The evolution of the horse

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The horse series has long been a showcase of evolution. But in reality, this series is the best argument that can be presented *against* evolution from the fossil record.[1] Creationists have various opinions on whether the horse series is in fact made up of different created kinds. This article addresses some of the current problems, and concludes that the horse series probably comprise three different created kinds, not including all animals that have been labeled *Hyracotherium*. *Hyracotherium* itself appears to contain several different created kinds such as animals similar to tapirs.

Horse fossils have been found in sedimentary strata at the beginning of the Tertiary period during a time-span called the Eocene (approximately 50 million years ago, according to uniformitarian dating). They are usually labeled[2] *Eohippus* or *Hyracotherium* (see figure 1).

According to the theory of evolution, it is possible to follow horse evolution through millions of years: how the horse slowly became larger and stronger (figure 1), lost many of its toes (figure 2), and how its tooth-structure changed when it moved from a diet of broad-leaved plants, shrubs and trees (browsing) to eating hard, dry grass (grazing) (figure 3).[3,4] Horse evolution is believed to have been driven by a cooling and drying climate. Early horses supposedly lived in humid forests full of plants rich in foliage. Their toes, four at the front and three at the rear, sprawled out at different angles which helped them from sinking in the marshy ground. As the climate became drier, foliage plants disappeared and huge grass fields formed. This forced grazers to become better runners to be able to escape their predators.

All horses resemble each other so much that they have been classified in the same family—Equidae. Because of this close similarity it can therefore often be difficult to discern any differences through the study of fossil skeletons alone. Another caution in identifying vertebrate fossils is that the variation in structures even within a genus of living animals can often be so great that it overlaps with the variation in other groups; e.g. there is much analogy in the tooth structure

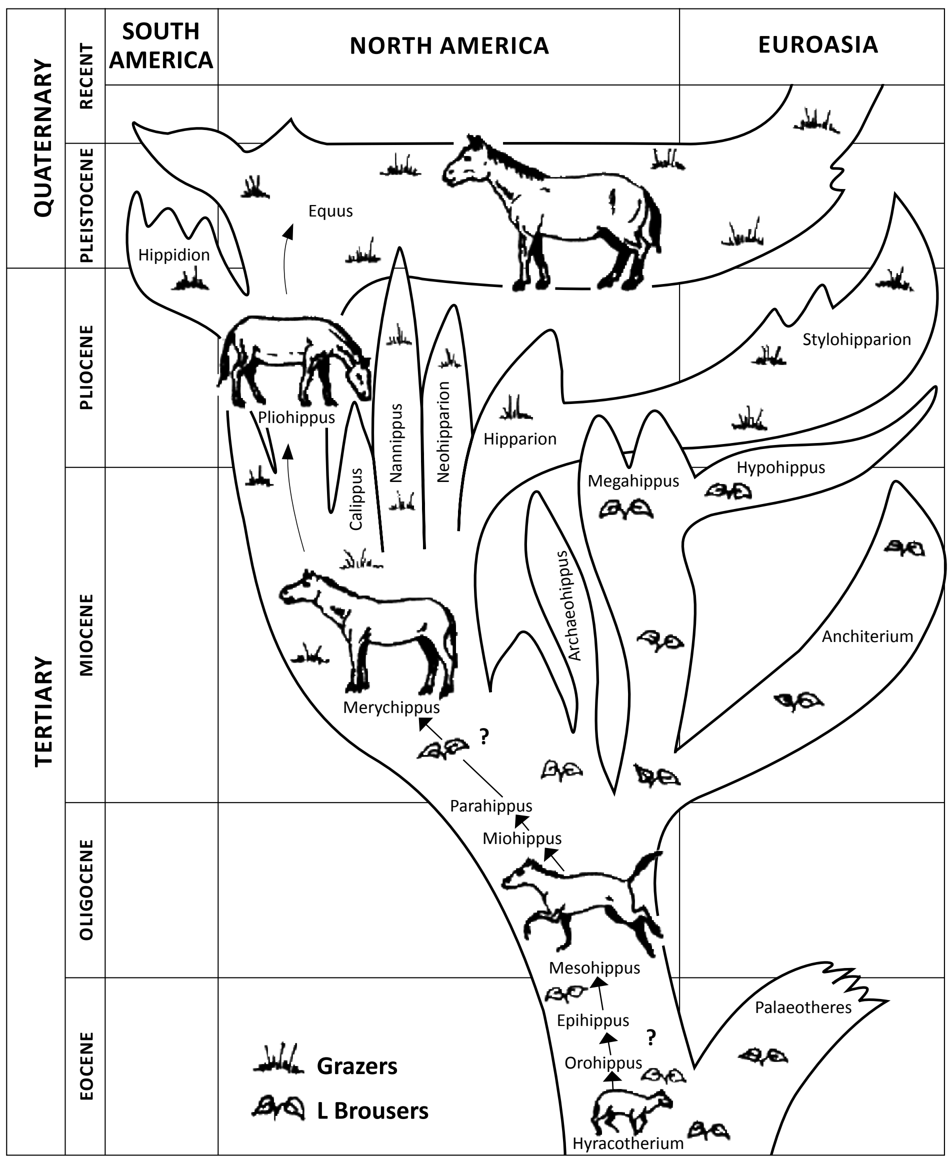

Illustration by Jan Nord

Figure 1. Evolutionary tree of the horse constructed by George Gaylord Simpson in 1951. The tree was later simplified, but has recently become even more branched and confusing with the addition of more members as a result of new fossil finds (see ref. 2). Possible evolutionary gaps are here marked with a question mark. *Equus* = modern horse.

between different carnivores, even when the animals are not classified in the same genus (or sometimes not even the same family). The most important diagnostic differences between different groups of animals are often in the construction of the soft parts. Many findings of fossil horses furthermore only consist of teeth or parts of jaws.

Groups of horses

In the horse series, it is possible to discern certain animals that could represent created kinds, even though we only have access to fossil skeletons. The following facts seem to support such an interpretation.

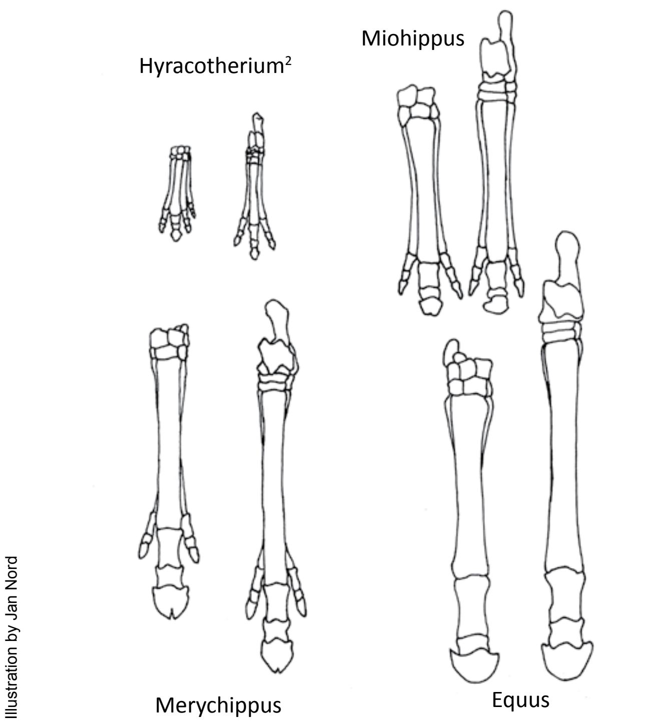

Figure 2. The legs of horses, which are taken as support for evolution. The left leg in each pair in the picture is from the front, and the right leg is from the rear.[6]

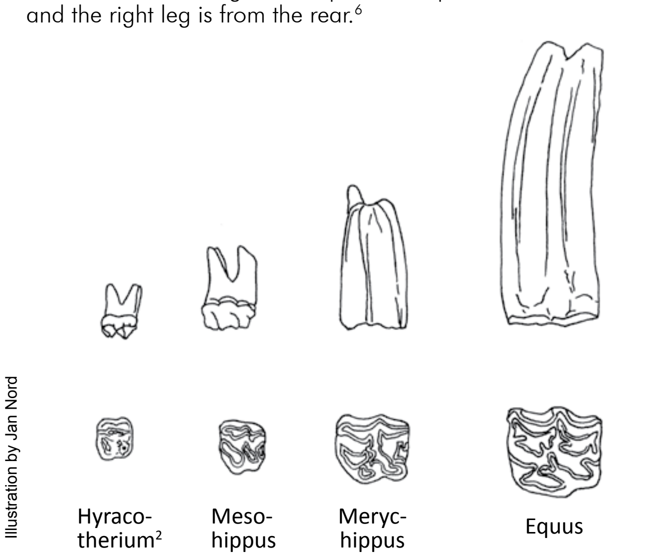

Figure 3. Tooth construction in leaf-eating (the two on the left) and grass-eating horses (the two on the right).[7]

In the horse series there are at least two evolutionary gaps

a) *The first gap occurs at* Epihippus[8]
Only sparse fossil pieces have been found of this animal, and they resemble those of the earlier *Orohippus*, *Eohippus* and other formerly-identified hyracotherid species.[9]

b) *The second gap occurs in or just after the group Parahippus*[10]
The early *Parahippus* species are supposed to resemble *Miohippus* and *Mesohippus* while the latter ones are supposed to look like *Merychippus*; this is only partly supported by the fossil findings.[11] Furthermore, the fossil material for *Parahippus* is incomplete.[12] It would probably be possible to classify the different parts of *Parahippus* as belonging to two different animals—*Miohippus* (figure 4) and *Merychippus*.[13] This latter result can also be inferred by the work of Cavanaugh *et al.*,[14] as *Parahippus* showed similarities to 14 of 18 species of horses. Therefore, the "*Parahippus*" step in the horse series appears to be a mixed up group of unrelated fossils.

Since 1989, the monophyly of Hyracotherium have been challenged[9]

In 1992, the genus *Hyracotherium* was reclassified as five animals belonging to different families of which only one group was regarded as having anything to do with horses.[15] More recent research has reclassified these animals into ten different genera and at least three families, of which many are not supposed to have anything to do with the horse series but are similar to e.g. tapirs (family Tapiromorpha).[9] One *Hyracotherium* species (*angustidens*) has been renamed *Eohippus*, and all the other *Hyracotherium* species except one, have been given new genus names. The single animal still retaining the name *Hyracotherium* (*leporinum*) is no longer in the horse series but is regarded as belonging next to the Palaeotheriidae, which resemble tapirs and rhinocerus.

"Early" horses have been preserved in strata from the same evolutionary age as several "later" horses

Hyracotherium/Eohippus and *Orohippus* do for instance appear in the fossil record at the same time as *Epihippus*. *Mesohippus* and *Miohippus* appear together with *Merychippus* and *Parahippus*. *Almost all* other horses (with a possible exception of one or two)—*Parahippus*, *Merychippus*, *Pliohippus*, *Equus* and possibly also *Miohippus*—are represented *at the same time* during much of the period when they have been found as fossils.[16] (But especially in the newer evolutionary schemes, different names have been given to very similar animals, giving the appearence of evolution as well as providing fame to their discoverers; see examples in Froehlich

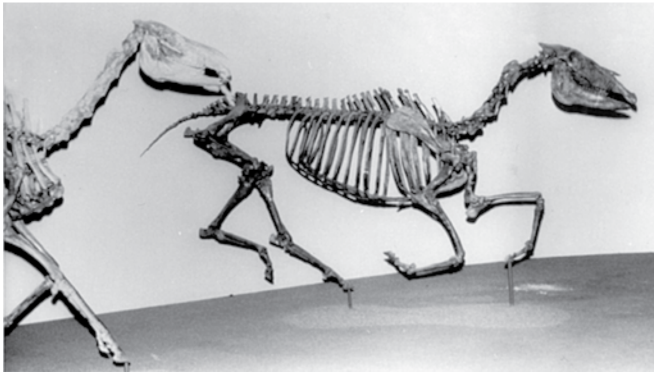

Figure 4. Two "horses", *Neohipparion* (right) and *Miohippus* (left) from the Museum of Natural History in Los Angeles.

2002[9] and MacFadden 2005[4]). Fossils of *Hyracotherium (sic)* have also been found very high up in the strata (Pliocene), but these findings have been rejected as reworked (i.e. eroded and deposited at a later strata) in spite of the fact that the geological observations do not show any signs of disturbance.[17] Thus, the fact that most of the horses lived almost at the same time undermines their proposed evolution.

*"Transitional" forms between horses with teeth designed for browsing (*Parahippus*) and those with teeth for grazing (*Merychippus*) are rare*[13]

Teeth on browsing (leaf eating) horses have closed, very narrow roots with small holes for their blood supply and nerves; i.e. these are teeth that wear down as the animal gets older. Teeth on grazing (grass eating) horses have an open root with many blood vessels which supply the teeth with lots of nutrients so they can keep growing during the entire life of the animal; this is termed *hypsodonty*, meaning high-crowned teeth. This change of tooth structure from bunodont (low-crowned with rounded cusps) to hypsodont (high-crowned) is not just supposed "microevolution", but a complete change in design, even though it may not seem to be much of a new thing for those not acquainted with tooth construction.[18] There is no evidence for any change of one tooth structure to another, even though it has been suggested by some authors.[19] Some animals ate both grass and foliage,[3,4] but this does not help to explain the transformation of one kind of teeth to the other.

Three completely different animals

The animals that have been interpreted as different horses are therefore, with the above facts at hand, easily identified as belonging to three completely different animal kinds, instead of various horse intermediates which supposedly evolved from one and the same original ancestor. The created kinds, not counting all *Hyracotherium* members that have been removed to new families, should therefore more or less correspond to the following three groups (note that not all the newly named horses and not all members of the side groups are mentioned below):

1) *Eohippus* (and many fossils that were formerly labeled *Hyracotherium*, but are classified into the family *Equidae* with new genus names[9]), *Orohippus* and *Epihippus*.
2) *Mesohippus*, *Miohippus*, certain Parahippus and probably most of the horses branching out from these three groups. (The horse series has been rearranged and many new genera have been added; e.g. *Neohipparion*, *Nannippus* and the *Hipparion* clades have been moved close to Parahippus and away from *Merychippus*,[4] in contrast to figure 1, so we can not be sure if the classification/grouping of all the fossils is correct. But the horses branching out from *Merychippus* in figure 1 are still classified in the subfamily Equinae, and are therefore combined in group three, below. But all these details cannot be dealt with in this article).
3) *Merychippus* and those horses branching out from this group, including *Pliohippus* and all later horses (including the *Hipparion* clades). (Note that in the recent revisions of horse evolution there are two different genera with the name *Merychippus*: I and II. *Merychippus* is therefore thought to be polyphyletic, i.e. it is believed to have evolved twice. These two genera have been placed on different evolutionary lines. Genus I is in the original place leading to Equus, as seen in most horse evolution diagrams. Genus II has been moved away from the line leading to Equus—it is contemporaneous with *Parahippus* during most of its extension in time—and it is believed to be ancestor to the *Hipparion* clades as described by MacFadden 2005.[4])

The animals in group 3 are all classified in the same subfamily—Equinae.[20] Although, Cavanaugh *et al.*[10] discovered that the fossil animals could be sorted into subfamilies, they disregarded this finding and instead constructed their own horse evolution tree. It would not be difficult to create a similar tree by simply arranging any number of unrelated living animals in a series from small to large (figure 5).

No horse evolution

The Cavanaugh, Wood and Wise hypothesis,[14] that the horse series (including the genus *Hyracotherium*) shows real (post-Flood) "microevolution" (or linear/progressive variation) is, based on the above results, untenable as there is no progression in horse evolution (except maybe locally) and the data show a mixture of various horse-like animals. Moreover, the Cavanaugh *et al.* paper[14] was based mainly on statistical data from one 1989 source (and some discussions from more recent creationist journals), and it did not qualify the different *Hyracotherium* finds. Also, the Froehlich paper[9], which reclassified all the *Hyracotherium* species, was published in February 2002, about a year before the deadline of the Cavanaugh 2003 *et al.* ICC paper.[14] This lack of clarity regarding the *Hyracotherium* finds has also not been addressed in an article by Wood in 2008,[21] even

Illustration by Jonathan Chong

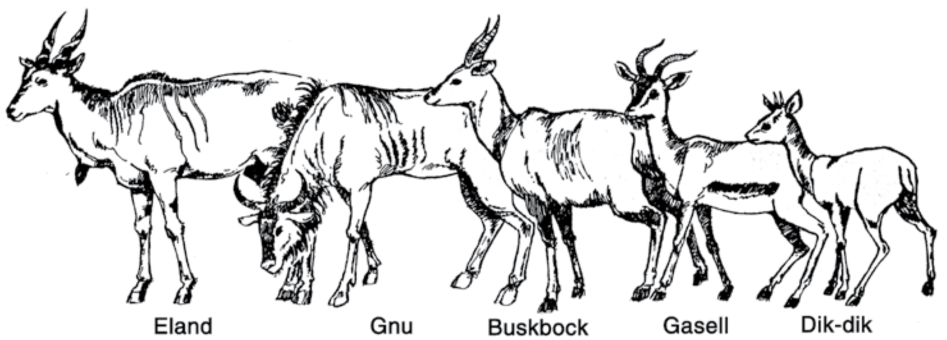

Figure 5. From left to right, Eland, Gnu, Bushbuck, Gazelle and Dik-dik. Even animals alive today can be arranged into a hypothetical evolutionary series, since variations in the skeleton within one group of animals often overlap with the variation in other groups within the same family. This does not prove, however, that any individual animal has evolved into another.

though Wood referred to a 1992 book by MacFadden[22] who stated that *Hyracotherium* was not one single animal but instead several genera belonging to different families. Whitmore and Wise in 2008 even use *Hyracotherium* to establish an early post-Flood date, and this non-horse animal is mentioned as the first member in the horse series.[23]

Froehlich,[9] who completely renamed most *Hyracotherium* species and placed them in different genera and families, used statistics, but also provided criticism to the way statistics can be misused in this case. But, at any rate, one cannot use statistics on design or on a limited amount of data (which in these cases are mostly teeth and jaws) to find out how evolution supposedly occurred, as the above authors have done.[9,14] Statistical analysis in this case does not take into consideration function or completed/designed living entities, but can only compare small differences (see also more critical points in Froehlich[9]). In this case, most of the statistical analysis has been carried out on the small differences in tooth enamel/structure and jaws, and very little work has been done on other parts of the body. This does skew the interpretation of the data in a similar way as if, for example, we would conduct statistics on 75 differences on the outside appearance of the eyes of octopuses and humans—the analysis would probably show that we evolved from octopuses.

Although it is easy to discuss and criticize single finds, or a single place where fossils have been found, according to all the available data there appears to be three groups of animals that closely correspond to the subfamily groups of Equidae, and only the subfamily Equinae appears to represent horses. The discussion about post-Flood and Flood criteria, based on horse evolution by e.g. Cavanaugh *et al.* 2003[14] and Wood 2008[21], must therefore rest upon criteria other than the purported post-Flood "microevolution" of the horse resulting from a changing environment, as proposed by the common evolutionary story (see other criteria for Flood boundaries in Oard 2007[24]). There were also no real environments where these animals could have lived, only large deserts—most fossils are found in sedimentary deposits which show evidence of being from the Flood, but there is no evidence of a plant cover which could feed large herds of animals, and no proper soil.[25] There is also no support for changes in environment, as evolutionists and Cavanaugh *et al.*[14] and Wood[21] insist on based on speculative interpretations.

In the case of the horse, it could be body size that governed how quickly the animals sank, were transported and buried, and then sometimes eroded and redeposited, during the Flood or in the close aftermath of the Flood. This would have been before the continental environment had become habitable again and living animals repopulated it. Small animals with similar construction commonly disintegrate and sink quicker than large animals, and smaller bones are also more easily transported by currents after having reached the bottom. Also, during post-Flood catastrophes, living animals could have been buried together with reworked, dead, unfossilized or partially fossilized animal remains buried during the Flood.

Conclusion

A study of fossil horses reveals at least three groups of animals within the horse family Equidae, in addition to some unrelated animals such as tapirs. The three equid groups correspond closely to different subfamilies of Equidae, and could be considered three separate created kinds. Most of these different kinds lived (or actually, were buried!) nearly at the same time and do not show much progressive change as far as horse evolution is concerned, just a general increase in size.

No one has explained how new, specialized kinds of teeth could have supposedly evolved, and it appears rather to be a case of intelligent design instead of "microevolution" (variation within a kind, as suggested by various creationists) or "macroevolution" (new kinds of organisms, as suggested by evolutionists).

The Cavanaugh *et al.* (2003)[14] hypothesis of intrabaraminic variation of all animals that belong to Equidae (or animals that they did put into Equidae, even if the evolutionists put some of them in different families) is not well supported by the available evidence and ought therefore to be abandoned.

Addendum

According to Julian Huxley (arguably one of the most prominent evolutionists of the last century) at least one million positive mutations were required for the modern horse to evolve. He believed that there is a maximum of one positive mutation in a total of 1,000 mutations. With the help of these values Huxley calculated the probability for the horse to have evolved from one single unicellular organism was 1 in $10^{3,000,000}$. He believed, however, that natural selection would be able to solve this problem.[26] But this faith did not help him in the end, and will not help any other evolutionist either, as this calculation is based on the origin of positive mutations, even before natural selection would start to work. If all electrons in the universe (about 10^{80}) would have participated in 10^{12} reactions every second, during the 30 billion years which evolutionists have put as the upper age limit of the universe, there would still not have been more than c. 10^{110} possibly interactions—still a long way from the Huxley calculation.[1]

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