THE HORSE FAMILY TREE—A CASE STUDY IN EVOLUTION

Trevor Major, M.Sc., M.A.

INTRODUCTION

Many classic “evidences” for evolution have been perpetuated through textbooks long after they have been exposed as fallacy or fraud. Whether intentional or not, this guarantees that the average student, who later will graduate to become the average man-on-the-street, is left with no doubt as to the supposed firm evidential support for life’s common descent by naturalistic processes. Good examples would be Haeckel’s embryonic recapitulation theory, certain fossil “men” (see Wayne Jackson, “Frauds in Science,” Essays in Apologetics, Apologetics Press, Montgomery, Alabama, 1984, 1:6-10) and Archaeopteryx (see F.W. Cousins, “The Alleged Evolution of the Birds,” A Symposium on Creation, Baker, Grand Rapids, Michigan, 1971, 3:89-99). Presumably, presentation of the “evidence” persists until either a “better” example arises, or the scientific community in general becomes embarrassed by its continued use.

The subject of horse evolution probably would be classed in the former, that is, a classic example having innumerable problems but doing great service in illustrating evolutionary principles. In fact, the horse evolutionary tree (or phylogeny) usually is represented as a supreme example of undeniable developmental change occurring over millions of years. Professor Storer and colleagues, in their textbook, Elements of Zoology, wrote: “The Family Equidae provides about the most complete record of evolution in an animal series..., leading to the existing horses, asses, angoras and zebras of the Old World” (McGraw-Hill, New York, 1977, p. 211, fourth edition). Similarly, Helena Curtis described the evolution of the horse as “one of the best-known examples” of phyletic evolution (i.e., change over time in a series of related organisms) “whose history is abundantly represented in the fossil record” (Invitation to Biology; Worth Publishers, New York, 1977, p. 460, second edition).

The purpose of this article is to show that the horse evolutionary tree essentially does not exist, and that so-called horse-like ancestors are unique, well-defined animals possessing variations within prescribed limits expected from created kinds.

BACKGROUND

History of Fossil Discovery

While there is indeed a great wealth of equid (horse-related) fossil material today, the confidence expressed by evolutionists in the horse series has existed for over a century. In 1870, eleven years after Charles Darwin published his Origin of Species, evolutionists believed they had found a wonderful example of transformation in the fossil record. One of their chief spokesmen, Thomas Huxley, made the following gleeful announcement to the Geological Society of London:

“It is easy to accumulate probabilities—hard to make out some particular case—in such a way that it will stand rigorous criticism. After much search, however, I think that such a case is to be made in favor of the pedigree of horses (as quoted by S.J. Gould, “Life’s Little Joke,” Natural History, April 1987, p. 16).

The story began in the late 1830s with the discovery in England of a skull fragment, and later a well-preserved skull (Contrasts, 2[4]:2). Eminent paleontologist Sir Richard Owen believed the bones belonged to a new ungulate (hoofed) genus he called Hyracotherium because he thought it resembled the modern rodent-like Hyrax or daman living in North Africa and Western Asia. Owen also saw affinities between Hyracotherium and other animal orders, but he never mentioned any relationship to horses (see F.W. Cousins, “The Alleged Evolution of the Horse,” A Symposium on Creationism, Baker, Grand Rapids, Michigan, 1971, 3:75). As more skeletal material accumulated in Europe and Asia, V.D. Kovalevsky helped initiate the idea that Hyracotherium gave rise to the modern horse (Equus) via the fossil “intermediates” called Anchitherium and Hipparion.

But it was Huxley who really popularized the horse lineage, first by making such public statements as noted above, and then by applying his own intellectual skills to the problem. However, while those of the Old World were making their conclusions, Yale paleontologist Othniel C. Marsh was involved in his own discoveries, and had amassed an impressive array of similar fossils from Western North America. Marsh had found not only Hyracotherium (which he called Eohippus, “dawn horse”), but also a whole range of supposed transitional forms in the following sequence: Orohippus, Mesohippus, Miohippus (American equivalent of Anchitherium), Protohippus (equivalent to Hipparion), Pliohippus, and finally old dobbin himself, Equus.

Note how Marsh, from the very beginning, included the Greek word for horse (hippos) in the names of these fossil animals. Kovalevsky identified three fossil genera in the horse family, but by the late 1940s this figure had risen to 26.

The next part of the legend continues in 1874 with the publication of Marsh’s initial findings (American Journal of Science, 7:255) in which he concluded that the European sequence represented extinct and dead-end forms that had migrated from the Americas. The actual evolutionary process and line of descent, according to Marsh, had occurred in the latter continent.

Two years later, Huxley was visiting the United States to give a lecture on horse evolution at the founding of Johns Hopkins University in New York, but having read Marsh’s paper, he first diverted through Yale to see the collection of fossils. After Marsh presented such a good case, Huxley capitulated to the American’s interpretation. In the following weeks, Huxley and Marsh cooperated in producing a chart that was presented to the New York audience by Huxley, and that later was published by Marsh (“Polydactyle Horses,” American Journal of Science, 1879, 17:499-505).

From that time forward, similar diagrams were reproduced in many publications and textbooks as a case study in evolution. Science teachers love to tell this famous story because it supposedly has a moral, which is that truly great scientists are willing to give up their own opinions when faced with the “truth.” However, the following discussion casts a different light on this story.

Similarities and Differences

What had Marsh demonstrated so graphically? His diagram represented two important inferred evolutionary changes through time: (1) a decrease in the number of toes from three to one; and (2) an increase in complexity and size of grinding teeth. The third change, an increase in height and bulk, was not represented but was recognized by Marsh in his 1874 article.

The next question to be asked is: Why did these men identify Hyracotherium as a relative of the horse? As noted previously, Owen thought the fossil animal had affinities with a variety of quite different creatures, including the Hyrax, rodents, etc. However, it was the bones at the base of the skull, the ankle bones, and position of the cusps of the teeth, which caused both Hyracotherium and Equus to be placed in the horse family [most of the comparative anatomical information for this article was obtained from Deb Bennett, “What Kind of an Animal is a Horse?,” Equus, 1987, 116:85ff.].

The differences between these two animals basically represent the changes that would have to occur in the evolutionary scenario. They are as follows:
were able to live on the plains, so the story goes, became new species as
dates from the evolutionary geological time scale should in no way be taken
in exposed areas.

It is easy to see from the table above why Cousins was moved to say “the
first supposed ancestors are...very little horselike both morphologically and
in habitat” (p. 80).

According to evolutionary theory, changes from Hyracotherium to Equus
occurred over a 50-million-year period. Four front toes became three, and
later three became one; the eye socket moved back as the teeth became larger;
the limbs lengthened proportionally; and so on. Such transitions supposedly
correspond to the change in environment from widespread forest in the
Eocene (55 million years ago) to progressively increasing areas of
grass-covered plains on the major continents. [NOTE: My use of terms and
dates from the evolutionary geological time scale should in no way be taken
as support for that system.] Those members of the original population who
were able to live on the plains, so the story goes, became new species as
they grew more dependent on coarse vegetation, and had to survive predation
in exposed areas.

THE EVIDENCE EXAMINED

Fossils, diagrams, and the accompanying explanations make horse evolu-
tion seem fairly straightforward. They have convinced many people that
gradual change has occurred from one form into another. Here, it is sug-
gested, is a classic case where the order of fossils found in the rocks ap-
pears to match the order predicted by evolutionary theory. Let us therefore
see what others have said with regard to the horse series, and examine if
there is any substance to this popular evidence for evolution.

European expert Othnio Abel [not I. Abel as in Cousins, p. 77] sup-
sported the idea of the horse series, but expressed a certain amount of sur-
prise at the rapidity of change at major branches in the “tree” (Paleobiologie
und Stammesgeschichte, G. Fischer, Jena, Germany, 1929, 423 pp.). For in-
stance, the change from the four-toed, forefooted Eohippus to the much
larger all three-toed Mesohippus occurred quite suddenly at the Eocene/ Oli-
gocene boundary. Eohippus was in fact smaller than its predecessors, and
so the leap in size is even more pronounced. The same sort of rapid
change is inferred in the development of the browsing Parahippus into the
grazing Merychippus during the early Miocene, with the obvious neces-
sity for a lengthening of the crown and addition of cement to the chewing
teeth. Even more extreme is the development of the three-toed Merychippus
into the one-toed Pliohippus in the early Pliocene. In each case, Abel re-
fers to “explosive” or “stormy” transformation. Almost half a century later,
J.B. Birdsell used the same sort of terminology in stating: “The evolution
of the foot mechanisms proceeded by rapid and abrupt changes rather than
gradual ones” (Human Evolution, Rand-McNally, Chicago, Illinois, 1975,
p. 170).

In Europe, Hyracotherium was meant to have branched-off into a va-
riety of similar creatures, all of which died out in early Oligocene times,
with the former becoming extinct in the earliest Eocene age. However, Forsler
Cooper reviewed the fossil evidence for these abortive descendants and
concluded they were essentially indistinguishable from Hyracotherium
(“The Genus Hyracotherium,” Philosophical Transactions of the Royal
Society of London, Series B, 1932, p. 221). In other words, there was no
upward development in evolutionary terms; Hyracotherium “stood still.”

The transition from Mesohippus to Miocippus (which actually involved
no dramatic shift in habitat, etc.) was supposed to have happened during
the Oligocene. In his Horses book, evolutionist George Gaylord Simpson
expressed great confidence in this part of the sequence, writing:

In fact Mesohippus and Miocippus integrate so perfectly and the differ-
ences between them are so slight and variable that even experts find it
difficult, at times nearly impossible, to distinguish them clearly.

In other words, there is meant to be an imperceptible change from the
Mesohippus into the Miocippus. However, later research has shown that
the early taxonomists were guilty of over-splitting in order to show a nice
transition, whereas in fact no real change occurred in this three-toed grazer
for the entire epoch supposedly representing 8 million years of Earth’s his-
tory.

With regard to these two genera, vertebrate paleontologists Don
Prothero and Neil Shubin concluded:

There is no evidence of long-term changes within these well-defined spe-
cies through time. Instead, they are strikingly static through millions of
years. Such stasis is apparent in most Neogene horses as well, and in
Hyracotherium. This is contrary to the widely-held myth about horse spe-
cies as gradually-lying parts of a continuum, with no real distinc-
tions between species. Throughout the history of horses, the species
are well-marked and static over millions of years. At high resolution, the
gradualistic picture of horse evolution becomes a complex bush of over-
lapping, closely related species (quoted by Gould, p. 24).

What these writers are saying is that there is no clear evolutionary path from
Hyracotherium to Equus. Further, these creatures identified as belonging
to the horse family show no ancestor-descendant relationship with one an-
other. They appear suddenly, live for quite a while (in the process branch-
ing off into new species), and then become extinct. One cannot speak of an
evolutionary family tree for the horse; a lump of neighboring bushes would
be a more appropriate analogy.

With regard to this “lateral stepping” interspersed with long periods
of stasis, Stephen J. Gould is convinced that the horse lineage is an exam-
ple of his punctuated equilibrium theory. But as I have pointed out in pre-
vious articles, such an argument serves only to illustrate the glaring “gaps”
in the fossil record (see Reason & Revelation, 6:33). In other words, when-
ever an evolutionist talks about sudden or abrupt transformation, he really
means there are no intermediate or transitional fossils. Forms with progres-
sively smaller side toes are not found; similarly, forms with teeth changing
gradually to suit the change in diet do not exist. Instead, each fossil genus
is found whole and completely suited to the habitat in which it is found,
even with single-toed and three-toed forms occurring in the same rock strata.
Further, there is a fundamental morphological discontinuity between
the grazers and the browsers, and between the one-toed and many-toed kinds.

CONCLUSION

The horse series always has been presented by the neo-Darwinian evo-
lutionist as a clear example of straight descent from an ancestral animal
called Hyracotherium to the modern horse Equus over a period of 60 mil-
lion years. However, it is apparent that Hyracotherium really has no more
resemblance to the horse than it does to any four-legged animal that feeds
on vegetation. The geological record does not show a progressive change
in tooth complexity, foot form, or any other skeletal feature. Expected tran-
sitional forms do not exist, and the proposed transitional forms appear abruptly
and are contemporaries of both more “advanced” and “primitive” species.
In addition, there is no mechanism to account for any sudden transforma-
tion. The supposed intermediates are merely extinct three-toed, hoofed ani-
mal species living either on plains or in forest-type environments. The “recent”
one-toed species simply represent variation within limits on the horse kind.

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