EVOLUTION AND THE PROBLEM OF MAN

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Criteria of morphology, taxonomy, reconstructions, tools, brain size, and language are evaluated as possible indicators of the humanity of particular man-like fossils. Depth sequence of hominid fossils is discussed with particular reference to three instances in which skulls that resemble modern man are buried deeper in the strata than others that are judged to be "primitive" by evolutionists. These data are related finally to evolutionism and special creationism, and an unanswered question is posed.

1. The Humanity of Fossils

"Man" shall be defined presently as a creature that possesses the combined traits of emotion, will, reflection, moral knowledge, and intellect, coupled with the abilities of communicating by verbal symbols and making or using tools. With this definition, or some similar one, it is easy to distinguish between a man and a gorilla.

Man has some concept of "good and "evil." Man likewise reflects about yesterday's rainstorm, or is perhaps worried about the threat of impending death from disease. But the gorilla gives no indication of such reflective activity. Furthermore, a fossil is found without either flesh or hair, and the fossil certainly affords no basis for behavioral analysis.

Yet anthropologists and paleontologists try to assess the spiritual nature of fossil materials from direct studies on the bones or artifacts found near them in the strata. Is it possible to erect a developmental series and to assign each man-like fossil to some category such as "non-human," "ancestral," "primitive," "sub-human," or "human" by analysis of existing evidences? The reader will perhaps be prepared to answer this question for himself after considering the criteria and problems involved.

Morphology

Morphology is the study of gross form and structure of organisms. Differences in form of living men do not necessarily indicate differences in intelligence or humanity as Klotz[1] has demonstrated in discussion of Maurice Tillet, "The Angel." This famous wrestler possessed the grossly distorted body and facial features which result from an imbalance thyroid condition known as acromelagy. Despite his bizarre appearance, Tillet was neither intellectually inferior nor "sub-human."

In evolutionary documents dealing with man's origin, the word "primitive" is attached to skulls that differ morphologically from those of modern man. From a broad prospective, however, at least two other possibilities exist in the evaluation of such a "primitive" skull: (1) the skull may differ only in form and may have otherwise pertained to a truly human individual (as with Tillet), or (2) the so-called "primitive" fossil may represent an extinct and entirely non-human group, biologically unrelated to man.

Pursuing the former possibility in a well-documented paper, Custance has shown that bone morphology can be affected by environment and development as well as by genetics.[2] Custance has provided evidence, for example, that such factors as sex, physiology, and diet may bring significant change in bony structure of modern humans. This same knowledge applies to studies of fossil man; and one cannot be sure that morphologically "different" skulls are necessarily sub-human or ancestral.

Parenthetically, the concept of a supposedly primitive morphology has led certain well-respected investigators to ignore or otherwise disregard primary geological evidence of depth as Custance demonstrated by quoting the famous anthropologist, Franz Weidenreich:

> In determining the character of a given fossil form and its special place in the line of human evolution, only its morphological features should be made the basis of decision: neither the location of the site where it was recovered, nor the geological nature of the layer in which it was imbedded is important.[3]

The unguarded statement of Boule and Vallois[4] also manifests how morphological considerations have insidiously hindered open evaluation of hominid fossils from North America: ". . . in some cases it is the deposit which is questioned, *sometimes the bones themselves are obviously modern:* often the evidence is unsatisfactory in every respect." The italics are my own and show how the geological position of some deeply-buried skulls has been brought to question, because they happen to look like modern man, who should not appear in deep strata, if evolutionary theory and uniformitarian geology are believed to be valid.

Allied to morphology is the matter of various "linking" fossils. A fairly complete set of morphological links relating man to some anthropoid ancestors would be necessary (but not entirely sufficient) evidence in support of evolutionism.

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The great paucity of fossil intermediates between man and animal, however, is so well-known that it needs little further attention here. De Wit presented diagrams of the actual fossil material fitted into a supposed evolutionary "tree" for man (after Johannes Huertzler). De Wit made this comment about the vacant spaces in the "family tree":

> From the diagram it appears that the group representing the human family is strikingly small in comparison with the long and empty branch of descent which, as the transformist hypothesis demands, goes back to the Oligocene and in which, up to the present, no fossil documentation whatsoever with respect to the assumed animal ancestors of man, has been found.[5]

Taxonomy

Taxonomy is the attempt to name and classify organisms. Some taxonomists are nicknamed "lumpers" because they habitually establish large groups, while others, the so-called "splitters," tend to create smaller groups, by instituting many separate species.

It is difficult enough to build meaningful and coherent species groups among the living plants or animals, but erecting a taxonomy of fossils is a far more vexing problem. The paleontologist studying man-like remains is frequently so preoccupied with only a very small segment of the biological world that he is tempted to magnify slight differences between separate fossils and to give each minor variant a new species and genus name.

Ernst Mayr believed that unbridled "splitting" has been practiced in fossil taxonomy to such an extent that the classifications have become unrealistic and certainly out of phase with the rest of biology:

> "This difference in standards becomes very apparent if we, for example, compare the classification of the hominids with that of the *Drosophila* flies. There are now about 600 species of *Drosophila* known, all included in a single genus. If individuals of these species were enlarged to the size of man or of a gorilla, it would be apparent even to a lay person that they are probably more different from each other than are the various primates and certainly more than the species of the suborder Anthropoidea. What in the case of *Drosophila* is a genus has almost the rank of an order or, at least, suborder in the primates. This discrepancy is equally great at lower categories. . . .[6]

Mayr referred with regret to the fact that various hominid skulls such as the so-called China man, Java man, and South Africa ape man have been partitioned by taxonomists into distinct genus groups: *Sinanthropus, Pithecanthropus,* and *Australopithecus,* respectively. To the contrary, Mayr suggested using only the common names of the fossils and refraining from an absolute taxonomy because:

> The formal application of generic and specific names simulates a precision that often does not exist. To give the impression of an unjustified precision is as much of a methodological error as to make calculations to the fifth decimal when the accuracy of the original data extends only to the first decimal.[7]

These uncertainties and others indicate that one cannot turn to fossil taxonomy for evidence in support of man's proposed evolution. A taxonomy of bones is too indefinite to produce the absolute linking groups and transition stages that would be required by such a theory of development. Although Mayr[8] embraces the evolution theory of man's ancestry, he believes that all the man-like fossils are really quite similar and that they should be lumped together into only one genus: "It is proposed to classify fossil and recent hominids tentatively into a single genus *(Homo)* with three species *(transvaalensis, erectus, sapiens)."*

Reconstructions

From the standpoint of appearance, much of the difference between man and ape rests upon the attitude and expression of the face. Key evidence for development of men from beasts should therefore include a series of changes in which the animal face is gradually converted into the expressive countenance of a man.

Those who foster the evolutionary view have produced elaborate reconstructions of the fossil hominids.[9] A reconstruction is an attempt by artist and scientist to demonstrate how the extinct organism might have looked while living. Unfortunately, skulls and bones do not give an adequate basis upon which to rebuild the physiognomy, as Howells has indicated:

> The one kind of reconstruction of which anthropologists are universally suspicious is that which tries to show a fossil man in the flesh, desirable though this is, especially to the public. The reason is that there is no possible way of judging what the soft parts were like, while at the same time these soft parts determine the whole impression which the thing creates. On the same skull two different and equally possible coverings of flesh can make the individual look brutal and apish or human and refined. Suppose only that your own face were tinted and bewhiskered like Gargantua's, and you will see the force of this, to say nothing of substituting his lips and ears for yours.[10]

The philosophical and religious views of the workers who create a reconstruction will insidi-

ously influence its quality. In three splendid series of illustrations, Custance[11] has shown that a particular fossil skull such as that of China man, or Neanderthal man, might have had an expression of greater intelligence and humanity than the brutal visage conferred upon them by evolutionary artists.

The Neanderthal skull looks quite "modern" when given appropriate brush-work or ink sketching of flesh and hair. The China skull indeed demonstrates a striking resemblance to the Russian delegate at the 1958 Cairo Conference. A reconstruction by Neave Parker (Leakey's artist) gave the puzzling *Zinjanthropus* skull a truly soulful expression. (See page seven of this Annual–Editors.)

While of possible interest as an exercise in art or creative imagination, a reconstruction can hardly furnish acceptable scientific evidence for or against the humanity of any particular hominid fossil.

Tools

Since manufacture and use of tools is one human trait, perhaps the tools associated with a fossil hominid will shed light upon its status. Following this assumption, some workers have concluded that tools indicate the presence of human beings. With tools, as with other criteria, however, several problems arise.

Animals other than man use simple natural tools. The whiteneck crow drops rocks on ostrich eggs in dive-bombing action.[12] Weaver ants will grip and use their thread-forming larvae as living spindles for sewing leaves together, as Goetsch reported:

> The use of these ants of a tool not provided by their own bodies sets them off as a rarity in the animal kingdom. Tools were long thought to be an exclusive characteristic of man. Although this is untrue (the apes, for example, use stones for cracking nuts), the use of tools is most uncommon even among the higher vertebrates. Its "implement" enables the weaver ant to live in trees and to build solid nests, without—like related varieties—digging passageways in the wood, a labor for which it is not equipped.[13]

In at least one instance, a male chimpanzee has been seen by Kohler to make tools from bamboo tubes and pieces of wood for the purpose of reaching bananas. In such cases, however, Oakley[14] noted that: "Kohler could obtain no clear indication that apes are ever capable of conceiving the usefulness of shaping an object for use in an imaginary future eventuality."

Despite the use of natural or even wooden tools by some insects, birds, or apes, a shaped stone tool is often considered the hallmark of human industry. If this is so, then the presence of shaped tools in fossil strata might help establish the intelligence of hominids nearby. Tools linked to a fossil are certainly better evidence of personality than are reconstructions, taxonomy, or morphology.

Discounting an obvious evolutionary bias, Oakley's book is a helpful analysis of fossil tools.[15] He has presented many detailed illustrations of various tool types found near particular skulls. Impressive beauty and skill are seen in the Acheulian hand-axes supposedly formed by Swanscombe man–a fossil believed to antedate the Neanderthal cave types. On the other hand, tools attributed by Oakley to the Africa ape-man (p. 112) resemble the naturally chipped rocks ("eoliths," p. 12) so closely that one wonders if they are really tools or simply freaks of nature.

Attributing one certain tool to a specific fossil is not always feasible. How can one be sure that the creature buried near the tool actually formed it? An arrowhead found in the skull of a wild pig probably was used by a hunter to kill the pig. But the question becomes more hazy and yet more acute in the case of a tool associated with an ape-like creature. Did the creature make the tool, or was the tool simply buried near the creature, having been formed by another organism existing contemporaneously? This built-in problem has led to endless controversy about the famous South Africa ape-men. Some workers like Robinson, consistently believed they were able to use, but not to make tools:

> I submit therefore, that there is no good evidence in support of the thesis that australopithecines were stone toolmakers but that there is very pertinent evidence against it, favouring the idea that this group consisted essentially of tool-users.[16]

On the contrary, Leakey originally believed that the East Africa man group of Australopithecines were the builders of tools found in the Oldowan deposits, as this quotation and picture caption indicate:

> Such a being, who set about shaping the raw materials of nature in a regular pattern to suit his needs, was the one worthy to be considered the earliest human. And at last we have found him.
>
> I call him *Zinjanthropus,* or "East African Man."
>
> Sharpened pebbles enabled *Zinjanthropus to* skin animals. He made the tools by chipping jagged cutting edges.[17]

In the mid-1960's, however, Leakey discovered remains that were more human in character at **deeper levels** than the bones of his East Africa man. These new finds caused him to change his mind, attributing the tools to the new skull

(which he has named *Homo habilis* meaning "Handy man"), and he has finally assumed that *Zinjanthropus* was one of the non-tool-making Australopithecines:

> The subsequent discovery of remains of *Homo habilis* in association with the Oldowan culture at three other sites has considerably altered the position. While it is possible that *Zinjanthropus* and *Homo habilis* both made stone tools, it is probable that the latter was the more advanced toolmaker and that the *Zinjanthropus* skull represents an intruder (or a victim) on a *Homo habilis* living site.[18]

Aside from the fact that a reappraisal such as this is highly commendable in the face of new evidence, it demonstrates that gross misunderstandings of culture can arise even when tools and bones are buried together in the same sedimentary deposit. It is obviously impossible as yet to assess the character of either fossil–East Africa man or Handy man. The tools of that layer might have been fashioned by East Africa man, by Handy man, by both, or by neither.

Exploring the last option, perhaps both Oldowan fossil types represent extinct non-humans, and the associated implements were accordingly made by a true man whose skull has not as yet been discovered. Such confusion, in this particular instance, shows that tool culture, good evidence as it is, cannot give unequivocal support for the intelligence or humanity of a particular skull.

Brain Size

Although it is tempting to assume that brain size in a fossil creature (as calculated from the cranial volume) would be an obvious index of its intelligence, such is not the case. Absolute, and even relative, fossil cranial volume may have little correlation with mental ability as Mayr has asserted:

> Attempts have been made to measure the attainment of this *Homo* level in terms of brain size. This method is fraught with difficulty. First of all, brain size is to some extent correlated with body size. If, for instance, a large gorilla should have a brain of 650 cc. this is not at all necessarily equivalent to the brain of a fossil hominid of 650 cc., if that hominid were much smaller than a gorilla. If the brain of the gorilla averages one-fourth larger than that of the chimpanzee, it does not mean that he is on the average 25 per cent more intelligent. The correlation between brain size and intelligence is very loose. There is good evidence that the brain size of late Pleistocene man may have averaged larger than that of modern man. If true, this does not mean necessarily that there has been a deterioration of man's intelligence since the Pleistocene for intelligence is determined not only by brain size. It is, of course, still unknown what neurological structures affect intelligence but the folding of the cortex and all sorts of specializations within the cortex appear to be as important as size. It is therefore dangerous, in fact outright misleading, to use size as an absolute criterion and to say that the *Homo* state was reached when brain size reached a level of 700 or 750 cc.[19]

Adult human beings may possess the largest brains among the primates, but they are surpassed in "relative brain size" by others. For various primates, Shultz[20] has divided the cranial capacity in cubic centimeters (cc) by the total body weight in grams (g) to yield percentage figures of relative brain size: cranial capacity (cc)/body weight (g) x 100= relative brain size.

Shultz showed accordingly that man has a high relative brain size (2.02) which is larger than that of the gibbon (1.94). But even such a parameter cannot be used as an absolute indicator of humanity, because the squirrel monkey, *Saimiri orstedii*, has a relative brain value of 2.97—even higher than that of man!

Brain size and intellect among living peoples have been thoroughly explored by Clark[21] who reported that skulls from men of normal intelligence vary in cranial capacity all the way from 900 to 2,300 cc. He cited the report of one apparently normal human being whose brain was only 720 cc, a surprising figure since the cranial capacity of a gorilla has been recorded as high as 685 cc.

Coon[22] presented a photograph of a living aboriginal woman (cranial capacity estimated as less than 1,000 cc) on the same page with that of a Chinese sage of cranial volume nearly 2,000 cc—yet both individuals are obviously human and contemporary.

Weidenreich[23] showed that there was great disparity between the calculated brain volumes of famous and talented authors-Anatole France at about 1,100 cc and Jonathan Swift at about 2,000 cc. It may be safely inferred from such data that brain volume cannot be used to estimate intelligence even among living men, as Clark has aptly summarized:

> . . . so far as it has been possible to apply appropriate tests, there is within such limits no marked correlation between the brain size and intelligence. . . . To the palaeo-anthropologist this lack of correlation is particularly disconcerting, for it means that he has no sure method of assessing the mental capacity of extinct types of hominid simply by reference to cranial capacity.[24]

Speech and Language

The facility to mimic sounds or words, present in such birds as the parrot and the parakeet, does not show original linguistic ability. Amazing transfer of information through the dance is reported from the bee hive, but here too, no suggestion of reflection or abstract conversation among the bees exists. If speculations about possible vocal contact among porpoises are presently ignored, it can be safely asserted that man is unique in his capacity to communicate ideas by verbal symbols.

Unfortunately, no known technique of fossil analysis can reveal the probability of speech. Some workers attempt to judge this quality by estimating the musculature of the mouth and throat in reconstruction–but such studies are at best only speculative.

Evolutionary stages between the simple communication in animal societies and the complex speech patterns of man have not been discovered. Some authorities believe there is a qualitative difference between human communication and that of animals–something akin to a quantum jump, as expressed by the British neurologist, Macdonald Critchley:

> It was implicit in this particular hypothesis as to evolution that differences between human and animal structure and function are matters of degree. Were this principle to be firmly established, then it would be difficult to avoid the idea that animal communication leads by insensible gradations to the faculty of speech in man. There are numerous linguistic objections to this view however. It is important to realize, too, that language does not stand alone in this matter and that there are other weighty considerations which lead to the well-nigh inescapable conclusion that some potent qualitative change occurs at a point somewhere between the anthropoid and *Homo sapiens*. . . . No "missing link" between animal and human communication has yet been identified.[25]

Similar opinions are presented by Lord Brain, former president of the British Association for the Advancement of Science:

> It is important to remember that man is different from other animals and that scientists should not think of animal behavior in human terms. At present, at any rate, we cannot imagine what an animal perceives but we can avoid thinking that this is like our own ideas or experiences. Man's relationship to his fellows and to the universe is uniquely different from that of any other animal. He faces different problems and solves them in different ways. Man's superiority is due to his intelligence, and his ability to manipulate the objects in the universe around him. These manipulations help him to increase his perception –by use of a microscope, for instance–an increased perception in turn aids his manipulations. Most important of these manipulations is the use of verbal and printed symbols which we call language. Of all known life forms, only man is self-conscious. Only man is aware of himself as a part of the greater world, and only man has ideas of right and wrong and theories concerning his feelings.[26]

2. The Absolute Depth Sequence of Certain Hominid Remains

Despite the symphony of problems under the previous topics, some anthropologists have continued to apply the labels of "primitive" or "advanced" to fossil man-like types, and have thereby attempted to illustrate the supposed history of human evolution. Dates have been applied to specimens in keeping with the usual stratigraphic assumptions.

Problems of uniformitarian geology versus catastrophism, and dating assumptions versus the young earth concept have been discussed adequately by Morris and Whitcomb[27] and elsewhere in previous volumes of this journal.[28] It is sufficient here to state that not all qualified scientists agree to the uniformitarian dating assumptions, or agree to the concept of gradual fossilization over vast epochs of time.

Such words, however, as "Pleistocene," "Oligocene," or "Second Interglacial" are bantered about in the semi-popular and scientific writings of anthropologists as if the designated time periods were scientific verities. The particular term "Second Interglacial," for example, will be applied to a layer containing a fossil, but the reader is given little or no exact information about the absolute depth (below surface) at which the fossil was found or the physical condition of the confining strata.

Uniformitarian time-philosophy has thus become so completely ingrained that many authors gloss over the whole topic of fossil depth. Some authors will list a few animal bones found with the supposed man, and then give the reader the uniformitarian name for the layer— *e.g.* "Mid Pleistocene." Such information is less than adequate for any serious student of paleontology, and it certainly does not satisfy the catastrophists desire for empirical data.

The field of anthropology is in dire need of an objective survey in which factual data, along the following lines will be presented for each fossil hominid:

1) depth of finds,
2) condition of strata,
3) number of kinds of bones discovered,
4) tools or other artifacts related to the layer,
5) results of appropriate dating analyses, etc.

Tabulated information of this sort is sorely needed before a scientific approach to fossil man can be initiated. Cousins[29] has taken a pioneer step in this direction with publication of his work *Fossil man.* In this small treatise, one finds a useful atlas of skulls with numerous photographs, drawings, excerpts from original literature, and descriptions of the bones.

When a worker does wish to establish the depth position of a fossil, he must be certain that it was deposited when the original stratum formed. Some human remains are obviously "intruders" to a particular layer–having been buried by their peers long after the stratum was deposited. The paleontologist tries to find evidence of ceremonial burial, or tries to determine if the specimen was actually engulfed in the original sediments.

Certain structural features may aid in answering the question. The absolute depth may be of significant help in itself. A fossil discovered beneath 65 feet of gravel, for instance, can hardly be attributed to artificial human burial. A fossil cemented conformably in a firm matrix of limestone or breccia also bespeaks natural deposition.

Chemical analysis of the fossil may provide additional, valuable information. Fluorine occurs in most ground waters as the fluoride ion which is gradually absorbed and fixed". . . in the phosphatic material matter of bones and teeth buried in permeable formations."[30] Oakley, the originator of this dating technique, has clearly foreseen its problems and limitations:

> The fluorine method is most suitable for the relative dating of bones in gravelly or sandy alluvial deposits in temperate regions. It is applicable to some extent where the containing deposit is alluvial clay, but it is of little or no use in cave-earth or other cave deposits where calcite seams have prevented the percolation of fluorides. The method is not reliable in tropical or volcanic soils. . . . The fluorine content of fossil bones increases with their geological antiquity, but at a rate which varies from site to site, being dependent on the hydrological conditions, climate, type of matrix, and amount of fluorine in circulation. . . . It cannot be emphasized too often that fluorine analysis is not a means of estimating the absolute ages of bones beyond the limits of carbon-14 (as one might have falsely gathered from some popular expositions).[31]

In this same reference, Oakley described other, relative, chemical dating methods based on uranium deposition and on the disappearance of nitrogen from buried bones with time.

The fluorine method is good only for relative dating and then only at one particular site.[31,32,33] The method finds its greatest value however, in this very manner. If a given fossil contains the same amount of fluorine as other bones near it in the stratum, it was probably buried naturally and its position is probably valid. If a particular skull gives very low percentages of fluoride, while nearby bones have a significantly higher fluorine content, one might logically infer that the skull was buried some time after the fossil layer itself had formed.

Based on these considerations, several pairs of fossil hominids will presently be studied. In each case, both fossils of the pair were found in approximately the same site or region. One member of each pair is believed (in terms of evolution theories) to be "primitive" or possibly "prehuman," while the other is more like modern man. It will be instructive to ascertain the depth positions of each, and to relate these data finally to the problem of man's origin.

Zinjanthropus and *Homo habilis*

Zinjanthropus (East Africa man) was discovered in 1959 by Mary Leakey, wife of anthropologist Louis S. B. Leakey. The skull was found embedded in the strata of a canyon, the Olduvai Gorge, which ". . . slices through 300 feet of sediment covering the bed of a prehistoric lake"[34] in the present country of Tanzania.

In his 1960 article, Leakey mentioned the "Bed I" stratum in which East African man was found in the bottommost layer, with note made of so-called "Bed II" deposits starting from about 40 to 100 feet above Bed I, above which are still higher formations.[35] Bed I evidently is of considerable depth, because Leakey's technical report[36] gave the position of the skull as approximately 22 feet below the upper limit of Bed I, as follows:

> An extensive and rich living floor of approximately 1-2 in. in thickness has been uncovered. It rests on a bentonitic deep-water clay and is immediately overlain by a consolidated deposit of water laid volcanic sand. This living floor lies some 20 feet below the uppermost surface of Bed I.[37]

The skull was found lodged in the soft rock in the process of being eroded from the cliff, ". . . contraction of the rock had cracked the fossil into more than 400 fragments."[38] After assembling the pieces, it became apparent that the skull shared some bony resemblances to man and yet some "primitive" traits.

Like man, the skull had large, flat-crowned molar teeth together with small incisors and canines. The forehead region, however, was flatter than that in modern man, . . . the flat forehead is primitive, even apelike."[39] And again, "Our man also had a sagittal crest, a bony ridge crowning the skull, that is seen in certain of the lower primates and some near-men."[40] The cra-

nial capacity of East Africa man is estimated at 530 cc.[41]

But *Homo habilis* (who shall here be called "Handy man" to avoid taxonomic commitment) was discovered at a **deeper** layer. As Leakey reported, "In addition to the excavations at this main site, a second site has been located, not far away, at what appears to be a slightly lower level of Bed 1."[42] In this second and deeper fossil site were found a hominid mandible, parts of two other hominid mandibles, skull fragments, teeth, two clavicles, a part of the left foot, six finger bones, and two ribs.[43] Leakey gave attention to one object:

> Perhaps the most remarkable object from his second site (F.L.K.N.N. 1) is a genuine bone tool (fig. 4). This would appear to be some sort of a "lissoir" for working leather. It postulates a more evolved way of life for the makers of the Oldowan culture than most of us would have expected.[44]

The teeth of Handy man are described and they are **not** like those of South Africa ape-man, but are more like the teeth of modern man, "The first molar is well worn and has a general cusp pattern reminiscent of what can be seen in some recent Australian Aborigines, but it is of course larger."[45]

A portion of the original report of these deeper fossils is of particular interest:

> The two parietals are especially remarkable because, although they apparently belong to a young individual only twelve years old (or less), they are larger than those of *Zinjanthropus.* They are remarkably thin, and exhibit no sign of a saggital crest or of any marked temporal line. The lack of both these may, perhaps, be due in part to the youthful age. Nevertheless, these parietals suggest that we are dealing with a hominid with a larger brain capacity, as well as somewhat less specialized, than *Zinjanthropus.*[46]

Tobias calculated the possible range for the cranial capacity of Handy man to be from 642.7 cc to 723.6 cc with an average value of 680.8 cc. This is, of course, significantly greater than the 530 cc of East Africa man. Tobias commented,

> All these values lie in the area between the largest known australopithecine (530 c.c.-600 c.c. as the estimate for an adult corresponding to the Taung child, Tobias 3) and the smallest known *Homo erectus* capacity (775 c.c.).[47]

While the intellectual-spiritual status of neither creature can be determined with certainty, it is interesting that the Handy man fossils, considered more "modern" on several accounts by evolutionists, lie **deeper** in the strata of Olduvai Gorge than the skull of the supposedly more "primitive" East Africa man.

Neanderthal and Swanscombe man

There are many cave sites in Europe, Africa, Gibraltar, Palestine, and elsewhere that have yielded skulls and many other bones of so-called Neanderthal man. From such plentiful fossil material, specialists have reconstructed entire skeletons, and completed detailed studies on body structure.[48] The anatomy of Neanderthal man has been summarized as follows:

> Body of short stature but very massive. Head very large, with facial region much developed in comparison with cerebral region. . . . Skull much flattened; orbital arches enormous, forming a continuous ridge; forehead very receding; . . .
>
> Face long and projecting with flat and receding malar bones. . . . Orbits very large and round. Nose very large. . . . Lower jaw strong and chinless. . . . Dentition massive, structure of black molars retaining certain primitive characters. Vertebral column and limb bones showing numerous simian characters and indicating a less perfect bipedal or upright carriage than in modern Man. Legs very short.
>
> Brain capacity averaging about 1,450 cubic centimeters. Brain formation presenting numerous primitive characters, especially in the relatively great reduction of the frontal lobes and the general pattern of the convolution .[49]

This description by the noted fossil students Boule and Vallois contains both fact and philosophy. It is apparent, nonetheless, that evolutionists believe Neanderthal man was "primitive" in structure, if not also in behavior. Both of these points are debatable, since it is not permissible on strictly scientific grounds to call a bone "primitive" just because it varies in shape from that of modern man.

As has been noted, a "primitive" creature may have been completely non-related to man and hence not a primitive ancestor at all. Or else the supposedly "primitive" individual may have differed only in form, but not in intellect or the other spiritual qualities which mark mankind. In either case, it is more accurate to say that Neanderthal simply differs from modern man in these particular ways and others.

The Neanderthal man had a cranial capacity as large or larger on the average than that of modern man, although this also is an inadequate criterion of judgment.

Concerning behavior, Oakley[50] presented plates of the so-called "Mousterian" tool industry that is believed to be the product of Neanderthal man. These tools are admittedly well-shaped and, if made by the Neanderthals, are evidence of noticeable skill and craftsmanship. In one particular cave that contained Neanderthal remains, bear skulls were found systematically

stacked–an occurrence that Howells[51] suggested might indicate some form of worship as with the Menominee Indians of today.

The mental status of Neanderthal man in relation to modern man cannot be determined, although it can be stated that his bones are plentiful and are somewhat different than corresponding bones of modern man. Furthermore, it is clear from writings of evolutionists that this creature has been judged as "primitive" in terms of developmental theory. The association of Neanderthal fossils with particular animal remains (certain extinct elephant, hippopotamus, and rhinoceros types)[52] has caused historical geologists to place the creature in the supposed "Mid Pleistocene" and "Upper Pleistocene" periods of uniformitarian geological theory.[53,54]

A knowledge of the facts and theories surrounding Neanderthal man is a prelude to the study of Swanscombe man. In 1935, Marston (an English dentist and amateur archeologist) found, as Lasker stated:

> . . . several pieces of a skull deep in a stratified deposit of the 100-foot terrace of the Thames River. The circumstances of the find were investigated and confirmed by a committee of the Royal Anthropological Institute.[55]

These bones were buried to a depth of 24-26 feet in the gravel of the Thames river at Swanscombe, Kent.[56,57]

Three bones of the skull were found at different times-the occipital and both parietals.[58,59] Although the skull is not complete, cranial capacity has been estimated at 1,325 cc.[60,61]

The character of these deeply buried bones is remarkable, as evidenced in the following excerpts quoted from various anthropologists:

> There is nothing in these bones to distinguish them from those of *Homo sapiens,* except, perhaps, their thickness. (Broderick)[62]
>
> The two bones, in excellent condition, appeared at first sight very similar to those of modern man and very different from those of Neanderthal Man. In particular, two very typical characteristics of the latter–the elongation of the occipital into a "chignon" and the presence on this bone of a relatively marked torus-are totally lacking in the Swanscombe skull. (Boule and Vallois)[63]
>
> As far as these go, little except unusual thickness would appear to distinguish the remains from the corresponding parts of modern man. (Lasker)[64]
>
> If these women were not sapiens, neither are many of the living female Australian aborigines and New Caledonians, whose skulls Steinheim and Swanscombe resemble in grade, but not in line. (Coon, speaking of both Swanscombe and Steinheim skulls)[65]

Fossils discovered near Swanscombe bones in the Thames terrace included the extinct elephant and rhinoceros[66] that are related to the supposed "second interglacial" time period.[67]

Tools found near the Swanscombe specimens included over 600 artifacts of the Acheulian type.[68,69] The well-formed Acheulian hand axes reputed to have been made by Swanscombe are pictured by Oakley.[70]

On the basis of fluoride and nitrogen percentages, it can be reasonably inferred that the Swanscombe bones were a valid part of the original gravel deposits and probably do not represent a later burial:

(From a table by Oakley[71])

Specimen	% Fluoride	% Nitrogen
Modern Bone	0.01	4.0
Neolithic Skull	0.3	1.0
Swanscombe Skull	1.7	traces
Bones of fossil mammals from Swanscombe gravels	1.5	traces

It can be seen here that percentages of fluorine and nitrogen for both Swanscombe and nearby animal fossils are similar, whereas the amount of these two chemicals in Swanscombe and its associated animals differs greatly from corresponding percentages in modern bones or even more "recent" fossils such as the Neolithic Skull. After considering these chemical and stratigraphic evidences, Clark concluded:

> Taking all the evidence into account, it may be affirmed that in no other example of Paleolithic man is the dating more completely attested than it is in the case of the Swanscombe bones.[72]

Lasker also asserted:

> Furthermore, fluorine analysis of the human bones indicates a degree of fossilization comparable to that of the Middle Pleistocene animal bones from the same 100-foot terrace. Here we have well-attested evidences of an antiquity greater than that of any of the Neanderthalian or Neanderthaloid specimens known.[73]

Considering their truly "human," or "modern" character (from the standpoint of evolutionism), the position of the Swanscombe bones is significant—deep in the fossil strata, **deeper** than nearly all Neanderthal materials. As in the case of East Africa man and Handy man, there is with Swanscombe another instance in which a specimen of supposedly more "modern" character is found deeper than its reputed "ancestors."

Neanderthal and Fontechevade man

In 1947 Mile. G. Henri-Martin undertook excavation of a deposit at Fontechevade in southern France. This cave and its entrance had been pre-

viously studied. The superficial strata had yielded stone tools of Mousterian (Neanderthal) type. In the upper part of the cave deposits, as Coon related, Mile. Henri-Martin had:

> . . . found Mousterian artifacts of a kind characteristically made by Neanderthal men, but no human remains. Below this level lay a limy crust, which not only effectively sealed off what lay below but also indicated a considerable time gap between the two layers.[74]

Lasker stated:

> It is believed that the cave roof extended over this part at the time these men lived, because the layer was completely sealed off by an overlying layer of stalagmite from the former ceiling of the cave. Above the stalagmite were strata containing stone tools of Mousterian type (the culture of Neanderthal man) and later Paleolithic types.[75]

The thick, limy layer seemed to be the floor of the cave mouth. Actually, it was a layer of stalagmite which had formed when the cave mouth was enclosed. Mlle. Henri-Martin penetrated the stalagmite layer and under it found 7 meters of deposits[76] in which, at a depth of 2.60 meters, she discovered many animal fossils, stone tools, and two apparently human skull bones.

The one skull fragment was a patch from the brows (the frontal or forehead bone) about the size of a silver dollar[78] while most of the top of the skull of the second skull-crown was present.[79] A calculation of cranial capacity gave the value of 1,450 cc. or greater.[80]

Not all the frontal bone was present, but from what exists, Fontechevade man did not appear to possess the supraorbital ridges typical of Neanderthal:

> The forehead of Fontechevade Man was therefore shaped like that of Modern Man and quite differently from that of Neanderthal Man.[81]

Lasker concluded that:

> The brow ridges are of feeble development, such as occur in European women today. . . . The one distinctive feature, it seems to me, is that the frontal region, especially of the first specimen, is apparently of modern type.[82]

Animal fossils found in the deep deposit included mammalian bones and other "warm temperate fauna."[83] Coon[84] listed the following faunal members in the deposit: the extinct Merck's rhinoceros, fallow deer, bear, tortoise, and *Cyon*, a wild dog now found mostly in southern Asia. On this basis, uniformitarian theorists put these layers in the "last interglacial" period:

> The animal fossils are of forms associated with a warm to temperate climate, hence consistent with a date of the last interglacial period.[85]

Tools were also present in the deposits, sealed beneath the stalagmite floor:

> The stone flakes found at the level of the skulls are of a coarse type called "Tayacian" and ascribed to the Lower Paleolithic.[86]

Plates of representative Tayacian tools have been provided by Oaldey.[87]

Fluoride tests have been applied to the Fontechevade skull remains:

> Oakley was asked to test the remarkable fossils found in a deeper level in a cave of Fontechevade, France. Their fluorine content and that of animals from the same level averaged 0.4 and 0.5. Fossils from the upper part of the cave had a fluorine content of 0.1 per cent.[88] Their content of fluorine is of the order of the animal bones in the lower layers where they were found, and greater than that of bones from above the stalagmite floor which sealed them over.[89]
>
> Finally, the fluorine test showed the skull bones to contain 0.4-0.5 per cent fluorine, as compared with a range of 0.5-0.9 per cent for mammalian bones of Tayacian date and 0.1 per cent or less for human and mammalian bones from the superimposed Aurignacian level. As in the case of the Swanscombe skull bones, therefore, the evidence for the antiquity of the Fontechevade skulls seems to be well assured.[90]

Again the striking anomaly of a "modern" man buried **deeper** than the different or "primitive" forms is seen. The position of the Fontechevade man in the strata is unimpeachable. Custance has seen the importance of such data for the entire theory of man's origin and has summarized by saying that:

> What this really boils down to, is that instead of a nice orderly series of fossil specimens, passing from very primitive to quite modern types, we in fact find the record supports no such pattern. Some of the lowest levels present us with fossil remains that are to all intents and purposes completely modern in appearance, while some of the latest levels throw up specimens which nicely fit the preconceived picture of what the earliest representatives of man are supposed to have looked like. Naturally there had been some tendency to disregard these misfits by questioning whether the levels at which they were found had been correctly reported-until Fontechevade.[91]

3. Conclusions

It is impossible to construct an evolutionary tree of man's origin for the simple reason that the intelligence and humanity of man-like fossils cannot be evaluated with certainty. Furthermore, fossils that closely resemble modern man are often buried deeper than those which are

supposed to be his ancestors according to evolution theory.

Following a creation origins model, these data have better fit and problems vanish. Bible creationism proposes that all men, modern or fossil, have descended from two ancestors who were formed quickly and miraculously from the dust of the ground (Genesis 2:7).

Then this pair, presumably rich in genetic endowment, may have given rise to variant morphological races through the mechanisms of mutation and selection. Before, during, and after the great flood (Genesis 6-8), many of these truly "human" types may have undergone burial and fossilization in sedimentary, cave, or volcanic deposits.

Furthermore, there may have been anthropoid (ape-like) "kinds" that were separate creations and of no biological relation to man. Some of these may have resembled man quite closely. Such non-human kinds may have also experienced extinction and fossilization. In this creation view then, there is no difficulty if relatively "modern" fossil bones are found beneath the "primitive" skulls.

Creationist students of anthropology can presently contribute to the discipline, if they will ignore the "ages" concept of the rock layers, and begin to correlate the absolute depth of fossils in the strata to their morphological patterns. A compendium of such information is greatly needed.

In either view, creationism or evolutionism, however, one key problem remains unanswered: What was the character, intellect, linguistic ability, and general spiritual capacity of each particular hominid or anthropoid fossil? In most cases as yet, this important question can be given no proper answer.

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NOTABLE PUBLICATION

The Case for Creation by Wayne F. Frair and P. William Davis. Moody Press, Chicago, Illinois, 1967. (Christian Forum Book, 95¢)

Mistakenly thinking that evolution is a dead issue, many Christians demonstrate an all too prevalent lack of understanding for the full scope of this evangelical dilemma. Even a number of those who have written and spoken on the subject of evolution have failed to grapple with the real issues. They have criticized the evolutionary position, but have not proposed an alternative which is biblically sound while being intellectually acceptable and open to experimental demonstration.

The Case for Creation is a critical examination of some of the theoretical foundations of modern evolutionary theory with excursions into specific areas of controversy. The book is designed *to stimulate the development of a biblically sound alternative to evolutionary theory* which will provide a satisfactory explanation for both scientific intellectual reasons.

Maintaining that evolution is not established fact, and the theories, hypotheses and laws of science are not necessarily absolute truth, the authors present a skilled argument for the Creationist viewpoint.

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