding foreheads, cranial

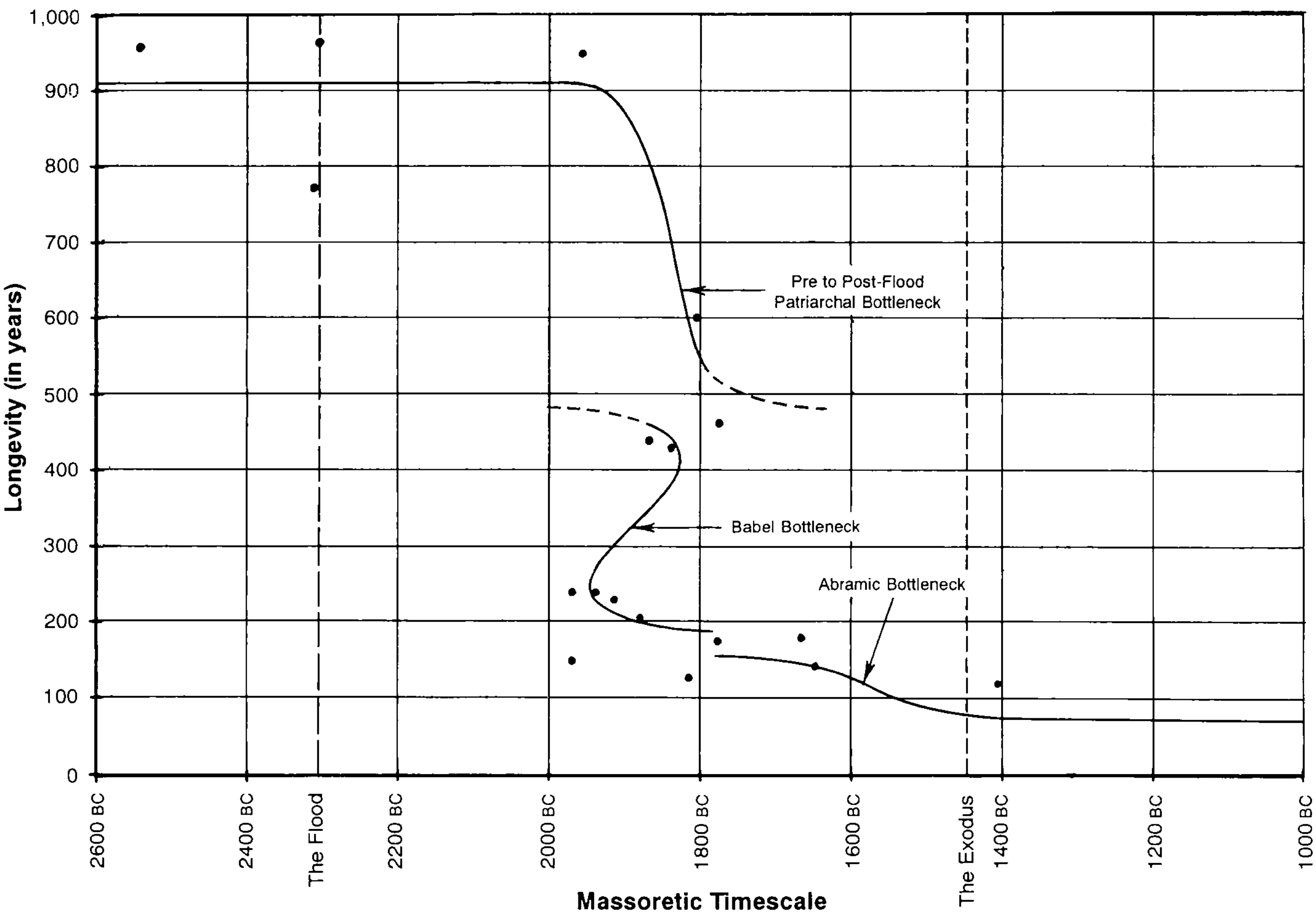

Figure 4. *Possible post-Flood genetic bottlenecks, as revealed in the patriarchal genealogies of the Old Testament.*

flattening and midfacial prognathism are to be found in fossil human populations throughout the Old World and extending into South-East Asia and Australia. Nevertheless, it is also true to say that skeletal 'robustness' also varies throughout time; with skeletons becoming more gracile during the Ice Age's recessional phase. The rapidity with which such gracilisation took place is attested to in the variability observed in isolated, yet contemporaneous, Upper Palaeolithic populations.

According to Wieland[128] a third (in a sense) 'bottleneck' would have occurred as a consequence of the formation of the nation of Israel — from one man (Abraham) and his closely related[129] wife. He then goes on to caution that:

> *'The course of changing longevity may have been quite different in other* [proto-national] *groups'*[130]

adding that:

> *'Some post-Flood humans may in fact have carried the "longevity " genes to greater or lesser degree over many generations. '*[131]

Then again, a fourth (though relatively minor) set of bottleneck situations may have resulted from population isolation following the submergence of the earth's intercontinental land-bridges; especially if populations were still relatively small at the time of isolation.

Given that we may be talking of as few as three (four at most) generations between the Flood and Babel,[132] and accepting that the human populace had consolidated itself in a single region of the earth prior to Babel,[133] we may assume that the initial decline in post-Flood longevity followed a pattern more or less identical with that documented for the Messianic line (between Shem and Peleg). We can be less certain of the trends following the dispersion from Babel.

Early post-Flood longevity has contributed to some rather interesting aberrations — aberrations which may account for the variability we witness in isolated populations of fossil humans. In today's world it is extremely rare to find more than four successive generations alive at the same time. In the early post-Flood epoch, however, this was not the case. Assuming that

(1) the dispersion from Babel took place c. 100 years after the Flood, and that

(2) sexual maturation was delayed until, say, 30 plus years of age,[134]

we would anticipate at most six (6) living generations at this time; Noah and his wife, and their sons and daughters-in-law (the sole survivors of the Flood) representing generations 1 and 2. By the time of glacial maximum — some 200 or so years later — the number of living generations would have increased to, perhaps, as many as thirteen (13); a unique period of post-Flood human history. A steady decline in the numbers of living generations would have ensued over the next 200 years, as the survivors of the Flood and their early post-Flood descendants died off. By c. 1800 BC we would anticipate, perhaps, six to seven living generations, and by the time of Moses and Aaron three to four generations at most.

According to the model proposed in this paper, diversity of skeletal form in a single, contemporaneous population will be greatest when the number of living generations is at a maximum. The diversity will, in this instance, reflect the extreme variation in potential (or actual) longevity in the population.

PERSISTENCE OF ARCHAIC TRAITS INTO RELATIVELY RECENT TIMES

The question may now be asked: how far back in time do we have to go before we perceive any hints of changing morphology consistent with prolonged ontongeny? This is less certain, given that the rate of decline in longevity may have varied considerably between different tribal (proto-national) groupings.

The genealogies of Genesis 5 and 11 afford us valuable insight into the dramatic changes in human longevity that took place *in a single,* Near Eastern lineage after the Flood. Elsewhere in the Old Testament, a psalm, attributed to Moses (1527 BC to 1407 BC), speaks eloquently of a dramatic decline in human longevity:

> *'For all our days* ***have declined*** *in Thy fury; . . .* As *for the days of our life, they contain seventy years, or if due to strength eighty years . . .* '.[135]

These words seems to infer that human longevity had **already** plummeted to the present-day 'norm' of 70 to 80 years some 800 to 900 years after the Flood; a figure which has remained fairly well ensconced during the past 3,500 years. They might also infer that the documented lifespans of Moses and his brother Aaron[136] — 120 and 123 years respectively — were exceptional, rather than typical, of their generation.

A further 400 or so years back in time takes us to the patriarch Abraham (1952 BC to 1777 BC); during whose lifetime longevity seems to have hovered around 180 or so years.[137] Abraham's father, Terah (2082 BC to 1877 BC), lived in excess of 200 years; yet even his lifespan was diminished when compared with earlier pre- and post-Flood patriarchs.

Elsewhere,[138] the present writer has documented the existence of secular records and histories which refer to greater longevity in the recent past. Indeed, the famous Egyptian historian, Sir Alan Gardiner, referred to documents which, ironically, have been used by many to argue for a reduction in the duration of the 4th and 5th Dynasties, **but which may well testify to the great longevity of select individuals in them**. He wrote:

> *'The present tendency is to assign to Dyn.IV a duration of no more than 160 years and to Dyn. V no more than 140. These figures are small in view of the great works accomplished, but apparently will have to be still further reduced, for there seems no reason to doubt the veracity of a courtier who claimed to have been honoured by six kings (pharaohs) from Ra' djedef to Śahuré, or of a royal prince who enjoyed similar favour, but starting only with Ra' djedef's successor Chephrēn. '*[139]

Were secular historians to consider the possibility of greater longevity in the past, there would no longer be a need to fiddle the data to fit current-day norms of life expectancy.

In recent years the Dynastic histories of ancient Egypt and other Near Eastern cultures have come under increasing scrutiny from biblical and secular historians alike and been found wanting. Whilst many popular treatments of Egyptian history set the beginnings of the Old Kingdom between 3300 bc and 2900 bc — dates which are in obvious conflict with a tight biblical chronology of post-Flood human history — there have recently been a number of calls for drastic compression (though not necessarily in individual duration) of the dynasties of ancient Egypt.[140-143] Indeed, separate revisions by Courville[144] and Taylor[145] place Dynasties I through V within a notional timeframe of 2120 bc to 1640 bc; with the compression arising from parallel and overlapping dynasties and pharaonic co-regencies. If these appraisals are correct, we might anticipate evidence for greater longevity in the skeletal remains of early dynastic Egyptians. Let us now proceed to a brief examination of the cultures and morphology of ancient Egyptians and their nearby North African neighbours.

Referring to the erosion of gravel terraces adjacent to the Nile River, Gardiner stated:

> *'The five highest of these, in the course of which the Pliocene passed into the Pleistocene,* ***show no stone implements or other relics of prehistoric man****, but the next two reveal rough hand-axes of flint so similar to ones of the last Ice Age discovered in Europe that it has become customary to call them by the names Chellean and Acheulean first used in France.*
>
> *The two following terraces show implements of the type now known as Levalloisian.* '[146]

Thus the earliest human artefacts in Egypt seem to correspond in time with the nearby pre-Yabrudian culture found at Zuttiyeh. The Levalloisian artefacts equate well with the Mousterian cultures of the Near East. Despite the presence of these artefacts, **no human remains have been recovered from these seven terraces**. On the other hand, Gardiner[147] also noted that

> *'As long ago as the seventies of the last century implements of the Palaeolithic and Neolithic periods had begun to be picked up on the surface of the high desert.* '

Human fossil remains from the period prior to the Neolithic are scarce.[148] In point of fact, there seems to be **little in the way of human skeletal remains in Egypt before the Late Palaeolithic**. These diverse skeletal remains are lumped into a pre-Dynastic period of unspecified duration.

Now, according to Courville's revised chronology, the foundation of dynastic Egypt under Menes (*biblical* Mizraim?) took place about 2100 bc. **This leaves us with a pre-dynastic period of a century or less**; a fact which goes a long way to explaining the paucity of skeletal remains from Egyptian prehistory. But what of the morphology of these remains?

According to the **New Age Encyclopedia**, *'The prehistoric Egyptians belonged to the brown Mediterranean* [Hamitic] *race, with which were mingled some negroid* ***and Cro-Magnon types****.* '[149] Gardiner,[150] elaborating upon these remains, stated that

> *'. . . there does appear some reason for contrasting the Upper Egyptian predynastic culture with that of Lower Egypt as represented by Merimba, the Fayyûm, Má âdi near Cairo and El- 'Omâri near Helwân, more especially since a difference of race is here discernible. . . . . the experts have felt justified in proclaiming the presence of a fairly tall people with greater skull-capacity than that possessed by the southerners. These latter were long-headed — dolichocephalic is the learned term —and below even medium stature, but negroid features are often to be observed.* '

Thus, the earliest Egyptians seem to reflect diverse morphotypes; not altogether dissimilar to those we find in the neighbouring Near East. Indeed, affinities may well exist between the proto-Cro-Magnoids of Israel and some of the predynastic peoples of northern Egypt. On the other hand, the southerners were of more-archaic appearance and, therefore, akin to the Tabūn female.

Individuals of 'archaic' appearance are known from the pre-dynastic period. A naturally preserved mummy attributed to this period (see Figure 5), for instance, featured rudimentary brow-ridges and robust, prognathic jaws.[151]

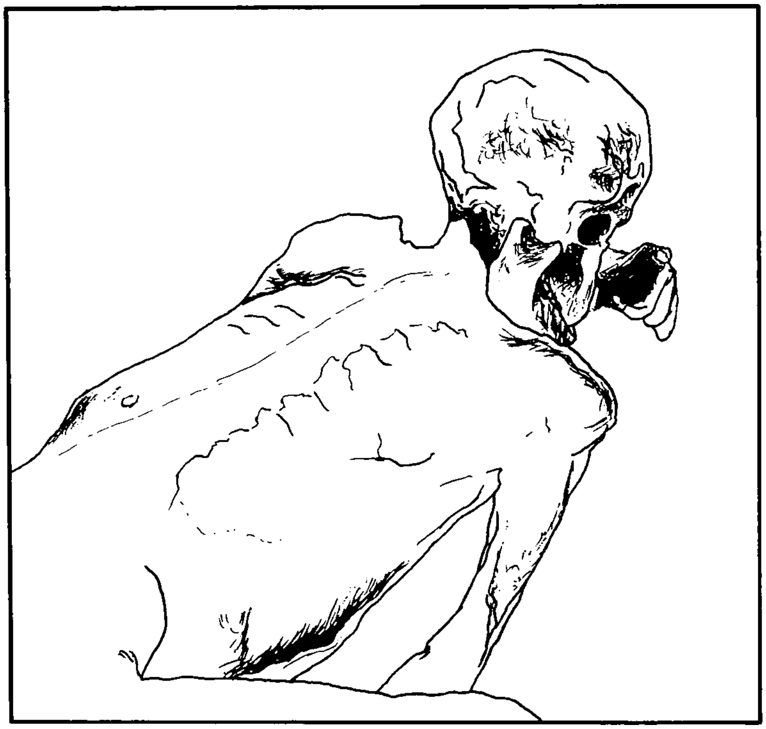

Figure 5. *A naturally preserved pre-dynastic Egyptian features a number of 'archaic' traits, including massive jaw, mid-facial prognathism and moderately developed brow-ridges.*

Figure 6. *The skeletal remains of a First Dynasty Egyptian. Note the prominent brow-ridges, a characteristic found in many Upper Palaeolithic humans (including the European Cro-Magnoids).*

Nevertheless, skeletal remains of purported early human ancestors, such as *Homo erectus,* are nowhere to be found in Egyptian prehistory.[152]

The Cro-Magnoid type persisted, however, into historical times in ancient Egypt. For instance, a first Dynasty burial depicted in A.J. Spencer's book, **Death in Ancient Egypt** (see Figure 6),[153] exhibits quite prominent brow-ridges — not unlike those of East European Cro-Magnoids. This individual, according to revised chronologies of ancient Egyptian history, would have lived somewhere between 200 and 360 years after the Flood; that is, between 2100 bc and 1940 bc.

The retention of archaic traits may even have extended into the first millennium bc in Egypt. For instance, several individuals from later pharaonic times seem to display a regime of traits normally attributed to much earlier individuals. For instance, one of the 19th Dynasty's most prominent figures, Ramesses II, possessed a suite of craniofacial characteristics reminiscent of earlier *archaic* humans.[154] Indeed, there is even a superficial resemblance in the facial outline of this nonagenarian and that of the Qafzeh 9 hominid.[155,156] A recently discovered female mummy attributed to the preceding (18th) Dynasty exhibits mild mid-facial prognathism, well-worn teeth, elevated nasal bones, cranial flattening, receding forehead, a moderately sized mastoid process and a rudimentary neanderthal 'bun'.[157]

It is well to remember that traits such as occipital bunning are not unique to neanderthals. For instance, Bräuer[158] has noted that:

> *'Repeatedly, attention has been drawn to the presence of neanderthal-like features among individual early modern specimens, e.g. Mladec 5, Predmosti 3. For example some specimens exhibit occipital buns (**though these are less projecting than is the case with the Neanderthal condition**) and quite large and projecting brow-ridges. '*

As we move away from Egypt we are suddenly confronted with a regime of 'archaic' humans. For instance, the **Singa cranium** from the Sudan featured '. . . *well-developed brow ridges, with a well-formed, not low vault, though narrow forehead* . . .' and has been described as belonging to an ancestral Bushman.[159] In describing the cranium, Wolpoff[160] states:

> *'In this specimen, an archaic frontal region is combined with a Bushman-like posterior region. The cranium is extremely broad, and the parietals are bulged, as in many Bushman crania. In contrast, the frontal region has been described as **virtually Neandertal-like**, complete with sloping frontal and heavy, rounded, and projecting browridge. While I believe that characterizing Singa as 'Neandertal-like ' is probably an overstatement, **there are some marked resemblances to the archaic** **Homo sapiens** **cranium from Jebel Irhoud** (cranium 1), especially in the frontal bone and general shape of the vault. To the extent that Singa is more modern, it is more like the crania of living Bushmen. '*

Now the significance of ancestral Bushmen in North Africa has not escaped Wolpoff. Such a possibility is anathema to an avowed evolutionist, since it accords perfectly with the biblical model involving an early dispersion of humanity from the Near East. In fact, Wolpoff goes to great lengths to deny such a possibility; yet in doing so, provides additional evidence in support of the very hypothesis he wishes to deny has any scientific credence.[161]

Despite the fact that a date of 17,000 years bp had previously been assigned to the Singa cranium,[162] Stringer and Gamble have noted that ESR dating of animal teeth found near the Singa cranium has produced a similar range of ages to those obtained for the Jebel Irhoud fossils from Morocco.[163] These new dates demand that the fossil be reconsigned to

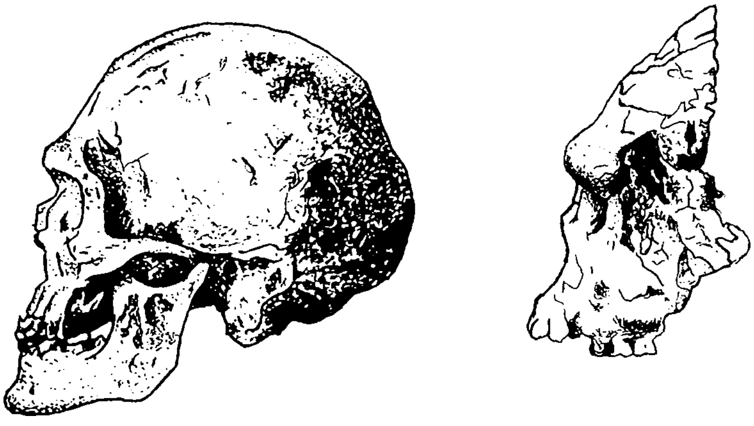

Figure 7. *A North African 'Cro-Magnoid' from Afalou-bou-Rhummel (Algeria) (left) and the archaic* Homo sapiens *Skull XXI from Arago (France) (right) share somewhat similar profiles; the major difference being in the thickness of the brow-ridge area of the skull. (The Arago skull is image reversed.)*

that ever burgeoning group of fossil misfits — archaic *Homo sapiens.*[164] Such revisions in the dating of fossils are all too common, and testify to the rubbery nature of modern evolutionary theory.

The Singa cranium is not the only 'recent' human fossil from North Africa to exhibit *archaic* characteristics. For instance, comparisons have been drawn between the Singa cranium and the **Mechta el Arbi** calvariae from Algeria.[165] These crania have been described by one authority as: '. . . *long-headed, high-vaulted and with heavy brow ridges* and that their physical features '. . . *are largely **shared by the Cromagnon type of Upper Pleistocene man in Europe.**'*[166] For instance, the skulls often featured a well-developed neanderthal 'bun'; a feature present in some, though not necessarily all, of the male Cro-Magnoids from Predmost.[167] Indeed, there is even a superficial similarity between the frontal region of one of the Mechta el Arbi-type skulls — a male from **Afalou-bou-Rhummel** — and the archaic *Homo sapiens* Skull XXI from Arago (France); especially when viewed laterally (see Figure 7).[168,169] Yet the Mechta el Arbi remains, along with other archaic remains from **Wadi Haifa** (in the Sudan) and **Taforalt** (Morocco), are consigned to the Mesolithic period.[170] Concerning these remains Wolpoff states:

> *'These samples show a marked degree of similarity, although the large sample sizes allow the observation of a great deal of morphological variation at each site, only some of which is due to sexual dimorphism. '*

He then goes on to add:

> *'The North African sample tends to be robust, with many males showing prominent supraorbitals, marked temporal lines, and large jaws and teeth. In general, the crania are long and broad; the occipitals tend to be angled; and the faces are medium to small, moderately prognathic, and have broad noses. '*[171]

In other words, the North African sample (including some early Dynastic Egyptians) align themselves with purportedly older, European Cro-Magnoids. A smaller number of North African fossils — including the Singa cranium — are quasi-neanderthal in craniofacial morphology.

Another relatively recent fossil with neanderthal affinities is the **Iwo Eleru** cranium from Nigeria (see Figure 8). This skullcap differs from living Nigerians in several respects. It features pronounced brow-ridges, a sloping forehead, angled occipital bone, and a rather prominent 'bun'.[172] Yet this fossil is a **mere 11,000 years old** (according to evolutionary dating).

Also of interest is the **Dar-es-Soltane cranium** from Morocco, which is thought to bear some resemblance to the male proto-Cro-Magnoids from Qafzeh. Concerning this find Wolpoff[173] states:

> *'The cranium bears some resemblance to the Qafzeh males from the Levant, combining a foreshortened broad face (with a canine fossa) and massive brow ridges which follow the contour of the orbits but project markedly in front of them. '*

Yet this cranium has, until recent times, been regarded as early Upper Palaeolithic in age;[174] that is to say, **less than 35,000 years old!** Even Stringer and Gamble[175] have been cautious in their acceptance of the new ESR date; a date which requires an awkward revision of the cultural setting to early Middle Palaeolithic.

Discussions on the Dar-es-Soltane cranium inevitably lead to comparisons with the earlier archaic humans from **Jebel Irhoud**, Morocco. Wolpoff, for instance, has argued that:

> *'Compared with Jebel Irhoud 1, the face is smaller and less prognathic, but the cranial shape is similar and*

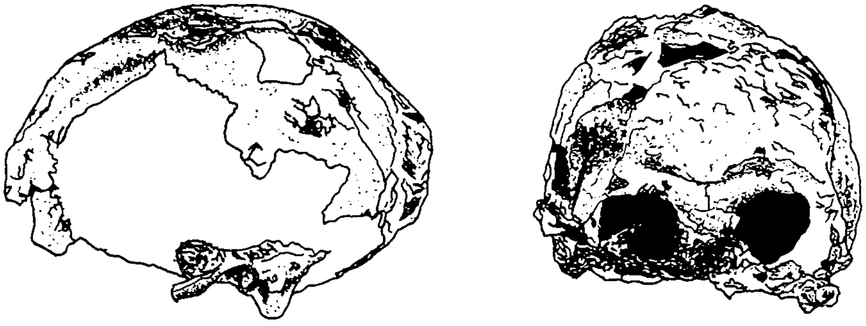

Figure 8. *Neanderthal craniofacial characteristics are preserved in the Iwo Eleru cranium from Nigeria. Yet this fossil is dated at 11,000 years* BP.

> *robust features are retained.*'[176]

The fossils from Jebel Irhoud, five in all, have left palaeoanthropologists in a quandary. Some have described them as archaic *Homo sapiens*,[177,178] whilst others have preferred to consign them to *Homo sapiens neanderthalensis.*[119,180] Indeed, it is probable that such divergent views stem from the variability in the sample. For instance, Stringer and Gamble[181] have noted that:

> '*The most complete skull (Irhoud 1) has a rather primitive braincase with a big broad face, but nevertheless looks quite modern in shape. The second skull (Irhoud 2) is so 'transitional' that it was originally believed to be from two different individuals, one with a modern front, the other with a primitive rear. Eventually enough of the parts in between were found to show that there was only one braincase, apparently a genuine example of evolution caught in the act of turning an Ancient into a Modern.* '

On the other hand, Hublin and Tillier have noted '*a slight taurodontism* ' in the first permanent molar of the Irhoud 3 child's mandible and that

> '*. . . The remarkable macrodonty . . . , associated with a rather modern morphology of the chin area, **strongly recalls some of the Near Eastern proto-Cro-Magnoids.***'[182]

The fragmentary remains of a humerus (Irhoud 4), on the other hand, are said to be **small but very robust**.[183] Such traits recall the neanderthal condition rather than the proto-Cro-Magnoid morphology.

An immense amount of morphological variability is apparent within the Jebel Irhoud sample; comparable with, if not exceeding, that at the East African site of Omo (Ethiopia).[184] The Irhoud morphology ranges from quasi-neanderthal to proto-Cro-Magnoid to a rather robust, but essentially 'modern', juvenile. Such variation accords well with our model; the variability being attributable to either rapid changes in longevity (potential or actual) within the sample or significant age variation within the sample or both.

The existence of 'archaic' morphotypes in relatively recent times and the presence of immense variability within such populations, is not, however, confined to the African continent.[185] For instance, a significant number of fossil human remains have been recovered from Late Pleistocene and Holocene deposits in Australia. Some of these are of decidedly robust and 'archaic' appearance. These include fossils from **Talgai** (Queensland), **Cossack** (Western Australia), **Lake Nitchie**, **Mossgiel** and **Willandra Lakes** (New South Wales), and **Kow Swamp, Cohuna and Coobool Crossing** (Victoria). They contrast in varying degrees with more-gracile fossils, such as those from **Lake Mungo** (New South Wales) and **Keilor** (Victoria).

Wolpoff and Thorne[186] have, in conformity with their Multi-Regional (or Regional Continuity) hypothesis, drawn comparisons between the Sangiran 17 (*Homo erectus*) and Kow Swamp 1 *(Homo sapiens)* fossil crania. From an evolutionary perspective such comparisons infer an incredible degree of stasis in the genus, for the Sangiran deposits are now dated at 1.66 million years BP and those at Kow Swamp between 9,000 and 13,000. Indeed, the stasis becomes an argument for dispensing with the specific distinction and merging *erectus* into *Homo sapiens.*[187]

But just how archaic are the Australoid fossils? In describing the Kow Swamp fossils Flood[188] states:

> '*The enigma of Kow Swamp is that the skulls, although younger than Keilor, and only half the age of Mungo I and III . . . , appear much more archaic. The people buried at Kow Swamp had large, long heads with exceptionally thick bone, up to 1.3 centimetres thick. Their faces were large, wide and projecting, with prominent brow ridges, and flat, receding foreheads. Seen from above, the skulls show pronounced inward curvature behind the eye sockets* [post orbital constriction] . . . . *The jaws and teeth are massive, but archaic features are restricted to the front of the mandibles.* '

Elsewhere, the same writer has asked and answered the following question:

> '*But where are Kow Swamp man's ancestors? The robust Australians **show similarities in the form of the face and forehead to*** **Homo erectus** ***of Java.***'[189]

In his 1980 textbook, Palaeoanthropology, Wolpoff cautioned against the application of the term *erectus* to the Kow Swamp fossils. He noted that:

> '*The features of the 'archaic-appearing' sample have been described as* Homo erectus*-like. Of course, the specimens are not* Homo erectus, ***and many, if not most, of the resemblances to this earlier species are in archaic features generally in other early modern*** **Homo sapiens** ***samples.***'[190]

Wolpoff then went on to note that:

> '*Yet Australian scientists such as A. Thorne point to some specific morphological features that may reflect a regional genetic continuity with the much earlier Indonesian fossils from Solo.* '[191]

The problem is that the **Solo** (**Ngandong**) fossils date to about 200,000 years BP.[192]

Another interesting facet of this conundrum is that, in spite of their robustness, the Kow Swamp sample still shares some resemblances to more gracile fossils. For instance, Wolpoff has noted that:

> '*. . . when the first Mungo specimen (the female, Mungo 1) was discovered, neither of the two fairly complete Kow Swamp females (4 and 16) had been reconstructed. Actually, Mungo 1 closely resembles Kow Swamp 4 and 16, while Mungo 3 (male) resembles Kow Swamp 14 in brow ridge development and Kow Swamp 14 and 15 in frontal curvature.*'[193]

This might seemingly indicate pronounced sexual dimorphism and nothing else. On the other hand, Kow Swamp 14 is relatively gracile when compared with other males such as Kow Swamp 1 and 5;[194] inferring that some factor, other than sexual dimorphism, is being evinced here.

Taken as a whole, the morphological variability in the Australian sample has led to several opposing hypotheses. Wolpoff,[195] for instance, has alluded to the fact that the fossil sample may be more variable than that of living Aborigines. This has led him and Thorne to propose that Australia was populated by two separate (evolutionary) lines for a time.[196] Their hypothesis involves separate migrations by distinct gracile and robust populations — down the east and west coasts of the continent, respectively. Brown,[197] on the other hand, has suggested that the Australoid sample represents **a single, but morphologically diverse, population**. The diversity in the same sex at Kow Swamp and the fact that hyper-robust individuals are also to be found throughout the eastern states of Australia suggests that the latter hypothesis is the stronger of the two.

The Kow Swamp individuals do not, however, represent the most robust nor *archaic-looking* fossils from the Australian continent. The so-called Willandra Lakes hominid (WLH 50), for instance, has been described by Flood[198] as **massive and so robust that he makes Kow Swamp man look gracile!** She states:

> *'The cranium is extremely wide and approximately 210 millimetres long. The bone in the region of the temples is about 18 millimetres thick. Massive brow ridges form a continuous torus above the eyes, and the forehead is flat and receding. The back of the skull shows even more archaic characteristics. The neck muscle area is huge, the skull is extremely wide,* ***the greatest width occurs very low in back view*** (a characteristic trait of many specimens *of Homo erectus), and the width above and below the ears is much greater than in any modern people. Yet W.L.H. 50's brain was large, with a capacity of more than 1300 cubic centimetres, well within the modern range.'*[199]

The skull, like those at Kow Swamp, also exhibited pronounced post-orbital constriction. Put simply, WLH 50 is **very archaic** (Laitman[200] describing it as *'extremely "robust" '*); **with affinities mirroring those of the South-East Asian variants *of Homo erectus*.** Whilst his antiquity is unknown at this point in time, Laitman has suggested that an age in excess of 30,000 years is likely.[201]

That such 'archaic' forms of humans should be dating so recently in Australia challenges the dates ascribed to similar individuals in other parts of the world. Indeed, the strength of expression of such characteristics and the subtle retention of some of these traits in living populations of Australoids[202] presents a major challenge to transformist theory.

Summarising, then, there seems to be a major disparity in the timing of similar North African and Australian 'archaics' and their European equivalents; **the former being decidedly more recent than the latter**. Put simply, specific morphotypes do not synchronise in terms of their presumed evolutionary timetable. The existence of archaic traits in quite recent (even historical) times raises real concerns regarding the veracity of the dates for the earlier specimens.

THE QUESTIONABLE NATURE OF 'ABSOLUTE' DATINGS

Central to the whole origins debate is the issue of the veracity of various radiometric dating techniques.

As stated previously, the timescale we have adopted for a post-dispersion 'Stone Age' is of the order of 350 years at most. This means that individuals who were born shortly after the Flood and who fulfilled their longevity potential could conceivably have lived through the entire Stone Age. This would certainly have been so in the case of the post-Flood patriarchs, Arpachshad through to Peleg.

That the Stone Age was of relatively short duration in the Near East is attested to by the fact that towns and city-states existed throughout Mesopotamia, the Levant and Egypt prior to Abram's calling out from Haran.[203] This calling took place about 1877 bc, some 427 years after the Flood. By this time Egypt was already a recognisable force throughout the Fertile Crescent.

It follows that the various forms of *archaic* fossil humans — including the Near Eastern proto-Cro-Magnoids and neanderthals, the neanderthals and Cro-Magnoids of Europe and regional variants of archaic *Homo sapiens* and *Homo erectus* across the Old World — along with their 'Stone Age' cultures — must be confined to a period of less than 425 years. This does not square at all with the current evolutionary timescales for the Stone Age (Palaeolithic period); which are said to extend backwards in time some 2.6 million years from the end of the Pleistocene epoch — some 10,000 years ago.[204]

Several controversial biological clocks, on the other hand, have indicated more recent dates for the emergence of modern (albeit 'archaic' forms of) humans; dates which run into several hundred thousand years at most.[205-208] Nevertheless, they too, greatly exceed the 'Stone Age' duration we are advocating. Such studies have been based on mutation accumulation rates in the mitochondrial DNA of *living* females and Y chromosomes in males.

In recent times there have been claims concerning the retrieval of DNA from fossils of great antiquity, including (most recently) a 65-million-year old dinosaur.[209] Some of these claims have not stood the test of closer scrutiny; indeed, several have been shown to be fraudulent. Nevertheless, there still remains a possibility that some of these claims are, indeed, genuine; at least in the sense that DNA has been extracted from the fossil. This wouldn't, however, validate the vast ages attributed to these fossils. Rather, it may provide a very strong argument for a recent interment and subsequent fossilisation. Indeed, serious questions have been raised about DNA's ability to survive more than 10,000 years, even under the most ideal of circumstances.[210-212]

Furthermore, the application of accelerator mass spectrometry (AMS) in the radiocarbon dating of human skeletal remains has, in some instances, led to dramatic reductions in the assigned ages of individuals. For instance, a skeleton from Sunnyvale (California), which had been previously dated at 70,000 years bp, is now dated between 3,600 and 4,850 years BP. Several other Northern American skeletons have experienced similar reductions.[213]

How secure, then, are the dates assigned to various archaic humans? *Not very,* if the following examples are typical of the whole. Let us briefly examine a few, widely dispersed examples.

The first fossil warranting attention is the Amud 1 neanderthal from Israel. This fossil has been dated by ESR at between 41,500 and 49,500 years BP.[214] Earlier attempts to date the neanderthal remains by means of fission track and uranium/ionium dating techniques, on the other hand, produced ages of 28,000 and 27,000 years bp, respectively. However, there is also **a conventional radiocarbon date of** 5,710 **years BP** for fossiliferous material from the same BI layer in which the Amud skull had been interred.[215] So which date do we believe?

We have noted elsewhere that estimated ages for the Kwabe (Broken Hill) from Rhodesia range from 20,000 to 200,000 years BP.[216] Likewise, the Petralona skull from Greece has, according to Stringer,[217] been dated anywhere between 200,000 and 700,000 years BP. However, in 1986 Chippendale[218] indicated that:

> *'Dating the* (Petralona) *skull by the technique of electron-spin resonance gives an age of 160,000 to 240,000 years ''Before Present", ... Various "educated guesses", however, put its age anywhere from just 60,000 to 700,000 years BP. '*

Thermoluminescence (TL) dating of the stalagmite floor of the Arago cave produced an age of 300,000 years bp, whilst ESR yielded a date of 700,000 years bp. The writer of the article in which these findings were documented went on to caution that:

> *'The proponents of each dating technique reckon that the discrepancy is due to defects in the other's methods. '*[219]

Of course, neither of these ages necessarily equates with the age of the fossilised human remains at Arago. In 1986 these remains were said to be approximately 120,000 years old.[220] More recently, however, Stringer[221] has suggested that:

> *'The original dating of the main hominid finds was "Rissian" (i.e., later middle Pleistocene), but recently this dating has been revised, and faunal and absolute dating methods are now claimed to place them as "Mindelian" (ca. 450 k.y. old). The relevant small-mammal faunas and* ***certain other absolute dates****, however, point to a somewhat younger age. '*

In other words, ***'absolute dates'* are anything but absolute!**

One can but wonder whether a direct dating of the Arago remains — either by conventional or AMS radiocarbon dating techniques would ever be attempted; especially given their variable state of preservation and an apparent lack of mineralisation in the case of the Arago XXI craniofacial remains.[222]

There is, of course, a sense in which the dating of archaic human remains becomes a self-fulfilling prophecy. There are many different dating methods available to palaeoanthropologists today — all of which have varying ranges of application.[223] It follows that preconceived notions of where a particular fossil fits into a standard evolutionary chronology will influence the selection of a dating technique appropriate to that preconception.

If the entire Stone Age was, in fact, less than 350 years, it is doubtful whether any current radiometric dating technique would be capable of discriminating subtle differences in the ordering of the individual archaic forms; if, indeed, there were any substantial differences in the timed appearance in localised fossil records. Our model postulates a high degree of overlap (contemporaneity) in the various forms of archaic humans (by virtue of the short duration of the Stone Age and the exceptional longevity potential of those alive at this time). It also predicts contemporaneous, yet rapidly changing morphotypes as a direct consequence of rapid decline in longevity potential. A rapid dispersion from the 'homestead' also raises the possibility of an early appearance of regional distinctiveness in the various morphotypes; especially if the break-up of humanity into specific racial groupings occurred at the family level.[224]

CHANGING PERCEPTIONS OF ARCHAIC HUMAN REMAINS

In 1992 James Shreeve, quoting noted British archaeologist, Paul Mellars, stated:

> *'To work with wrong dates is a luxury we cannot afford. . . . A wrong date does not simply inhibit research. It could conceivably throw it into reverse. '*[225]

This certainly is possible in the case of *Homo erectus.*

As we have already seen, the recency of *Homo erectus* in Australia challenges the very foundations of modern transformist theory in several respects. Firstly, there is the apparent contemporaneity of 'robust' and 'gracile' forms; how do you explain them when they occur in a single, isolated population? Secondly, there is the recency *of Homo erectus;* why should *erectus* be occurring so late in Australia and not elsewhere? Finally, there is the misconception that *Homo erectus* was of small stature.[226] (More on this shortly.)

If the dating systems are, indeed, in error, it becomes possible to shift the dispersal point for humanity to the Near East and a relatively recent timing; that is to say, instead of an African origin for humanity, we would argue for a dispersal from the Near East, commencing some 4,200 years ago. Having re-fixed the point of origin we are then in a position to trace populations from the Near East to their final destinations. As such, the links between South-East Asian *erectus,* Australoid forms of *erectus* and other archaic *Homo sapiens* provide us with evidence of one such possible migration away from the Near East (see Figure 9). The **Narmada Valley** cranium from India,[227] which has been tentatively dated at 250,000 years BP,[228] may derive from this same migration; the skull exhibiting a mix of *erectus* and

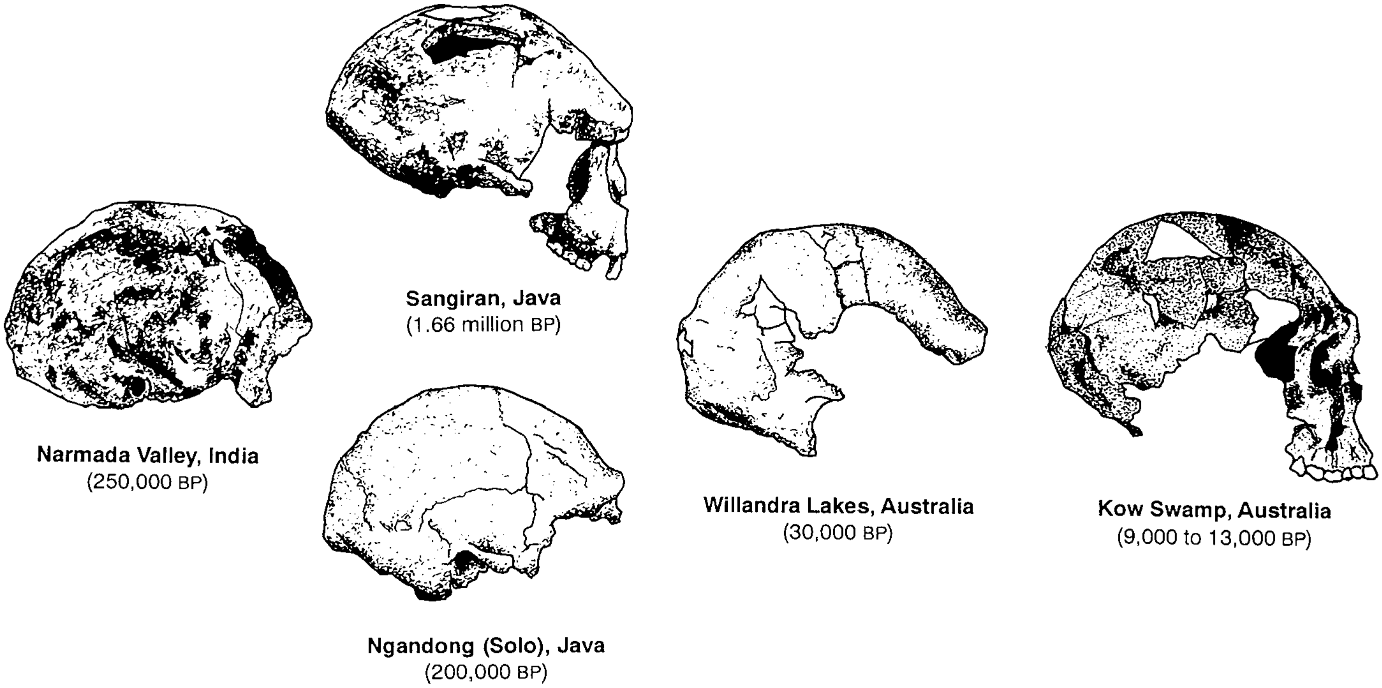

Figure 9. *Some archaic human skulls from India, Indonesia (Java) and Australia. All of the above would readily qualify as representatives of the taxon* Homo erectus *were it not for their disparate ages.*

archaic *Homo sapiens* characteristics.

Thus, in Australia we have a regime of different morphotypes, ranging from gracile (quasi-Cro-Magnoid)[229] appearance to a more robust (quasi-*erectus*[230]) morphology. That these morphotypes should exist contemporaneously can, once again, be accounted for on the basis of rapidly declining longevity potential.

According to our model, migration into and occupancy of the Australian continent would have been quite rapid, given that the island state of Tasmania was reached during the Ice Age (when a land bridge existed between the Australian mainland and the island state). The submergence of the land bridge is said to have taken place between 12,000 and 8,000 years ago[231] according to conventional dating; that is to say, about the same time as the Kow Swamp culture. Perceived differences between mainland and Tasmanian Aborigines are probably a direct consequence of genetic drift; when a very small population of Tasmanian aborigines became isolated from their rootstock (a direct consequence of the post-glacial rise in sea level).[232] On the basis of earlier comments on the Ice Age, occupancy of the Australian mainland and Tasmania would have had to have taken place within 250 years (or 8 to 9 generations) of the Babel dispersion. Thus we are looking at a migration of some 18,000 kilometres in this period (which extrapolates out to 70km/yr or 0.2km/day); not an impossible task I am sure.

The taxon, *Homo erectus*, encapsulates a variety of **regionally distinct morphotypes**[233,234] spread over a considerable period of time.[235] Rightmire has recently been quoted as describing the taxon as a *'polytypic species'*.[236] Prior to 1994 advocates of the hypothesis that *erectus* evolved in Africa held a trump-card in the taxon's early appearance on the African continent. Whilst African forms of *erectus* were dating as early as 1.7 million years BP, the earliest Asian variants were said to be at least 700,000 years younger.[237] In 1988 Rightmire,[238] a leading advocate of the African origin hypothesis, surmised that:

> *'At Sangiran* Homo erectus *is present mainly in the Kabuh sediments . . . . A few of these hominids may also have come from the uppermost Pucangan sediments, which underlie the Kabuh horizons. Such individuals may be ca. 1 m.y. old, but it is not likely that any of the Indonesian specimens are as ancient as the first* Homo erectus *from East Africa.* ***Given this evidence, it is reasonable to believe that* Homo erectus *evolved in Africa and spread only later into other regions of the Old World.*** *'*

This view has been completely overturned as a consequence of the development of a new radiometric dating technique (^{40}Ar/^{39}Ar) and a redating of the Sangiran deposits (to 1.66 million years BP).[239] The same technique has also been applied to other *erectus*-bearing deposits at Modjokerto — producing an even higher age of 1.81 million years BP.[240] The significance of the new dates has not escaped Lewin. He states that:

> *'Some anthropologists have suggested that* H. erectus

> ***might have evolved in Eurasia, not Africa****, as conventional wisdom has it. The new dates may be seen as support for this idea.* '[241]

He then goes on to add that:

> *'This is unlikely, however, because not a single fossil fragment of a specimen ancestral to* H. erectus *has yet been found outside of Africa.* '[242]

Putting aside the issues of possible precursors for *Homo erectus* and the veracity of the new dating technique for the moment, it is well to remember that, with the possible exception of a single fossil jaw in Soviet Georgia,[243] there is no other evidence for the presence of *Homo erectus* in Eurasia. Indeed, the absence of morphological links between the African and Asian variants is **telling evidence against the African origin hypothesis**. However, if dispersion was from Eurasia (specifically from the region of Mesopotamia) and from a very small population-base, then we could well anticipate a number of regionally distinct morphotypes appearing in the fossil records of Africa, Asia and (perhaps) Europe.

The absence of a definite morphological link between the African and Asian variants of *Homo erectus* **raises the possibility that *neither* was the common ancestor for (purportedly) all later archaic and quasi-modern forms of *Homo sapiens.*** Rather, both could have been representative of separate populations moving away from Babel. That the *erectus* morphotype should be manifested *in regionally distinct* forms suggests that we may be dealing with **evidence of early racial differentiation**.

Many books dealing with mankind's purported evolutionary origins depict **a progressive increase in stature between the ape-like australopithecines and modern man**. These same books also depict *Homo habilis* and *Homo erectus* as increasingly 'human' intermediary links; that is to say, precursors to modern man, *Homo sapiens.* The image *of Homo erectus* being slightly smaller than his evolutionary descendants is firmly entrenched in the minds of most palaeoanthroplogists.[244-246] Yet is such an image supported by the facts?

In their recent book, **Origins Reconsidered**,[247] Richard Leakey and Roger Lewin discussed, at length, the stature of *Homo erectus.* Much of the discussion centred upon a *juvenile erectus* specimen from Nariokotome, northern Kenya — KNM-WT 15000.[248,249] The same authors also compared his remains with other specimens of *erectus* and came to some startling conclusions concerning the stature of these fossil men and women.

The juvenile *erectus* specimen was discovered at West Turkana in October 1984. Its importance to palaeoanthropological studies cannot be understated, since it represents the most complete specimen of *erectus* ever to have been unearthed.[250] The find has been described in considerable detail (including taphonomic circumstances and geological context) by Leakey and Walker in a Harvard Press monograph.[251] (A review of this work was published in July 1994 in the journal, **Science**.[252])

The skeletal remains belonged to a young boy who was originally thought to have been approximately 12 years of age at the time of death (based on present-day human trajectories of skeletal maturation).[253] More recently, however, his age has been revised downwards — first to 11 years of age[254] and then to nine years.[255] These revisions have arisen as a consequence of more detailed studies of the boy's dental and maturational development by Holly Smith.

The relatively complete skeleton afforded an estimate of stature at the time of the boy's interment — 1.68 metres (or 5'6").[256] Given the initial estimate of age and the fact that the boy still had much of his pubescent growth spurt ahead of him, his projected adult height was estimated to be of the order of six foot or more.[257] However, were Holly Smith's estimate of dental age (11 years) to be used as the basis for extrapolating adult height a figure of 1.980 metres (or 6'6") would result.[258] Needless to say, both of these estimates came as quite a surprise to palaeoanthropologists steeped in the belief that *Homo erectus* was slightly, or even significantly, smaller than modern man.[259] As Leakey and Lewin commented rather succinctly:

> *'Estimates of* Homo erectus *stature made from isolated bones found before the Turkana boy depicted a stockily built, heavily muscled, not very tall creature We could see that the Turkana boy was anything but medium-sized, given his younger age: his leg bones were* ***clearly those of a tall individual****.* '[260]

Of course, the possibility that KNM-WT 15000 represented an exceptional individual still remained.[261] This forced Leakey and his colleagues to undertake a review of some other East African specimens attributed to the taxon, *Homo erectus.*

Amongst the East African specimens examined[262] was another partial skeleton, comprising both cranial and postcranial fragments. The remains — catalogued KNM-ER 1808[263]—were regarded as possibly having belonged to a female,[264] who lived about the same time as the Turkana boy, but on the opposite side of Lake Turkana. Referring to the long bones of this individual, Leakey and Lewin suggested that:

> *'. . . the surfaces . . . are not smooth as would be expected. They are covered by a thin, rough layer, the result of a brief period of bleeding from the surface of the bone, followed by rapid bone formation, and then death. Alan* [Walker] *once took a thin section through one of these bones and showed it in a slide to a group of clinicians at the Johns Hopkins Medical School. Their diagnosis was unequivocal:* ***hypervitaminosis*** *A, or as a result of ingesting too much vitamin A. The clinicians were astonished when they learned that the bone they were looking at was a million and a half years old; they said* ***it* was *indistinguishable from clinical cases they see today.*** '[265]

They then went on to add:

> *'As well as having a fatal desire to eat carnivore liver, 1808 was tall, about five feet nine (or 1.75 metres), as*

> *far as we can tell from her shattered remains. It is surely no coincidence that the two* Homo erectus *individuals whose height we can estimate were both tall. This gives us confidence to say that, unexpectedly, we were dealing with* ***an exceptionally tall species****.* '[266]

Thus, in East Africa, at least, palaeoanthropologists were encountering *erectus* specimens of exceptional stature; certainly not the image of *erectus* depicted by Haviland[267] some 13 years earlier. Even Johanson and Edy[268] had fallen into the trap of portraying *erectus* as being of smaller stature than modern man; although, to be fair to these authors, they had conceded a stature **comparable with medium-size men today**.[269]

But what of the Asian specimens?

In attempting to play down the degree of surprise concerning the stature of the Turkana boy *and Homo erectus* generally, a number of palaeoanthropologists (including Johanson[270]) stated that they had known this all along and that there was nothing surprising or astonishing in the new discovery. Indeed, Johanson is even quoted as saying:

> '*We've had pieces from China and Java that suggested that these individuals* [also] ***approached six feet in size****.* '[271]

Speaking of their examination of the Asian sample as a whole, Brown and his colleagues[272] have stated that:

> '[They] *have examined casts and originals of other early* H. erectus *postcranial bones and find that* ***all of them are large****.* '

To be certain, the *Pithecanthropus erectus* I femur from Trinil, with its bicondylar length of 455 millimetres,[273] is comparable with the mean values for male Europeans (from Yugoslavia) or North Africans (from Egypt); 454.4 and 453.0 mm respectively.[274] Another partial femur from the Trinil site (Femur II[275]) may have even approached the mean value for Euro-African males (464.4 mm).[276]

Whilst there has been much debate concerning the association of Femur I with the Trinil cranium over the years,[277] such debate usually relates back to the contrast between the relatively 'modern' morphology of the femur and the 'archaic' appearance of the calotte.[278-281] Of course, the same situation holds for the Turkana boy.[282]

Of course, any admission that the stature of *erectus* was comparable with, or even exceeded, that of modern man poses a great threat to advocates of transformist theory. For instance, Johanson and Shreeve,[283] writing of the former's discovery of a diminutive specimen of *Homo habilis* — OH 62 — and the implications arising from the stature of KNM-WT 15000, state:

> '*If body size in the human line did increase gradually from* afarensis *to* erectus, *then by rights* Homo habilis *should have been between four and a half and five feet tall. Instead, we had found a* habilis *skeleton that appeared to have stood no taller than Lucy herself. . . . . Neither we nor anyone else could tell, of course, how representative the new skeleton was of* habilis *females generally, or indeed whether the Turkana boy was typical of* erectus *males. But from the admittedly scant information we now had to hand, and making the fair assumption that* Homo *was no more sexually dimorphic than* afarensis, *then in a span of not more than two hundred thousand years, our ancestors had made a surprising leap in body size.* '

Of course, the recent dating of KNM-ER 3733 and the redating of the Modjokerto *erectus* juvenile from Java[284] **sees even this 200,000-year period of 'rapid evolution' disappear in an instant!**

Now, this 'new' perception of the stature of *Homo erectus* has, in fact, implications for the whole field of palaeoanthropology. Firstly, it has the potential to falsify the transformist belief that mankind evolved from smaller, ape-like ancestors (for example, *Australopithecus afarensis, Homo habilis*). Secondly, it challenges us concerning the stature of our pre- and early post-Flood ancestors. For instance, as Brown *et al.* have noted:

> '*Stini* [had] *noted current secular trends of increase in body size in many human populations and wondered whether the trend was revealing a genetic potential left over from early hunter and gatherer ancestors. The new* H. erectus *data support this hypothesis.* '[285]

In other words, it raises the possibility that our earliest ancestors **may have been larger, rather than smaller, than extant man**. This possibility is certainly borne out in the recent fossil record of mankind. For example, the mean bicondylar femoral lengths for the Near Eastern Skhūl-Qafzeh and Southern European Early Upper Palaeolithic populations are 486.9 and 472.8 millimetres, respectively.[286] (By way of comparison, the cited mean values for modern Afro-American and Euro-American males are 473.5 and 464.4 mm respectively).[287] **Yet even these figures belie the true stature of these peoples, for the stated values for the Near Eastern samples are combined male and female samples.** Thus, it now appears that archaic humans such as *Homo erectus* and the Near Eastern proto-Cro-Magnoids were very tall by modern standards. However, these were not the only fossil humans to reflect tallness of stature. Stringer,[288] for instance, has indicated that:

> '*Another feature that distinguished Neanderthals from Cro-Magnons was the greater stature of the latter, despite their overall similarity in a relatively heavy body build, probably comparable with that of modern humans. The Cro-Magnons* ***probably averaged a stature of more than 180 cm (over 6 ft) in males and ca. 167 cm (5½ ft) in females****, a significant increase over typical European Neanderthals (males ca. 167 cm and females ca. 160 cm). This tall, slender physique of the Cro-Magnons certainly more closely resembled that of the Skhūl and Qafzeh specimens than that of the Neanderthals, since average stature in the European and Israeli early moderns was virtually identical. There is uncertainty about the ancestral African pattern, but it* ***may also have been more similar to that found in Eurasian early modern****, rather than Neanderthal*

> *skeletons.'*

Indeed, even the stout, adult male and female neanderthals were taller than contemporary populations of Inuit (Eskimos) and Saami (Norwegian Lapps).[289] Furthermore, their short stature is now generally regarded as having been an adaptive response to colder (Ice Age) climatic conditions;[290-292] conditions perhaps not altogether dissimilar from those prevailing in the Arctic today.

More recently, Brown[293] has uncovered evidence of diminution (stature shrinkage) in the fossil record of Australoids. He noted that:

> '*. . . in the 6,000 years before the arrival of European settlers, the average male Aborigine was about 167 centimetres tall. In the Pleistocene age,* ***prior to 10,000 years ago, they were getting close to 180 centimetres tall***.'[294]

(This fact is borne out in the skeletal remains of an individual from Lake Nitchie— 187.5 cm or 6'1¾").[295] Brown concluded that his work in China revealed a similar trend towards shorter and thinner people during this same period and that it appeared that **declining size of human beings had been a global event**.[296]

In other words, our ancient ancestors were not, as a rule, smaller or physically inferior to modern man; rather they were of a generally taller stature[297] and superior musculature.[298] Put another way, **modern man is but a degenerate form of a generally superior ancestral stock**.

DIFFICULTIES IN DEFINING ARCHAIC MORPHOTYPES

One of the major problems confronting advocates of transformist theory today is the inability to draw definitive boundaries between various morphotypes. This would seem at first glance to be a strong affirmation of evolutionary theory *per se*. However, nothing could be further from the truth.

As the sample size of fossil human remains has steadily increased over recent years, the distinction between various morphotypes has become increasingly blurred and confused. Indeed, traits which were once thought to be unique to a particular morphotype (**autapomorphies**) have suddenly appeared in other morphotypes. This has led some authorities to question the wisdom of taxonomic separation in some instances. It has also led to a great deal of confusion concerning which taxon a particular individual should be consigned to.

For instance, Kennedy[299] recently alluded to suggestions by Thoma, Jelinek and Hublin that *Homo erectus and Homo sapiens* **may be conspecific**. Whilst Kennedy has rejected the notion out of hand — largely on the basis that there are marked differences in cranial vault thickness between *erectus* and anatomically modern *Homo sapiens* — he has also been heavily influenced by the fact that extant African pongids also feature relatively thin cranial bones. This has forced him to conclude that *hyperostosis* is a derived condition.[300] As such, any human fossils exhibiting thickened cranial bones have to be excluded from the taxon *Homo sapiens*. This would necessarily include the African and Asian variants of *Homo erectus*, the neanderthals **and most of the sub-Saharan archaic Homo *sapiens***.[301] However, this position is clearly indefensible, since it fails to recognise the possibility that hyperostosis (***prolonged*** **Periosteal Apposition**) may, in the recent past, have been the norm for adult representatives of *Homo sapiens* (and perhaps also the earliest ancestors of the African pongids).

In the absence of genuine autapomorphies for each taxon, it has become increasingly difficult to consign an individual fossil to a particular taxon with any degree of certainty. For instance, in 1988 Stringer conceded that:

> '*Determining which specimens actually belong in archaic* Homo sapiens *rather than* Homo erectus *is not always straightforward, as* ***many fossils from the middle Pleistocene display mosaic (mixed) features from the two species*** *that may reflect the gradual nature of the evolutionary transition between the two groups.* '[302]

Indeed, there have even been calls for reconsignment of members of one particular taxon to an entirely different taxon. This is exemplified in the continuing debate over whether the Asian and African variants of *Homo erectus* are taxonomically distinct,[303,304] and the related issue of whether *Homo erectus* ever existed in Europe and Africa.[305]

These issues, in turn, have led to the creation of a plethora of new and rather exotic morphotypic groupings: including archaic *Homo sapiens*, proto-Cro-Magnoids, pre- or ante-neanderthals and archaic Moderns.

In some instances a variety of different morphotypes have been found in a single fossil population. Collectively, such groups are said to exhibit a 'mosaic' of morphological traits. However, this belies the very real differences in morphology **between individual members of the sample**. For instance, as a general rule, younger members of a particular population (that is, neonates and infants) are of more 'modern' appearance than older (adult) members. This suggests that the process leading to fully-expressed archaic characteristics and general skeletal robustness has a lot to do with changes in maturation rates and longevity during the course of human history. The so-called 'archaic' traits that typify adult members are usually found in a rudimentary (incipient) form in infants and juveniles.

(1) The Blurring of Morphotypic Boundaries

There are currently two dominant schools of thought concerning mankind's purported evolutionary origins. They have assumed the rather glamorous *nom de guerres* of the '**African Eve**' (or '**Noah's Ark**') hypothesis,[306,307] on the one hand, and the '**Multi-Regional**' (or '**Regional Continuity**') hypothesis[308,309] on the other.

The traditional view of man's evolutionary origins suggested that *Homo erectus* gave rise to a graded series of increasingly human (that is, less primitive) forms — including the neanderthals. This essentially linear view of human origins has been modified by the proponents of the two prevailing hypotheses. The Out-of-Africa hypothesis insists that mankind's origins can be traced back to an African variant of *Homo erectus* (only), and that the exodus from the African continent occurred during the archaic *Homo sapiens* phase of human development; that is, between 130,000 and 50,000 years ago.[310] This view side-roads Asian variants of *erectus* and the neanderthals from the line leading to modern man. The Multi-Regional hypothesis, on the other hand, pushes human divergence back to the time of *Homo erectus.* Mankind's origins must, therefore, be traced back to a common ancestor of the regional variants of *erectus.* The neanderthals occupy a place in the evolutionary line leading to modern Europeans according to this view.

Neither hypothesis is capable of accommodating all the fossilised remains within their current timeframes.

The distinction between *Homo erectus,* neanderthals and archaic *Homo sapiens* is becoming increasingly blurred and arbitrary. Whereas in 1988 Stringer[311] could suggest that:

> *'The Neanderthals are one type of archaic* Homo sapiens, ***but since they have their own special characters they can be readily distinguished*** *and are discussed separately'*

this is no longer the case.

The discovery of a number of purportedly Middle Pleistocene human fossils of mixed and variable affinity at Atapuerca[312-315] (in Spain) has forced a major shift away from a compartmentalised view of our early human ancestors.

The significance of the Atapuerca remains has not been lost on a number of writers. Stringer,[316] for instance, has noted that:

> *'There are two main issues in the study of the Middle Pleistocene sequence. Can the species* Homo erectus *be recognised in the European fossil record? And how far back can the Neanderthal lineage be traced?'*

He then goes on to state that:

> *'The absence of most of the distinctive* H. erectus *features in the Atapuerca sample is evident. There are more Neanderthal features present, although some postcranial characters may well turn out to be more widespread plesiomorphies when data from other, non-Neanderthal, samples are known. But the presence of characters such as midfacial projection and an incipient suprainiac fossa does seem to* ***point to a significant phylogenetic link with the Neanderthals, aligning the Atapuerca hominids with that clade*** *(or species, if* H. neanderthalensis *is recognized). '*[317]

The bevy of neanderthal traits include the shape of the supraorbital tori, the relatively high cranial vault and the development of a neanderthal 'bun'. He then concludes that:

> ***'The Neanderthal lineage seems to have its roots deep in the Middle Pleistocene.'***[318]

Likewise, Shreeve concedes that:

> *'The new skulls from Atapuerca, however, do not mince their words. Though they preserve a few* erectus *characteristics,* ***the three fossils collectively boast a bevy of traits that securely link them with the Neanderthals to come.*** '[319]

Of even more significance is the fact that the Atapuerca fossils share a number of traits often found in neanderthals and modern humans, **but which are *not* present in Asian forms of *erectus*.**[320] This may well indicate an early emergence of regional (racial?) distinctives.

Moreover, these hominids have now been joined by another purportedly Middle Pleistocene neanderthal — the Altamura hominid from southeastern Italy.[321] This particular skeleton is described as having belonged to an individual whose height fell between 160 and 165 centimetres (5'3" to 5'5"). The Altamura skull is said to feature pronounced brow- ridges. However, the morphology of the ridges, cranial vault and maximum facial width are said to be '. . . *not fully Neandertal.* '[322]

Another archaic *Homo sapiens* specimen to exhibit a mosaic of neanderthal and *Homo erectus* traits is the Petralona skull, from Greece.[323] In fact, Stringer has recently suggested that:

> *'. . . the small Atapuerca 5 cranium* ***shows clear facial resemblances to Petralona****, while a large facial fragment (AT-404) displays a resemblance to the cheek region* of (another archaic *Homo sapiens* specimen from) *Steinheim.* '[324]

On the other hand, the largest of the three relatively complete Atapuerca calvariae — Cranium 4 — **appears to be in the process of developing a neanderthal 'bun'**.[325] It is little wonder, therefore, that a number of authorities **have argued that some archaic *Homo sapiens* could readily be absorbed into the (purportedly) early *neanderthalensis* population**.[326,327] The significance of such observations will be seen shortly.

One of the most sustained arguments for differentiating *Homo erectus* from other archaic forms of *Homo sapiens* has been the shape of the skull when viewed posteriorly (that is, from the rear). The maximum breadth of the *erectus* skull occurs towards the base of the skull.[328] Kennedy has described the shape of the *erectus* skull in terms of a 'tent', drawing comparisons with the 'bell-shaped' profile of the australopithecines and African apes.[329] This is said to set it apart from the profile of archaic *Homo sapiens* (including the neanderthals, whose profile is given the technical term of '*en bombe* '[330]). However, the *erectus* profile *cannot* be regarded as an autapomorphic trait for several reasons. First, **at least two of the *erectus* individuals from Ngandong feature an '*en bombe*' profile**.[331] Secondly, the 'tent'-shaped profile **is not restricted to *erectus***, but can also be found in a number of individuals of purportedly later geological age.[332] Finally, the parietal walls of the Atapuerca 4 cranium converge towards the top of the cranium; thus contrasting with the more modern profile of cranium 5.[333] (More on this shortly.)

(2) Variability in Single Populations

Before undertaking a review and refinement of the previously developed model, I would like to examine further the issue of variability in isolated fossil populations. In the earlier (1992) paper[334] a number of discreet populations were examined, all of which exhibited considerable morphological variability. It became abundantly clear that this variability represented a considerable challenge to present-day phylogenies dealing with the evolutionary origins of man. Furthermore, it was pointed out that much of this variability could be attributed to the **extreme range of ages in each populace**.[335] Such variability is also present at a number of other sites not discussed in the earlier paper.

The Atapuerca craniofacial remains, for instance, reveal some interesting facts concerning maturational development in archaic humans. For instance, the juvenile Cranium 6 exhibits slight brow-ridges — which contrast markedly with the prominent ridges of the adult Cranium 5.[336] The juvenile cranio-facial complex, when oriented to the Frankfort horizontal and viewed laterally, also **appears to be slightly retrognathic**.[337] The juvenile's vault is also decidedly steeper than that of the adult Cranium 5.[338] Furthermore, as is the case with juvenile neanderthals,[339] the mastoid processes are **underdeveloped**.[340] As we have already noted, the largest of the three crania — Cranium 4 (1390 cc.) — seems to be in the process of developing a neanderthal 'bun'; **yet in other respects (for example, maximum cranial width towards the base of the skull) the calotte aligns itself with *Homo erectus*.** Cranium 5, on the other hand, is a scaled-down neanderthal. Thus, the Atapuerca sample provides considerable morphological diversity — ranging from a juvenile of relatively 'modern' appearance to adults of decidedly more-archaic appearance.

The presence of both *'en bombe'* and 'tent-like' profiles in the two Atapuerca adults **must raise the possibility of contemporaneity of *Homo erectus* and neanderthals**; especially when the same variations are known to exist elsewhere (for example, in the lat*e-erectus* Ngandong sample).

Thus, the Atapuerca hominids appear to conform to the pattern enunciated previously; the younger the hominid, the more 'modern' its morphology. Whilst the presence of neanderthal and *erectus*-like traits can be directly linked to prolonged ontogeny and greater longevity potential, a rapid decline in longevity can go a long way to explaining the morphotypic variation in isolated populations of adult fossils.

Another hominid site at which there is a remarkable degree of morphotypic variation is the Upper Palaeolithic site of Velika Pecina (near Zagreb in the former Yugoslavia). In 1961 the fossilised remains of a frontal bone were recovered from this site.[341] The bone featured a supraorbital torus of essentially 'modern' form. Since then the site has revealed more skull fragments — **some of which are of decidedly 'modern' form, whilst others are of 'neanderthaloid' appearance**.[342]

The apparent contemporaneity of 'modern' and 'archaic' forms at the same site is anathema to evolutionists espousing the 'Out-of-Africa' theory. This is due, in part, to the presumption of a recent African origin for mankind — a date which effectively precludes European and Near Eastern neanderthals, European archaic *Homo sapiens* and Asian forms *of Homo erectus* from the direct ancestral line leading to modern man.[343] On the other hand, it is also partly due to their belief that there is little (if any) evidence in the fossil record of hybridisation having taken place between the two groups. For instance, with reference to the Near Eastern scene, Stringer states:

> *'The Kebara Neanderthal may have lived 40,000 years after the two populations* [that is, the Qafzeh and Skhūl proto-Cro-magnoids and the Tabūn neanderthals] *could have come into contact, yet this specimen shows no signs of hybridization with modern humans —in fact, it is one of the most robust and characteristic of Neanderthal skeletons. By the same token, early modern fossils from Israel and Lebanon dated to between 30,000 and 40,000 years ago show no features that might be ascribed to previous hybridization with Neanderthals.* '[344]

Now, whilst Stringer is correct in contending that there is no solid evidence of hybridization between the two groups, our own model would suggest that the reason for this is ***not*** that the two groups weren't related in any way **but, rather, that the 'neanderthal' form was the end-product of prolonged ontogeny in a slightly earlier (though possibly contemporaneous) generation**. Put another way, we can have a number of contemporaneous (and, perhaps even, genetically linked), generations living side-by-side, **yet exhibiting differing morphological traits by virtue of their extreme differences in age.**

Before concluding this section on variability, let us briefly focus upon one particular trait which has been used to discriminate between neanderthals and other archaic human remains — the frontal sinus.

In an earlier paper the present author presented evidence for the prolongation of skeletal maturation and longevity based on the inflation of frontal sinuses.[345] The sinuses of many — **though not all** — adult archaic Homo *sapiens* and *Homo erectus* specimens are larger and more extensive than those of the neanderthals. In this regard Stringer[346] has noted that:

> *'While the maxillary sinuses (of the Petralona skull) are like those of Neanderthals, the frontal sinus development is* ***even greater****, since the pneumatization stretches right across the inside of the supraorbital torus. Such laterally developed sinuses are present also in the Broken Hill, Bodo, and Thomas 3 browridges*
> 1

He then goes on to add, however, that:

> '. . . *variation is such that a specimen like Arago 21 seems to have a negligible development of the frontal sinus.* '[347]

On the other hand, this might simply indicate that Arago 21 was a young adult in what was otherwise a morphologically diverse population.

It is interesting to note, in passing, that, prior to revisions in the dating of the Arago hominids, the remains were being touted as archaic *Homo sapiens* or ante-neanderthals rather than *Homo erectus*.[348] Indeed, Stringer has stated recently that:

> '. . . *the Arago specimens compare well with European fossils that are generally accepted as representing archaic Homo* sapiens, *such as the Petralona, Steinheim and Atapuerca material. Like some of those specimens it is conceivable that the Arago sample* ***derives from a population that was ancestral to the Neanderthals, and this is especially plausible in the case of the Arago 2 mandible.***'[349]

Taken at face value, this statement would seem to be inferring that we **may have had more than one morphotype present in the Arago sample** — archaic *Homo sapiens* or *Homo erectus* (depending upon your preference) and neanderthal. For instance, whilst the Arago 2 mandible is aligned in the direction of neanderthals and modern man, the massive Arago 13 mandible exhibits an *erectus-like* morphology. This mirrors our earlier observations concerning the Atapuerca and Ngandong remains.

SKELETAL DEFORMATION, DEFERRED MATURATION AND GREATER LONGEVITY

In the earlier paper on archaic human remains the present writer alluded to the possibility that some proto-Cro-Magnoids, neanderthals and Cro-Magnoids lived to ages greatly exceeding those of modern man. Several indicators were cited within the paper.[350]

A number of other possible indicators of retarded maturational development and greater longevity in the past have come to light in the two years since publication of the original paper. The first is related to changes in the femoral neck-shaft angle during the life history of an individual.

According to Trinkaus the femoral neck-shaft angle is large in neonates and gradually decreases during development, reaching adult values in late adolescence.[351] The 'modern' neonate, for instance, generally has a neck-shaft angle of approximately 150°, whilst typical adult sample means generally vary between 124° and 135°.[352] Such decreases are **due principally to the plasticity of the femur and the level of physical activity during the period of skeletal maturation**.[353] Accordingly, the neck-shaft angle for foraging adults is slightly less than that for agriculturalists who, in turn, will have angles slightly less than those raised in sedentary urban cultures.[354]

Referring to Trinkaus's studies, Bunney[355] observed that:

> *'The level of activity* ***and the development age of humans*** *is suggested by the angle that the femoral head and neck (the part that articulates with the hip) makes with the main shaft of the bone.'*

She then qualified this statement by noting that:

> *'The amount by which the angle decreases during development is linked with the level of normal physical activity.'*[356]

However, this is but half of the story. Trinkaus also noted a slight decrease in the neck-shaft angle in 'modern' adults between middle and old age — although significantly less than that which takes place during infancy and adolescence.[357]

Given that these observable changes are quite pronounced in modern humans, are they also reflected in our so-called 'archaic' ancestors? And if so, what can they tell us about the lives and maturational development of these individuals? To answer these questions we turn to Trinkaus's in-depth study of Palaeolithic human femurs.

The neck-shaft angles for the Near Eastern sample of neanderthals ranged between 113° and 124°; their European contemporaries between 115.5° and 127°.[358] By way of contrast, the Eurasian Late Upper Palaeolithic sample yielded neck-shaft angles ranging from a low of 116° (Chancelade 1) to a high of 136° (Minatogawa 3).[359] The calculated mean for the Late Upper Palaeolithic sample,[360] was 126.8°, which equates well with those for modern agriculturalists.[361] Thus, **the neanderthal neck-shaft angles were clearly lower than those of modern man**.

Given that the general robusticity of neanderthals — which is said to have commenced quite early in life[362,363] — would tend to resist deformation of the neck/shaft complex, the results are somewhat surprising. **That most palaeoanthropologists believe that neanderthals seldom lived to more than forty years makes it all the more remarkable.**[364]

Even more surprising are the results for some of the Early Upper Palaeolithic hominids from Predmost — with neck-shaft angles ranging from a low of 110° to a high of 117°.[365] Likewise, the 11 year-old *Homo erectus* juvenile from West Turkana also featured a remarkably low neck-shaft angle of 110°.[366] Low neck-shaft angles were the order of the day for most of the Early and Middle Pleistocene fossils.[367]

In summarising his findings, Trinkaus has stated that:

> *'All of these Pleistocene* Homo *samples except the Late Upper Paleolithic have neck-shaft angles which are generally quite low, clustering near the lower ends of the ranges of variation of the Recent human samples. All of their highest values, again except those of the Late Upper Paleolithic sample, are between 124° and 127°, and thus cluster around the range of means for the Recent Foraging samples and for seven out of the eleven Agricultural samples. The means of the first four of these Pleistocene samples cluster around 120°, being respectively 121.0°, 121.1°, 118.9° and 116.8°.* ***All of the means****, except that of the Late Upper Paleolithic sample,* ***fall well below the means documented for Recent human samples****. There is thus a pattern in which femoral neck-shaft angles* ***remained low through archaic*** **Homo** ***and into early modern*** **Homo,** ***only rising up into the ranges of Recent Foraging and Agricultural groups within the Eurasian Later Upper Paleolithic****, a period of (in many ways) highly sophisticated hunter-and-gathering societies.'*[368]

It is, of course, difficult to reconcile such a low angle as that observed in the Turkana 'Boy' with one so young — unless, of course, some other factor, in addition to general activity, is at work.

At this point, I would like to suggest just such a factor; one which has possibly been overlooked by Trinkaus. That factor is the prolongation of skeletal maturation. Were maturation to have taken place over a somewhat longer timeframe, we might expect a higher degree of femoral deformation; especially if this period involved strenuous physical activity (such as might be the case during an enforced migration).[369] Indeed, prolongation of skeletal maturation may also have contributed greatly to the skeletal robusticity we observe in neanderthals, *Homo erectus* and other archaic humans.[370,371]

Now, whilst the early *Homo,* neanderthal and Early Upper Palaeolithic samples readily conform to such a model, there remains a problem relating to the Qafzeh-Skhūl sample. Referring to Trinkaus's studies, Bunney notes that:

> *'After comparing the angle in a wide range of fossil hominids and representative modern peoples — urban, foraging and agricultural — Trinkaus concludes that the femoral neck-shaft angles of the Levantine Neanderthals (augmented with material from sites in Iran) are similar to those of other 'archaic' humans. All the Neanderthals have relatively small angles, whereas the Qafzeh and Skhūl early moderns have large angles, as do more recent people.* '[372]

When we examine the Qafzeh and Skhūl hominids — purportedly (near) contemporaries of the Near Eastern neanderthals — we are confronted with a series of '. . . *exceptionally high neck-shaft angles.* '[373] In fact, the mean for the combined Qafzeh-Skhūl sample is 132.3°;[374] a value which differs dramatically with those of the other early *Homo,* neanderthal and Early Upper Palaeolithic samples. In fact, Trinkaus has also observed that:

> *'Relative to the Recent human samples, the Qafzeh-Skhūl mean neck-shaft angle* ***remains relatively high,*** *falling outside of the range of means of the Foraging samples, at the upper end of the range of means for the Agricultural samples, and in the middle of the range of means of the Urban samples.* '[375]

Now such a result poses difficulties for both transformists and creationists alike.

The evolutionist, for instance, finds it difficult to account for the relatively high neck-shaft angles amongst the proto-Cro-Magnoids — given their possible contemporaneity and cultural similarities with the Near Eastern neanderthals. For instance, Stringer[376] has indicated that:

> *'The new dates* [for the Qafzeh and Skhūl hominids] *seem to confirm the earlier presence of modern humans, but add the complication that early Neanderthals were apparently there, too. The Neanderthals (at Tabūn either immediately preceded the moderns of Qafzeh and Skhūl after all* ***or were their approximate contemporaries.*** '

Elsewhere, Stringer has written that (aside from the association of grave goods with one of the Qafzeh children):

> '. . . *the inferred behaviour of the early Qafzeh hominids seems little different from that of the Neanderthals.* '[377]

In other words, both the proto-Cro-Magnoid and neanderthal cultures were typically 'Mousterian'. Trinkaus recognises the problem when he states that:

> *'In every respect, the Qafzeh-Skhūl neck-shaft angles, despite the clearly foraging nature of their Middle Paleolithic early Late Pleistocene adaption, fall most consistently within modern Urban samples!'*[378]

In order to overcome this difficulty Trinkaus has chosen to differentiate between the activity levels of the *immature* proto-Cro-Magnoids *and immature* neanderthals; suggesting that the latter were decidedly more active than their more 'modern' contemporaries.[379] Whilst this argument may hold some merit, there are other possible explanations which are worthy of our consideration.

The major problem for the creationist model currently under review, on the other hand, stems from the fact that the neck-shaft angles seemingly demand a relatively late date for the Qafzeh and Skhūl hominids. In this regard, it is worthwhile noting that the combined proto-Cro-Magnoid sample comprises femora from five individuals only; **four of whom derive from the Mugharet es-Skhūl cave**.[380] One of these specimens — Skhūl 4 — possessed a neck-shaft angle of 122°, **which falls slightly below all the sample means for modern foragers**.[381,382] The reason for the distinction between this and the other three Skhūl hominid femora is unclear at this point in time. It may relate back to the fact that we are dealing with a group of *'immature'* individuals — some of whom still have a way to go before reaching skeletal maturation. However, there is also the issue of the dating of the Skhūl remains. In 1990 Stringer[383] ascribed a date of c. 100,000 years BP to the Skhūl hominids. This date was based on Electron Spin Resonance (ESR) analysis of bovine teeth from the layers in which the hominids were found.[384] More recently (1993), however, McDermott *et al.*[385] have assembled the results of mass-spectrometic uranium series datings of selected Israeli hominid sites — **results which suggest that the linear uptake (LU) ages for the Skhūl hominids may have been too high**. If the lower ^{230}Th/^{234}U ages prove reliable — at least in a relative, though not necessarily absolute, sense — it may be possible to account for the relatively high femoral neck-shaft angles in Skhūl 5, 6 and 9 on the basis of a shorter period of maturational development (relative to most of the Near Eastern neanderthals) and a relatively late, post glacial-maximum interment.

(The dating of the Skhūl hominids has been contentious from the outset.[386] Indeed, the disparity between the ESR and ^{230}Th/^{234}U ages has recently led Bar-Yosef and Pilbeam to call for a direct dating of the Skhūl hominid skeletal remains.[367] McDermott and his colleagues have indicated that they will shortly be attempting direct Υ-ray dating of the hominid remains.[388])

Another aspect of archaic human morphology which may be related to the prolongation of skeletal maturation is the thickening of the limb and axial bones of the body. The 'robust' nature of the neanderthal limb bones is well documented in the scientific literature.[389-394] Indeed, such thickening of the limb bone shafts is commonplace in most *archaic* humans.[395,396] It is also reflected in the neanderthal's axial skeleton — where the spinal vertebrae are **measurably broader** than those of ' modern' man.[397,398] This is not to say that neanderthal spinal columns were, in any way, shorter than those of anatomically 'modern' man; merely that they were more 'robust'.[399,400]

Now, Lazenby[401] recently cited a number of studies which support the view that limb bones and vertebrae thicken with age. If this be the case, then it may well be that the robust shafts and vertebrae of neanderthals and other archaic humans reflect **periods of continuing periosteal apposition beyond the present-day 'norm'**. One of the studies cited by Lazenby — a study of dimensional changes to the third cervical vertebra in women — by Israel[402] — demonstrated that, whilst height **did not change significantly**, there was **a highly significant change in width**. A second study of the third cervical vertebra — by Behrents[403] — documented **increases in the anteroposterior and mediolateral dimensions**. These observations accord well with the notion of prolonged periosteal apposition for neanderthal vertebrae, since there is an obvious dimensional increase in the width of neanderthal vertebrae (either towards, or even exceeding the normal range for 'modern' humans) without any significant decrease in height for the same members.

Prolongation of maturation may also account for a number of other facets of archaic human morphology. One such facet is the shape of neanderthal pelves — which are described as being morphologically distinct from those of most modern humans. Wolpoff,[404] for instance, has noted that the pubis of the Tabūn female is unusually elongated, whilst Trinkaus and Howells[405] have stated that:

> '. . . *the pubic bone, at the front of the pelvis, has a curiously extended and lightened upper branch that forms a part of the rim of the pelvis.* ***This is true of every Neanderthal specimen****, male or female, from Europe and the Near East, in which the fragile bone is preserved.'*

An early explanation for this phenomenon was that it represented a modification of the pelvic anatomy in line with the presumed precocious brain growth of neanderthal neonatals.[406-409] One rather obvious problem with this reasoning is that the trait is **also** present in the pelves of neanderthal males. For instance, Stewart has noted that:

> *'The left* [pubic] *bone . . . obviously has the same peculiar features as that of Tabūn I. Since Shanidar I appears to be a male, these pelvic features are* ***not sex-induced changes****. '*[410]

Elsewhere, the same writer also conceded that the feature is quite variable in the neanderthal sample — noting that:

> '. . . *Trinkaus has observed stages* ***intermediate between Tabūn-Shanidar and recent man*** *in Krapina 208 and La Ferrassie I. Nevertheless, he concedes that elongation and thinning of the superior pubic rami have been carried to extreme in the Southwest Asian Neanderthals . . .* '.[411]

Despite this apparent problem, Trinkaus and Howells[412] had no hesitation in asserting in 1979 that:

> '. . . *it is not a trait that lends itself to explanation in terms of patterns of muscle action and movement.* '

Recently, however, Stringer[413] has suggested that:

> *'This* (older explanation) *was believed to reflect an enlarged birth canal in Neanderthal women, and perhaps a longer gestation period than modern women,* ***but is now thought to be related to differences in the way the hip joints operated.*** '

In fact, Arensburg has suggested that:

> '. . . ***postural factors and not gestation period are responsible for the lateral rotation of the hips and the subsequent elongation of the superior ilio-pubic ramus*** *. . . '.*[414]

Before proceeding with a possible explanation for this trait, mention should also be made of several other distinctive facets of neanderthal pelvic morphology. Wolpoff[415] has noted that the marked elongation of the pubis has been **accompanied by a swinging outward and backward of the pelvic 'wings'**; that is, the ilia (or pelvic blades). Elsewhere, he refers to the:

> '. . . *anterior* (forward) *shift of the buttress running up the ilium . . .* '[416]

Finally, and in reference to preserved (but fragmentary) European neanderthal innominates, he states that there is

> *a combination of skeletal robustness and an extraordinarily deep birth canal (or pelvic inlet in males). General robustness of the pelvis is indicated by a thick, prominent iliac pillar, a large acetabulum relative to other dimensions, and a dominant anterior inferior iliac spine.*'[417]

Stringer,[418] on the other hand, has suggested that the neanderthal ilium remained unthickened above the hip joint (acetabulum). (Note: the flaring of ilia is also found in African specimens *of Homo erectus,* including the Turkana boy.[419])

Now, the pubic bones support a number of muscles with rather specialised functions, including the *pectineus,* three adductor muscles (***Adductor brevis***, ***longus*** and ***magnus)*** and, finally, the ***gracilis***. According to Warwick and Williams[420] the adduction function is not an altogether common action. Nevertheless, whilst the adductors can perform an adduction function when required to do so,

> '. . . *they are* (in modern man) ***essentially synergists in the complex patterns of gait activity, and partly controllers of posture****. For example, they show activity during flexion and extension of the knee. The magnus and longus are probably medial rotators of the thigh, according to recent and as yet unconfirmed data. The adductors are also active during flexion (longus) and*

> *extension (magnus) of the thigh at the hip joint.'*

One obvious activity in which the adductors come into play is in horse-riding.[421] Now, whilst there is no definitive evidence that neanderthals ever rode horses, we cannot preclude such a possibility merely because of evolutionary presuppositions. According to the biblical record animals were domesticated before the Flood,[422] and reference is made to the domestication of donkeys and camels during Abram's lifetime.[423] Horseback riding has thus far been traced back to c. 6,000 years BP.[424] Nevertheless, there may be other explanations for the rather unique morphology of the neanderthal pelvis.

The 'modern' human pelvis is extremely variable in morphology. Alluding to this variability, Warwick and Williams[425] describe four major types of pelvis — ranging from the very broad and relatively rare **Platypelloid** pelvis to the superior-posteriorly elongated **Anthropoid**-type. Male pelves are generally narrower and, therefore, of the Anthropoidal or **Androidal**-types. Female pelves, on the other hand, are usually broader — falling into the Androidal and **Gynaecoidal**-classes. The differences between male and female pelves are largely related to function. As Warwick and Williams[426] have stated:

> *'The differences are inevitably associated with function;* ***and while the primary function of the pelvis in*** **both** ***sexes is locomotor, it is specially adapted to the needs of childbirth in the female.*** *'*

They also note that:

> *'Since the male is distinctly more muscular, and therefore more heavily built, the overall dimensions of the pelvis, such as intercristal measurement, are greater in males,* ***markings for muscles and ligaments are more pronounced, and the general architecture is relatively stouter****.'*[427]

Now, male and female neanderthal pelves align themselves with the Androidal and Anthropoidal forms. In fact, it could be said of them that they represent extremely robust forms of the same. The musculature and ligament markings are extremely pronounced; the flared ilia buttressed with expanded iliac spines, and the pubis elongated and pulled forward to a more anterior position than is the case today. All of these features may be related to the neanderthals' rugged (physical) lifestyle. For instance, it is generally believed that the neanderthals **led a hunter-gatherer lifestyle**. Their dependency upon caves and rock shelters for accommodation indicates a people under considerable duress. That they were **highly nomadic** is also a very real possibility.

It is, of course, possible that the extension, thinning and flattening of the neanderthal pubis is also related to the physical acts of crouching and squatting, since such activity inevitably places the adductor muscles in a horizontal plane — stretching between the pubis and the femoral anchor points.

On the other hand, the pronounced muscular and ligament anchorage structures and the flattening of the pelvic blades almost certainly relate to recurrent and strenuous physical activity. Given the neanderthal's 'nomadic' lifestyle and their probable migration from the Near East into Eastern and Western Europe during the great Ice Age, **we can attribute both of these features** (and perhaps the extension of the pubic bones as well) **to the need to negotiate mountainous regions enroute**. The various neanderthal sites throughout the Near East and Europe suggest several possible migration routes — all of which involve passage through mountainous regions. For instance, migration into Czechoslovakia, France and Germany could have entailed passage through the Caucasus and Carpathian Mountains, whilst migration into Yugoslavia, Italy and Spain may have been via the Taurus Mountains of Turkey and the Dolomites, Alps and Pyrenees of Southern Europe (see Figure 10).

The outward and backward rotation of the pelvic blades would be attributable, in part, to the activity of the ***gluteus maximus*** (which is attached to the posterior superior iliac spine of the ilia and the back and side of the upper part of the femur), but also to the activity of the **abductor** muscles (***gluteus medius*** and ***minimus***), which are anchored to the back of the ilia and the greater trochanter of the femur.[428] The gluteus maximus muscle is critical to (the maintenance of) bipedal locomotion. As Lovejoy[429] has noted, the gluteus maximus is a relatively minor muscle in the chimpanzee, but is the largest muscle in the human body. He states that the muscle (in mankind):

> *'. . . has taken on the role of preventing the trunk from pitching forward'*

and that

> *'A gluteus maximus working to hold a trunk upright would tire rapidly. The dramatically shortened human ilium shortens the torso and brings the trunk's centre of mass much closer to the hip joints, thereby reducing the muscle's mechanical disadvantage.'*[430]

Of course, 'deformation' of the iliac blades would have been exacerbated were migration and extended periods of strenuous activity to have coincided with the prolongation of skeletal maturation and period of osteal 'plasticity'.

It is also possible that, in order to maintain the mechanical advantage conferred upon the gluteus maximus and the abductor muscles, there would need to be a simultaneous and compensating forward displacement of the pelvis[431,432] and a decrease in the neck-shaft angle of the femur.[433]

That such deformation is observed in the pelves of young neanderthals (for example, the Tabūn 1 female[434]) and the sub-juvenile *Homo erectus* specimen from West Turkana (for example, KNM-WT 15000[435]) lends considerable weight to the argument that such changes took place during childhood and as a consequence of the relatively 'plastic' state of sub-adult pelves, arduous activity during skeletal maturation and the prolongation of ontogeny.

Put simply, **neanderthal pelvic morphology appears to have had little to do with evolution, but a lot to do with life history, activity levels and (probably) prolonged skeletal maturation.**

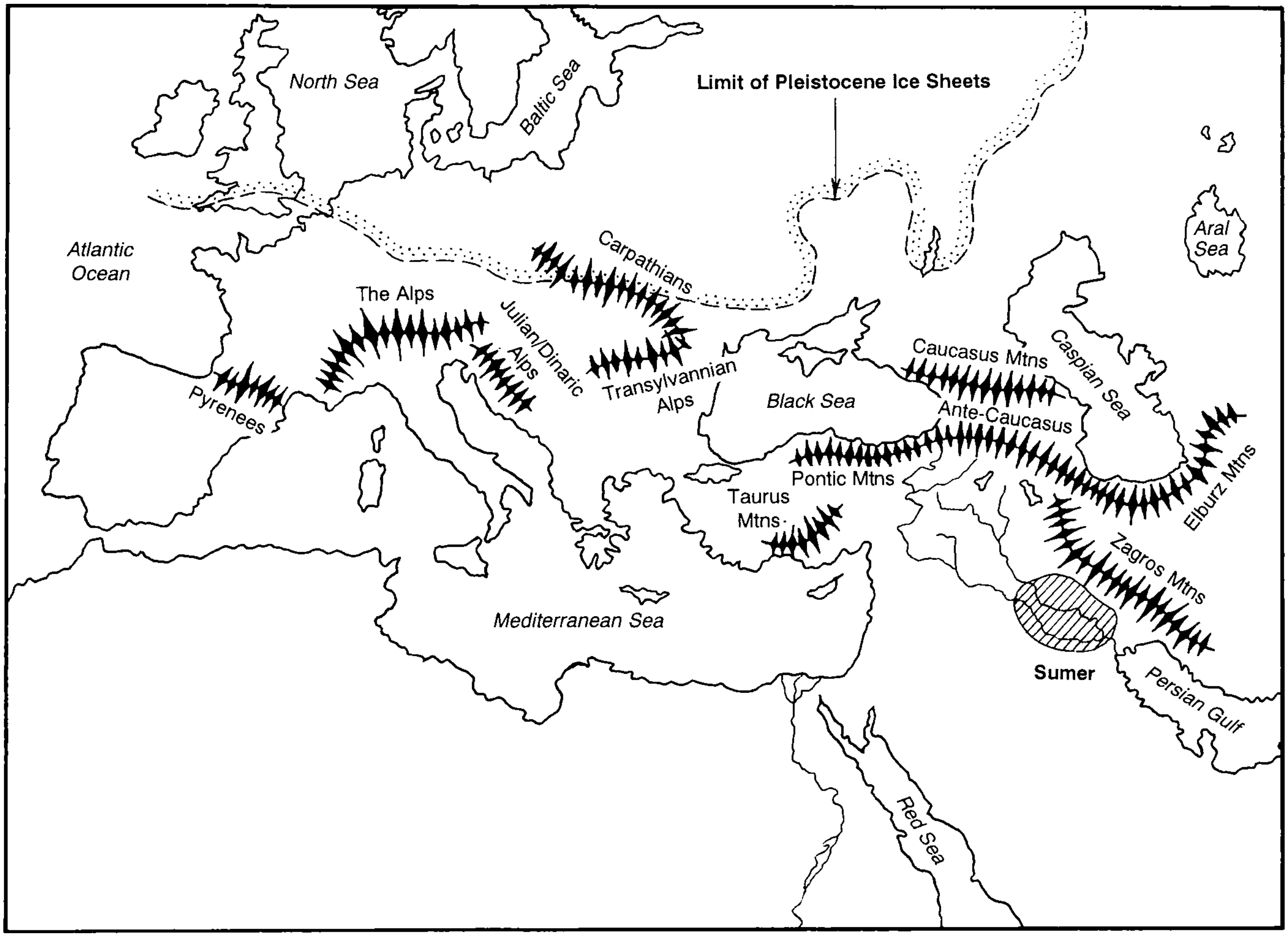

Figure 10. *For many proto-national tribes (families) dispersion from Babel and (perhaps also) retreat from advancing ice sheets would have necessitated arduous treks through alpine regions of the Near East, South-West Asia and Europe.*

We have already discussed several anatomical modifications which may have been related, at least in part, to the level of physical activity engaged in during the course of an individual's life. Another well-documented feature is the so-called '**squatting facet**' observed in the ankle bones of ***both*** modern-day hunter-gatherers and neanderthals.[436] The retrogression of the upper epiphysis in neanderthal tibiae is ***also* linked to the hunter-gatherer lifestyle and squatting**.[437] These features often appear early in life.

Yet another indicator of prolonged and physically arduous life is to be found in the shape of neanderthal toes. Concerning this trait, Trinkaus and Shipman[438] state:

> '. . . *Neandertals had exceptionally wide and robust toes, **with strong muscle markings**: "fat toes". Fat toes seem to be an adaption for something akin to broken-field running while barefoot, **in which the toes must grip the rugged terrain**. Could Neandertals have spent most of their time scrambling around on the landscape, rather than strolling or even walking briskly from place to place? If so, then their daily quest for food, through hunting and gathering, was probably not much like what modern hunter-gatherers do.* '

Once again, if neanderthal migration involved passage through mountainous terrain (especially during childhood), then one might anticipate such deformation in the course of time. That such deformation is possible in the course of a lifetime is exemplified in the feet of Ecuadorian adobe makers.[439] Indeed, there appear to be strong resemblances between the profiles of adobe makers' feet and those of neanderthals, as exemplified in the casts of neanderthal footprints in Toirano, Italy.[440]

One final trait which may well infer prolonged skeletal maturation and greater longevity in neanderthals and other archaic *Homo sapiens* involves the orientation of the nasal bones with respect to the craniofacial complex. Many adult neanderthals exhibit a remarkable forward projection of the nasal bones. The neanderthal nose has been described by Stringer[441] as: '. . . *enormous and projecting.* ' Elsewhere, the same writer has noted that:

'In the [neanderthal] *face are a number of special*

> *features associated with the phenomenon of midfacial projection, where the enormous nose stands out from the swept-back and inflated cheek bones . . .* '[442]

A cursory examination of infant, juvenile and adult neanderthals reveals **a progressively forward and upward rotation of the nasal bones with increasing age**. For instance, the infants from Pech de l'Aze,[443] Staroselye[444] and La Quina[445] feature slightly projecting nasal bones, as does the juvenile from Teshik Tash.[446] The nasal bones of the young neanderthal woman from Tabūn , on the other hand, have been described by Wolpoff[447] as '. . . *not especially prominent'*. The progression continues through mature adult specimens in East European specimens such as Krapina C[448] and Krapina E[449] on the one hand and Near Eastern specimens such as Amud l[450] and Shanidar l[451] on the other. Finally, we reach the ***extreme*** condition, as exemplified by Shanidar 5 and the 'Old Man' from La Chapelle-aux-Saints. Concerning these specimens, Stringer and Trinkaus have noted that:

> *'Shanidar 5 has an exceptionally prominent nasion relative to glabella,* ***and the nasal bridge is perhaps matched only by that of La Chapelle-aux-Saints in its virtually horizontal disposition when the cranium is oriented in the Frankfurt plane****.* '[452]

This view is echoed by Wolpoff,[453] who states that the Shanidar 5 cranium possessed nasal bones which exhibit '. . . *a very high angle in lateral profile.'* The 'virtually horizontal' disposition of the nasal bones of the 'Old Man' from La Chapelle is depicted in Wolpoff's book, **Paleoanthropology**.[454]

It is interesting to note that this variation is expressed in both sexes. For instance, the degree of forward rotation is measurably greater in the two female[455] crania from Krapina than in the Tabūn 1 female. Furthermore, it would appear that this forward rotation **reflects increasing midfacial projection** — which, in turn, is **related to an ongoing trend toward cranial flattening and increasing prognathism of the jaw region**. These features may be directly related to the mastication process and generally greater longevity in the recent past.[456] If this be the case, then the rotation of the nasal bones might **also** be an indirect indicator of prolonged ontogeny and greater longevity in the recent past.

Also of interest is the fact that the degree of rotation in purportedly older African (for example, the KNM-ER 3733 *erectus* and the Bodo, Jebel Irhoud 1, Ndutu, Ngaloba, Broken Hill, and Border Cave) and Asian (for example, Mapa and Dali) archaic *Homo sapiens* is **measurably less** than that of neanderthals such as Shanidar 5 and the 'Old Man' from La Chapelle. Could this reflect a lessening in longevity potential as we move away from the Near East and Europe? And what are we to make of the immense variation in the degree of rotation in the nasal bones of the proto-Cro-magnoids from the Middle East? For instance, the angulation of the nasal bones in Skhūl 4 — perhaps the most 'neanderthal'-like cranium from this sample — approaches that of Shanidar 5 and La Chapelle, whilst that of Skhūl 5—a decidedly more-'modern' craniofacial complex — more closely approximates that found in mature males today.[457] This variation would seemingly indicate that we have **a considerable spread of ages amongst the adult members of the Skhūl sample**. In this respect, it is significant that the differences in the ages as assessed by the angulation of the nasal bones are **paralleled in the femoral neck-shaft angles of Skhūl 4 and 5**.[458]

DISCUSSION AND MODEL REFINEMENT

In the earlier paper on archaic human remains we concentrated on Middle and Late Palaeolithic fossil humans, at the expense of what was considered at the time to be a fairly small number of Early Palaeolithic individuals. Since publication of that paper the number of Early Palaeolithic humans (that is, *Homo erectus* plus archaic *Homo sapiens* and a growing number of individuals referred to as pre- or ante-neanderthals) has increased significantly; so much so that they now equal in number the combined sample of Near Eastern and European neanderthals. Accordingly, we have extended the scope of our investigations to embrace these individuals.

The distinctions between neanderthals, archaic *Homo sapiens* and *Homo erectus* are becoming increasingly blurred and arbitrary. We have already noted Stringer's comment — that neanderthals were but one type of archaic Homo *sapiens.* Indeed, were it not for perceived differences in stature and the relatively earlier (but highly questionable) ages assigned to the latter group, one could readily consign the neanderthals to a single group embracing anatomically 'robust' humans; a group which generally preceded anatomically-'modern' man.

Therefore, the relatively small stature of most neanderthals sets them apart from many other forms of archaic *Homo sapiens.* Their stocky build is deemed to be a consequence of the colder climatic regime in which they matured. Nevertheless, not all neanderthals were short and stocky. As we noted earlier, the neanderthal — Amud 1 — was quite tall (c. 179 cm or 5'10½");[459] perhaps indicating that he matured under vastly different climatic circumstances to other cold-adapted Levantine neanderthals (for example, Kebara, Tabūn and Shanidar neanderthals).[460,461]

Now, a hostile climatic regime — be it extreme cold or hot — will have a pronounced effect on the availability of food, and hence, nutrition levels. Indeed, poor nutrition can stunt the growth of infants.[462] Referring to the research of Mary Ursula Brennan, an anthropologist at New York University, Rudavsky[463] has noted that:

> *'If people do not receive sufficient nutrients in the first seven years of their lives . . . their teeth do not develop fully, a condition known as hypoplasia. . . . . Of the 300 Neanderthals she has tested, 40 percent suffered from hypoplasia, a good indication that resources were scarce. The early moderns* [by way of comparison] *showed a hypoplasia rate of only about 30 percent. . . . .*

> *"Neanderthals" short stature may have been an adaption to low nutrient availability, Brennan concludes.'*

This being the case, the Wadi Amud neanderthal would no longer be regarded as exceptional, but rather, one who escaped the climatic extremes of the Ice Age. Indeed, in spite of their so-called cold-adaption, they were still (in the main) of comparable stature to extant Europeans.[464]

Turning, then, to other variants of early *Homo sapiens,* we note that the African and South-East Asian variants of *Homo erectus* were very tall. (Note: the femora from the Choukoutien specimens of *erectus* are not sufficiently complete to allow a reliable estimate of stature.[465])

Very little is known of the stature of archaic *Homo sapiens,* although it has been suggested that the African variants, like low latitude specimens of *erectus,* were probably quite tall.[466] The Near Eastern proto-Cro-Magnoids, like the latter Cro-Magnoid variants, were also very tall.

Overall, our archaic ancestors appear to have been at least of comparable or (as is more likely) taller stature than modern man. Furthermore, all three major archaic morphotypes constituted physically powerful and robust individuals.[467-469]

Turning, then, to the issue of the dating of Early Palaeolithic fossil humans; in a great many instances their burial context is extremely difficult to interpret and, hence, dates are anything but secure. For instance, a number of European fossils from this timeslot have been recovered from gravel deposits - which are notoriously difficult to date. The circumstances surrounding the discovery of a partially preserved *Homo erectus* skullcap at Reilingen, near Württenberg (Germany) are a case in question.[470]

The Reilingen skullcap was discovered in 1978, in a gravel pit some 23 metres deep. The possible significance of the find was only realised some five years later, by which time it was too late to establish the level within the pit from which the skullcap derived. The gravel sequence was, however, believed to extend backwards in time to the Mindel glacial. Other fossils recovered at the same time as the skullcap seemed to indicate that the human fossil existed either during or some time after the Holstein interglacial. The possibility that the skullcap derived from significantly younger deposits was raised by a Dr Harald Steinert of the Deutscher Forschungsdienst, but dismissed (by him) because of the clearly *erectus*-like morphology of the specimen.

However, *Homo erectus reilingensis* is but one of the several Early Palaeolithic fossils to derive from gravel deposits. Two other important fossils are the Mauer (or Heidelberg) mandible from Germany and the partial braincase from Swanscombe (England). The ages of both have been in dispute for some time.

Concerning the Mauer dating of the jawbone, Wolpoff has stated:

> *'The German site of Mauer is probably the earliest, **although least securely dated**, of the European sites.'*[471]

Referring to the dating of the Swanscombe cranial fragments, the same writer has stated:

> *'Until recently, most of this sample was thought to be well dated. However, recent work has questioned the application of the European glacial stages over all but very limited areas. Moreover, specimens once "secularly" dated to this interglacial have been re-analyzed. For instance, Swanscombe **may actually come from the Riss/Würm interglacial** . . . . These suggestions are supported by the discovery of a new cranium from northern France (Biache) dated to the Riss, which closely resembles Swanscombe and Steinheim . . . . **The fact is that none of the presumed pre-Riss specimens is securely dated** . . .'.*[472]

In other words, rather than being dated at 300,000 years bp (as is generally assumed; see Stringer[473]), the fossil could be as recent as the Riss/Würm interglacial (which is dated between 80,000 and 125,000 years bp).

Now, the Swanscombe calotte is of particular interest to this writer because of its neanderthal-like morphology. As Stringer and Gamble[474] have noted:

> *'The features of the cranial base and occipital torus **are reminiscent of those of the Neanderthals**, while the parietal bones are rather short and flat. Particularly important, there is a central depression in the occipital bone (the suprainiac fossa) **which is present in Neanderthals generally**.'*

Viewed posteriorly, the skull **exhibits the classic *'en bombe'* profile of neanderthals**.[475] Furthermore, Lasker and Tyzzer[476] have noted that:

> *'A crest behind the mastoid process is **similar to that in Neanderthal skulls** and may, therefore, have been associated with a Neanderthal type of mastoid process and a Neanderthal type of frontal torus.'*

The Swanscombe skull also exhibits hyperostosis; the thickness at the parietal eminence (10.0 millimetres) approaching the upper limit for the sample of neanderthals examined by Kennedy.[477]

Nevertheless, because of its purported (and questionable) earlier dating, the Swanscombe skull has been side-roaded into the grade, archaic *Homo sapiens* (at least for the time being[478]).

Now, if the Swanscombe morphology mirrors that of European neanderthals, then the neanderthal morphotype would need to be pushed well back into the late Early Palaeolithic. On the other hand, it is just as likely that it is the dating of the Swanscombe calotte that is in error.

As we have already noted, many of the dates assigned to Early and Middle Palaeolithic hominid sites are anything but secure. For instance, early estimated ages for the Altamura pre-neanderthal site in Italy **range between 100,000 and 400,000 years BP**.[479] We might ask: why should there be such a range of uncertainty? I believe a clue is to be found in a statement by Stringer concerning the dating of the Arago fossils. He notes:

> *'When the material **was thought** to date from the "Riss" glaciation (ca. 200 ky.?) of the late Middle Pleistocene,*

> *it was usually considered to represent a hominid population comparable with those from Steinheim and Swanscombe (i.e., an archaic* Homo sapiens *or "anteneanderthal"). However, with the realisation that the material* ***was probably*** *more ancient,* ***perhaps*** *dating from the "Mindel" glaciation (ca. 450-400 k.y.?), there was a greater emphasis on the primitive* Homo erectus-*like characteristics present in the material, . . .* '[480]

In other words, there is considerable difficulty in determining which glacial (or, in the case of Swanscombe, interglacial) period one is dealing with. However, this begs the question: was there a single Ice Age or a series of alternating Ice Ages and warmer interglacials? (See Figure 11). Of course, if there was but one great (post-Flood) Ice Age — a scenario argued with considerable force by Oard[481,482] and Vardiman[483] — then many of the archaic human fossils attributed to the Early Palaeolithic in Europe (including the archaic *Homo sapiens*, ante-neanderthals and, depending upon your definition, European variants of *Homo erectus*) may have been displaced to eras that never existed. In other words, archaic *Homo sapiens*, ante-neanderthals and *Homo erectus* **may have existed contemporaneously with the neanderthals, proto-Cro-Magnoids and, perhaps even, later Cro-Magnoids**. Under this scenario it would become possible to absorb the Swanscombe skull into the neanderthal morphotype — where it appears to belong.

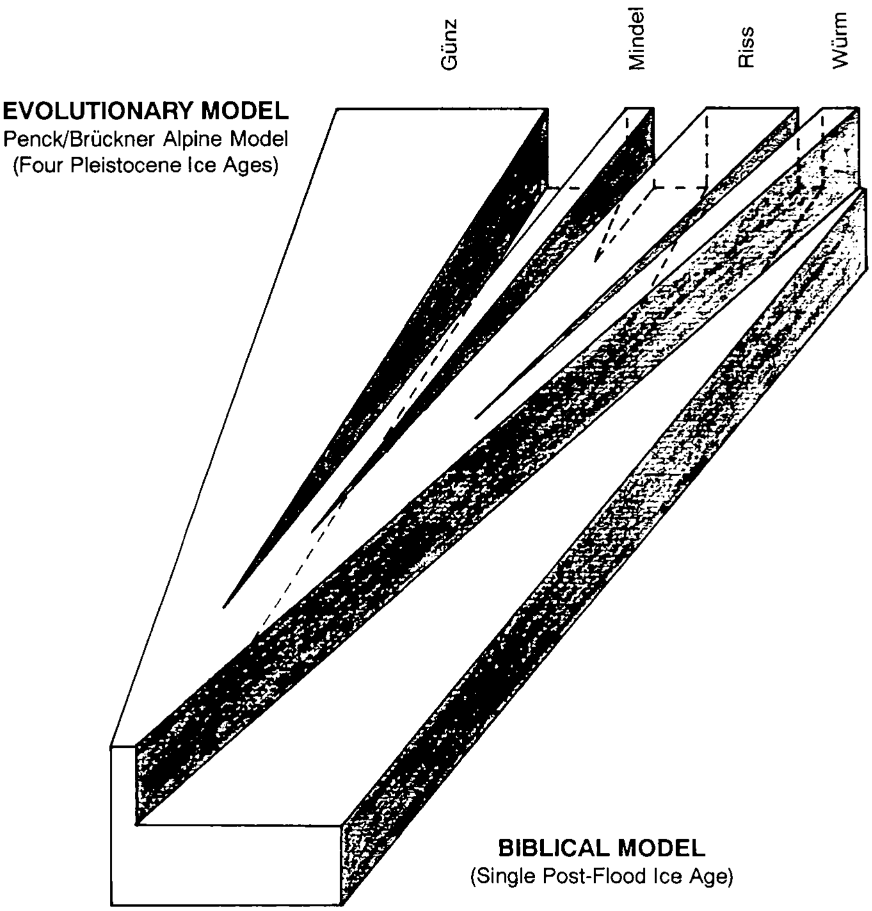

Figure 11. *The biblical model postulates a single, post-Flood Ice Age of relatively short duration. As such, it differs markedly from the Penck/Bruckner Alpine model (above) and more recent, astronomically-based models. (The peaks represent periods of cold; the troughs, warmer periods or interglacials.)*

One other area of consternation is the relatively early appearance of quasi-'modern' morphotypes, such as the Levantine and East European proto-Cro-Magnoids. This has created a dilemma for advocates of the Out-of-Africa hypothesis — culminating in the relegation of most 'archaic' forms of *Homo sapiens* (including Asian and European variants of *Homo erectus* and the neanderthals) from the line leading to modern man. Advocates of the opposing transformist view — the Multi-Regional hypothesis — on the other hand, have protested vehemently against such surgery; arguing that morphological links between these robust humans and modern man are real and tangible. A synthesis of the two transformist views would seem to be impossible at this point in time.

It is at this point that I would like to suggest that it is possible to encapsulate all the so-called 'archaic' forms of fossil humans within the species, *Homo sapiens*. All that is necessary is a shift in paradigm — from the transformist to biblical view of human history; the latter embracing:-

(1) A shift in the dispersion point, from Africa to the Near East;
(2) The compression of multiple ice ages and interposed interglacials into a single, post-Flood Ice Age followed by a compressed Holocene epoch;
(3) A gradual reduction in the duration of skeletal maturation, coupled with a rapid decline in longevity potential; and
(4) A measure of ecophenotypic variation in line with rapidly changing climatic regimes and food supplies.

The shift in paradigm requires a dramatic compression of human history; from millions to thousands of years. This, in turn, accounts for the paucity of Palaeolithic fossil human remains. It also accounts for the relatively recent appearance of distinctive racial traits towards the close of the so-called Pleistocene epoch and the early stages of the Holocene epoch.

In essence, what is being advocated here is a return to a linear viewpoint of human history; with the earliest morphotypes being of generally 'archaic' and robust appearance and their later descendants of more gracile appearance (see Figure 12). This simplistic view will, however, need to be qualified in at least four (4) respects.

Firstly, **because the decline in longevity potential is so rapid, there will**

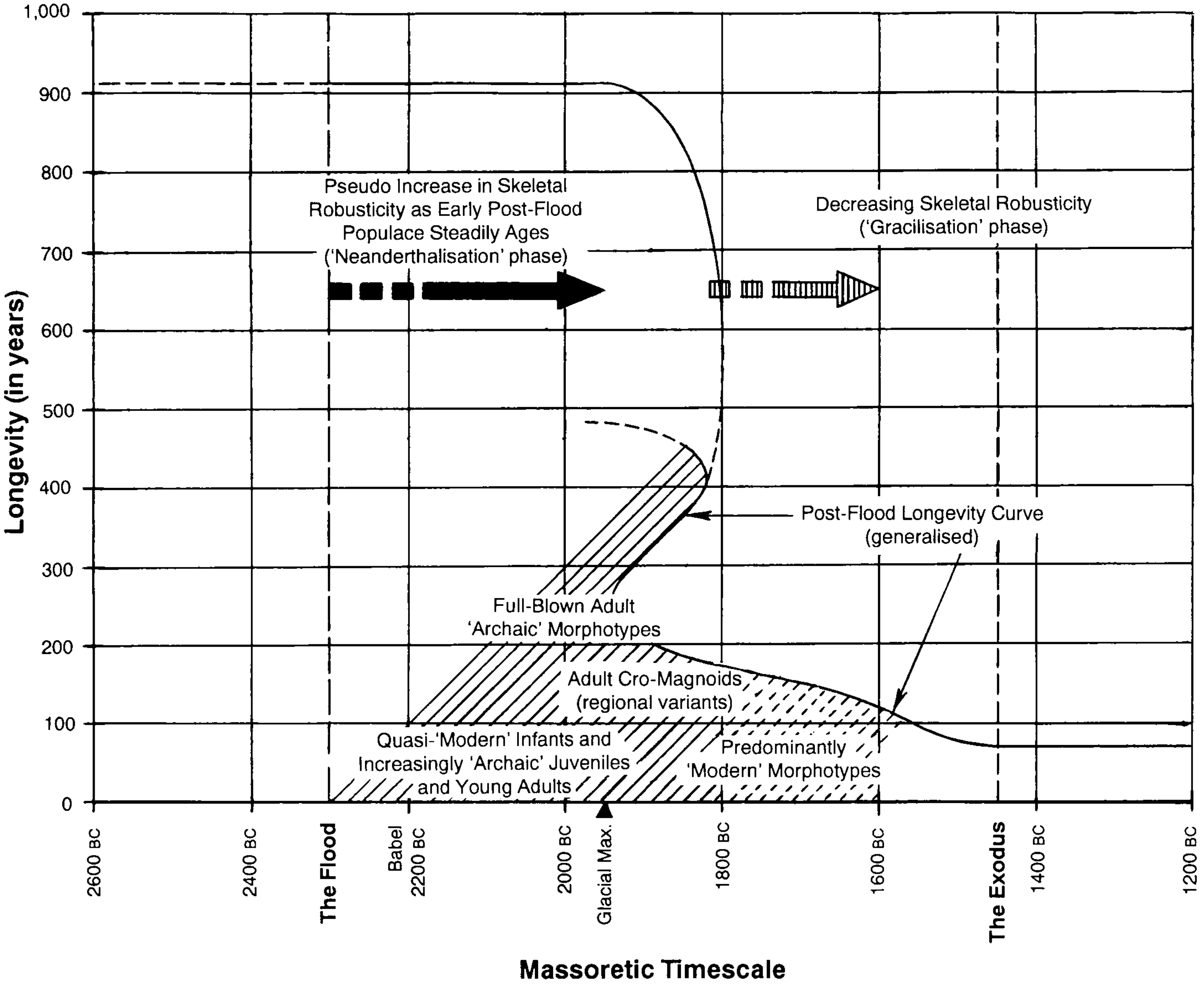

Figure 12. *For a short time after the Flood, the human populace would have comprised relatively young individuals of great longevity potential. Although of quasi-'modern' appearance during infancy, these individuals would quickly assume a more robust and 'archaic' morphology during adolescence and early childhood. The general decline in post-Flood longevity would, however, eventually manifest itself in* a *predominance of more 'gracile'/quasi- 'modern' morphotypes (for example, the various Cro-Magnoid races) towards the close of the Ice Age.*

be a consequent overlap and blurring of morphotypes. Such overlapping and blurring of morphotypic boundaries is in evidence at such sites as: Atapuerca, Krapina, Arago, Saccapastore, Spy, Vindija, La Ferrassie, Velika Pecina, Predmost and Les Eyzies in Europe; Tabūn, Skhūl, Qafzeh and Shanidar in the Near East, and Omo and Jebel Irhoud in Africa.

Secondly, because there will be a short period of approximately 500 years between the initial genetic bottleneck (the Flood) and the point at which maximum post-Flood longevity is realised, **the period immediately following the first genetic bottleneck will be one in which there is a predominance of infants, juveniles and young adults** in the sample (such as is the case at Tabūn, Qafzeh and Skhūl, and Krapina).

Thirdly, the hyperostotic state (that is, thickened bones) observed in many adult 'archaic' humans will show up some time after the commencement of the Stone Age; when the post-Flood/post-Babel populace begins to age and the consequences of prolonged periosteal apposition begin to take effect. This **pseudo increase in skeletal robusticity** is described in the earlier paper[484] as the 'neanderthalisation' phase. Nevertheless, the overall trend with the passage of time will eventually be from a more-robust to gracile condition **in mature adults**; what was loosely referred to as the 'gracilisation' phase in the earlier paper.[485]

Finally, **if rapid changes in climatic regime were the order of the day, we might anticipate significant changes in skeletal morphology in the space of a few generations**. For instance, if the proto-Cro-Magnoids from Qafzeh and Skhūl were (indeed) amongst the earliest occupants of the Levant — having migrated there from Babel (a distance of less than 400 kilometres) shortly after the confusion of tongues — we might anticipate variations in their femoral neck-shaft angles (in line with changes in longevity potential) and also their brachial/crural indices (reflecting climatic cooling during the onset phase of the post-Flood Ice Age). Most of the Near Eastern neanderthals, on the other hand, seem to have matured under generally colder climatic conditions; either within the Levant about the time of glacial maximum or in a more remote location further to the north prior to being driven south as the Ice Age intensified.

We have already noted that hyperostosis is a characteristic trait of many early African and Asian archaic *Homo sapiens*.[486] The same trait is also to be found in the various regional variants of *Homo erectus*.[487] Indeed, the hyperostotic condition was, for some time, considered a diagnostic trait that separated *erectus* from other archaic humans. This is no longer deemed to be the case, for as Kennedy has conceded:

> *'Strict application of phylogenetic systematics using vault thickness would thus make the outgroups, the australopithecines and am*Hs *sister groups* ***while linking*** **H. erectus,** ***the neandertals and "archaic*** **Homo sapiens".'**[488]

Whilst not wishing to suggest for one minute that a phylogenetic relationship exists between anatomically-modern *Homo sapiens* and australopithecines, the hyperostotic state is common to *Homo erectus*, the neanderthals and archaic *Homo sapiens* (generally). **However, rather than imputing a linear evolutionary relationship between these three groups of fossil humans, the condition would simply reflect prolonged periosteal apposition during adult life.** Indeed, the condition may have manifested itself to a degree[489] in infants and to a greater degree in juveniles by virtue of an extended period of skeletal maturation.

Under the model proposed in this paper ***all*** **of the 'archaic' forms of** ***Homo sapiens*** **would have a place in mankind's ancestry; that is to say,** ***all*** **were potentially long-lived** ***Homo sapiens***.

Of course, the model breaks with traditional linear views of evolutionary origins; views which advocate a gradual progression from *Homo erectus* (be it one or multi-regional variants) to archaic *Homo sapiens* to *Homo sapiens neanderthalensis*, and, finally, anatomically-modern Homo *sapiens*. According to the model all three 'robust' morphotypes could have existed more or less contemporaneously. Indeed, the persistence of *erectus* traits in relatively recent Australian samples of archaic fossil humans may well infer that the Asian variants of *erectus* (at least) occurred slightly later in time than the various archaic forms of *Homo sapiens* from the Near East (including *neanderthalensis* and the proto-Cro-Magnoids).

An important issue still remaining to be addressed is the identification of the ranges of longevity potentials applicable to the various archaic morphotypes. We have already suggested that dispersion from Babel was the catalyst for a short period of cultural degeneration — a period denoted by transformists as the 'Stone Age'. This period of immense social upheaval lasted, according to our model, between 100 and 350 years; the variable durations being dependent upon prevailing climatic, geographic (latitudinal), ecological and social factors. As such, the Stone Age concluded within 200 to 450 years of the Flood year. The model also proposes that a single, post-Flood Ice Age was constrained to 450 or so years, with glacial maximum occurring approximately 350 years after the Flood.

Most (but possibly not all) archaic morphotypes appear to have been constrained to this same 450 year period. Nevertheless, we also recognise the possibility that **a shorter duration in the Near East and Northern Africa would push some archaic humans into historical times** (more on this shortly).

According to the biblical record the oldest post-Flood patriarchs — Arpachshad, Shelah and Eber — all died within 550 years of the Flood. Each lived in excess of 450 years. These same individuals would have been quite young — relatively speaking — at the time of the dispersion from Babel. Given the severity of the bottleneck at the time of the Flood (eight survivors only), the likelihood of recovering the skeletal remains of these patriarchs (or their contemporaries) seems remote. Furthermore, assuming that the total human population alive at the time of the confusion of tongues was probably several thousand individuals at most (see Table 1) and given the nature of the dispersion,[490] we will assume that the archaic human remains recovered to date *do not* derive from the first three post-Flood generations.

The probability of recovery of skeletal remains would, however, improve with the passage of time — as proto-national tribes increased in population. Nevertheless, even this statement needs to be qualified in several respects. Firstly, dispersion presupposes that tribal numbers were relatively small at the outset. Secondly, even before the age threshold between 'gracile' archaics and 'modern' morphotypes is reached, the former will be swamped, numerically, by the latter. Thirdly, we have no way of knowing whether the longevity curve for the Near East (as depicted in Figure 1) was representative of humanity as a whole. Indeed, as we shall see shortly, it may well have been exceptional. Fourthly, not all individuals would have reached their full longevity potential. In a world beset by extreme social, ecological, geological and climatic stresses, it is conceivable that many individuals would have died before reaching maturity or old age. Nevertheless, their longevity potential, coupled with a prolonged maturation period, would ensure an early manifestation of incipient 'archaic' traits.

By the time of the Exodus — some 850 or so years after the Flood — lifespans in excess of a hundred years were already exceptional (in the nation of Israel, at least). The final and decelerating decline towards today's ensconced values of 70 to 80 years seems to have commenced c. 300 years after the Flood (see Figure 13). It is about this time that we note that Abraham's grandfather, Nahor, died at the relatively young age of 148 years.[491] Indeed, whilst Abraham lived to the ripe old age of 175 years and his son of the covenant (Isaac) to 180, his first wife, Sarah, lived only 127 years and his firstborn son (by Hagar the Egyptian), Ishmael, 137 years. Furthermore, Joseph — who preceded Moses and Aaron by only two centuries — lived to only 110 years of age.[492] Thus, by the time of Israel's period of oppression in Egypt, it would appear that longevity had likely dipped to 100 or even less years (see Figure 13). It is, therefore, suggested that very few 'archaic' morphotypes would post-date 1900 BC and these would, in the main, be borderline anatomically-modern *Homo sapiens.*

At glacial maximum, life expectancy would have dropped to between 360 and 140 years, and by the close of the Ice

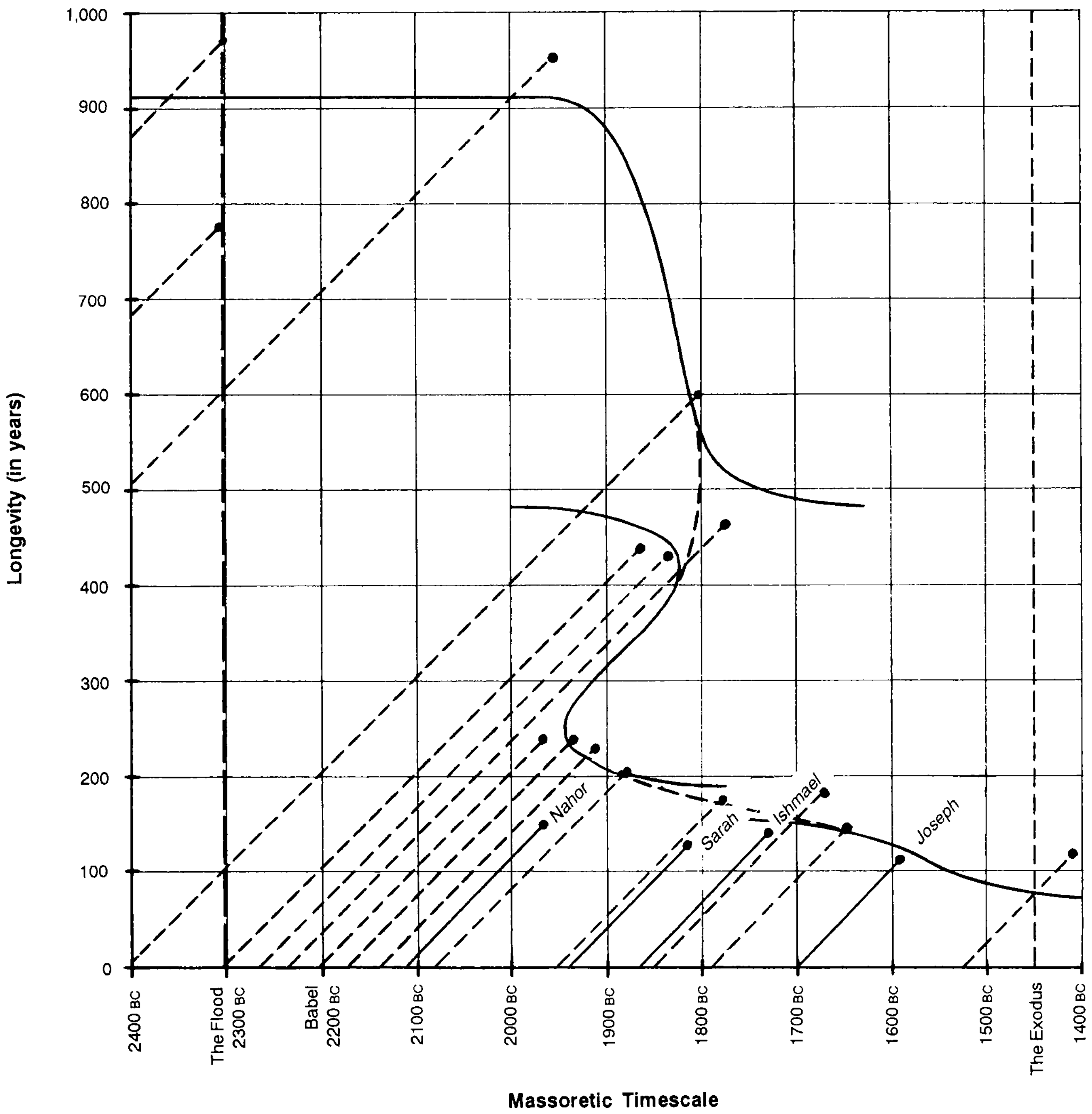

Figure 13. *The lifespans of Nahor, Sarah, Ishmael and Joseph raise the possibility that the lifespans of the Messianic patriarchs may have been exceptional. If this were so, the post-Flood drop-off in longevity may have been more rapid than first envisaged.*

Age — a mere 450 years after the Flood — to between 200 and 130 years. Accordingly, the more-archaic morphotypes — such as adult classic neanderthals, archaic Homo *sapiens* and (perhaps) some specimens of *Homo erectus* — would tend to cluster towards the higher end of the longevity scale, with a longevity potential between, say, 175 and 300 years; those approaching the anatomically-modern condition, between, say, 125 and 175 years.

Following glacial maximum, the early 'modern' morphotype (such as the Cro-Magnoids) would begin to predominate — as the upper end of longevity potential dipped below 200 years and the more-archaic and robust morphotypes were swamped, numerically, by more-gracile humans. The 'modern' morphotype would predominate shortly thereafter; that is to say, between 500 and 700 years after the Flood.

Summarising, then, we would expect the more-robust morphotypes to disappear early in the deglaciation phase of the Ice Age. Given that humanity had already been subjected to at least two, and possibly three, genetic bottlenecks by this time, lifespans for many would already be fast approaching present-day expectations. Thus, we would not expect archaic morphotypes to persist more than a century or so beyond the close of the Ice Age.

It is interesting to note that discreet racial characteristics remain muted for a time; only becoming clearer in Late Palaeolithic fossils (when greater longevity potential is well and truly on the wane). For instance, notation was made earlier of the emergence of distinctive (Negroidal and Bushmen) racial traits in African fossils deriving from the Late Palaeolithic. Elsewhere, we noted the affinities between living and fossil populations of Australoids. In Western Europe analogies have been drawn between the French Cro-Magnoids and modern-day populations of the Dordogne and earlier populations on the Canary Islands (the Guanches).[493] In China the inhabitants of the so-called 'Upper Cave' at Choukoutien have been described by Wolpoff as resembling a male proto-Mongoloid and females of Eskimoid and Melanesoid appearance.[494] Ju-Kang, on the other hand, has suggested that these same remains represent

> '. . . *the primitive Yellow Race and* ha[ve] *the closest affinity with the Chinese, Eskimo and American Indians* ',[495]

whilst Stringer and Gamble suggest that they

> '. . . *do not look like intermediates between ancient and modern Chinese. Instead, they look more like the Cro-Magnons.* '[496]

The possibility that the proto-Mongoloid male is, in fact, a Western Cro-Magnoid cannot be ruled out, either, for there is mounting evidence of a Japhetic influence in Asia in the remote past.[497,498] On the other hand, we could simply be dealing with a 'Cro-Magnoid' phase in the case of early Chinese, Eskimos and Melanesians or North American Indians.

In any case, the rapidity with which racial diversification has taken place (geologically speaking) serves as a pointer to a recent explosion ('rebirth') of the human population[499] and the reality of severe genetic bottlenecks in the recent past.[500] The reality of short timeframes for racial diversification is slowly coming home to advocates of transformist theory. For instance, Stringer and Gamble[501] have recently stated that:

> '*If these* [Upper Cave] *remains do represent early Mongoloids, then most of the distinctive modern Mongoloid features must have evolved during the last 25,000 years.* ***This is a far shorter timescale than is generally believed, but it is not an impossible one.*** '

Before concluding, we must also address the issue of the absence *of Homo erectus* in Early and Middle Palaeolothic deposits in the Middle East and adjacent areas. If, as we have indicated above, the *erectus* morphotype occurred slightly later than other forms of archaic *Homo sapiens,* then it would have to post-date the appearance of the Near Eastern proto-Cro-Magnoids and neanderthals. However, in post-dating these morphotypes, the *erectus* morphology would possibly be pushed into historical times — remembering that our model posits a shorter 'Stone Age' in the Middle East. In this respect, it is significant that a number of skulls from the PPNB level at Jericho exhibit strong morphological affinities with *Homo erectus,* including prominent brow-ridges, post-orbital constriction and sagittal cresting.[502]

CONCLUSIONS

In the earlier paper on archaic human remains the present writer devised a model for interpreting human fossils within a biblical framework of early post-Flood history. This model assumed that the human population was reduced to eight persons following a recent and global Flood. The re-establishment of the human populace commenced (initially) from eastern Turkey. A dramatic dispersal took place a century or so later, from the region of Mesopotamia. Concurrent with these events was a brief, but intense, post-Flood Ice Age and a dramatic decline in human longevity. It was then argued that it was this decline in longevity that is reflected in the morphotypic variation we observe in 'archaic' human remains.

In the same paper we cited a number of possible anatomical evidences for prolonged ontogeny and greater longevity. This list has now been augmented with changes in the femoral neck-shaft angle, pelvic modifications, thickening of the bones of the axial skeleton, and the rotation of nasal bones. Several other traits, including the deformation of the bones of the foot, also suggest sustained and prolonged periods of physical activity.

The exaggerated nature of such characteristics and their subsequent moderation or disappearance in relatively recent populations points to a decline in human longevity (potential and actual) in the not too distant past. As such, these traits do not exemplify a slow and gradual (upward) evolution of mankind from a primitive ancestor, but, rather, **a rapid physical degeneration in the centuries immediately**

following the biblical Flood.

Several additional hominid sites (including Atapuerca and Velika Pecina) have been cited as yielding a variety of differing morphotypes. Had they been found at different sites or in different strata at the one site, they would likely have been consigned to different taxa. Their contemporaneity may well infer close kinship (in spite of the morphological differences), in which case they serve to highlight the rapid changes in longevity potential that took place after the biblical Flood.

The blurring of morphotypic boundaries between the various forms of archaic humans provides an opportunity for reappraisal in the light of a rapid, post-Flood dispersion from Babel; a dispersion which coincided with this period of greater longevity potential and deferred skeletal maturation.

The divergent dates assigned to various archaic human fossils and the persistence with the belief in multiple Ice Ages and interglacials will continue to be a major obstacle in the interpretation of archaic fossil human remains. Nevertheless, the compression of the 'Stone Age' into a period of a few hundred years and in the recent past is consistent with the relatively small number of human fossils recovered to date.

Whilst the recent development of a laser mass-spectrometric method of dating fossils bodes well for correcting the grossly inflated ages of archaic humans, the relatively short duration of the period of greater longevity may pose severe limitations in establishing a precise ordering of the fossil morphotypes — both in a relative and absolute sense.

The generally taller stature, skeletal robustness and pronounced musculature development of the various archaic morphotypes points to a physically superior ancestry in the recent past.

That regional variants of the basic morphotypes are to be found in Africa, Europe, Asia and the Australian mainland points to a common process of skeletal gracilisation acting throughout the Old World. The contemporaneity of many of these morphotypes and the blurring of morphotypic boundaries, generally, raises serious questions concerning the veracity of the conventional dates ascribed to these remains. At the same time, the overlapping of different morphotypes testifies to the fact that the gracilisation process was rapid and that the so-called Stone Age was of relatively short duration; that is to say, the Stone Age was of hundreds, rather than thousands or millions, of years in duration. The paucity of archaic skeletal remains reinforces this observation. Perceived changes in stature and variations in the brachial and crural indices of individual members of Near Eastern neanderthal and proto-Cro-Magnoid communities point to maturation under differing climatic conditions. Such differences also accord well with a creationist model involving a short, but intense, post-Flood Ice Age and generally greater longevity early in the post-Flood epoch.

Finally, distinctive racial characteristics only emerge after greater longevity potential dissipates; that is to say, they become more apparent as the gracilisation process proceeds.

In conclusion, the present writer believes that there is an urgent need to revert back to the biblical paradigm so far as human origins are concerned.

ACKNOWLEDGEMENTS

The writer wishes to express his thanks to Dr Carl Wieland for his constructive criticism of earlier drafts of the above paper and to Dr Andrew Snelling for his continued support and encouragement during the development of the model.

REFERENCES

1. Beasley, G. J., 1992. A possible creationist interpretation of archaic fossil human remains. CEN Tech. J., 6(2):138-167.
2. Hilton, J., 1933. Lost Horizon, Pan Books Ltd, London (1973 Printing), p. 60.
3. Trinkaus, E. and Shipman, P., 1992. The Neanderthals: of Skeletons, Scientists and Scandal, Vintage Books, New York (1994 Edition), p. 340.
4. Stringer, C. and Gamble, C., 1993. In Search of the Neanderthals: Solving the Puzzle of Human Origins, Thames and Hudson Ltd, London, p. 88, 93-94.
5. Cuozzo, J. W., 1994. Neanderthal children's fossils: reconstruction and interpretation distorted by assumptions. CEN Tech. J., 8(2):166, 177—178.
6. Beasley, Ref. 1, pp. 155-157.
7. Beasley, Ref. 1.
8. Beasley, Ref. 1, pp. 150–157.
9. Houston, C. S. and Zaleski, W. A., 1967. The shape of vertebral bodies and femoral necks in relation to activity. Radiology, 89:59-66.
10. Hrdlička, A., 1936. Growth during adult life. Proceedings of the American Philosophical Society, 76:847-897.
11. Israel, H., 1973. Age factor and the pattern of change in craniofacial structures. American Journal of Physical Anthropology, 39:111-128.
12. Lazenby, R. A., 1990. Continuing periosteal apposition — 1: documentation, hypotheses, and interpretation. American Journal of Physical Anthropology, 82:451-472.
13. Warwick, R. and Williams, P. L. (eds), 1973. Gray's Anatomy — 35th British Edition, W. B. Saunders Company, Philadelphia, pp. 284, 312 and 1236.
14. Leaf, A., 1973. Every day is a gift when you are over 100. National Geographic, 143(1):92–119.
15. Anonymous, 1961. Britain's oldest man. *In:* Book of Mankind, Collins, Melbourne, p. 94.
16. Leaf, Ref. 14, p. 104.
17. Leaf, Ref. 14, p. 118 (Figure and supporting text).
18. Brown, F., Harris, J., Leakey, R. and Walker A., 1985. Early *Homo erectus* skeleton from west Lake Turkana, Kenya. Nature, 316:788-792.
   This paper subsequently became the catalyst for a number of reappraisals of the stature of *Homo erectus.* Some of these reappraisals are dealt with in the present paper.
19. Johanson, D. C., Masao, F. T., Eck, G. G., White, T. D., Walter, R. C., Kimbel, W. H., Asfaw, B., Manega, P., Ndessokia, P. and Suwa, G., 1987. New partial skeleton of *Homo habilis* from Olduvai Gorge, Tanzania. Nature, 327:187-188.
   The discovery of OH 62 raised a number of issues concerning the relationship between *Homo habilis and Homo erectus.* This diminutive adult hominid bore striking resemblances to Johanson's earlier discovery, 'Lucy' *(Australopithecus afarensis).* Its assigned age (1.8 million years bp) and estimated height (less than 1.067 metres) posed immense problems for evolutionists, given Leakey's discovery of a 1.6 million-year-old, 1.680 metre tall juvenile *Homo erectus* a year earlier. Previously, it had been

predicted that *Homo habilis* would fall midway between *afarensis* and *Homo erectus* in terms of stature. This sudden 'spurt' in stature pleased advocates of the controversial punctuated equilibria theory, caused great pain to advocates of the multi-regional hypothesis, and still begs the question of whether the two fossils were ever related to one another.

20. Valladas, H., Reyss, J. L, Joron, J. L., Valladas, G., Bar-Yosef, O. and Vandermeersch, B., 1988. Thermoluminescence dating of Mousterian 'Proto-Cro-Magnon' remains from Israel and the origins of modern man. Nature, 331:565-566.

    This paper presented geochronometric data which suggested that near 'modern' forms of fossil humans (the so-called Proto-Cro-Magnoids) had inhabited the Near East before 'more-archaic' neanderthal types. This posed somewhat of a dilemma to advocates of the traditional transformist (' linear') view of human origins. The situation has been retrieved, somewhat, with revised datings for the neanderthal remains at Tabūn.

21. Arensburg, B., Tillier, A. M., Vandermeersch, B., Duday, H., Schepartz, L. A. and Rak, Y., 1989. A Middle Palaeolithic human hyoid bone. Nature, 338:758-760.

    This paper recounted the discovery of a fossilised hyoid bone of neanderthal extraction. The bone is identical to those found in modern-day human populations and indicates that neanderthals possessed a 'fully-developed' speech-making capacity. Palaeoanthropologists had previously thought it unlikely that neanderthals would have possessed such an ability.

22. Stringer, C. B. and Grim, R., 1991. Time for the last neanderthals. Nature, 351:701-702.

    This paper summarised geochronometrical data from various sites throughout the Old World. The data suggested that neanderthals and essentially 'modern' humans were coeval in the Middle East for a period of at least 65,000 years and raised further questions concerning the fate of the neanderthals and whether they were specifically distinct from ' modern' man *(Homo sapiens).*

23. Andrews, P. and Stringer, C., 1993. The primate's progress. *In:* The Book of Life, S. J. Gould (ed.), Random House, Sydney, Australia, p. 251.

    This paper addresses some of the implications arising from the discoveries described in references 18 and 19 (above) and the relationship between stature and climatological factors. Comparisons are drawn between the Inuit and neanderthals, on the one hand, and the Nariokotome Homo *erectus* boy and modern-day Masai.

24. Gibbons, A., 1993. Pleistocene population explosions. Science, 262:27-28.

    This paper describes a controversial method used to estimate the approximate times of growth spurts in prehistoric populations. The results of the studies (by Harpending et al.; see Ref. 190) indicate that expansions occurred in a significant number of separate population groupings between 80,000 and 30,000 years ago — with Africans expanding about 80,000 years ago and Europeans about 40,000 years ago. In a dozen other population groups the bursts appeared to have occurred about 50,000 years ago (p. 28).

    The results challenge the popular Out-of-Africa hypothesis.

25. Lambert, D., 1987. The Cambridge Guide to Prehistoric Man, Cambridge University Press, Cambridge, p. 85.
26. Bunney, S., 1994. Most ancient human came from Afar. New Scientist, 143 (1945):16.
27. Lubenow, M. L., 1992. Bones of Contention: A Creationist Assessment of Human Fossils, Baker Book House, Grand Rapids, Michigan, pp. 79, 122-123.
28. Tianyuan, L. and Etler, D. A., 1992. New Middle Pleistocene hominid crania from Yunxian in China. Nature, 357:404–407.
29. Arsuaga, J.-L., Martinez, I., Gracia, A., Carretero, J.-M. and Carbonell, E., 1993. Three new human skulls from the Sima de los Huesos Middle Pleistocene site in Sierra de Atapuerca, Spain. Nature, 362:534-537.
30. Eijgenraam, F., 1993. 'Java Man' gains (and loses) a consort. Science, 261:297.
31. Dorozynski, A., 1993. Possible Neanderthal ancestor found. Science, 262:991.
32. Roberts, M. B., Stringer, C. B. and Parfitt, S. A., 1994. A hominid tibia from Middle Pleistocene sediments at Boxgrove, U.K. Nature, 369:311-313.
33. Anonymous, 1994. Old human bones found in Spain. Science, 265:735.
34. Lubenow, Ref. 27, pp. 79, 122-123.
35. Lubenow, Ref. 27, p. 67.
36. Lubenow, Ref. 27, pp. 67, 180.
37. Wolpoff, M. H., 1980. Paleoanthropology, Alfred A. Knopf Inc., New York, pp. 319-346.
38. Lasker, G. W. and Tyzzer, R. N., 1982. Physical Anthropology — Third Edition, Holt, Rinehart and Winston Inc., Orlando, Florida, pp. 387-389 (Tables 16-3 and 16-4).

39 Lubenow, Ref. 27, p. 121.

40. Lubenow, Ref. 27, p. 29.

    This figure was derived from a personal count of fossil remains tabulated in the three-volume Catalogue of Fossil Hominids, published by the British Museum (Natural History) between the years 1971 and 1977.

41. Lubenow, M. L., 1994. Human fossils. Creation Research Society Quarterly, 31(2):70.
42. Humphreys, D. R., 1991. Evidence for a young world. Creation Ex Nihilo, 13(3):31.
43. Deevey, E. S., 1960. The human population. Scientific American, 203(3):194-204.
44. Dritt, J. O., 1990. Man's earliest beginnings:discrepancies inthe evolutionary timetable. *In:* Proceedings of the Second International Conference on Creationism, R. E. Walsh and C. L. Brooks (eds), Creation Science Fellowship, Pittsburgh, Vol. 1, pp. 73-78.
45. Humphreys, Ref. 42.
46. Laitman, J. T., 1988. Australia. *In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, pp. 65-67.
47. Two possible exceptions to this rule involve the Shanidar and Krapina hominids. However, the stratigraphic sequences belie other serious problems (specifically relating to the morphological diversity amongst the hominid populations).
48. Stringer and Gamble, Ref. 4, p. 98.
49. Stringer, C. B., 1988. Qafzeh. *In :* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 489.
50. Trinkaus and Shipman, Ref. 3, pp. 376-379.
51. Gowlett, J., 1984. Ascent to Civilization: The Archaeology of Early Man, Collins, London, pp. 114-115.
52. Howells, W. F., 1945. Mankind So Far, Doubleday Doran, New York, p. 202.

    With reference to theSkhūl hominids, Howells staled: *'There seem[ed] to have been a single tribe ranging from almost Neanderthal to almost* sapiens.'

53. Stringer, C. B., 1988. Tabūn. *In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 561.

    Stringer describes theTabūn 1 female as being '. . . *clearly of Neanderthal type.* ' However, the same site also yielded remains from a second individual (Tabūn 2), comprising a large, presumably male, mandible of more-modern affinity. He states:

    '. . . *it displays a slight chin* [in contrast to Tabūn 1] *and only small retromolar spaces. Its status and classification are less clear than those of Tabūn 1.'*

54. Wolpoff, Ref. 37, pp. 275-276.

    Concerning the frontal bones of the Krapina sample, Wolpoff notes that:

    'The large sample of supraorbital fragments gives evidence of an average reduction in brow ridge thickness compared with the earliest European Homo sapiens *sample. It also reveals variation in both the size and morphology of the region; some specimens have virtually no torus at all.'*

    He then goes on to state:

    '. . . *while the best-preserved Krapina crania show some degree of variation, the isolated fragments suggest that the actual cranial variation was far greater than these few specimens indicated.'*

    The specimens to which he is alluding are Craniums C, D and E. Skulls C and E are regarded as belonging to females; yet skull C is said to have possessed brow-ridges which were amongst the thickest at the site. By way of comparison, the male D cranium is said to have featured brow-ridges of only moderate thickness and projection. Such observations do not conform with anticipated variances based on sexual dimorphism.

55. Trinkaus and Shipman, Ref. 3, p. 361.

    Referring to several crania from the Omo-Kibish region of Ethiopia, the authors state:

'These were puzzling and enigmatic fossils, for the [Omo 1 and 2] *skulls showed different morphology. Omo 2 displays a mix of archaic and modern features, while Omo 1 is anatomically modern, if robust. . . . If they were even approximately contemporaneous, then two hypotheses can he entertained. There could have been two very distinct populations present in Ethiopia, one archaic and one modern, or perhaps there was a single population with an unusual degree of variability of cranial shape.'*

56. Wolpoff, Ref. 37, p. 344.

    Describing the four relatively complete fossil crania from Cro-Magnon (France) Wolpoff states:

    'Cranium 1, often called "the old man ", is high and well rounded, with a rather bulging forehead and little browridge development. In contrast, the cranium 3 forehead is lower and the browridge better developed. The occipital region of cranium 3 is remarkably Neandertal-like, with a prominent bun and cranial flattening above it. The endocast of this cranium also appears to resemble the Neandertals in size and proportions. Cranium 3 is not a Neandertal but his features confirm the mix of typically Neandertal characteristics in more modern populations. '

    However, Wolpoff then goes on to describe the fourth cranium. He states that:

    'Cranium 4 has even more pronounced browridges and extraordinary development of spongy bone at the cranial base, the nuchal muscle attachment area, and the mastoids features typical of neanderthals.

57. Trinkaus and Shipman, Ref. 3, p. 224.

    Concerning the Kabwe (or Rhodesian Man) skeletal remains Trinkaus and Shipman write:

    'In many ways it [the Broken Hill skull] *resembled the Neandertal cranium from Gibraltar or the La Chapelle-aux-Saints skull. Some postcranial bones—three broken femurs, a tibia, two pieces of pelvis, and a sacrum — were recovered as well, and some were assumed to represent the same individual. These bones are disconcerting in appearance. Some resemble those of Neandertals, some are even more archaic than Neandertal bones, and others appear to be rather modern. '*

58. Stringer, C. B., 1988. *Homo sapiens. In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 272.

    Describing two of the more-robust hominid crania from Predmosti (Czechoslovakia), Stringer states:

    'Predmosti 3 . . . even shows Neanderthal-like characteristics in the face, suggesting the possibility of gene flow from late Neanderthal populations.'

59. Anonymous, 1982. Frankfurter Allgemeine Zeitung, Issue No. 289 (dated 14.12.82), p. 23.

    In 1961 the fossilised remains of a frontal bone were recovered from the Upper Palaeolithic site of Velika Pecina (near Zagreb, Yugoslavia). The supraorbital region of this bone was essentially of 'modern' form. Since then the site has revealed more skull fragments — some of which are also of 'modern' form, whilst others are of 'neanderthaloid' appearance.

60. Genesis 10:25.
61. Beasley, G. J., 1990. Pre-Flood giantism: a key to the interpretation of fossil hominids and hominoids. CEN Tech. J., 4:20.
62. Courville, D. A., 1971. The Exodus Problem and its Ramifications, Challenge Books, Loma Linda, California, pp. 100-104.
63. Lambert, Ref. 25, p. 104.

    Lambert states:

    'Different Neolithic cultures sprouted, independently it seems, at different times and places. Farming first became widespread around 10,000 years ago in and near the so-called Fertile Crescent that runs from Egypt through South-west Asia to the Persian Gulf. '

    He then goes on to add that:

    'Beginning about 7,000 years ago the Chinese produced such crops as millet, rice, soybeans, taro and yams. By 5,000 years Mesoamerica (southern Mexico, Guatemala and Honduras) was a third great farming nucleus, with maize, beans, squash and cotton. '

64. Gowlett, Ref. 51, pp. 158, 159.
65. Stringer and Gamble, Ref. 4, p. 96.

    Stringer and Gamble state:

    'The Middle East has clearly been of great importance during the last 10,000 years in the early development of agriculture, pastoralism and other cornerstones of western civilization such as writing. '

66. Stringer and Gamble, Ref. 4, pp. 56-57, 144-145.
67. Ivanhoe, F., 1970. Was Virchow right about Neanderthal? Nature, 227:578.

    Ivanhoe noted that there was very little evidence at most Mousterian archaeological sites of the consumption of fish. The diet appeared to be predominantly meat-based.

68. Genesis 9:3.
69. Gowlett, Ref. 51, pp. 126-127.
70. Rigaud, J.-P., 1988. Art treasures from the Ice Age Lascaux Cave. National Geographic, 174(4):482-499.
71. Gowlett, Ref. 51, pp. 120-121, 125, 128-129.
72. Putman, J. J., 1988. The search for modern humans. National Geographic, 174(4):440-445, 448-459, 467, 472.
73. Gowlett, Ref. 51, pp. 132-133.

    Gowlett interprets the refinement of hunting implements in terms of increasing skill. The present writer would suggest that it is more related to moderating climate, increased leisure time and ready availability of food supplies.

74. Osgood, A. J. M., 1986. A better model for the Stone Age. EN Tech., 2:91, 94.
75. Lloyd, S., 1984. The Archaeology of Mesopotamia (Revised Edition), Thames and Hudson Ltd, London, pp. 21-25.
76. Stringer and Gamble, Ref. 4, p. 96.

    Stringer and Gamble state:

    'The Middle East . . . has been of similar importance in the story of human evolution for the last million years, being the crossroads between three continents and faunal provinces. As Homo erectus *spread out of Africa over one million years ago, the Middle East would have been on the migration routes to Asia and Europe The story of human evolution in the Middle East is* [however] *very murky until about 150,000 years ago.'*

    It is then that we are confronted with the enigmatic Zuttiyeh skull.

77. Kramer, C. and Delson, E., 1988. Near East. *In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 373 (Figure).
78. Stringer and Gamble, Ref. 4, p. 96.
79. Wolpoff, Ref. 37, p. 264.
80. Bräuer, G., 1989. The evolution of modern humans: a comparison of the African and non-African evidence. *In:* The Human Revolution: Behavioural and Biological Perspectives in the Origins of Modern Humans, P. Mellars and C. Stringer (eds), Princeton University Press, p. 125 (Figure 8.2).
81. Stringer, C. B., 1992. Evolution of early humans. *In:* The Cambridge Encyclopedia of Human Evolution, S. Jones, R. D. Martin and D. R. Pilbeam (eds), Cambridge University Press, Cambridge, p. 246 (Figure).
82. Lasker and Tyzzer, Ref. 38, p. 376 (Table 16-2).
83. Stringer and Gamble, Ref. 4, p. 96.
84. Bräuer, Ref. 80, p. 141.
85. Vandermeersch, B., 1982. The first *Homo sapiens sapiens* in the Near East. *In:* The Transition from Lower to Middle Palaeolithic and the Origin of Man, A. Ronan (ed.), Oxford: British Archaeological Reports International Series S151, p. 298.
86. Vandermeersch, B., 1989. The evolution of modern humans: recent evidence from Southwest Asia. *In:* The Cambridge Encyclopedia of Human Evolution, S. Jones, R. D. Martin and D. R. Pilbeam (eds), Cambridge University Press, Cambridge, p. 162.
87. Bräuer, Ref. 80, p. 141.
88. Stringer, C. B. and Trinkaus, E., 1981. The Shanidar neanderthal crania. *In :* Aspects of Human Evolution — Symposia of the Society for the Study of Human Biology, Volume XXI, C. B. Stringer (ed.), Taylor and Francis Ltd, London, pp. 130 (Table 1), 161.
89. Shackley, M., 1983. Wildmen: Yeti, Sasquatch and the Neanderthal Enigma, Thames and Hudson, London, p. 156.
90. Stringer, Ref. 53.
91. Lambert, Ref. 25, p. 142.
92. Lambert, Ref. 25, pp. 142, 143 (Figure 2).
93. Stewart, T. D., 1960. Form of the pubic bone in Neanderthal man. Science, 131:1437-1438.
94. Lambert, Ref. 25, p. 142.

95. Lasker and Tyzzer, Ref. 38, p. 367.
96. Quoted by Trinkaus and Shipman, Ref. 3, p. 248.
97. The Pictorial Encyclopaedia of the Evolution of Man (1975 edition), Hamlyn, London, p. 105.
98. Stringer, Ref. 53 and quote.
99. Lambert, Ref. 25, p. 142.
100. Stringer and Gamble, Ref. 4, p. 101.
101. Arensburg, B., 1989. New skeletal evidence concerning the anatomy of Middle Palaeolithic populations in the Middle East: the Kebara skeleton. *In:* The Human Revolution: Behavioural and Biological Perspectives in the Origins of Modern Humans, P. Mellars and C. Stringer (eds), Princeton University Press, p. 170.
102. Arensburg, Ref. 101.
103. Arensburg, Ref. 101.
104. Stringer and Gamble, Ref. 4, p. 99.
105. Arensburg, Ref. 101.
106. Stringer and Gamble, Ref. 4, p. 100.
The authors describe the Kebara mandible as one of the most massive human jaws known. In this respect the mandible is reminiscent of many of the robust mandibles attributed to the taxon *Homo erectus.*
107. Wolpoff, Ref. 37, pp. 266, 267 (Figure 11.4).
108. Bower, B., 1994. Neandertal tot enters the human-origins debate. Science News, 145(1):5.
109. Bunney, S., 1994. Neanderthal baby was 'buried'. New Scientist, 142(1928):15.
110. Bunney, Ref. 109.
111. Stringer and Gamble, Ref. 4, p. 101.
112. Stringer and Gamble, Ref. 4, p. 101.
113. Trinkaus, E., 1981. Neanderthal limb proportions and cold adaption. *In:* Aspects of Human Evolution — Symposia of the Society for the Study of Human Biology, Volume **XXI,** C. B. Stringer (ed.), Taylor and Francis Ltd, London, pp. 190-191 (Table 1).
114. Trinkaus, Ref. 113, pp. 194-195 (Table 2).
115. Trinkaus, Ref. 113, pp. 194-195 (Table 2).
116. Dzaparidze, V. *et al.*, 1989. Der altpaläolithische Fundplatz in Georgien (Kaukasus). Jahrbuch des Römish-Germanischen Zentralmuseums Mainz, 36:67-116.
117. Shipman, P., 1992. Human ancestor's early steps out of Africa. New Scientist, 133 (1806): 16.
118. Stringer and Gamble, Ref. 4, p. 64.
119. Bower, B., 1991. Neandertals' disappearing act. Science News, 139(23):361.
Bower, referring to the ideas of Bar-Yosef and Shea, states that:
'*. . . neandertals subsisted mainly on fruits, nuts and other plant foods in the forests of temperate Europe and maintained this preference after fleeing the rapidly cooling northern regions for the Middle East.'.*
120. Black, A., 1994. Why our kids are getting taller. Sunday Telegraph (Sydney), October 9, p. 130.
In this article the writer noted that the average 12-year old Australian male in 1911 was 138 cm tall and weighed 33 kg, compared with a height of 147 cm and a weight of 39 kg today. Thus, in the past four generations there has been a dramatic increase in stature of 9 cm (3 ½"*).* The differences are even more pronounced in females — where height gain is of the order of 10cm and weight gain 10 kg. The changes have been put down to better diet and fewer infectious diseases during childhood.
121. Bower, Ref. 119.
122. Bower, Ref. 119.
123. Wieland, C., 1994. Decreased lifespans: have we been looking in the right place? CEN Tech. J., 8(2): 138-141.
124. Wieland, Ref. 123, p. 139.
125. Anonymous, 1990. Genetic drift — a chance factor in evolution. The Encyclopedia of Evolution: Humanity's Search for Its Origins, R. Milner, (ed.), Facts on File, Inc., New York, New York, pp. 187-188.
126. Wieland, Ref. 123, p. 140.
127. Wieland, Ref. 123, p. 140.
128. Wieland, Ref. 123, p. 140.
129. Genesis 20:12.
130. Wieland, Ref. 123, p. 140.
131. Wieland, Ref. 123, p. 140.
In this regard it is interesting to note that Sarah, Abraham's first wife, although only 10 years his junior (Genesis 17:17) and, therefore, a contemporary in the strict sense of the word, only lived to 127 years of age (Genesis 23:1). Ishmael, his son by Hagar the Egyptian, only lived to 137 years (Genesis 25:17).
132. Beasley, Ref. 1, p. 160 (Ref. 24).
133. Genesis 11:1-2.
134. Cuozzo, J. W., 1987. Earlier orthodontic intervention: a view from prehistory. Journal of the New Jersey Dental Association, 58(4):39.
135. Psalm 90:9-10.
See also: Psalm 102:23.
136. Deuteronomy 34:7 and Numbers 33:39.
137. Genesis 25:7.
Two of Abraham's sons — Ishmael and Isaac — lived to 137 and 180 years respectively (Genesis 25:17 and 35:28).
138. Beasley, G. J., 1994. A possible creationist perspective on the Tyrolean (Oetztaler) Ice Man. CEN Tech. J., 8(2):185-186.
139. Gardiner, A., 1961. Egypt of the Pharaohs, Oxford University Press, Oxford, England, p. 89.
140. Velikovsky, I., 1952. Ages in Chaos, Abacus Edition (1973), London.
141. Bietak, M., 1991. Bulletin of the American Schools of Oriental Research, February edition, pp. 29-48.
Bietak's findings are summarised in the August/September 1994 edition of Archaeological Diggings, 1(3):6–10.
142. Kitchen, K. A., 1986. The Third Intermediate Period in Egypt (1100–650 bc) — 2nd Edition, Aris and Phillips, Warminster.
143. James, P., 1991. Centuries of Darkness, Pimlico edition (1992), London, pp. 220-259, 309-310.
144. Courville, Ref. 61, p. 104 (Figure 2).
145. Taylor, C. V., 1983. Rewriting Bible History (According to Scripture), The House of Tabor, Unley Park, South Australia, p. 56.
146. Gardiner, Ref. 139, p. 386.
147. Gardiner, Ref. 139.
148. Gardiner, Ref. 139, p. 387.
149. Anonymous, 1983. Ancient Egypt. *In:* New Age Encyclopaedia, Bay Books Pty Limited, Sydney, Australia, vol. 10, p. 46.
150. Gardiner, Ref. 139, pp. 391-392.
151. Spencer, A. J., 1982. Death in Ancient Egypt, Penguin Books Ltd, Harmondsworth, Middlesex, England, Plate 2 (insert between pages 128 and 129).
152. Stringer, Ref. 81.
153. Spencer, Ref. 151, Plate 3 (insert between pages 128 and 129).
154. Wilson, I., 1985. The Exodus Enigma, Weidenfeld and Nicolson, London, pp. 23, 24.
Wilson states:
'He [Ramesses] *was tall (nearly six foot) after embalming, well made and perfectly symmetrical. His head was elongated and small in proportion to his body. . . . . His eyebrows jutted out from a long narrow forehead. He had . . . prominent cheekbones, a strong and powerful jaw, and a very high chin.'*
155. Wilson, Ref. 154, p. 23 (Plate).
156. Putman, Ref. 72, p. 465 (Plate).
157. Archaeology, vol. 47, no. 1, January/February 1994, Cover.
158. Bräuer, Ref. 80, p. 138.
159. Chambers' Encyclopedia (1973 Edition), International Learning Systems Corporation Limited, London, vol. 9, p. 33.
160. Wolpoff, Ref. 37, p. 336.
161. Wolpoff, Ref. 37, p. 336.
Wolpoff asserts that:
'Yet I believe it is unlikely that the (Singa) specimen represents an ancestral Bushman population (as some have suggested) that migrated south to give rise to the living population. Indeed, Bushman features remain common in otherwise "Negroid" samples from the later Pleistocene to the present. The fact has led to confusion about the origins of Bushmen, with hypotheses as extreme as migration from North Africa. Arguing for this possibility; *L.S.B. Leakey discussed a cranium from Homa, on the shores of Lake Victoria, with Bushman-like features. Yet two other individuals from the same site appear to be "Negroids". As far north as Wadi Halfa, in the northern Sudan, skeletal remains of thirty-six individuals were described as having "Boskop-like" features (that is, features resembling large Bushmen, such as the recent Boskop cranium*

from South Africa). Indeed, Coon once described the Jebel Irhoud cranium as a “proto-Bushman ”.’

Wolpoff then goes on to say:

7 doubt that this means that the “true ” origins of the Bushmen are to the north or that recognizable Bushmen populations were present outside of southern Africa at any time. The evolutionary line leading to Bushmen is easily traced over the last 15,000 years. When the northern crania with Bushman-like features were subjected to a mathematical analysis combining measurements of the face and cranium, they consistently showed a close affinity with "Negroids" and not South African Bushmen. This evidence seems to suggest the widespread occurrence of an undifferentiated ancestral population. In the post-Pleistocene period, the Bushman characteristics became more common in the south, while the "Negroid" characteristics predominated to the north.’

Of course, this ‘undifferentiated ancestral population’ could just as easily have originated from outside of Africa as on the continent.

162. Wolpoff, Ref. 37, p. 336.
163. Stringer and Gamble, Ref. 4, p. 128.
164. Stringer, Ref. 81, p. 250 (Figure).
165. Ref. 159.

    The Singa cranium is thought to share affinities with the females of the Mechta el Arbi type.
166. Ref. 159.
167. The Pictorial Encyclopaedia of the Evolution of Man (1975 Edition), Hamlyn, London, p. 109 (Figure 150) *cf.* p. 110 (Figure 152).
168. Ref. 167 (Figure 152).
169. Lasker and Tyzzer, Ref. 38, p. 351 (Figure 15-23).
170. Wolpoff, Ref. 37, p. 338.
171. Wolpoff, Ref. 37, p. 338.
172. Wolpoff, Ref. 37, pp. 336, 337 (Figure 13.5).
173. Wolpoff, Ref. 37, p. 338.
174. Wolpoff, Ref. 37, p. 338.
175. Stringer and Gamble, Ref. 4, pp. 131, 224 (Table).
176. Wolpoff, Ref. 37, p. 338.
177. Stringer, Ref. 81, p. 250 (Figure).
178. Hublin, J. J. and Tillier, A.-M., 1981. The Mousterian juvenile mandible from Irhoud (Morocco): a phylogenetic interpretation. *In:* Aspects of Human Evolution — Symposia of the Society for the Study of Human Biology, Volume XXI, C. B. Stringer (ed.), Taylor and Francis Ltd, London, p. 183.

    Having rejected the notion that the Irhoud 3 mandible could be classified as an ‘African Neanderthal’, the authors then suggest that the finds cannot be excluded from *Homo sapiens sapiens,*

    ‘. . . of which they may be the first representatives in the Maghred.’
179. Lambert, Ref. 25, p. 142.
180. Shackley, Ref. 89, p. 142.
181. Stringer and Gamble, Ref. 4, p. 128.
182. Hublin and Tillier, Ref. 178, pp. 179, 182-183.

    The taurodont nature of the Irhoud 3 permanent teeth is reminiscent of the European and Near Eastern neanderthals. Nevertheless, the macrodont dentition is both distinctive and exceptional; clearly exceeding the dimensions of comparable Near Eastern and European juvenile neanderthals. On the other hand, there could be a direct correlation between tooth size and body mass or stature.
183. Stringer and Gamble, Ref. 4, p. 128.
184. Wolpoff, Ref. 37, p. 262.
185. Beasley, Ref. 1, pp. 149, 150.
186. Wolpoff, M. and Thorne, A., 1991. The case against Eve. New Scientist, 130(1774):35.
187. Stringer, C., 1990. The Asian connection. New Scientist, 128(1743):27.
188. Rood, J., 1983. Archaeology of the Dreamtime, William Collins Pty Ltd, Sydney, Australia, p. 61.
189. Rood, Ref. 188, p. 73.
190. Wolpoff, Ref. 37, p. 327.
191. Wolpoff, Ref. 37, p. 327.
192. Stringer, Ref. 81, p. 250 (Figure).
193. Wolpoff, Ref. 37, p. 330.
194. Wolpoff, Ref. 37, pp. 328-329 (Figure 13.3).
195. Wolpoff, Ref. 37, p. 330.
196. Stringer and Gamble, Ref. 4, pp. 140 (Figure 46), 141.

    Regarding Wolpoff and Thorne’s views, Stringer and Gamble state:

    ‘There are two main views about the causes of this skeletal variety. One, supported by multiregionalists Alan Thorne and Milford Wolpoff, argues that the variation reflects two separate evolutionary origins: the gracile cline having entered from inland Asia via an eastern island-hopping route; and the robusts representing descendants of people like those knownfrom Ngandong, in Java, who entered via a westernroute. ’
197. Brown, P., 1992. Recent human evolution in East Asia and Australasia. Philosophical Transactions of the Royal Society, Series B, 337:235-242.
198. Rood, Ref. 188, p. 67.
199. Rood, Ref. 188, p. 67.
200. Laitman, Ref. 46, p. 67.
201. Laitman, Ref. 46, p. 67.
202. Macintosh, N. W. G. and Larnach, S. L., 1972. The persistence of *Homo erectus* traits in Australian Aboriginal crania. Archaeology and Physical Anthropology in Oceania, vol. VII, no. 1, p. 4.

    The archaic feature with the highest retention rate is the presence of an occipital protuberance (or torus) — which was found in 90 percent of the skulls examined. The remaining 16 *erectus* traits (as defined by Macintosh and Lamach) are expressed in much smaller percentages — with features such as post-orbital constriction and undivided supraorbital tori being extremely rare.
203. Genesis 11:28, 31; 12:6, 8, 15.
204. Gowlett, Ref. 51, p. 202.
205. Shreeve, J., 1991. Madam, I’m Adam. Discover, 12(6):24.

    Lucotte and his colleagues at the College de France, Paris deduced that the timing of the *‘ancestral template’* was c. 200,000 years ago.
206. Gibbons, A., 1993. Mitochondrial Eve refuses to die. Science, 259:1249.

    This article describes the findings of Harvard molecular anthropologist, Maryellen Ruvolo. She has deduced that the *‘coalescence time’ for* modern humans — that is the timing of the common ancestor to all CO *II* genes — took place c. 126,000 years ago (with 95% confidence limits ranging from 55,000 to 227,000 years) or 253,000 years ago (with limits of 110,000 to 455,000 years), depending on which estimate of the clock rate she adopted.
207. Harpending, H. C., Sherry, S. T., Rogers, A. R. and Stoneking, M., 1993. The genetic structure of ancient human populations. Current Anthropology, 34(4):483-496.

    Harpending and his colleagues conclude that ancestral humans spread out into separate regions from a restricted source some 100 kyr. ago and that population expansion took place some time thereafter (p. 495). For the multi-regional hypothesis to remain valid, there would need to have been a marked world-wide bottleneck

    ‘. . . that reduced the total size of the species to a few thousand without leading to extinction of regional subpopulations.’ (p. 484)

    They also suggest that the effective size of the ancestral population at the time of dispersion was closer to 500 females (p. 495). Such numbers accord well with those estimates of the total human population at the time of the Babel dispersion; see Table 3.
208. Waddle, D. M., 1994. Matrix correlation tests support a single origin for modern humans. Nature, 368:452–454.

    This paper is significant in that it postulates a single African or Levantine origin for modern humans.
209. Anonymous, 1994. Dinosaur bird theory; Dinosaur DNA ‘mimics birds’. The Daily Telegraph Mirror (Sydney), September 26, pp. 4, 17.
210. Lindahl, T., 1993. Instability and decay of the primary structure of DNA. Nature, 362:709-715.

    See also:

    Lindahl, T., 1993. Recovery of antediluvian DNA. Nature, 365:700.
211. Sykes, B., 1991. The past comes alive. Nature, 352:381.
212. Lewin, R., 1994. Fact, fiction and fossil DNA. New Scientist, 141(1910):38–41.
213. Taylor, R. E. et al., 1985. Major revisions in the Pleistocene age assignments for North American human skeletons by C-14 accelerator mass spectrometry: none older than 11,000 C-14 years bp. American Antiquity, 50(1): 135—140.

    By way of comparison, the dating of several Mousterian sites in Spain (for example, L’Arbreda and El Castillo) by the ^{14}C[AMS] method has produced ages ranging from 34,100 to 41,400 years bp. Nevertheless, it should be

pointed out that *all* such age determinations are based on a quasi-steady state (as opposed to non-equilibrium) model of ^{14}C[AMS] dating. The latter will give decidedly younger ages again.

214. Stringer and Gamble, Ref. 4, p. 222.
215. Day, M. H., 1986. Guide to Fossil Man — Fourth Edition, University of Chicago Press, Chicago, pp. 128–129.
216. Beasley, Ref. 1, p. 147.
217. Stringer, Ref. 81, p. 245.
218. Chippendale, C., 1986. At home with the first Europeans. New Scientist, 112 (1529):40.
219. Chippendale, Ref. 218, p. 41.
220. Chippendale, Ref. 218, p. 38.
221. Stringer, C. B., 1988. Arago. *In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 41.
222. Wolpoff, Ref. 37, pp. 232, 233 (Figure 10.6).

Despite assuring us that:

'. . . all of the Arago variation is restricted to a single site and a limited timespan ',

Wolpoff then presents a photograph of the Arago XXI craniofacial remains and the Arago XIII mandible — the latter of which is decidedly more mineralised than the former.

223. Shreeve, J., 1992. The dating game. Discover, 13(9):78, 80.

In this article Shreeve states:

'Conventional radiocarbon dates are extremely accurate up to about 40,000 years. This is far and away the best method to date a find—as long as it is younger than this cut-off point Another dating technique, relying on the radioactive potassium rather than carbon, is available to dale volcanic deposits older *than half a million years Until now, however, the period between half a million and 40,000 years —a stretch of time that just happens to embrace the origin* of Homo sapiens *—was practically unknowable by absolute dating techniques.'*

This gap has been filled in through the employment of ESR and TL dating techniques.

Another dating technique — Amino acid racemization — which had been much heralded in the 1970s, was also thought to have been capable of dating this same period. However, when the technique was applied to North American fossils of purportedly known age (c. 7,000 years), it produced anomalous dates of up to 70,000 years bp. (See p. 82 of the same article.) It was ditched shortly thereafter.

224. Genesis 10:31, 32.
225. Shreeve, Ref. 223, p. 82.
226. Flood, Ref. 188, p. 73.

Flood states:

'Homo erectus *had conspicuous brow ridges, a sloping forehead, projecting face, thick skull bones, and massive jaws and teeth, but he was not very tall, standing about 153 centimetres (five feet).'*

This misconception has doubtless played a major part in the consignment of the Australian *erectus* material to *Homo sapiens.*

227. Stringer, C. B., 1988. Archaic *Homo sapiens. In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 53.

Stringer suggests that the Narmada skull

'. . . is a candidate for assignment to archaic Homo sapiens, *although it has been referred to* Homo erectus. *While the specimen does appear to have a tented and keeled vault* [SE Asian *erectus* characteristics], *it is also very high, with a rounded occipital region.'*

228. Stringer, Ref. 81, p. 250 (Figure).
229. Stringer and Gamble, Ref. 4, p. 141.

The authors suggest that:

'Some (such as those from Lake Mungo —one of the Willandra Lakes — and Keilor) were as gracile as the contemporaneous Cro-Magnons of Europe . . . '.

230. Macintosh and Larnach, Ref. 202, pp. 1-7.
231. Flood, Ref. 188, p. 108.
232. Flood, Ref. 188, p. 69.
233. Wolpoff and Thorne, Ref. 186, pp. 35, 36.

Wolpoff and Thome conclude that their measurements

'. . . show that modern Chinese, Australasians and Europeans each resemble their local predecessors much more than they resemble archaic Africans. But that is not all. In each region of the world we have uncovered links that tie living populations to their own antecedents, whose remains are preserved in the fossil record for the area.'

234. Bower, B., 1992. *Erectus* unhinged. Science News, 141(25):409.

Referring to the studies of Wolpoff and Thome, Bower states:

'H. erectus . . . *gives no sign of an evolutionary demise. . . . . Instead,* H. erectus *gradually merges into the range of skeletal characteristics observed in regional populations of early* Homo sapiens . . . *Of the 23 derived anatomical traits that distinguish* H. erectus *from* H. habilis, *17 consistently turn up on* H. sapiens *fossils. In other words,* H. erectus *never existed and* H. sapiens *has evolved in several parts of the world for approximately 2 million years, Wolpoff and Thorne maintain. '*

Bower then goes on to add:

'Evolutionary patterns observed in four different regions —Africa, Europe, China and Australia-Indonesia—show continuous, gradual change from about 2 million years ago to the most recent human populations, with no evidence of Africans replacing the other groups . . . They also hold that H. sapiens *encompasses most, perhaps all, specimens now classified as Neandertal. '*

235. Maslin, M., 1994. Rift where humans began. New Scientist, 142(1928):24.

Maslin denotes ages ranging from a low of 130,000 years BP (for the Ngaloba LH-18 cranium from Laetoli, Tanzania) to a high of 1.81 million years bp (for *erectus* specimens from Modjokerto, Indonesia).

236. Shipman, P., 1993. On the origin of races. New Scientist, 137 (1856):36.

Shipman points out that Rightmire, in describing *Homo erectus* as a *polytypic* species, is suggesting that the regional differentiation Wolpoff and Thorne are observing *is* racial differentiation. Rightmire disputes the idea that present-day regional populations can be traced back to separate *erectus* ancestors 2 million years ago. One can but wonder if the timescale were to be reduced to thousands, rather than millions of years, whether this would cause Rightmire to change his mind.

237. Stringer, Ref. 81, p. 250 (Figure).
238. Rightmire, G. P., 1988. *Homo erectus. In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersal, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 263.
239. Swisher III, C. C., Curtis, G. H., Jacob, T., Getty, A. G., Suprijo, A. and Widiasmoro, 1994. Age of the earliest known hominids in Java, Indonesia. Science, 263:1118-1121.
240. Swisher *et al.,* Ref. 239.
241. Lewin, R., 1994. Damburst of humans flooded from Africa. New Scientist, 141(1915):14.
242. Lewin, Ref. 241.

This statement reflects Lewin's bias in favour of the Out-of-Africa hypothesis and the presupposition that *Homo habilis/ergaster* gave rise to *erectus.* The present writer has argued elsewhere (Ref. 61, pp. 34–42) that there is no basis for this assumption.

243. Gabunia, L. and Vekua, A. 1995. A Plio-Pleistocene hominid from Dmanisi, East Georgia, Caucasus. Nature, 373:509-512.

This jaw bone has been dated between 1.5 and 1.8 million years bp. Whilst the co-discoverers have argued for its consignment to *Homo erectus,* this may be premature, given the questionable nature of the dates and the variability *in erectus* jaws; see Dean, D. and Delson, E., 1995. *Homo* at the gates of Europe. Nature, 373:472-473.

244. Johanson, D. C. and Edey, M. A., 1982. Lucy: the Beginnings of Humankind, Granada Publishing, St Albans, Hertshire, England, pp. 290, 291.
245. Arduini, P. and Teruzzi, G., 1982. Prehistoric Atlas: An Illustrated Guide to the Origins of Life on Earth, Macdonald and Co., Publishers (1988 Reprint), London, England, p. 76.
246. Lambert, Ref. 25, pp. 98, 100, 106, 116 and 138.
247. Leakey, R. and Lewin, R., 1992. Origins Reconsidered, Abacus Books, London, England, 375 pp.
248. Brown *et al.,* Ref. 18.
249. Leakey, R. and Walker, A., 1985. *Homo erectus* unearthed. National Geographic, 168(5):624–629.
250. Brown *et al.*, Ref. 18, p. 788.

In the article's abstract the authors describe the find as

'The most complete early hominid skeleton ever found . . . '

251. Walker, A. and Leakey, R. (eds), 1993. **The Nariokotome *Homo erectus* Skeleton**, Harvard University Press, Harvard, Massachusetts, 457 pp.

252. Smith, F. D„ 1994. WT 15000 (Book review). Science, 265:418–419.
253. Brown *et al*., Ref. 18, p. 789.
254. Leakey and Lewin, Ref. 247, p. 143.
255. Leakey and Lewin, Ref. 247, p. 151.
256. Brown *et al.,* Ref. 18, p. 788 (Abstract).
257. Leakey and Lewin, Ref. 247, p. 60.
258. Leakey and Lewin, Ref. 247, p. 144.
259. Flood, Ref. 188, p. 73.
260. Leakey and Lewin, Ref 247, p. 60.
261. Leakey and Lewin, Ref. 247, p. 61.

    Conceding the possibility the authors then argued against it — on statistical (but not necessarily taphonomic) grounds:

    'Perhaps he was an exception, a freakishly tall boy? It is possible, but the odds are against it. The individuals most likely to come to light in a fossil find are the common ones, those in the middle of the statistical distribution.'

262. Brown *et al*., Ref. 18, p. 789.

    Brown and his colleagues stated that:

    'Previous H. erectus *postcranial material has either been fragmentary, not definitely associated, disputed as to species or diseased.'*

    After describing some of the more famous Asian specimens, they then went on to add that:

    '. . . H. erectus *postcrania have also been found at Olduvai Gorge, Tanzania, and East Turkana, Kenya. An associated fragmentary left innominate and femoral shaft (OH 28) from Bed IV Olduvai have been described as belonging to this species. Tibial and femoral shafts (OH 34) from Bed III Olduvai may belong, but are so badly eroded that their analytical value is slight. An undescribed ulna (OH 36) from Bed II Olduvai has also been attributed to the species. There are many postcranial bones from East Turkana. Only one is definitely associated with complete enough cranial remains to be absolutely certain of attribution and, unfortunately, that individual had suffered from a disease which affected the postcranial skeleton.'*

    This particular specimen is accessioned KNM-ER 1808.

263. Leakey, M. G. and Leakey, R. E. (eds), 1978. Koobi Fora Research Project: Volume 1 — The fossil hominids andan introduction to their context, 1968-1974, Clarendon Press, Oxford, England, p. 160.
264. Leakey and Lewin, Ref. 247, p. 61.
265. Leakey and Lewin, Ref. 247, p. 61.
266. Leakey and Lewin, Ref. 247, pp. 61, 62.
267. Haviland, W. A., 1979. Human Evolution and Prehistory — 2nd Edition, Holt, Rinehart and Winston, New York, pp. 157-158 (including Figure 8-3).

    Haviland stated:

    'Based on fossil evidence, anatomists have reconstructed both Java and Peking populations of H. erectus, *revealing closely similar outward physical appearance.* H. erectus *was short by modern standards, attaining a stature of perhaps five feet*

268. Johanson and Edey, Ref. 244 (Figure).
269. Johanson and Edey, Ref. 244, p. 60.

    The authors described the *Homo erectus* taxon as comprising a group of '. . . *exceptionally powerful people, both the men and the women, with muscles to match their thick frames. Although a* Homo erectus *male would have been too small to excel as a professional football player, a properly motivated one would have been devastating at lacrosse or hockey, two of the most physical sports now played by medium-sized men.'*

270. Leakey and Lewin, Ref. 247, p. 62.
271. Leakey and Lewin, Ref. 247, p. 62.

    This statement was printed in the New York Times.

272. Brown *et al*., Ref. 18, p. 791.
273. Dubois, E., 1926. On the principal characters of the femur of *Pithecanthropus erectus.* Proceedings of the Royal Academy, Amsterdam, vol. XXIX, p. 731.
274. Trinkaus, Ref. 113, p. 202 (Table 5).
275. Day, M. H. and Molleson, T. I., 1973. The Trinil femora. *In:* Human Evolution — Symposia of the Society for the Study of Human Biology, Vol. **XI,** M. H. Day (ed.), Taylor and Francis Ltd, London, pp. 131 (Plate 1), 135.

    This assessment is based on the fact that the head of the femur is heavily eroded and the shaft is broken off just below the point at which linea aspera begins to divide.

276. Trinkaus, Ref. 113, p. 202 (Table 5).
277. Day and Molleson, Ref. 275, p. 127.
278. Haviland, Ref. 267, p. 155.

    Haviland stated:

    'Its [Pithecanthropus erectus] *seemed to be part ape, part human. Indeed, Dubois at first thought the remains did not even belong to the same individual. The flat skull, for example, with its enormous brow ridges and small size, appeared to be that of an ape; but it possessed a cranial capacity much larger than an ape's. The femur, or thigh bone, was clearly human in shape and proportions and indicated the creature was a biped.'*

279. Lasker and Tyzzer, Ref. 38, p. 333.

    Lasker and Tyzzer state that:

    'The femur (which may not have belonged to the same period as the skull) has an unusual osteophyte (tumorlike growth of bone) protruding from its normal contour but otherwise looks like that of a modern human. The skull cap, however, is intermediate in size and shape between that of a modern human and Australopithecus. *'*

280. Lewin, R., 1987. Bones of Contention, Simon and Schuster, New York, p. 72.

    Quoting Sir Arthur Keith, Lewin states:

    'The thigh bone might easily be that of a modern man, the skull cap that of an ape, but the brain within that cap, as *we now know, had passed well beyond an anthropoid status.'*

281. Leakey and Lewin, Ref. 247, p. 50.

    After describing the historical background to the discovery, the authors state that the femur:

    '. . . *looked virtually indistinguishable from that of a modern man. In fact, many anthropologists today think that it is a modern human femur.'*

282. Leakey and Walker, Ref. 249, p. 629.

    In describing KNM-WT 15000 the authors suggest that:

    'In its parts and proportion only the skull of the Lake Turkana boy would look odd to someone untrained in anatomy. The rest of his skeleton, essentially human, differs only subtly from that of a modern boy.'

283. Johanson, D. and Shreeve, J., 1989. Lucy's Child: The Discovery of a Human Ancestor, William Morrow and Company, New York, p. 208.
284. Swisher *et al*., Ref. 239.
285. Johanson and Shreeve, Ref. 283, p. 269.
286. Trinkaus, Ref. 113, p. 199 (Table 3).

    The Early Upper Palaeolithic sample includes individuals from widely differing climatic regimes — including the Riviera and Predmosti.

287. Trinkaus, Ref. 113, p. 202 (Table 5).
288. Stringer, Ref. 58, p. 273.
289. Trinkaus, Ref. 113, pp. 190-191 (Table 1) cf. pp. 202-203 (Table 5).
290. Trinkaus, Ref. 113, pp. 208-219.
291. Stringer, Ref. 81, p. 248.

    Stringer suggests that:

    'To judge from their body proportions, which in some respects were like those of modern Saami (Lapps) and Inuit (Eskimos), they may have been adapted to life in cold conditions.'

292. Andrews and Stringer, Ref. 23.
293. Macey, R., 1994. We have shrunk, warns scientist. The Sydney Morning Herald, Saturday, April 16, p. 3.

    Macey, quoting Dr Peter Brown of the University of New England, states that this trend may be due to global warming. The present writer would dispute this conclusion on the basis that this conflicts with cold-limb adaption theory.

294. Macey, Ref. 293.
295. Flood, Ref. 188, p. 62.
296. Macey, Ref. 293.
297. Leakey and Walker, Ref. 249, p. 629.

    The authors state that:

    'This find combines with previous discoveries of Homo erectus *to contradict a long-held idea that humans have grown larger over the millenia. Our ancestors on the African savanna may have been much taller than we ever imagined. Indeed, we may have reached our present general size more than a million and a half years ago, with some populations in poorer environments becoming smaller fairly recently.'*

298. Leakey and Lewin, Ref. 247, p. 55.

    Having described the Trinil femur as being very similar to a modern femur, they then go on to say that:

'. . . *this bone in* Homo erectus *nevertheless shows all the signs of belonging to a physically active species: the bone itself is heavily buttressed and the sites of the muscle attachments are prominent.* '

299. Kennedy, G. E., 1991. On the autapomorphic traits of *Homo erectus.* Journal of Human Evolution, 20:376.

300. Kennedy, Ref. 299, p. 407.

301. Kennedy, Ref. 299, p. 407.

302. Stringer, Ref. 227, p. 49.

303. Kennedy, Ref. 299, p. 376.

304. Bräuer, G. and Mbua, E., 1992. *Homo erectus* features used in cladistics and their variability in Asian and African hominids. Journal of Human Evolution, 22:79-108.

305. Kennedy, Ref. 299, p. 376.

306. Wilson, A. C. and Cann, R. L., 1992. The recent African genesis of humans. Scientific American, 266(4):22-27.

307. Stringer, C. B., 1990. The emergence of modern humans. Scientific American, 263(6):68-74.

308. Thorne, A. G. and Wolpoff, M. H., 1992. The multiregional evolution of humans. Scientific American, 266(4):28–33.

309. Wolpoff and Thorne, Ref. 186, pp. 33-37.

310. Stringer and Gamble, Ref. 4, p. 35.

Advocates of the current Out-of-Africa hypothesis see the emergence of modern man as a two-staged event. The first stage took place when *Homo erectus* broke free of the African continent approximately one million years ago. (This notion is challenged by the new dates for Asian *erectus.)* The second stage, to which Stringer and Gamble allude in the above reference, involved the replacement of the descendants of Asian (and possibly European) forms of *erectus* — including the neanderthals — by the descendants of African *erectus.*

311. Stringer, Ref. 227, p. 49.

312. Arsuaga et *al.,* Ref. 29.

313. Stringer, C., 1993. Secrets of the Pit of Bones. Nature, 362:501-502.

314. Arsuaga, J.-L., Martinez, I. and Carretero, J.-M., 1993. Atapuerca bones: homing in on *Homo?* Science News, 144(2):31.

315. Shreeve, J., 1994. Infants, cannibals and the Pit of Bones. Discover, 1S(1):39–41.

316. Stringer, Ref. 313, p. 501.

317. Stringer, Ref. 313, p. 501, 502.

318. Stringer, Ref. 313, p. 502.

319. Shreeve, Ref. 315, p. 40.

320. Arsuaga et al., Ref. 314.

These writers state:

'The Atapuerca fossils . . . . share many traits with Neandertals in cranial, mandibular and postcranial bones; therefore, the first evaluations of the Atapuerca skulls have focussed on the evolutionary relationships between them and Neandertals. However, many of these traits are also present in modern humans and absent from Asian Homo erectus *(i.e., cranial vault high in lateral view, rounded occipital bone, and general morphology of the temporal bone).'*

It should be pointed out, however, that in other respects they align themselves with Homo *erectus,* for example, the cranial vault is at its maximum near its base and the face dominates a relatively small cranium.

321. Dorozynski, Ref. 31.

322. Dorozynski, Ref. 31.

323. Stringer, Ref. 81, p. 245.

According to Stringer this specimen

'. . . *shows a combination of characters found in* Homo erectus *and Neanderthals, as well as others that are present in "archaic* Homo sapiens *", to which group it is usually assigned.* '

324. Stringer, Ref. 313, p. 502.

325. Arsuaga *et al.,* Ref. 29, p. 535 (Figure la).

326. Stringer, Ref. 313, p. 502.

Stringer states:

'. . . *although considerable differences remain between the Petralona and Steinheim crania in features such as vault thickness and occipital form, it seems feasible that they can both be regarded as extensions of the variation shown in the early Neanderthal population(s) sampled at Atapuerca.'*

327. Shreeve, Ref. 315, p. 40.

Referring to the interval between 500,000 and 130,000 years bp, Shreeve states that:

'Between these two points in time lies a teasing trail of skulls from Greece, France, England, and Germany whose origins are in doubt Some have large faces but small braincases. Others have big brains but small faces. Some are more erectus-like, *while others have an incipient Neanderthal tinge. Sometimes it seems to depend on whether you look at the specimen from the front or the back.'*

He then goes on to add that:

'. . . *Some investigators thought these early European archaics were so varied that they should be split into two separate groups: one —often given the species name* Homo heidelbergensis — *the common ancestor of Neanderthals and modern humans; the other a younger bunch, firmly set on the path leading to classic Neanderthals. Other scientists have argued that the whole motley crew could be lumped into a single lineage of "pre-Neanderthals," reflecting the gradual emergence of Neanderthals from* Homo erectus. '

328. Rightmire, Ref. 238, p. 263.

329. Kennedy, Ref. 299, p. 385.

330. Kennedy, Ref. 299, p. 385.

331. Kennedy, Ref. 299, p. 385.

332. The reader is referred to the profiles of the Predmosti 3 Cro-Magnoid, La Ferrassie neanderthal *(see:* Stringer and Gamble, Ref. 4, p. 187, Plate 84) and the La Quina 5 neanderthal cranium *(see:* Stringer, Ref. 58, Figure).

333. Arsuaga *et al.,* Ref. 29, p. 534 (Box 1 — Variable Features).

334. Beasley, Ref. 1, pp. 140-141, 149-150.

335. Beasley, Ref. 1, pp. 151-152.

336. Arsuaga *et al.,* Ref. 29, p. 535 (Figure 1f *cf.* Figure 1d).

337. Arsuaga *et al.,* Ref. 29, p. 535 (Figure 1f *cf.* Figure 1d).

The adult Cranium 5, by way of contrast, exhibits a remarkable degree of mid and total facial prognathism (p. 534).

338. Arsuaga *et al.,* Ref. 29, p. 535 (Figure 1f *cf.* Figure 1d).

339. The mastoid development of the Teshik-Tash juvenile (see Wolpoff, Ref. 37, p. 315, Figure 12.9) is typical of that observed in other juvenile neanderthals. The development of the mastoid in neanderthal infants and juveniles would be retarded as a consequence of the initial retrognathic nature of the craniofacial complex.

As Wolpoff has noted:

'Studies by E. Vlček and others show that Neandertal children look more modern than Neandertal juveniles or adults, largely because the superstructures associated with robustness (of which the mastoid would be one) are underdeveloped and the face grows proportionately far more than the cranium.' (p. 303)

Thus, the development of a robust mastoid structure would coincide with the development of prognathic jaws and cranial flattening.

340. Arsuaga *et al.,* Ref. 29, p. 534.

The writers state that:

'The mastoid processes are big and projecting in the Atapuerca adult individuals. The juvenile individuals exhibit small mastoids, which project less than the occipitomastoid region, as is common in Neanderthals (both adults and juveniles) and modern human immatures, suggesting retention of the immature condition in neanderthals.'

341. Stringer, G B., 1988. Velika Pecina. *In:* Encyclopedia of Human Evolution and Prehistory, I. Taltersall, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 593.

342. Anonymous, Ref. 59, p. 23.

343. Stringer, Ref. 307, p. 70.

344. Stringer, Ref. 307, p. 73.

345. Beasley, Ref. 1, p. 141.

346. Stringer, Ref. 227, p. 50.

347. Stringer, Ref. 227, p. 50.

348. Stringer, Ref. 227, pp. 50, 51.

349. Stringer, Ref. 227, p. 52.

350. Beasley, Ref. 1, pp. 141-143, 146, 149-152.

351. Trinkaus, E., 1993. Femoral neck-shaft angles of the Qafzeh-Skhūl early modern humans, and activity levels among immature Near Eastern Middle Palaeolithic hominids. Journal of Human Evolution, 25:393-416.

352. Trinkaus, Ref. 351, p. 401.

353. Trinkaus, Ref. 351, pp. 398-400.

354. Trinkaus, Ref. 351, p. 406 (Table 4).

The mean values for selected 'modern' adult populations range from 124.5° to 126.8° in the case of foragers; 124.6° to 133.7° for agriculturalists and 129.1° to 136.2° for urban dwellers.

355. Bunney, S., 1994. Did modern culture begin in prehistoric caves? New Scientist, 141(1908):16.
356. Bunney, Ref. 355.
357. Trinkaus, Ref. 351, pp. 400, 401.
358. Trinkaus, Ref. 62, p. 406 (Table 5).

The Near East neanderthal sample comprised three specimens: Amud 1 (113°); Shanidar 1 (120°) and Tabūn 1 (124°). Those from Europe included: the 'Old Man' from La Chapelle-aux-Saints (121°); the type specimen from Neandertal (119.5°); La Ferrassie 1 and 2 (122° and 127°, respectively); Krapina 213 and 214 (120.5° and 121.5°) and the Spy 2 male (115.5°).

359. Trinkaus, Ref. 351, p. 406 (Table 5).
360. Trinkaus, Ref. 351, pp. 402 (Table 4) and 408 (Table 5).
361. Trinkaus, Ref. 351, p. 402 (Table 4).
362. Vlček, E., 1973. Post-cranial skeleton of a Neandertal child from Kiik-Koba, USSR. Journal of Human Evolution, 2:541.
363. Trinkaus, E. and Howells, W. F., 1979. The Neanderthals. Scientific American, 241(6):99.

Trinkaus and Howells suggested that signs of adult 'skeletal robustness' or massiveness of bone structure appeared early in neanderthal childhood.

364. Stringer and Gamble, Ref. 4, p. 88.

The authors state:

'As well as speculation about the early stages of growth in Neanderthals, new data are also being gathered and interpreted about the other end of the life cycle: old age The surprising fact that has emerged from this work is that it is difficult to find a Neanderthal estimated at more than 40 years old at death; this includes the so-called 'old man' of La Chapelle-aux-Saints, in spite of his injuries, tooth loss and joint disease. Of the entire Neanderthal sample, apparently fewer than 10 percent were aged over 35. '

365. Trinkaus, Ref. 351, p. 406 (Table 5).
366. Trinkaus, Ref. 351, p. 406 (Table 5).
367. Trinkaus, Ref. 351, p. 406 (Table 5).
368. Trinkaus, Ref. 351, p. 405.
369. Trinkaus, Ref. 351, p. 399.

Trinkaus states:

'. . . . *the* degree *of decrease in the femoral neck-shaft angle during development is correlated with the* level *of normal physical activity. The higher the activity level, the greater the decrease in neck-shaft angle from the neonatal value as the individual matures. '*

The present writer would suggest that prolongation of skeletal maturation would, in itself, result in an appreciably greater number of periods of loading which, in turn, would have contributed to the lower neck-shaft angles of most, but certainly not all, of our 'archaic' ancestors.

370. Trinkaus, Ref. 351, p. 405.

Citing Ruff *et al.* (see Ref. 371), Trinkaus states that:

'This pattern of generally increasing femoral neck-shaft angles from foraging to Agricultural to Urban samples parallels general trends of robusticity, in which the increasingly sedentary, technologically-aided groups tend to be less active and hence less robust. '

371. Ruff, C. B., Trinkaus, E., Walker, A. and Larsen, C. S., 1993. Postcranial robusticity *in Homo,* I: Temporal trends and mechanical interpretations. American Journal of Physical Anthropology, 91:21–53.
372. Bunney, Ref. 355.
373. Trinkaus, Ref. 351, p. 408.
374. Trinkaus, Ref. 351, pp. 406 (Table 5) and 408.
375. Trinkaus, Ref. 351, p. 408.
376. Stringer, Ref. 307, pp. 72, 73.
377. Stringer, Ref. 49, p. 489.
378. Trinkaus, Ref. 351, p. 408.
379. Trinkaus, Ref. 351, pp. 408-410.

Trinkaus suggests that:

'. . . *it is quite likely that adult activity levels contrasted only in relatively subtle ways between these two groups. However, the* immature *Qafzeh-Skhūl individuals may well have participated far less in the foraging-related mobility than the* immature *individuals in other Middle Paleolithic groups, presumably being cared for by a subset of the adult population in or near the primary site location. '* (pp. 408, 409)

He then goes on to add that:

'The ultimate implication of this is that there was a more elaborate social organizational system, with more division of labour by age among these early modern humans than among at least Near Eastern late archaic humans foraging with similar technologies in similar habitats.' (pp. 409, 410)

380. Trinkaus, Ref. 351, p. 406 (Table 5).
381. Trinkaus, Ref. 351, p. 406 (Table 5).
382. Trinkaus, Ref. 351, p. 402 (Table 4).
383. Stringer, Ref. 307, pp. 72, 74.
384. Stringer, C. B., Grün, R., Schwarcz, H. P. and Goldberg, G., 1989.ESR dates for the hominid burial site of Es Skhūl in Israel.Nature, 338:756-758.
385. McDermott, F., Grün, R., Stringer, C. B. and Hawkesworth, C. J., 1993. Mass-spectrometric U-series dates for Israeli Neanderthal/early modern hominid sites. Nature, 363:252-255.

Five out of the six age determinations were less than 45.6 kyr. The sixth specimen to be dated yielded an age of 80.3 kyr. These results have given rise to the authors suggesting that:

'. . . the U-series determinations combined with the ESR data suggest a greater complexity in the stratigraphy of Skhūl than was previously assumed, with clear evidence for at least two faunal ages with layer B. The younger closed system ages for samples 854 and 856 may be consistent with the suggestion that the Skhūl hominids fall into earlier (Skhūl 3, 6-10) and later (1, 4-5) assemblages, but further research will be required to investigate this possibility.' (p. 254)

386. McDermott *et al.*, Ref. 385, pp. 252, 253.

McDermott and his colleagues state that:

'Uncertainties in the chronology of Tabūn, Qafzeh, Skhūl and other key sites have given rise to conflicting views of the Neanderthal/early modern relationship in the Levant. In the early 1980s the Tabūn Neanderthals were generally considered to be 50-60 kyr old, and they were apparently succeeded by Homo sapiens *at ~40 kyr (for example, at Qafzeh and Skhūl), thereby allowing the possibility that Neanderthals had contributed to the ancestry of modern humans. This view was reinforced when the layers containing the Kebara Neanderthal skeleton were dated at 60 ±4 kyr by thermoluminescence and 62 ±8 kyr by ESR. But subsequent thermoluminescence dating of Qafzeh flints yielded ages of 92 ±5 kyr in agreement with the bio-stratigraphy. Moreover, the Skhūl and Qafzeh sites yielded ESR dates in the 80-120 kyr range, and similar or even older ages were obtained for the Tabūn Neanderthal-bearing layers. These thermoluminescence and ESR dates are still viewed with skepticism by many palaeoanthropologists. '*

387. Bar-Yosef, O. and Pilbeam, D., 1993. Dating hominid remains. Nature, 366:415.
388. McDermott, F., Grün, R. and Stringer, C. B., 1993. Reply to Bar-Yosef and Pilbeam. Nature, 366:415.
389. Lambert, Ref. 25, p. 139.

Lambert contrasts the thick, strong and noticeably curved femurs of the neanderthals with the slimmer, weaker and straighter femurs of modern man.

390. Trinkaus and Howells, Ref. 363, p. 99.

Trinkaus and Howells state that:

'They nonetheless differed pom modern men in having massive limb bones, often somewhat bowed in the thigh and forearm.'

391. Stringer and Trinkaus, Ref. 88, p. 162.

Referring to the Shanidar neanderthals, the authors draw attention to the fact that the:

'. . . postcrania exhibit the great skeletal robusticity . . . . found in other Neanderthal skeletons.'

392. Trinkaus, E., 1978. Hard times among the Neanderthals. Natural History, 87(10):58.

Trinkaus states that:

'One of the most characteristic features of the Neanderthals is the exaggerated massiveness of their trunk and limb bones. All of the preserved bones suggest a strength seldom attained by modern humans. Furthermore, not only is this robustness present among the adult males, as one might expect, but it is also evident in the adult females, adolescents, and even children.'

393. Putman, Ref. 72, p. 464.

With reference to the postcranial remains from Krapina (Yugoslavia) Putman states that:

‘The density and thickness of a femur . . . is far greater than that of a modern weight lifter.’

394. Gowlett, Ref. 51, p. 105.

Gowlett states that:

‘Another Neanderthal characteristic is the robust, stocky skeleton. This is apparent in the stout, sometimes bowed, limb bones

395. Stringer, C. B., 1988. Neanderthals. *In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersall, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 368.

Stringer characterises the postcranial neanderthal skeleton as follows:

‘The postcranial skeleton shares a whole suite of characters with those of other archaic humans, through an emphasis on strong musculature and thickened shafts to the bones. ’

396. Wolpoff, Ref. 37, p. 276.

With reference to the postcranial remains from Krapina, Wolpoff states that:

‘Whilst these postcrania are fully modern in function, there are a number of characteristics which diverge from the modern condition. Foremost among these is the marked thickening of the shaft walls in all the long bones. However, the specimens are reduced in this respect when compared with Homo erectus *limbs . . .*’.

397. Wolpoff, Ref. 37, p. 286.

Wolpoff states that:

‘. . . the (neanderthal) vertebrae tend to be vertically short compared with the horizontal dimensions of their bodies. ’

398. Arensburg, Ref. 101, p. 167.

Arensburg states that:

‘The cervical column of the Neanderthals has generally been considered (following Boule's monograph on the La Chapelle-aux-Saints skeleton) as being “short and stiff”.’

399. Stewart, T. D., 1977. The neanderthal skeletal remains from Shanidar Cave, Iraq: A summary of findings to date. Proceedings of the American Philosophical Society, 121(2): 136 (Table 5), 137.

Stewart concluded that:

‘In general, the figures [for the preserved Shanidar I cervical vertebrae] *are in the upper part of the range for recent man. Because of this they do not support the earlier of the neanderthal neck being short and massive.’*

Nevertheless, whilst the respective heights for the three vertebrae generally fall towards the mean of the range for recent man, the diameters fall towards the top or beyond the upper end of the cited recent range. ’

The same holds for Shanidar II; seep. 147 (Table 10).

400. Arensburg, Ref. 101, p. 167.

With reference to the Kebara neanderthal Arensburg states that:

‘The sum of all the heights of the vertebral elements from the second cervical vertebra to the last lumbar vertebra (regardless of whether or not the disc heights are counted) indicates in the Kebara man a shorter cervical segment relative to the thoracic or lumbar parts when compared with the proportions in modern man. Yet, the total length of the column of this fossil undoubtedly falls within the modern human range.’

401. Lazenby, Ref. 12, pp. 453 (Table 1), 455-457 (Table 2).

402. Israel, H., 1973. Progressive enlargement of the vertebral body as part of the process of human skeletal aging. Age Aging, 2:71-79.

403. Behrents, R. G., 1985. The biological basis for understanding craniofacial growth. *In:* Normal and Abnormal Bone Growth: Basic and Clinical Research, A. D. Dixon and B. G. Sarnat (eds), Alan R. Liss, New York, pp. 307-319.

404. Wolpoff, Ref. 37, p. 268.

405. Trinkaus and Howells, Ref. 363, p. 100.

406. Wolpoff, Ref. 37, p. 268.

Wolpoff states that:

‘The main consequences of a relative expansion in cranial capacity are found in the pelvis. Larger crania in adults almost certainly meant larger crania at birth. This would require anterior-posterior expansion of the birth canal in the females. A commensurate expansion of the pelvic inlet in males would also be expected. In the early Homo sapiens *sample from the Near East, this elongation was accomplished through a marked elongation of the pubis.’*

407. Trinkaus and Howells, Ref. 363, p. 100.

These writers describe the feature as a possible

‘. . . adaption for increasing the size of the birth canal in females. That would have allowed easier passage of an infant's head (which was presumably large) at birth. ’

408. Stringer, Ref. 395, p. 368.

Stringer notes that:

at the front of the pelvis is a long and flattened pubic ramus in all Neanderthals (male and female) where this part has been preserved. This latter feature has been linked with the birth of large-headed infants in Neanderthal women. The length of fetal development in Neanderthals may have been closer to 12 months rather than the nine of modern humans, since an enlarged birth canal could have allowed a larger baby to develop. Alternatively, early brain growth and general development may have been faster in neanderthal babies compared with their modern counterparts, or their unusual pelvic shape could simply be an effect of their peculiar large-brained, large-headed but short and stocky physiques.’

409. Diamond, J., 1991. The Rise and Fall of the Third Chimpanzee, Vintage, London, p. 36.

Diamond states:

‘One other possible anatomical difference is intriguing, though its reality as well as its interpretation are quite uncertain. A neanderthal woman is *birth canal may have been wider than a modern woman*’s, *permitting her baby to grow inside her to a bigger size before birth. If so, a Neanderthal pregnancy might have lasted a year, instead of our nine months.’*

410. Stewart, T. D., 1960. Form of the pubic bone in neanderthal man. Science, 131:1437, 1438.

The same trait is also observed in the pubic bone of Shanidar III — another male (see p. 1438).

411. Stewart, Ref. 399, pp. 139-140, 154.

412. Trinkaus and Howells, Ref. 363, p. 100.

413. Stringer, Ref. 81, p. 248.

414. Arensburg, Ref. 101, p. 169.

Earlier, in the same paper (p. 167), Arensburg stated that:

‘The message of the Kebara pelvis is simple: it confirms that among some Mousterian remains the superior, ilio-pubic ramus is elongated, a typical morphology which is not found in modern humans. Nevertheless, the pelvic inlet is unequivocally modern in size, very similar *to that of present-day humans. Despite the fact that we have here a male, it is suggested that the pelvic inlet was fundamentally similar in females. ’*

He then went on to state (p. 168) that:

‘The elongated superior, ilio-pubic rami of the Mousterians seems to correspond to a special disposition of the pelvic inlet osseous component without affecting the actual size of the inlet, since a lateral rotation of the hip bone places the sacrum in a more anterior position than in modern man. ’

In other words, the neanderthal birth canal was little different (dimensionally) to that of modern humans.

415. Wolpoff, Ref. 37, p. 268.

Wolpoff suggests that in these respects neanderthals’ pelves were very australopithecine-like in their configuration (pp. 268–269).

416. Wolpoff, Ref. 37, p. 276.

417. Wolpoff, Ref. 37, p. 286.

Wolpoff notes that these characteristics were also found in early archaic human remains from Krapina, Arago, Prince and Broken Hill.

418. Stringer, Ref. 395.

419. Brown *et al.*, Ref. 18, p. 791.

420. Warwick and Williams, Ref. 13, p. 566.

421. Kapit, W. and Elson, L. M., 1977. The Anatomy Coloring Book, Harper and Row, Publishers, New York, Plate 40.

Adduction takes place when muscles are used to exert an inwards motion of a limb bone towards the body’s axis — such as when an individual is riding a horse.

422. Genesis 4:2.

423. Genesis 12:16.

This passage refers to pharaoh’s bribing of Abram with sheep, oxen, donkeys and camels.

424. Anthony, D., Telegin, D. Y. and Brown, D., 1991. The origin of horseback riding. Scientific American, 265(6):44-48A.

These writers have accumulated evidence suggesting that the earliest known instances of horseriding date back at least six millenia — to the Ukraine and the Sredni-Stog culture. On the other hand, the same writers also suggest that the origins of horseback riding in the Middle East date from between 2200 and 2000 bc. These later dates correspond well with 'tight' biblical chronologies of post-Flood human history. Such models infer that humanity first arrived in Mesopotamia shortly after the Flood (c. 2350 bc), and were subsequently scattered abroad from this same region perhaps as little as a century later.

425. Warwick and Williams, Ref. 13, p. 356 (Figure3.181).
426. Warwick and Williams, Ref. 13, p.355.
427. Warwick and Williams, Ref. 13, p.355.
428. Warwick and Williams, Ref. 13, p. 345 (Figure 3.171B).
429. Lovejoy, C. O., 1988. Evolution of human walking. Scientific American, 259(5):84.
430. Lovejoy, Ref. 429, p. 84.
431. Wolpoff, Ref. 37, p. 288.

With reference to the European neanderthals, Wolpoff states that:

'. . . there is the same pubic elongation and anterior-posterior broadening that was found to characterize the contemporary Near Eastern sample. The associated outward and backward change in the position of the pelvic blades results in what appears to be a more anterior position for the iliac pillar and the acetabulum, again paralleling the morphology of the Near Eastern forms. '

432. Arensburg, Ref. 101, p. 168.
433. Arensburg, Ref. 101, p. 168.

For quote see Ref. 414 (above).

434. Shackley, Ref. 89, p. 156.

Shackley includes a photographic reproduction of the young female neanderthal as reconstructed by staff at the British Museum (Natural History).

435. Brown *et al.*, Ref. 18, p. 791.

In describing the innominate of KNM-WT 15000 the authors state: *'Although we have yet to recover sufficient parts of the pubic bones to complete a full reconstruction, the innominates are very similar indeed to OH 28 and KNM-ER 3228, but the strong iliac pillar had not yet developed. . . . . There was a remarkable degree of iliac flare; this flare being concordant with the extremely long femoral necks, which are relatively as long as those of robust australopithecines. The biomechanical advantage of the abductor mechanism was much enhanced relative to the condition in* H. sapiens. '

436. Shackley, Ref. 89, p. 146.

Shackley states:

'Bones can give us unexpected insights into the Neanderthal way of life. We find, for example, that their ankle bones frequently show a modification called the "squatting facet" common in hunting communities today, indicating that Neanderthals spent a good deal of time crouched round a camp fire.'

437. Vlček, Ref. 362, p. 543.

Vlček states:

'In the [neanderthal] *child from Kiik-Koba there has been found striking retroversion of the upper epiphysis of the tibia at an angle of* 24^{s}*, which is again a consistent feature of adult Neandertal individuals. In recent man it is characteristic of foetuses and new-born children, and disappears in the course of later development. This feature is usually found in populations which spend a large part of their life in a squatting position; consequently, it is a functional feature. '*

438. Trinkaus and Shipman, Ref. 3, p. 368.
439. Leaf, Ref. 16, p. 118.
440. Shackley, Ref. 89, p. 156 (Figure 33).
441. Stringer, Ref. 81, p. 248.
442. Stringer, Ref. 395, p. 368.
443. Wolpoff, Ref. 37, p. 315 (Figure 12.9).
444. Alexeyev, V. P., 1976. Position of the Staroselye find in the hominid system. Journal of Human Evolution, 5:418 (Plate 3).
445. Wolpoff, Ref. 37, p. 304 (Figure 12.4).
446. Wolpoff, Ref. 37, p. 315 (Figure 12.9).
447. Wolpoff, Ref. 37, p. 268.
448. Wolpoff, Ref. 37, p. 273, 275 (Figure 11.7).

Wolpoff notes (p. 273) that:

'The widely separated orbits angle considerably toward the rear, resulting in a pronounced "beaking" at the facial midline

449. Wolpoff, Ref. 37, p. 273.

Wolpoff notes that:

'. . . cranium E (Figure 11.5, p. 271) *is smaller and more delicately built than the C skull, but has an even higher nasal angle, and in life probably had a more prominent nose. '*

450. Wolpoff, Ref. 37, p. 267 (Figure 11.4).
451. Wolpoff, Ref. 37, p. 267 (Figure 11.4).
452. Stringer and Trinkaus, Ref. 100, p. 149.
453. Wolpoff, Ref. 37, p. 266.
454. Wolpoff, Ref. 37, pp. 279 (Figure 11.8), 280.

Wolpoff states (p. 280):

'A fully fleshed Neandertal nose must have been a phenomenal object. Almost every specimen is characterised by a nasal aperture of very large dimensions. The few remaining nasal bones . . . . indicate that north of the circum-Mediterranean area the nasal profile was highly angled (see La Chapelle, Figure 11.8) so that the fleshy nose was extremely prominent. (Few fleshy reconstructions accurately show this.) '

455. Wolpoff, Ref. 37, pp. 273, 274.
456. Beasley, Ref. 1, pp. 152, 153.
457. Wolpoff, Ref. 37, p. 305 (Figure 12.5).
458. Trinkaus, Ref. 351, p. 406 (Table 5).
459. Stringer, C. B., 1988. Amud. *In:* Encyclopedia of Human Evolution and Prehistory, I. Tattersall, E. Delson and J. Van Couvering (eds), St James Press, Chicago, p. 29.
460. Lewin, R., 1991. A hip theory for human evolution. New Scientist, 132 (1795):14.

Accounting for the broader pelvis in the Kebara neanderthal, Lewin states:

'. . . . a later specimen of Neanderthal from the Kebara cave in Israel, has a significantly broader pelvis, one close to the figure for high latitude adaption. This can be explained because when the Kebara Neanderthal lived, 60,000 years ago, glacial conditions prevailed in the Middle East.'

461. Trinkaus, Ref. 113, pp. 205, 208.
462. A protracted period of intense cold in mid to high latitudes during the Ice Age would have had a profound effect on the caloric intake of peoples living within these areas. It is possible that the stocky build of the neanderthals is merely a manifestation of stunted growth during (and beyond) childhood and in response to low caloric consumption.

See: Lasker and Tyzzer, Ref. 38, pp. 428, 430-431.

463. Rudavsky, S., 1991. The secret life of the Neanderthal. Omni, 14(1):54–55.
464. Stringer and Gamble, Ref. 4, pp. 91-93.
465. Rightmire, Ref. 238, p. 263.
466. Stringer and Gamble, Ref. 4, pp. 124, 126.

A tibia recovered at the Kabwe site is said to have

'. . . belonged to a very tall individual, probably over 1.8 m (6 ft) tall, with body proportions more similar to the 1.6 million-year-old West Turkana boy (variously known as Homo erectus *or* Homo ergaster) *and modern Africans, than to Neanderthals or more recent populations in temperate or cold areas.'* (p. 126)

467. Rightmire, Ref. 238, p. 263.
468. Stringer, Ref. 227, p. 50.
469. Stringer and Gamble, Ref. 4, p. 93.
470. Scheven, J., 26.11.92. Personal communication to Wieland.
471. Wolpoff, Ref. 37, p. 203.
472. Wolpoff, Ref. 37, p. 227.
473. Stringer, Ref. 81, p. 250 (Figure).
474. Stringer and Gamble, Ref. 4, p. 66.
475. Stringer, Ref. 227, p. 52 (Figure).

The same Figure includes a posterior view of the Biache cranium, which also exhibits the classical *'en bombe'* profile.

476. Lasker and Tyzzer, Ref. 38, p. 358.
477. Kennedy, Ref. 299, p. 382 (Table 3).
478. Stringer, Ref. 227, p. 52.

Stringer states:

'The Swanscombe "skull" probably belongs to this group [that is, archaic *Homo sapiens], along with the Biache, the Fontechevade, and the more ancient of the La Chaise fossils. Such specimens may one day be referred to the species* Homo neanderthalensis, *rather than to the archaic* Homo

sapiens *grade.'*

479. Anonymous, 1994. Resurrection in Italy. Science, 263:753.
480. Stringer, Ref. 227, pp. 50, 51.
481. Oard, M. J., 1990. An Ice Age Caused by the Genesis Flood, Institute for Creation Research, El Cajon, California, 243 pp.
   Oard documents objections to Penck and Bruckner's Alpine Model (pp. 139-159) and current, but equally suspect, astronomical models (pp. 16-18).
   See also: Stringer and Gamble, Ref. 4, pp. 39–42, 54.
482. Oard, M. J., 1995. Only one glaciation in Southwest Alberta. CEN Tech. J., 9(l):4.
483. Vardiman, L., 1993. Ice Cores and the Age of the Earth, Institute for Creation Research, El Cajon, California, 71 pp.
   Vardiman exposes weaknesses in extrapolated ages for the polar Ice Sheets as derived from ice core data (pp. 15-25); suggesting that a single Ice Age of duration c. 500 years is feasible (pp. 33–49).
   See also: Stringer and Gamble, Ref. 4, pp. 42-45.
484. Beasley, Ref. 1, p. 158 (Table 2).
485. Beasley, Ref. 1, p. 158 (Table 2).
486. Kennedy, Ref. 299, p. 405.
   Kennedy suggests that:
   '. . . vault thickness remains high in most Asian and sub-Saharan "archaic Homo sapiens" *such as Dali, LH 18, Florisbad, Saldanha and others. LH 18, which is both* non-erectus *and non-neandertal is remarkable in that its parietal eminence thickness is above the means for all samples and is apparently exceeded by only a single specimen, "Sinanthropus XI". Most of the remainder of the so-called "archaic* Homo sapiens" *of sub-Saharan Africa, such as Kabwe and Omo 2, have vault thicknesses which are less than the mean for* Homo erectus, *yet more than the mean for am*Hs [anatomically *modern Homo sapiens], '*
487. Kennedy, Ref. 299, p. 405.
   Kennedy notes:
   '. . . the neanderthals share the H. erectus *pattern of increased vault thickness, although to a lesser degree, suggesting that the neandertals and* Homo erectus *might be sister groups. '*
488. Kennedy, Ref. 299, p. 405.
489. Zollikofer, C. P. E., Ponce de Leon, M. S., Martin, R. D. and Stucki, P., 1995. Neanderthal computer skulls. Nature, 375:283-285.
   The discrepancy between the (presumed) dental ages of these neanderthal infants and those of modern-day infants (ages 3 to 4 years) can be explained in terms of a stretching-out of childhood and formation and eruption timing of the permanent teeth. The development of taurodont/macrodont teeth in archaic humans may be a by-product of a somewhat longer interval for development of perikymata (successive layers of enamel bounded by the so-called striae of Retzius). This would go a long way to explaining the *presumed* precocious growth of the braincase in neanderthal infants in relation to a retarded facial region. (All three neanderthal infants had cranial capacities approaching or equalling the modern-day adult male Caucasian average.)
   It should also be noted that Figure 1b of the Zollikofer *et al.* paper creates the impression that the Gibraltar child was prognathic. This is misleading, since the computer-generated stereolithographic model would be strongly retrognathic, were it to be correctly oriented to the Frankfort horizontal.
490. Genesis 10:5, 20, 31-32.
   The recurring statements -
   '. . . according to their families, according to their languages, by their lands, according to their nations
   - seem to imply that the nations were formed out of the segregation of individual families at the time of Babel.
491. Genesis 11:24, 25.
492. Genesis 50:26.
493. Ref. 159, p. 34.
494. Wolpoff, Ref. 37, p. 323 (Figure and Text).
495. Ju-Kang, W., 1980. Palaeoanthropology in the New China. *In:* Current Argument on Early Man, Lars-König Königsson (ed.), Pergamon Press, Oxford, p. 203.
496. Stringer and Gamble, Ref. 4, p. 139.
497. Hadingham, E., 1994. The mummies of Xinjiang. Discover, 15(4):68-77.
   These mummies, some of which have been dated to between 3,700 and 4,000 years BP, were discovered in the foothills of the Tian Shan (Celestial) Mountains in North-West China. They are recognisably Caucasian.
498. Knez, E. I., 1990. Ainu. *In:* Funk and Wagnalls New Encyclopedia, vol. 1, p. 263.
   Knez states:
   'Many anthropologists believe that the ancestors of the Ainu belonged to the Caucasoid race; . . . . 'typical members of this group possess various Caucasoid characteristics, including light complexions, heavy beards, and thick, wavy hair. . . . . A few isolated communities of upland Ainu are identical in some respects to those of prehistoric times.'
499. Gibbons, Ref. 24, p. 28.
500. Wieland, Ref. 123, p. 140.
501. Stringer and Gamble, Ref. 4, p. 139.
502. Possible instances of individuals possessing archaic traits are to be found amongst the Pre-Pottery Neolithic 'B' (PPNB) level skulls at Jericho. The PPNB remains comprise no less than ten human skulls, which have been fleshed-out using plaster and inlaid (shell) eyes; see Lloyd, Ref. 75, p. 29, Figure 4.

Greg Beasley currently holds the position of Principal Analyst (Engineering) with the Rail Net group of State Rail in Sydney. He has a particular interest in palaeontology and palaeoanthropology — in particular the post-Flood fossil record of humans and primates. He has written previously for the **Creation Ex Nihilo Technical Journal** and resides in Prospect, New South Wales, Australia.