

Science Tear Sheet #3. Finding and Interpreting Fossils

Science Tear Sheets #1 and #2 explained that evolution has not been demonstrated using the scientific method and much of the evidence for evolution consists of forensic evidence such as fossil interpretation. This raises questions as to how fossils are found and interpreted.

A fossil consists of the hardened remains of an animal or plant from a previous geological age, and is formed by rapid burial after death, so that normal decomposition does not occur. The process of discovering fossils is relatively straightforward. Typically, a promising area of land is chosen based on the presence of visible fossils, or on evidence that in the remote past, animals would have had access to water and food. Particularly productive are those areas that have been eroded, such that, in what can be compared to a multi-layered slice of cake, horizontal layers of earth called *strata* are exposed.

Evolutionists claim that many animals (including whales, humans, horses, and birds), have a fossil record that traces the species' evolutionary history (Science Tear Sheets #7). They claim that the dating of fossils and their sequential arrangement reveals a gradual evolution of the shape and function (morphology) of these groups from primitive to modern. What is not admitted in high school textbooks, however, is just how speculative the evidence really is due to the fragmentary nature of most fossils, and that even the scientific literature admits that no transitional forms exist.

For example, in the field of paleoanthropology (the study of human origins and evolution), fossil finds are often fragmentary and fossil teeth are the most common find. A mandible (lower jaw) with a few teeth still intact is a major find, and many evolutionists have judged this sufficient evidence on which to announce a new "hominid" species (a species more closely related to modern man, *H. sapiens* than to other living species). A great many extrapolations have also been made based on the slightest difference in tooth size and morphology, and many blunders have resulted from reliance on such scant evidence.

Errors arise because, when evaluating fossil teeth, evolutionists often 1) establish the characteristics of *H. sapiens*' teeth as the most recent or modern "bookend" in the evolutionary sequence; 2) establish the characteristics of the chimpanzee or other primate as the early or primitive bookend; 3) determine if a fossil tooth has a size and morphology somewhere between the two bookends; and if so, 4) declare that a transitional specimen has been discovered. But this approach is constructed assuming that evolution is true, and *allows any three fossil teeth to be aligned in an evolutionary sequence*, even though there may not exist the *slightest* evolutionary relationship among the specimens.

For example, it is known that *Ramapithecus*, an extinct ape dating from 8 to 15 million years ago (mya), had small teeth with a form and structure (morphology) that align much more closely with *H. sapiens* than with the modern chimpanzee—even though evolutionists hold that the chimpanzee is more closely related to *H. sapiens*. Yet, for more than a decade, the bookend approach described above led evolutionists to assert that *Ramapithecus* was a hominid closely related to modern man. Eventually, evolutionists were forced to concede that the *Ramapithecus* fossils "probably represent the ancestry of the orangutan, and have no particular affinities to hominids."¹ Indeed, the teeth of *Ramapithecus* should never have been forced to fit within a preconceived evolutionary sequence, for this approach can result in classifying as an evolutionary ancestor, any ape or apelike specimen that has small teeth.

Another error related to assignments based on fossilized teeth is the failure to consider the significant variation in tooth size morphology found within most species. In other words, the limited variation within a species is not adequately considered when studying morphology. As explained in a revealing *Scientific American* article:

...the taxonomic position of any new fossils is determined on the basis of exquisitely detailed morphological studies of isolated specimens. The analysis is almost always conducted on fossil jaws and teeth because these dense and durable parts of the body are the most likely to be preserved. What this procedure tends to ignore is that among such living hominoids as chimpanzees *the jaws and teeth exhibit a high degree of morphological variability. There is no reason to believe the same was not true of hominoids in Miocene and Pliocene times...* It would appear that, by scarcely considering the role of variability in evolution, paleontologists have emphasized taxonomic “splitting” [creating a new species] at a time when the record of man’s animal ancestry might better be clarified by considerable “lumping.”ⁱⁱⁱ [emphasis added]

When errors arise from fossil interpretation, more errors emerge. For example, evolutionists *assume* that a reduction in tooth size occurred only after hominids had become bipedal (walking on two feet) tool-makers. According to their reasoning, a biped would have been able to use tools, which would mean that large teeth were no longer required as weapons or to perform certain work such as skinning animals. Tool use would allow individuals with smaller teeth to survive and replace earlier lineages that, having large teeth, were not bipedal tool-makers. Such reasoning leads many evolutionists to view small teeth as proof of bipedalism, tool-making capability, large brains, and intelligence. Paleoanthropologist Owen Lovejoy even suggests that small tooth size in hominids indicates monogamy (having only one mate), as males with small teeth would not need to compete effectively with other males for the control of multiple females.ⁱⁱⁱ In making such extrapolations, evolutionists often discard ample evidence that a given tooth is from an extinct apelike creature with no greater intelligence or bipedal ability than the modern chimpanzee. For years, paleoanthropologist David Pilbeam claimed tool-making and bipedal status for the small-toothed, ten-million-year-old *Ramapithecus* before conceding it was simply an extinct orangutan-like species. He explains:

Many of us believed that distinctly hominid traits like small canines, upright bipedal posture, dexterous and manipulative hands, large brains, and advanced mental capacities were intimately linked to the adoption of tools. So firmly were we committed to the idea that large canines were replaced by tools or weapons and that bipedalism was promoted by and necessary for tool use, that we took the small canines of *Ramapithecus* to mean that the creature must have been an upright tool user.^{iv}

Considering the speculation involved in interpreting dental and cranial fossil fragments (together, *craniodental* evidence), it is understandable that many people dismiss the claims of evolution, especially human evolution, as unfounded. What few realize, however, is that *such dismissal of human evolution can find strong support within the scientific literature itself.* In April of 2000, the *Proceedings of the National Academy of Sciences* published an article by two leading anthropologists that acknowledged *only recently* have evolutionists considered the possibility that “the type of qualitative and quantitative craniodental characters normally used to reconstruct the phylogenetic [evolutionary] relationships of hominin species and genera are not reliable for this purpose...”^v After comparing evolutionary histories (*phylogenies*) developed from cladistic analysis with phylogenies constructed from molecular studies:

We found that the phylogenetic hypotheses based on the craniodental data were incompatible with the molecular phylogenies for the groups. Given the robustness of the molecular phylogenies, these results indicate that **little confidence can be placed in phylogenies generated solely from higher primate craniodental evidence.** The corollary of this is that **existing phylogenetic hypotheses about human evolution are unlikely to be reliable.** Accordingly, new approaches are required to address the problem of hominin phylogeny.^{vi} [emphasis added]

This conclusion is staggering! It means that, counter to the most fundamental underlying assumption in paleoanthropology, *craniodental fossil remains are not a valid indicator of genetic relationships*. Another study in the *Journal of Human Evolution* used analyses of six primate species to determine whether the morphology of molars could produce reliable indications of evolutionary history. The author concluded that morphological studies erroneously assume:

...that features shared by humans and orangutans (low cusps, shallow intercuspal notches, etc.) are indicative of a recent common ancestry, when in fact these are probably only signs of similar diet. In short, although study of molar morphology may yield substantial insights into diets of fossil hominoid primates, there may be severe limitations to their suitability for phylogenetic inference.^{vii}

Further discussion of the fossil evidence for humans is found in Science Tear Sheet #4. See also Science Tear Sheets 7, 8, 9, and 10 for the examination of other fossil evidence.

For Discussion:

1. How can false evolutionary sequences arise if the normal variation within a species is not considered when interpreting a fossil? Do evolutionists have any incentive not to consider normal variation when announcing their discoveries?
2. Discuss the implications on the field of human evolution if craniodental evidence is not a good indicator of evolutionary relationships. Why do you believe that evolutionists have assumed the opposite for more than 100 years?
3. Do you expect that the science textbooks will soon correct their claims that human evolution is supported by the craniodental fossil evidence? Do parents and students have a right to expect such a correction? What other considerations may be influencing the continued misrepresentation of the fossil evidence? (Hint: see the discussion of worldviews and ideology on Tear Sheet #1)

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Students and teachers are encouraged to make this material part of the discussion of Darwinian science. Where schools are not willing to allow criticisms of Darwinism, it is all the more important for the Tear Sheets to be distributed outside of class and for students to ask questions about the deceptive Darwinian claims presented in textbooks.

ⁱ Matt Cartmill, David Pilbeam, Glynn Issac, "One Hundred Years of Paleoanthropology," *American Scientist*, vol. 74 (July-August 1986), p. 414.

ⁱⁱ Robert B. Eckhardt, "Population Genetics and Human Origins," *Scientific American*, January 1972, p. 96.

ⁱⁱⁱ Donald C. Johanson, "The Dawn of Humans: Face-to-Face with Lucy's Family," *National Geographic*, March 1996, p. 112.

^{iv} David Pilbeam, "Rearranging Our Family Tree," *Human Nature*, June 1978, p. 42.

^v Mark Collard and Bernard Wood, "How reliable are human phylogenetic hypotheses?" *Proceedings of the National Academy of Sciences*, vol. 97, no. 9, April 25, 2000, p. 5003.

^{vi} Ibid

^{vii} Steve E. Hartman, "A cladistic analysis of hominoid molars," *Journal of Human Evolution*, vol. 17 (1988), p. 497-498.