CHAPTER 9 - DIVERSITY OF MAMMALS

This book is written from the young earth creation perspective that, rather than time periods, geologic strata represent ecological communities that were buried together. This chapter will continue to present the case that even if the strata did have to do with time, the sequence of fossils does not indicate that reptiles evolved to mammals.

Visual #9-1

Since an environment favorable to reptiles would probably have been inhospitable to mammals, it makes sense that there would not be many mammal fossils buried alongside those of the reptiles, though a few mentioned in the previous chapter are found in Mesozoic (Jurassic) strata. Mammals are considered more highly evolved than reptiles. If evolution is true the presence of the few Mesozoic mammals means they must have evolved from mammal-like reptiles such as therapsids and cynodonts long before the "more primitive" dinosaurs appeared. Then in the Tertiary the mammals suddenly took over from the formerly dominant reptiles. Since they had not been fit to take over earlier, evolution in this case must have worked by the survival of the *unfittest.*

Visual #9-2

Evolutionists have not decided exactly which mammal-like reptiles (e.g., pelycosaurs) are supposed to have been the ancestors of mammals. Some were far advanced in certain characters but primitive in others. Every genus had a mixture of advanced and primitive features so varied that no group can be identified as the one progressing most positively toward mammals (Colbert, 1980, 246). There is no universal agreement about what might have been the transitional form(s) such as Morganucodonts and Brasilodonts leading from reptile to mammal.

Visual #9-3

I. CAUSE OF DIFFERING FEATURES IN DIFFERENT TYPES OF MAMMALS.

Features such as muscle strength can certainly be gained or lost through use and disuse of body parts. In the mid 1800s, the French biologist Lamarck proposed that structures gained or lost in this way wold be passed on to future generations, leading to evolution of new types. For instance, he proposed that giraffes must have acquired long necks as they stretched their necks to reach leaves during times of drought.

Visual #9-4

DNA was unknown in Lamarck's day. We now know that though body structures in individuals may be accentuated through use or diminished through disuse, the process cannot produce new structures either in the individual or in the species. It can only work with features coded for in DNA. Repeated experimentation (such as cutting the tails off a hundred generations of mice) has shown that changes are not passed on to future generations. The only way permanent changes could occur would be by DNA mutations, not use and disuse of body parts.

There is wide array of features in the different groups of mammals, all of which are supposed to have evolved from a common ancestor such as one of the Morganucodonts or Brasilodonts. Many authors committed to evolution try to explain where the variety came from by reverting to the Lamarckian idea that animals developed new features because they needed them to cope with different environments. ("Form follows function.") However, biology shows us that living things do not get what they need. Instead, they get what their DNA gives them.

Visual #9-5

II. MAJOR TYPES OF MAMMALS.

A. MAMMALS CLAIMED TO BE THE EARLIEST.

All known mammals have certain characteristics in common. They suckle their young, are warm-blooded, and have at least a small amount of hair.

Besides Morganucodonts and Brasilodonts, dated to the upper Triassic, the following are among those claimed to be the earliest mammals.

Middle Jurassic.

Visual #9-6

Castorocauda - believed to have been semi-aquatic. Belonged to **Order Docodonta**. Fur preserved. Had tiny mammal-type auditory ossicles. ½ meter long. (Rose, 2006)

Multituberculates (**Order Multituberculata**) - Teeth somewhat like rodents. *Kermack-*

odon and *Hahnotherium* had single dentary/squamosal jaw joint and true inner ear ossicles.

Middle Jurassic to Upper Cretaceous.

Order Eutriconodonta (formerly called **Tricondonta**) - extinct mammals, molars with three main cusps on the crown.

Jeholodens - Cretaceous triconodont believed to have had large eyes and prehensile fingers.

Upper Jurassic.

Juramaia sinensis. **Order Eutheria**. nearly complete ratlike or shrew-like skeleton (undisputed placental mammals). (Welsh, 2011)

Haldanodon - **Order Docodonta** (relatively complex molars)

Peramura (**Order Peramura**) - based on fragment of a single molar. (Clemens et al., 2007)

Dryolestes possibly opossum- like - **Order Dryolestida**

Lower Cretaceous.

Zhangheotherium - **Order Symmetrodonta**. Two found in stomachs of *Sinosauropteryx.*

Repenomamus robustus (triconodont mammal, **Order Gobiconodonta**) - size of an opossum. (Hu et al., 2005). Stomach contents include a small dinosaur identified as a *psitticosaurus*.

All of these mammalian orders seem to have become extinct after the Cretaceous. None of the modern orders are connected to any of them.

Mammal fossils become much more plentiful above the upper Cretaceous. Some of the mammals of the Paleocene/Paleogene dated earliest were *Ptilodus* (squirrel-like, believed to have lived in trees) and *Lambdopsalis* (beaver-sized, believed to have lived in burrows).

While reptiles are supposed to have been evolving during the Triassic, Jurassic, and Cretaceous (a span of over a hundred million years) the seven early orders of mammals above seem to have stopped evolving. Though they left few traces of their presence, the specimens we do have stayed the same from beginning to end.

Though the systems of classification often change according to the opinion of researchers, one such system for classifying the living orders is (with some representatives from each):

B. EXTINCT MAMMALS.

Visual #9-7

The mammalian orders long accepted as extinct are:

Amblypoda (ungulates, i.e., hoofed), **Astrapotheria** (ungulates, South America), **Condylartha** (ungulates), **Creodonta** (carnivores), **Desmostylia** (marine), **Embrithopoda** (two bony horns), **Litopterna** (ungulates, South America), **Multituberculata** (rodent-like), **Notoungulates** (South America), **Pantotheria** (considered by some evolutionists to be ancestral to marsupials and placentals), **Pyrotheria** (elephant-like ungulates, South America), **Taeniodonta** (continuously growing teeth, N. America), **Tillodontia** (rodent-like), **Trigonostylopia** (ungulates, South America), and **Xenungulata** (ungulates, South America) (Colbert, 1980, 274-275; Romer, 1971, 404-406).

Because some paleontologists disagree with the previously assigned categories, the following names for extinct mammalian orders have also been coined in recent years.

Doconodonta, **Dryolestida**, **Eutheria**, **Eutriconiodonta** or **Triconodonta**, **Gobiconodonta** (China), **Symmetrodonta.**

C. LIVING MAMMALS.

Visual #9-8

The other modern orders of mammals except for marsupials and monotremes are dated much later, after the Cretaceous. They also appear suddenly and fully formed with no documented connection to those of the Mesozoic (Simpson, 1944, 105). They are all supposed to have descended from a common ancestor perhaps similar to morganucodonts,

Though they had not evolved for a hundred million years, primitive mouse-sized "stem mammals" are then supposed to have evolved into all the other orders of mammals within the space of about 12 million years during the Paleocene and Eocene (*mammalian adaptive radiation*), without leaving any transitional fossils.

Different authors classify living mammals into anywhere between about 25 and 30 orders. *Encyclopedia Britannica* lists them as follows:

Placentals:

Order Afrosoricida (golden moles and tenrecs)

Order Artiodactyla (deer, cattle, giraffes, pronghorns, antelopes, goats, sheep, musk oxen, pigs, peccaries, anthracotheres, hippopotamuses, oreodonts, camels, dichobunids, entelodonts, tragulids)

Order Carnivora (dogs, wolves, foxes, bears, pandas, raccoons, weasels, mink, otters, wolverines, badgers, skunks, civets, hyenas, cats, sea lions, seals, walruses)

Order Cetacea (whales, porpoises)

Order Chiroptera (bats)

Order Cingulata (armadillos)

Order Dermoptera (colugos or "flying lemurs" which do not fly and are not lemurs. They are also not flying squirrels, which are rodents.)
Britannica includes colugos under Rodentia, some other sources under Primates.

Order Erinaceomorpha (hedgehogs)

Order Hyracoidea (hyraxes or conies)

Order Lagomorpha (rabbits, hares)

Order Macroscelidea ("elephant shrews")

Order Perissodactyla (odd-toed hoofed animals such as horses, rhinoceroses, titanotheres, chalicotheres, tapirs)

Order Pholidota (scaly anteaters or pangolins)

Order Pilosa (anteaters and sloths)

Order Primates (lemurs, lorises, tarsiers, monkeys, apes, humans)

Order Proboscidea (elephants, mammoths, mastodonts, dinotheres, moeritheres)

Order Rodentia (squirrels, beavers, mice, rats, porcupines, cavies, chinchillas)

Order Scandentia (tree shrews)

Order Sirenia (manatees or sea cows)

Order Soricimorpha or **Soricomorpha** (shrews, moles, and similar)

Order Tubulidentata (aardvarks).

Marsupials:

Visual #9-9

Order Didelphimorphia - opossums

Order Paucituberculata - shrew-like insectivores

Order Microbiotheria - only one living species, called "monito del monte" (*Dromiciops australis*)

Order Dasyuromorphia - numbat, extinct Tasmanian wolf

Order Peramelemorphia - bandicoots and bilbies

Order Notoryctemorphia - marsupial moles

Order Diprotodontia (kangaroos, opossums)

Monotremes:

Order Monotremata (platypuses, spiny anteaters)

(www.britannica.com/animal/mammal/Classification)

Visual #9-10

Since use and disuse of body parts (Lamarckianism) has been ruled out as a mechanism for evolution, the only plausible way for new structures to evolve is by copying mistakes during cell reproduction. But since natural selection would work to eliminate any structure that did not have at least minimal function, it is difficult to imagine how mutations could explain the gradual development of all the unique features of mammals.

Some object to Initial Complexity because it implies the existence of some sort of intelligent being. However, Initial Disorganization (simple to complex) requires us to believe either:

Visual #9-11

- DNA did not evolve for millions or billions of years. The first living things used some unknown far simpler information storage system. They did not have any error-correcting mechanisms at all. The elaborate error-correcting mechanisms had to be added to DNA later, one mutation at a time. The intricate system of enzymes that prevent errors itself had to be the result of thousands of perfectly coordinated errors. That is, ERRORS produced the ERROR PREVENTION mechanism. OR,
- Some intelligent being added the error correcting mechanism much later, then overrode it millions of times because He was determined to have evolution.

D. RECAP OF ALLEGED EVOLUTION FROM FISH TO MAMMALS.

Visual #9-12

- Some ancient fish are supposed to have given rise to a transitional form, perhaps a crossopterygian or dipnoid fish, leading to amphibians.
- The unknown transition had descendants that **left the water** and evolved into the three Paleozoic orders of amphibians as well as the three modern orders, though no transitions between Paleozoic and modern have been proposed.
- One of the Paleozoic intermediates had descendants that evolved into stem reptiles without leaving fossil evidence of the transition.
- The stem reptiles gradually diversified into all the types of known land reptiles including dinosaurs and "mammal-like" reptiles.
- They also diversified into flying reptiles.
- Some of them went **back into the water** and gave rise to at least three types of marine reptiles: ichthyosaurs, sauropterygians, and mosasaurs.
- Some of the stem reptiles diversified into mammals.
- The stem mammals gave rise to flying mammals (bats).
- Some of the stem mammals diversified into over 30 orders that live on land.
- Some of the stem mammals went **back into the water** and diversified into at least three ***semi-aquatic*** groups. **Order Monotremata**: platypuses.
  Order Carnivora, **Suborder Pinnipedia**: seals, sea lions, walruses.
  Order Carnivora, Family Mustelidae. Though some such as otters are semi-aquatic, other members of this family such as weasels and skunks are purely terrestrial.
- The ***fully aquatic*** mammals diversified into at least two orders: **Order Cetacea** (whales and dolphins) and **Order Sirenia** (manatees and dugongs).

E. RECAP OF ORDER MONOTREMATA (PLATYPUSES AND SPINY ANTEATERS).

Visual #9-13

A platypus has many features that appear singly in other types of animals, but no other animal has the kind of combination of these features it does.

- It lays eggs like reptiles but suckles the young like mammals.
- The method of suckling is through hollow hairs, not nipples.
- It has a leathery bill that looks like a duck's, but is sensitive so that the animal is able to use it to find food in the mud. (Some scientists believe the bill detects electrical sig-

nals emanating from potential food sources.)

- It has webbed feet like a duck, cheek pouches like a hamster, and a flat tail like a beaver.
- The males have sharp spurs on their hind feet, like those of a gamecock; these connect to poison glands like those of a snake.

(*New Age Encyclopedia* 1974a, 105-106)

Despite possessing so many features similar to those of other animals, the platypus is not connected by transitional forms to any other known creature, living or fossilized.

In those features that identify platypuses and spiny anteaters as mammals, they are 100% mammalian. Their eggs are quite different from those of reptiles. Nothing about them is in any way transitional from reptiles.

F. RECAP OF ORDER MARSUPIALIA (KANGAROOS AND MANY OTHERS)

Visual #9-14

Monotremes, marsupials (pouched animals), and bats are the only mammals known to be native to Australia. Fossil marsupials first occur in the Cretaceous on several continents. However, the only type presently living wild outside Australia is the opossum. (Not the same animal as the Australian possum.)

Marsupials are believed to have been isolated from the rest of the mammals almost from the beginning of their evolution. Since much of the Australian environment is different from the rest of the world, we would expect that natural selection would produce Australian animals with features different from those everywhere else. Yet except for their method of reproduction, marsupials are extremely similar to many other mammals. (Unlike placental mammals whose young are fully developed at birth, baby marsupials continue to develop after they are born. They remain in a pouch until they are ready to face the world.) Many of the placental mammals found throughout the rest of the world have marsupial counterparts: mice, moles, flying squirrels, badgers, ground hogs, cats, bears, foxes, and wolves (Hitching, 1982, 176-180; Kent, 1965, 61).

The evolutionist must believe that such similarities are due to mutation. It must have been a fortunate mutation indeed to cause the pouch of those marsupials which burrow in the ground to open rearward (so as not to fill with dirt and suffocate the young as they dig) while causing the pouch of the non-burrowers to open forward. Of course, there is another explanation besides mutations: they were created that way.

Visual #9-15

No living or fossil creatures connect the marsupials to the rest of the mammals (the placentals). If God used gradual evolution as His method of creation, the intermediate steps are missing. The belief that marsupials evolved is based on faith alone, not on any scientific evidence. The evidence indicates that they appeared as a separate kind and have remained so throughout their history.

Though unborn marsupials rely on a placenta for a relatively short time, they are usually not grouped with placentals because those depend on it for a much longer time.

G. ORDER ARTIODACTYLA (Even-toed hoofed animals)

Visual #9-16

Order Artiodactyla includes hoofed animals with an even number of toes. Some are probably familiar to the reader: antelopes, deer, camels, cattle, giraffes, goats, hippopotamuses, musk oxen, peccaries (pig-like wild boars), pigs, pronghorns, sheep, and tragulids (chevrotains or mouse-deer). Others are less known because they are believed to be extinct: hog-like oreodonts, rabbit-sized dichobunids, pig-like or hippo-like entelodonts, and hippo-like anthracotheres.

This order is particularly significant because of recent claims that some unspecified hippo-like animal is a sister taxon to the ancestor of whales. (See **Order Cetacea** below). The claim is based on two facts: (1) there is no other plausible ancestor, and (2) there are some similarities between the DNA of the two groups.

H. ORDER CETACEA (WHALES, DOLPHINS, AND PORPOISES).

It cannot be emphasized enough that the body structures of every living thing are determined not by a **need** for those features, but by the precise sequence of the nucleotides Adenine, Cytosine, Guanine, and Thymine, in DNA. Just as we can spell any word using the 26 letters of the alphabet, DNA can spell the instructions for any biological structure by using A, C, G, and T in many combinations. *A* matches with *T* and *C* with *G* in base pairs on the DNA's double helix structure.

Visual #9-17

> To illustrate how much genetic information is contained in DNA, compare it to Dostoevsky's famous novel "War and Peace." There are about three million letters and spaces in this book. By comparison, humans have over three **billion** genetic letters A, C, G, and T in each of our cells - about a thousand times the information in this massive book, compressed into a microscopic space.

Visual #9-18

Even some professional scientists in their writings implicitly appeal to Lamarckianism, which says that features produced or lost through use and disuse of body parts would be passed on to future generations. This idea has been repeatedly falsified through experimentation. Body structures are present because of coding in DNA, which is unaffected by use and disuse. The only way to add or remove features would be by adding or removing genes.

Visual #9-19

Therefore, we must appeal to a series of at least thousands of mutations to change the DNA of evolving whales and produce their unique features.

- Such a large number of mutations would have produced a great many side branches of "almost whales" that did not possess all of the variations that survived. The "almost" forms are totally unknown. If they ever existed, they disappeared without leaving any traces in either living or fossil whales.
- Mutations are almost always recessive. In order for one to become fixed throughout an entire population, every breeding individual, both male and female, would have to acquire the same mutation and breed only with others with the same one, while out-competing the other individuals in the group that did not inherit it.

Visual #9-20

Several types of mammals spend much or all of their time in the water. They include semi-aquatic platypuses of **Order Monotremata**; semi-aquatic seals, walruses, and sea lions, pinnipeds belonging to **Order Carnivora**; hippos of **Order Artiodactyla**; fully aquatic dugongs, manatees, sea cows, and similar animals of **Order Sirenia**, as well as **Order Cetacea** (whales and other mammals that live exclusively in the water). The following discussion will be limited to cetaceans,

Order Cetacea includes marine animals ranging from the largest whales to the much smaller dolphins and porpoises. Cetaceans have been classified into over 90 species.

Visual #9-21

Why are there so few recent cetacean fossils? Since most large whales die at sea and their carcasses sink to the bottom without being covered by sediment (known as "whale fall"), they are not likely to leave many fossils. As will be seen later, though, there are a significant number of mineralized whale fossils. It would be logical to conclude that the fossils were not formed under present condition.

1. MAJOR TYPES OF WHALES.

There are two main types of whales: the baleen whales (**Suborder Mysticeti**) and the toothed whales (**Suborder Odontoceti**). Though there are major differences between the two suborders, ***s***ome features are found in every known variant of whale.

Visual #9-22

- Fins (flippers) instead of legs.
- Blubber to control body temperature in place of sweat glands.
- A greatly modified eye which focuses in water instead of air.

- Special skin which helps streamline its movement through the water.
- A method to have babies underwater without drowning them.
- A method to nurse the young under water without drowning them.
- A superb hearing apparatus. Some are able to hear frequencies as low as 10 hertz, others as high as high as 150 kilohertz. (By comparison, the highest frequency humans can hear is about 20 khz, dogs about 45 khz, and bats up to 120 khz.)
- A brain that allows them partial sleep for the purposes of rest but maintains enough awareness so they do not drown while sleeping (Hecker, 2018).
- A protective flap inside the blowhole(s) to prevent water from rushing in. If even a single generation had not had the proper coding in its DNA, the nostrils would have been in the wrong place or the protective flap would have been missing and the animals would have drowned.

All these changes had to develop simultaneously, by random chance. Every step had to have at least minimal function. This transformation is supposed to have taken place in less than ten million years - about the same amount of time as the relatively trivial evolution from upright walking apes into humans (Hitching, 1982, 90).

Visual #9-23

Though all whales have these features in common, there are two main groups that differ radically in other respects: toothed whales (which include dolphins and porpoises) and baleen whales.

a. Baleen Whales (Suborder Mysticeti).

Baleen whales include the largest animal known to have ever lived, the blue whale, up to 100 feet long; the fin whale, up to 85 feet; the right whale (so named because it was the "right" whale for the whaling industry), up to 60 feet; the humpback, up to 50 feet, and the gray whale, also up to 50 feet.

- Baleen whales are supposed to have split from the toothed types about 34 million years ago. Some of them had already reached enormous sizes.
- Baleen whales do not have teeth at all. Instead, they have flexible plates that serve as filters to catch food. The whale takes in a huge mouthful of water then uses its tongue to push it out through the relatively soft baleen (made of keratin, a flexible protein that also forms fingernails and hair). In the process, it catches plankton, small shrimp, and so on.

Visual #9-24

Though some invertebrates are filter feeders, **no known vertebrate** has any structure from which baleen might have evolved. It appears suddenly in fossils dated tens of millions of years old.

- Instead of one blowhole, they have two.

Visual #9-25

- Baleen whales do not use echolocation (natural sonar) to find food, but seem to use sound to communicate and navigate. Their "songs" are produced by a larynx that enables them to produce some of the loudest sounds known in the animal kingdom (up to about 180 db, as loud as a jet engine) without expelling air. Unlike the directed clicks of sperm whales, their songs go in all directions. Other whales can hear them thousands of miles away.

b. Toothed Whales (Suborder Odontoceti).

Visual #9-26

Some of the larger toothed whales are the sperm whale, up to 60 feet long; the Baird's Beaked Whale, up to 42 feet; and the Orca (killer whale) up to 32 feet. The smaller types are the dolphins and porpoises.

- The visible differences between dolphins and porpoises include beak size and shape, fin shape, and tooth shape. Dolphins have cone shaped teeth, porpoises spade shaped.

Visual #9-27

- The Narwhal is a real oddity. It is the only whale with a horn (actually a long spiral shaped tooth) in the middle of its face. It looks somewhat like a cross between a whale and a unicorn. No known form connects it to anything else, whether on land or in the sea.
- Whales in general can hold their breath for extended periods of time compared to other mammals due to the unusually high concentration of a protein known as *myoglobin* in their muscles. Though one can learn to hold one's breath by practice, land animals have a much lower concentration of myoglobin. It is present because of coding in the DNA.

  Shallow water dolphins typically hold their breath for about 3 to 5 minutes, whereas sperm whales often hold their breath for about 90 minutes. (One was clocked at 117 minutes.) Cuvier's Beaked Whale has been recorded to hold its breath for over 3 hours.

Visual #9-28

- Cuvier's Beaked Whale holds the record for the deepest dive ever recorded, 2992 meters, or about 1.87 miles (Schorr et al., 2014). This is about five times the crush depth of most military submarines.
- Unlike land mammals, toothed whales use their teeth for grasping and not chewing. They swallow their food whole.
- Through DNA mutations of the line evolving into whales, the two nostrils of the ancestors are supposed to have migrated from the front to the top of the head and merged into a single blowhole.
- Many toothed whales use echolocation to find their food.
- The Guinness Book of World Records (2026) reports that sperm whales have been recorded making unidirectional clicks used for echolocation as loud as 236 db in air. This is far louder than a thunderclap.
- Unlike baleen whales, some of them have an oil-filled structure in the forehead called a "melon" that serves to focus and amplify sounds used in echolocation.
- Their sound producing system is much different than that of baleen whales. They send air past "phonic lips" in the blowhole to make sounds without losing any appreciable amount of air.

The hypothetical common ancestor of both suborders is supposed to have been some sort of hippo-like animal that lived about 34 million years ago. Both types of whales are supposed to have diverged within about 5 million years after that time.

2. FIT OF WHALE TYPES TO THEIR ENVIRONMENTS

Visual #9-29

Dominici et al. (2019) report that living whales occupy at least five distinct environments.

a. Three types are ***estuarine***, living in shallow waters near outlets of rivers and lakes.

b. About eight occupy a ***coastal*** environment of less than 50 meters depth.

c. About three dwell in the relatively narrow ***neritic*** band above the drop off of the continental shelf, from 50 to about 200 m.

d. About eight mainly live around the ***shelf break*** at 200 m or so.

e. Many of the others venture into greater depths that range from a little more than 200 m to almost 3000 m in the deep ocean. (The pressure at such depths is enough to crush a submarine, yet whales are quite comfortable there.)

Some cetaceans spend most of their time in frigid Arctic waters, but others live in temperate climates. Lamarckianism would falsely conclude that the habitat made their DNA evolve. In reality, their DNA makes them fit for the habitat, including giving them the ability to hold their breath much longer than any other type of animal.

3. HYPOTHETICAL EVOLUTIONARY ANCESTRY OF WHALES.

The following dates of millions of years are based on the assumption that evolution occurred, at uniformitarian rates. If there ever was a worldwide flood, the dates are completely unreliable.

Visual #9-30

Some have proposed an imaginative story to explain whale evolution: some hoofed land-based ancestor such as a cow-like animal (or bearlike, though bears have no hooves) lived near the ocean. In its search for food, it began to swim more and more. Through a series of mutations, the evolving line of descendants gradually lost the hooves and acquired webbed feet, flippers, and all the other features of whales. They also gradually grew to enormous sizes.

- Not all members of the whale order **Cetacea** are huge.

Visual #9-31

- It has long been thought that only in more recent times (ca 4.5 MA), did the bodies add tons of weight and grow to enormous size. Meanwhile, no other sea creatures (all of whose weight is supported by the water) are supposed to have attained a body size anywhere near the whale's.

> Besides the body size, the lung capacity of some whales far exceeds that of any other animal at over 1300 gallons (more than 4900 liters) of air.

The idea that huge sizes developed only recently has been falsified. At least 30 complete fossil rorqual (baleen) skeletons have been found at "Cerro Ballena" (Whale Hill) in the Atacama Desert of Chile (Pyenson et al., 2014). This assemblage also included many other marine animals.

Visual #9-32

- Not far away in the Ica Desert of Peru, at least one Middle Eocene whale fossil, *Perucetus colossus*, grew to enormous size at a date estimated at 38 MA (Paul & Larramendi, 2025).

While the lack of soft parts prevents us from determining the mass of *Perucetus*, we can compare its *length* to the Blue Whale, which grows up to 100 ft long. *Perucetus* was much less massive but was still huge, with the largest known specimens up to 66 ft long. According to the evolutionary time scale, then, whales reached enormous sizes more than 33 million years earlier than previously thought.

- Several types of fossils such as *Basilosaurus* (around the same length as *Perucetus*) are also dated to the Middle Eocene in the Pisco area of Peru.
- Though the earliest fossil whales are commonly attributed to the Miocene, at least one largely complete skeleton (*Zygorhiza kochii*) dates millions of years earlier to the Eocene (Ekdale & Racicot, 2014).

Many of the fossils supposed to represent early whales are not very whale-like. For instance, some such as *Maiacetus* (Uhen et al., 2011) from the Pisco Formation of Peru as well as *Rodhocetus*, *Pakicetus*, and *Ambulocetus* have obvious legs, compared to modern cetaceans that have flippers or fins. The so-called transitions have nothing to do with evolution. There are a number of semi-aquatic animals with legs in the world today.

But So why did the ancient animals have or lack legs?

a. DNA contents.

Visual #9-33

Since evolutionists believe whales must have evolved from land animals, which ones? The ancestors of whales are supposed to have been some sort of semi-aquatic artiodactyl (even-toed hoofed land animals) with DNA not too far removed from the hippopotamus (Nikaido et al., 1999). The ancestors decided to relocate from land into the sea.

Note that hippos are not claimed to be the direct ancestors of whales, but a sister taxon instead. Whales are supposed to have been evolving for millions of years, but hippos have not evolved at all.

Only a few members of the animal kingdom (including humans) have had their DNA completely sequenced. The National Library of Medicine database (https://www.ncbi.nlm.nih.gov/) indicates that only part of the genome of *Hippopotamus amphibius* has been sequenced. Nevertheless, it is estimated that hippo DNA contains about 2.4 billion base pairs. The NLM database does not indicate that the genome of even a single type of cetacean has been completely sequenced. In fact, only three out of 94 recognized species have high-quality reference genomes, and five others have reference quality (as opposed to high-quality) genomes. (Morin et al, 2024)

Though the difference between hippo and whale DNA is allegedly just a few percent, the comparison is based only a few selected gene sites on the genome of a few whale types. In order for comparisons to be valid, the entire genome would need to be sequenced and compared to the hippo's 2.4 billion base pairs. This has not been done.

Visual #9-34

- The Blue Whale is estimated to contain about 2.7 billion base pairs. This would have been a *gain* of about 300 million base pairs from the hippo. (About 300 times as much information as *War and Peace.*)
- The Minke Whale with its 2.5 billion or so would have had to *gain* about 100 million from its hippo-like ancestor.
- The Killer Whale (Orca) with about 2.2 billion would have had to *lose* about 300 million base pairs from its hippo ancestor.
- The Pygmy Right Whale with its 2.5 billion base pairs wold have had to *gain* about 100 million base pairs in evolving from hippos.

In addition, hippos have 36 chromosomes (18 pairs), whereas different types of whales have anywhere from 42 to 44 chromosomes (21 or 22 pairs). Animals with different numbers of chromosomes almost never reproduce, though in rare cases they can produce offspring, which are almost always infertile. Even if the parents could reproduce, the hybrid offspring with chromosome numbers different from their parents would almost certainly not be able to. Evolution would stop.

b. Other physical peculiarities.

Besides the obvious differences between hippos and whales mentioned earlier, there are other peculiarities.

Visual #9-35

i. Number of teeth compared to hippos.

Hippos generally have 36 teeth, of which four are large and tusk-like. Baleen whales have no teeth at all. Toothed (not baleen) whales have varying numbers ranging from just a few in some species to over 200 in others. Some have only bottom teeth that fit into a groove in the upper mouth. None of them are arranged anything like those of hippos.

ii. "Vestigial legs."

Some point to "vestigial" hind legs found on some living whales as evidence that they evolved from some sort of land animals. However, these "legs" are not vestigial at all. They have a very important function: the whales use them to help maintain their position during mating.

c. Proposed transitional forms.

The Cetaceans appear suddenly and fully formed in early Tertiary times, fully

adapted for their highly specialized mode of marine life. Their bodies are greatly modified from the basic mammalian structure. The first known specimens are *Protocetus* and *Eocetus* from the middle Eocene and *Basilosaurus* from the upper Eocene.

Visual #9-36

- *Pakicetus*, ca 50 MA - An artiodactyl, supposed to be most similar to hippos. It had an auditory bulla supposed to be best suited for hearing underwater, but also found in desert mammals (Mason, 2015).
- *Maiacetus*, ca 49 MA - It had obvious legs. Evolutionists believe it was a transitional form, but creationists believe it was simply an extinct semi-aquatic creature.
- *Basilosaurus* (aka *Zeuglodon*) - Eocene. 41-38 MA up to 60 ft (Colbert, 1980, 329). Some believe it was a sister taxon to whales rather than an ancestor. Others believe it was simply a whale.
- *Ambulocetus*, ca. 47-48 MA. Only one skeleton (nearly complete) is known . Features consistent with amphibious lifestyle. Believed to have swum like a river otter.
- *Rodhocetus*, ca. 46-47 MA is known only from two partial skeletons. It had a long head with nostrils positioned farther back than most land mammals but far more forward than modern whales.

Most charts showing whale evolution are actually cladograms. Instead of showing a linear progression of more and more whale-like animals, they show types believed to be sister taxa rather than ancestors and descendants.

No known transitional forms illustrate how the first whales could have changed so drastically from the typical mammalian structure. Even after they appeared, there are no known intermediate forms connecting them to modern whales (Russell, 1962, 123). The "primitive" forms above are not considered ancestral to modern whales. Whales are isolated from other mammals; "they stand quite alone" (Colbert, 1980, 326).

4. FOSSIL WHALES IN SOUTH AMERICA.

The common evolutionary belief about how fossils form is that an animal or plant dies next to a body of water, falls in, and is covered by sediment. After many centuries or millennia, the material in the animal or plant is replaced by minerals. Then, after many more centuries or millennia of erosion, the fossil is exposed.

Visual #9-37

This is not likely the explanation for the fossils at "Cerro Ballena" ("Whale Hill") in the Atacama Desert of Chile, presently one of the driest places on earth. Rather than dying one at a time, many dozens of the animals are believed to have died in the desert more or less simultaneously at about 40 meters (130 ft) above sea level and 1 km (0.6 miles) from the Pacific coast. They are buried in many meters of sediment and are all facing more or less in the same direction.

A catastrophist scenario for the formation of this fossil deposit would be that they were swept into a local area along the Pacific coast under catastrophic flooding or tsunamis, buried under many meters of sediment, and turned into fossils. The area was later uplifted by hundreds of feet. Meanwhile the shoreline moved as the effects of the flooding diminished.

For a proposed Flood scenario for how the Atacama whales might have died in a global Flood, see "80 whales buried mysteriously in Chilean desert" by Dr. Tas Walker.

5. "WHALE VALLEY" IN EGYPT.

Near the Fayum Depression of the Egyptian Western Desert is a middle Eocene area

Visual #9-38

known as Wadi Al-Hitan, known for many fossils of whales (including *Basilosaurus isis*, *Dorudon atrox*, and *Phiomicetus anubis)* and other aquatic or semi-aquatic animals such as manatees. The average elevation is about 123 m (400 ft) above sea level). It is roughly 100 miles (160 km) from any large bodies of water. Like the South American fossils, they are buried under many meters of sediment.

- The standard evolutionary (uniformitarian) scenario is that there was never a worldwide flood, so these creatures could not have been buried under flood conditions.
- The creation/catastrophe scenario is that there was indeed a worldwide flood, followed perhaps by local flooding as the earth recovered.

6. RECAP.

Visual #9-39

Since use and disuse of body features has no effect on an animal's DNA, we must ask if it is really plausible that some ancient animal living at sea level began to spend more and more time in the water until its descendants accumulated enough mutations to produce:

- Fins instead of hoofed feet
- Legs
- Blubber
- A greatly modified eye
- Special skin to streamline its movement through the water
- Baleen in some types and varying tooth arrangements in others
- A hearing apparatus superior to any other type of animal (even bats)
- A method to nurse young under water without drowning them
- A brain that allows partial sleep for the purposes of rest but maintains enough awareness so the whale does not drown while sleeping
- A single blowhole in some types and two blowholes in others
- A protective flap inside the blowhole(s) to prevent water from rushing in
- A method to make sounds underwater without losing air
- Echolocation,
- Horns in narwhals
- The ability to hold their breath for extended times
- The ability to dive thousands of feet deep

and many others.

There is no evidence that whale evolution ever occurred. The first whales appeared in the fossil record suddenly and fully formed, just as creation predicts.

Visual #9-40

Scientists usually depend on a principle known as "Occam's Razor:" the simplest answer that fits all the facts is quite likely the best. In this case, the idea that whales began in a complex, functional condition is far simpler than the idea that all of their unique features evolved over millions of years by random mutations.

I. ORDER CHIROPTERA (BATS).

Visual #9-41

Bats are the only known mammals that can fly. Since the flying reptiles belonged to the wrong order to be their ancestors, they would have had to evolve this ability independently. However, the ancestors of the bat would have been severely handicapped during the time their forelimbs were evolving into wings. At least for several centuries, the limbs would not have had even minimal function. They would have been useless for walking, flying, or catching prey. The mutated animals would have had a hard time surviving, much less evolving.

There is no fossil evidence for bat evolution. The first fossil bats are fully developed Eocene specimens such as *Icaronycteris*, identical in structure to modern bats (Olson,

1965, 94). They appeared suddenly and fully formed fifty million years ago, and have not changed at all (Russell, 1962, 123).

One of the main difference between bats and other mammals is the presence of wings, but there are other significant differences as well.

1. PELVIC GIRDLE.

The pelvic girdle of bats is rotated a hundred and eighty degrees with respect to other mammals. Throughout the time their ancestors were evolving, they would have been severely deformed because of their gradually rotating pelvis. There would not have been even minimal function. This would have put them at an extreme evolutionary disadvantage. So much for survival of the fittest!

2. MILK TEETH OF BABIES.

The milk teeth of baby bats turn inward, enabling them to cling to the mother's hair so that they will not fall to their death. Had this feature not appeared fully formed the baby bats, and thus the entire order, would quickly have died out (Hitching, 1982, 94-96).

3. BAT "RADAR."

Bats use an echo location system similar to that of many toothed whales to guide themselves in the dark and find their prey. Their system gave engineers the idea for the sonar used on submarines. Of course, theirs works much better than anything humans have yet devised. They can use it to locate and catch a single insect, whereas we can only track large objects.

Evolutionists believe that the bat's unique features developed by random mutations in DNA. Creationists believe they were designed that way. Either way, bats appeared in the fossil record suddenly and fully formed and have not changed throughout their entire history.

J. ORDER LAGOMORPHA (RABBITS AND HARES).

Visual #9-42

Though many think of them as rodents, rabbits and hares belong to a separate order, **Lagomorpha**. Even the oldest known fossil lagomorphs are fully developed and appear without known connections to any other mammals or any mammal-like reptiles (Romer, 1949).

K. ORDER RODENTIA.

There are more species and genera of rodents than of all other mammals combined. The descent with modification within rodents has been similar to what has happened with the fruit fly *Drosophila*. Selective breeding in laboratories has produced diversification into subgroups which, after a time, may no longer be able to interbreed because of a loss of genetic information in each group. Though the groups are technically classified as different species, in no case has the diversification gone beyond clearly defined limits.

The same seems to be true for rodents. The first representatives (genus *Paramys*) appeared in the late Paleocene with their ordinal characters fully developed. No transitional forms connect them to any other order. Each of the known rodent kinds later appears suddenly and without transition from any other (Romer, 1949, 303). Diversification into species or breeds often follows, but in no case has a fossil been found showing evolution from one kind to another. As two examples, consider beavers and porcupines.

1. Beavers (sciuromorphs) appear in the Oligocene with no known ancestors.
2. Porcupines (hystricidae) date back to the Miocene and possibly late Oligocene, but they are not connected to other rodent types by any known forms. (Romer, 1949, 303)

L. ORDER PERISSODACTYLA - ODD-TOED HOOFED ANIMALS, INCLUDING HORSES.

According to the evolutionary time scale, mammals are relative newcomers to the earth. If they are younger, then their fossils would be less likely to have been destroyed by time. We

should be able to find at least a few fairly well documented cases of evolution from simple ancestors to complex descendants. Such an evolutionary progression is supposedly shown best in the famous "horse series." If this best example is invalid, then other evolutionary stories would call for great skepticism.

1. DID ONE HORSE GENUS EVOLVE INTO ANOTHER?

Visual #9-43

The hypothetical ancestors of horses are often ascribed to the extinct **Order Condylartha**. (This is sometimes known as a "wastebasket taxon" used for animals that do not seem to fit anywhere else.) Condylarths were ungulates, that is, they had hooves. They have been proposed as distant ancestors of many types: **Order Cetacea** (whales), **Order Artiodactyla** (even toed hoofed animals), **Order Perissodactyla** (odd toed hoofed animals), and Order Liptopterna (supposed to be related to many other types).

Both creation and evolution lead us to expect change and survival of the fittest. However, the two beliefs lead to opposite predictions about the form this change will take.

Visual #9-44

EVOLUTION PREDICTS:	CREATION PREDICTS:
1. Increasing Complexity and Information content.	1. Initial Complexity with subsequent deterioration.
2. Natural Selection operating on random mutations produces new kinds of creatures.	2. Natural Selection weeds out defective specimens but does not produce anything new.
3. Gradual Change from one kind to another.	3. Sudden Appearance of kinds with out transitional forms.

Much of what people think they know about horse evolution started with a 1913 display in the American Museum of Natural History. Many museums and textbooks based on the display still show that horses evolved in a more or less linear fashion, a process known as orthogenesis.

GEOLOGIC AGE WHEN GENUS FIRST APPEARED	
Pleistocene	*Equus*
Pliocene	*Pliohippus*
Miocene	*Merychippus*
	Parahippus
Oligocene	*Miohippus*
	Mesohippus
Eocene	*Epihippus*
	Orohippus,
	Eohippus (*Hyracotherium*)

The "Horse Series"

Despite the implications of charts such as this, the "Horse Series" does not occur anywhere in the real world. It is found only in textbooks.

a. Lamarckianism revisited.

Visual #9-45

As emphasized repeatedly, animals do not acquire new features because they need them, but because their DNA contains the instructions to produce them.

Many evolutionists seem to forget this basic principle of biology when presenting their ideas about horse evolution. For instance, the first five genera in the series – *Eohippus*, *Orohippus*, *Epihippus*, *Mesohippus*, and *Miohippus* – all had feet with padded toes instead of hooves, whereas the later forms had one or three toes on each foot, all with well defined hooves. Textbooks and video presentations often say that the earlier ones acquired padded toes because they needed them in order to

move around on soft forest floors, whereas the later types ran on harder dirt on grasslands and thus acquired hooves for speed.

From a biological perspective, this is preposterous. The environment would not have given animals different types of feet. Natural selection could only eliminate individuals that did not fit well with their environment. DNA determined the type of foot.

b. Frequently withheld information.

The horse series is so familiar to most biology students that they may be shocked to learn that professional paleontologists discarded it decades ago. Though the American Museum removed it because of serious problems caused by later fossil finds, charts based on the display are still found even in college texts. Garrett Hardin, an evolutionist, laments the fact that "there is a tendency to put the chart before the horse." The evolutionary lines of this chart appear only when the data are fragmentary or carefully selected to eliminate specimens that don't fit (Hardin, 1961, 225-226).

Hardin is not alone. Seiff and Macbeth and many other professional scientists agree that the horse series presented above is a mistake. They point out that the stages do not represent ancestors and descendants, but were put together from different times and places to show how horses might have evolved (Seiff & Macbeth, 1982, 92-176). The pattern of fossil horses is actually a branching one rather than linear (MacFadden et al., 2012).

The first in the series, *Eohippus*, is so different from the last, *Equus*, that we should find at least dozens of transitional forms connecting the two. We do not. All but nine of the more than two dozen horselike fossil genera are considered evolutionary dead ends.

Visual #9-46

The claim that horses have evolved through the last fifty million years leaves out a great deal of information.

- The horse series is not a series at all. It jumps back and forth between North America, Asia, and Europe.
- The spine becomes less, not more, complex, as it goes from a stronger arched type in the earliest genera to a weaker straight back in the latest.
- The feet become less, not more, complex as they go from four front and three back toes in the earliest genera to one front and one back toe in the latest.
- The teeth are either suited for browsing tender vegetation like leaves, or for grazing on grass, which is highly abrasive and wears away teeth, as does the dirt pulled up with it.

The reader may have heard of the expression "long in the tooth." This refers to the fact that a horse's gums gradually recede, the teeth wear, and the incisors change angle as it gets older, making the teeth appear longer. This allows the horse's age to be estimated by the condition of the teeth.

Visual #9-47

- There is not a steady increase in size from tiny *Eohippus* to the modern horse. Some specimens are larger, others smaller. Extremes of size may occur in individual types, but overall there is not a significant increase from the beginning to the end. Several supposedly evolving lines of horses became smaller rather than larger (Simpson, 1950, 265).

  Not all specimens of *Eohippus* were tiny. They ranged from 30 to 60 cm (1 to 2 feet) tall (*Britannica* 2018). Likewise, not all modern horses are large.

Some miniature varieties grow no taller than 28 inches (World Book Encyclopedia 1964, 311).

Even if there were a drastic difference in size between *Eohippus* and *Equus*, it would not prove anything. Change in size has nothing to do with the evolution of new features. Some other fossil animals were much larger than their modern counterparts, e.g. giant beavers, saber-tooth tigers, mammoths, cave bears, giant bison, dragonflies with a twenty-inch wingspan, and so on. The variation may have had as much to do with eating habits and the environment as it did with genetic information.

2. MEANING OF THE GEOLOGIC STRATA.

Evolutionists and creationists look at exactly the same geologic evidence but draw vastly different conclusions because of the presuppositions we start with.

a. Evolution - Uniformitarianism.

Visual #9-48

There are hundreds of legends around the world saying that a great flood once destroyed all life except for a few survivors who repopulated the earth. However, uniformitarianism, the basis of the geologic time scale, depends on there never having been a worldwide flood. Peter warned us what was coming about 2,000 years ago:

> "Knowing this first, that there shall come in the last days scoffers, walking after their own lusts, And saying, Where is the promise of his coming? for since the fathers fell asleep, all things continue as they were from the beginning of the creation. For this they willingly are ignorant of, that by the word of God the heavens were of old, and the earth standing out of the water and in the water: Whereby the world that then was, being overflowed with water, perished…. (2 Peter 3:3-7 NKJV)

Evolutionists dismiss flood legends as fables. Rather than believing that many of the strata could have been deposited catastrophically, evolutionists generally claim that they accumulated over millions of years by slow, steady, gradual processes. The divisions of the strata are taken to represent eras, periods, and epochs of time.

In most cases the lower strata are older. (Exceptions would be because of overthrusting, volcanic intrusions, and similar events.) Evolutionists believe there was an original supercontinent called Gondwana. (Rodinia, Pangaea, and the like formed later.)

Visual #9-49

The complete geologic column exists only in textbooks. The single most complete section in the real world is at the Grand Canyon in Arizona, which contains rocks from only six strata.

b. Creation - Catastrophism.

Biblical creationists believe there was one original landmass because of Gen. 1:9-10, but do not have a special name for it. They believe that it split into continents during or after the Flood.

Visual #9-50

Most young-earth creationists believe the strata were deposited in one or more catastrophes, including but not limited to a worldwide flood. The flood water would not have simply risen until it gradually overflowed the existing landmasses, but would have have had unimaginable effects on the world. In fact, the word cataclysm (Greek κατακλυσμοῦ) is used in the Bible only for Noah's flood.

- The flood began when the "fountains of the great deep burst forth" and "the windows of heaven were opened" (Gen. 7:11). Not only was there intense worldwide rain for at least 40 days, but also the sea bottoms would have been largely pulverized into sediment, which was deposited on the newly forming sea bot-

tom and formed much of the sedimentary record.

- The fountains of the great deep would probably have included underwater volcanoes. Their eruptions would have heated up the oceans and propelled a great deal of heated water into the atmosphere. The effects would have lasted for centuries.
- The opening of the windows of heaven might also imply impacts from meteorites and other extraterrestrial materials.
- Since undersea earthquakes are known to cause tsunamis in the world today, it seems likely that there would also have been many during the flood.
- Meanwhile, the continents were separating rapidly under the water. By the end of the flood, they would have been fairly close to their present arrangement.

Visual #9-51

> Many geologists use a computer program known as "Terra," written by geophysicist John Baumgardner. The program divides the earth's surface into thousands of geologic zones and requires the processing power of a supercomputer. The program works so well to model continental motion that it is used worldwide. However, few uniformitarian geologists who use Terra seem to realize that Dr. Baumgardner is a young-earth creationist. His program works much better for rapid motion over a short time (up to 45 miles per hour for less than two weeks) than for a few centimeters a year over millions of years.

- Until the oceans overflowed the seashores, the tides would likely have continued to flow twice a day as they had beforehand, though probably carrying a great deal more sediment.
- After the water rose past the shorelines, the tides would flow much more freely and would be interrupted only by relatively high submerged landmasses such as mountains.
- The geologic strata represent ecological communities (biomes) where the animals and plants were able to thrive until destroyed by catastrophic events. The lower layers are not necessarily older, as demonstrated in Bertheault and Julien's Youtube videos entitled "Drama in the Rocks (https://www.youtube.com/watch?v=vnzHU9VsliQ). In the event of a sideways current, the sediment may pile up side to side rather than bottom to top. Thus, the elevation of many of the biomes has to do with the order of burial rather than their relative ages.
- The first biomes buried would likely be those at the bottom of the ocean. They would be expected to deposit continent-wide strata such as Precambrian, Cambrian, Ordovician, Silurian, and Devonian. Most of the biomes would probably be buried according to the depth where they lived, but there would likely be many exceptions due to catastrophic processes.
- Carboniferous (Mississippian and Pennsylvanian) would be expected to be at shallower depths, perhaps nearing sea level. Permian would probably represent communities buried near sea level, perhaps including swampy environments.
- Mesozoic strata (Triassic, Jurassic, Cretaceous) would be hospitable to land reptiles, probably a bit away from the shore.
- Cenozoic (Paleocene, Eocene, Oligocene, Miocene. Pliocene, Pleistocene, and Holocene) would generally be hospitable to mammals. Most Cenozoic strata would be expected to be a bit higher above sea level than the Mesozoic.
- There are at least three contrasting views among creationists (Oard, 2008) as to which layer of the geologic column represents the highest point of the sediment deposited by the flood.

Visual #9-52

Some creationists believe the highest flood sediments were deposited in the

late Paleozoic, perhaps in the Permian.

Many creationists believe that the highest sediments were at the highest point of the Cretaceous (the end of the Mesozoic). This is known as the K-T boundary.

Other creationist authors say that the sediment reached its highest level at the boundary between the Pliocene (Neogene Period) and the Pleistocene (Quaternary Period). This is known as the N-Q boundary.

The debate about the highest point of the flood not likely to be settled here. No matter which – if any – is true, even after the main body of the Flood had finished depositing sediment, there would also have been later local catastrophes that laid down a great deal of more localized strata.

Visual #9-53

- The Paleozoic and Mesozoic strata are estimated to contain hundreds of billions of fossils. These would likely have been formed during the overall rising phase of the flood, during which volcanic and other geologic activity probably continued on a large scale.

  A much smaller number of the fossils – perhaps numbered only in the billions – would have been formed as the waters were receding during the upper Mesozoic or the Cenozoic. The earth would have still been undergoing local upheavals, but the strata would now be distributed in smaller local areas rather than continent wide.

- As the earth gradually returned to its pre-flood conditions, a process that would have taken centuries, the previously uniform climate would have developed much colder areas for the first time. The post-flood statement of Genesis 8:22 is the first mention of "cold" in the Bible. This probably explains the Ice Age a few hundred years later, lasting until the earth had mostly recovered.

  The existence of a post-flood Ice Age sheds light on many problems such as *Why did humans begin to live in caves for a while, then mostly resume living in more typical housing?* Some of these will be dealt with in later chapters.

As much as scoffers ridicule the idea that there was ever a worldwide flood, they are even more incredulous about creationists' attempts to correlate it with strata in the geologic column. Nevertheless, following is a proposed correlation of supposed horse fossils with the geologic strata.

3. GENERA ASSOCIATED WITH THE HORSE SERIES.

Visual #9-54

Many people are under the mistaken impression that fossils and geologic strata are dated by testable radiometric means such as Carbon-14. They are not. C-14 has a short enough half-life that it can only be used to estimate ages of a few thousand years, far less than the millions of years attributed to many fossils. Other means such as Uranium-Lead or Potassium-Argon are not used on fossils because the living things they came from do not contain those elements. However, if the surrounding rocks contain materials such as volcanic ash, certain radiometric tests such as Potassium-Argon can be applied to the rocks.

See Appendix B for a critique of commonly used radiometric dating techniques.

Strata are usually dated by the fossils they contain. *Index fossils* are found in only one stratum. One of the most obvious problems when using them to date members of the "horse series" to the associated strata (Eocene, Oligocene, Miocene, Pliocene, Pleistocene, Holocene) is that many of the index fossils for these Cenozoic strata are marine invertebrates rather than land-based animals.

a. Eocene fossils.

Visual #9-55

The Eocene alleged horse specimens *Eohippus*, *Orohippus,* and *Epihippus* are estimated to have grown up to two feet high at the shoulder and up to 20 lbs.

Though textbooks and museums often depict a lengthy series of fossils from *Eohippus* to *Equus*, these are based on a number of small fragments. There are extremely few complete *Eohippus* fossils, perhaps as few as two to four. (See "Introduction," *Perissodactyl*, American Museum of Natural History, [https://research.amnh.org/paleontology/perissodactyl/evidence/intro] Accessed 27 July 2026.)

Eohippus was first identified on the basis of a single tooth. When more parts were unearthed, its (extremely partial) skeleton turned out to be practically the same as that of a previously discovered European fossil known as *Hyracotherium* (Kofahl & Segraves, 1975, 176). This name, meaning "hyrax-like beast," was assigned because of its close resemblance to the rodent-like hyrax. Though most use the name "*Eohippus*," which means "dawn horse," there is debate about whether it is more properly called *Hyracotherium*, or whether these are actually two separate genera. Some divide them into as many as ten genera and three families. At various times *Eohippus* has been expanded to include at least five species. As of this writing (2026), only one species, *Eohippus angustidens,* is recognized as valid. The others have been relegated to species within the genus *Hyracotherium*, perhaps as few as a single species *H. leporinum*.

The reason we claim to know the age of this genus is because it is found in Eocene strata, as determined by the presence of index fossils. The fact that many of the index fossils are marine invertebrates could be interpreted to mean that the Eocene fossils were jumbled and buried under flood conditions.

When it comes to land animals, the "Horse Series" runs into a problem from the very beginning: *Eohippus*, first in the series, has no known ancestors. For lack of a better candidate it is often claimed to have evolved from the extinct mammal order **Condylartha**, but no transitional forms connect it to the condylarths. It appeared at the lowest layer of the Eocene in both Europe and North America, with no known ancestors on either continent (Simpson, 1951, 115).

No matter what we call it, the animal is considered very primitive. It is no more similar to a horse than to a tapir or rhinoceros. It is placed at the root of the horse series only because this placement has become customary (Kerkut, 1960, 149).

Visual #9-56

After *Hyracotherium/Eohippus*, the next two members of the horse series are *Orohippus* and *Epihippus,* known only from fragments. All three appear in Eocene rocks with no known ancestry. They are divided into successive genera to show whether they appeared in the lower Eocene (*Eohippus/Hyracotherium*), middle Eocene (*Orohippus*), or upper Eocene (*Epihippus*). It is commonly estimated that all three were about 1-2 feet high at the shoulder. Though the average size decreases slightly from bottom to top, the skeletons are virtually indistinguishable from each other with differences consisting primarily of variations in the teeth (Simpson, 1951, 116-121). Rather than three separate genera, these may have been variants of a single kind.

There is little to connect any of these three to horses of later periods. None of them was built at all like a horse.

- All had four toes on the front feet and three toes on the back feet.
- Instead of hooves, the toes had pads which bore the weight of the body during walking or running, similar to those of a dog or rabbit.

- The back was arched and in overall shape the animal was somewhat similar to a large rabbit with a long tail.

Visual #9-57

- The teeth were not the grazing-type teeth of modern horses but were low-crowned and short, suitable for browsing on tender leaves, fruits, and the like.
- Fossil skull casts have shown that their brains were some of the most primitive known in any mammal. They were smooth and relatively simple, lacking the complex pattern of sulci (folds and fissures) found in the six later genera of the horse series. They more closely resembled those of reptiles or of the most primitive mammals such as opossums, noted for stupidity. The cerebrum, the neocortex, and the cerebellum were considerably different from those of modern horses (Simpson, 1951, 177-179).

Not only did these so-called horse ancestors appear in the fossil record suddenly and without known ancestors, but they also left no descendants. They have no known connection with the next specimens of the horse series, the Oligocene forms, which also appear with no known ancestors.

b. Oligocene horses.

Visual #9-58

The prefix *Oligo-* indicates "few" and the suffix *-cene* indicates recent life. Thus,the Oligocene stratum was named because the fossils it contains, though of types considered recent, are relatively scarce. Similar to those of the Eocene, most Oligocene index fossils are marine, as would be expected under conditions of extensive flooding. The land animals included fossils of many familiar types such as deer, camels, elephants, dogs, and so on.

Visual #9-59

The two Oligocene genera in the horse series are *Mesohippus* (about 2 feet high at the shoulders, 50 to 75 lbs) and *Miohippus* (estimated about 2.5 feet high at the shoulders, 50 to 75 lbs). Though we do not have a single complete skeleton of *Mesohippus,* composite skeletons have been assembled from fragments gathered across wide areas such as the Great Plains and western states. There are a few fairly complete skeletons of *Miohippus*.

Mesohippus and *Miohippus* are extremely similar to each other. By convention, the former includes all the lower Oligocene specimens and the latter includes the middle and upper Oligocene. The two were not easy to identify as separate genera. As Simpson says,

> "*Mesohippus* and *Miohippus* intergrade so perfectly and the differences between them are so slight and variable that even experts find it difficult, at times nearly impossible, to distinguish them clearly" (Simpson, 1951, 121-127).

Though the two genera had certain characteristics in common with earlier ones, no transitional forms show how they might have evolved.

i. Similarities to Eocene Genera.

Teeth. Like the Eocene specimens, they had teeth suitable for browsing rather than grazing.

Eye orbits. Also like the earlier ones, the eye orbits were not closed in by bone at the back.

ii. Differences from Eocene Genera.

The differences from the Eocene genera were much greater than the similarities.

Feet. Each foot had three toes rather than four, with doglike pads on the toes.

Brains. The brain was quite different from that of the Eocene forms. Rather than small and smooth, it was much larger and more complex, with a pattern of folds and fissures like those in "higher" mammals.

iii. Differences from later horses.

The Oligocene animals are believed to have looked horselike, though nothing is known of the shape of soft parts or of the color. However, there were internal differences from later horses in almost every part of the body. Some notable examples:

Eye sockets. The eye sockets were not closed in by bone at the rear as they are in modern horses.

Necks. The neck was relatively shorter and the eyes farther forward than in living horses (Simpson, 1951, 121-127).

Teeth. They had teeth suitable for browsing rather than grazing.

Toes. They had padded toes rather than hooves.

Of the five "intermediates" so far, the three Eocene are almost indistinguishable from each other, as are the two Oligocene. No known transitional forms connect the two groups. Rather than five genera, there may only be two. And it is questionable if the first is even a legitimate member of the horse family.

c. Miocene horses.

In the Eocene we identified the three named genera of alleged horse ancestors (*Eohippus*, *Orohippus*, *Epihippus*), but we noted that there is little difference between them. Likewise, the two Oligocene genera are similar enough that they could possibly be identified as the same genus. All are believed to be leaf browsers with padded toes. It may be that there are only two actual genera so far.

Visual #9-60

The situation is much different in the Miocene. There is no longer anything resembling a straight line progression leading to the modern horse. Over a dozen genus names have been assigned so far: *Acritohippus*, *Archaeohippus*, *Cormohipparion*, *Dinohippus*, *Hypohippus*, *Kalobatippus*, *Megahippus*, *Merychippus*, *Nannippus*, *Neohipparion*, *Parahippus*, *Pliohippus*, and *Pseudhipparion*. Several branches are shown in charts as shooting off from *Miohippus* as dead ends. *Anchitherium*, a three-padded-toe browser, is supposed to have found its way from North America to Asia and Europe. Its alleged descendants in North America included *Hypohippus* (similar but larger, pony-sized), which is said to have ranged as far as China later in the Pliocene. This animal is supposed to have evolved into *Megahippus*, rhinoceros-size with enlarged spoonlike incisors in its lower jaw. But as these larger forms developed, so did *Archaeohippus*, a pygmy version. All died out in the Miocene or early Pliocene (Simpson, 1951, 127-130).

Visual #9-61

Biologically, a species is supposed to be defined the ability to interbreed. This would imply that a male and female would be able to produce fertile offspring. Britannica.com says that a genus consists of "of structurally or phylogenetically related species or a single isolated species exhibiting unusual differentiation." This is a very nebulous definition. There is no way to know if fossils of two animals that lived in the prehistoric past were phylogenetically related. Instead, researchers often rely on their own opinions of similarity to assign species and genus names to fossils.

Two of the Miocene genera, *Parahippus* and *Merychippus*, are supposed to be the direct ancestors of the modern horse. They are quite different from the supposed earlier types and appear with no known transitions.

i. Differences from Earlier Genera.

*Eye sockets.*The eye sockets of *Parahippus* and *Merychippus*, instead of being open at the back, were closed in with bone.

Teeth. Their teeth were long and high-crowned and had a substance known as cement added, making them suitable for the harsh demands of grazing (Simpson, 1951, 127-130). Grass is highly abrasive and wears away teeth, as does the dirt pulled up with it.

Feet. The feet were radically different. Whereas all the earlier forms had pads on the bottom of the toes to absorb the body weight, *Parahippus* and *Merychippus* stood on tiptoe. There were no pads; the weight rested on hooves. In addition, a tendon at the back of the foot acted as a shock-absorbing spring as it does in living horses. As weight is placed on the hoof, the tendon stretches. As the horse steps forward, it contracts and adds force to the forward motion.

Number of toes. There were three toes rather than one as in modern horses, but the side toes were much smaller than the middle. These extra toes seem to have acted as limiters to keep the tendon from stretching too far. (Every so often a modern horse is born with three toes, a condition known as polydactyly.)

Leg bones. The radius and ulna of the leg of these and later forms are fused; the foot does not have the capacity to swivel as did the earlier forms. (Simpson, 1951, 131-136)

ii. Similarity to modern horses.

Though fossils do not document changes from earlier types to *Parahippus* and *Merychippus*, these two seem to have been similar to modern horses. The extra toes are not a problem. There are several instances of three-toed modern horses on record. The genes may still be present in some horses, though recessive. This does not mean that the feet are becoming more complex, as evolution leads us to expect. A one-toed foot is less, not more, complex than three-toed. Compared to *Parahippus* and *Merychippus*, the feet of modern horses would be considered degenerate rather than more complex.

d. Pliocene horses.

Visual #9-62

The next stratum, the Pliocene, shows a situation similar to that of the Miocene. *Hypohippus* and *Megahippus* are no longer found in this stratum, nor are any of the Miocene forms except *Merychippus*. Before the latter became extinct, it supposedly gave rise to five genera. All but one of these are considered evolutionary dead ends that became extinct without leaving any directly descended species.

The four dead ends were all 3-hoofed-toe grazers. Three (*Hipparion*, *Neohipparion*, and *Nannipus*) are virtually indistinguishable from each other. All three are found in North America. *Hipparion* is also found in Asia, Africa, and Europe. Some believe *Nannipus* was a pygmy genus, as was the fourth, *Calippus*, about which little is known (Simpson, 1951, 138-141).

A genus of special interest in this stratum is *Pliohippus*, supposed to be the last transition to the modern horse. It is the first genus which included one-toed specimens. The side toes did not gradually decrease in size but were either noticeably present as in earlier groups or noticeably absent. The teeth were similar to those of modern horses except that the cheek teeth tended to follow the sideward curvature of the cheek, in contrast to modern horses where they are fairly straight.

Despite the similarities, *Pliohippus* skulls had a peculiarity that rendered them significantly different from modern horses. The bones in front of the eye were usually hollowed out, forming a fairly deep pocket in the skull which in extreme cases had as many as three main extensions. One was immediately in front of the eye, one was below and in front of this, and one went backward into the cheek bone (Simp-

son, 1951, 142-144). We have no idea what sort of structures were associated with these pockets. No known transitional forms have an intermediate-type skull.

A collection of horses found in Pliocene strata near Hagerman, Idaho (the Hagerman horses) were classified as *Equus simplicidens*. They are not evolving toward the modern horse genus; they ARE the modern horse genus.

e. Pleistocene and Holocene (Modern) horses.

The modern horse genus *Equus* (which also includes zebras, donkeys, and onagers) has long been believed to have appeared in the late Pliocene. The other members of the horse family seen above became extinct soon after, in the early Pleistocene. Thus, there would have been a short period during which *Equus* and its immediate ancestor lived together. However, the fact that it is not too dissimilar from the three Miocene and Pliocene genera does make them to be likely ancestors.

Unless one's philosophical beliefs do not allow the possibility of design, similarities within the horse family could reflect common design just as easily as common ancestry. A reasonable interpretation of the information above would be that there were several different kinds of creatures: 4-padded-toe browsers, 3-padded-toe browsers, 3-hoofed-toe grazers, and 1-hoofed-toe grazers. Creationists would have no problem believing that one-toed grazers could be descended from those with three toes. This would show a loss of complexity in the foot, not an increase.

Since it is usually not possible to do genetic testing on fossils, researchers often depend on their own opinions of similarity to decide whether extinct forms should be classified as different genera. However, since we can do genetic testing on living forms, we can tell that besides the extinct wild horses known as *tarpans*, all of the dozens of types of horses living today belong to the same genus, *Equus*.

Visual #9-63

The living forms include: thoroughbreds, Arabians, quarter horses, Morgan horses, Shetland Ponies, Percherons, Clydesdales, Belgian Draft horses, Przewalski's Horse, Cape and Plains Zebras, Quaggas, Onagers (Asiatic wild ass) as well as Persian and Turkmenian Onagers, Syrian and Mongolian Wild Asses, Donkeys (African Wild Asses, called "Burros" in Spanish), as well as Mules (hybrid between horses and donkeys).

There is so much difference between the various types that we could easily classify them as different genera if we could not do genetic testing.

All these factors have dealt serious blows to the evolutionary interpretation of nine more and more horselike genera appearing in successive layers of the geologic column.

4. RECAP.

To summarize: even if we interpret the strata as multimillion year time periods, we do not find evolutionary development within the horse series. Changes are not inevitably in the direction of increased complexity as evolution would lead us to expect; several are in the direction of deterioration. Various parts of the body seem to become more horselike at different times, with the changes apparently unconnected.

The steps are abrupt and without transition (Goldschmidt, 1952, 97). We see only a few distinct types with clearly defined features. There are three totally unhorselike Eocene 4-padded-toe browsers; two somewhat more horselike Oligocene 3-padded-toe browsers; two horselike Miocene 3-hoofed-toe grazers; a 1-hoofed- toe Pliocene grazer with a peculiar skull; and the modern genus *Equus* from the Pliocene until the present - or so the story goes.

The sudden appearance of each form is not because of a lack of fossils. Paleontologists have identified about a quarter of a million fossil species and have had to greatly modify or even discard some of the examples of evolution accepted in Darwin's day, such as the horse series (Raup, 1979, 22).

Visual #9-64

- Each supposedly intermediate form appears suddenly and leaves no obvious descendants. In the words of duNouy (not a creationist):

  "The known forms remain separated like the piers of a ruined bridge. We know that the bridge has been built, but only vestiges of the stable props remain. The continuity we surmise may never be established by facts." (duNouy, 1947, 74).
- The leg and foot from *Eohippus* to *Equus* shows a series of sharply different stages. There is considerable fluctuation throughout contemporaneous forms (Simpson, 1951, 203).
- The foot has gone **from complex to simple** in stages: four padded toes, three padded toes, three hoofed toes, and one hoofed toe.
- The brain would have had to go the opposite direction. *Hyracotherium* and the other Eocene so-called horses forms had a smooth and relatively simple brain, while later true horses had much more complex brains with a pattern of folds and fissures on the outer surface (Simpson, 1951, 177-179).

  The horse is supposed to have evolved independently of mammals of other orders (cattle, primates, etc.) yet they all have the same type of pattern. This would be an astonishing series of coincidences produced by random mutations in DNA.
- The number of pairs of ribs cannot be used to show evolution. It varies from eighteen (*Eohippus*) to fifteen (some specimens of *Orohippus*) to nineteen (*Pliohippus*) to eighteen again (*Equus scotti*), although some Arabians have seventeen pairs.
- The number of lumbar vertebrae, meanwhile, went from six or seven (*Eohippus*) to eight (*Orohippus*) and back to six (*Equus scotti*).
- The modern horse's ancestors were found in the United States, but it makes its first appearance in India (Kofahl & Segraves, 1975, 176).
- The modern horse has a weaker straight or sway back compared to *Eohippus*, which had an arched back. It also has fewer teeth (Heinze, 1973, 49).

Evolution depends on the accuracy of the geologic time scale. If it is incorrect or if the fossils appear out of sequence, then the horse series is not a series at all. This is why many fossil horses have been considered dead ends. They are found either in the wrong location or in the wrong layer of the geologic column. For example, in Oregon's "Rattlesnake Formation" in the Blue Mountain region, three-toed grazer *Neohipparion* is found along with one-toed grazer *Pliohippus* (Nevins, 1974, 196). Since the two are contemporary, it is not likely that the first could be an ancestor of the second.

Many paleontologists now admit that the horse series does not demonstrate much of anything. The fossil record shows that there was no straight-line evolutionary path from *Eohippus* to modern horses.

J. ORDER PROBOSCIDEA (ELEPHANTS AND MAMMOTHS).

Visual #9-65

Nor do we find evolutionary ancestors for elephants and mammoths. No known forms are considered to be descended from any others. Every group of proboscideans is assumed to have sprung from hypothetical common ancestors in the late Cretaceous or early Eocene. However, each group appears separately and without known intermediates (Kerkut, 1960, 149). There is no fossil evidence that they evolved from anything.

An obvious difference between African and Asian elephants is the size of the ears. African are larger. The early Tarzan movies used Asian elephants with prosthetic ears.

Many people think that mammoths were cold weather animals because they were hairy. However, frozen mammoths have been found with tropical vegetation in their stomachs. They must have lived in a tropical climate. What about the hair? Gorillas are hairy too, and they usually live in jungles.

III. CHAPTER SUMMARY.

As noted previously, this chapter was not intended to prove that creation (Initial Complexity) is correct, only that it is a logically plausible alternative to evolution (Initial Disorganation).

The focus of this chapter has been mammals. There are dozens of living types of mammals and dozens believed to be extinct.

- Though most mammals give live birth, Monotremes would have had to maintain their egg-laying characteristics.
- Marsupials would have had to develop pouches, a different method of nursing, and their other unique features.
- In order for them all to be descended from "stem mammals," the marine types such as cetaceans and sirenians would have had to reverse the hypothetical earlier evolutionary steps by which fish evolved into reptiles well suited to live on land. They would have had to lose their land adaptations and reacquire features giving them an advantage in water.
- In order for them to be descended from artiodactyls similar to hippos, the cetaceans would have had to either lose or acquire hundreds of millions of base pairs in their DNA, while continuing to be able to breed together.
- Some cetaceans would have had to acquire developed drastically different tooth arrangements while others lost their teeth and acquired baleen.
- Along the way, some would have developed the ability to hold their breath for extended periods of time while diving to great depths while not being crushed by extreme pressure there,
- Some of the whales developed underwater vocalization mechanisms to communicate over long distances, others developed mechanisms to find food by echolocation, and some developed the ability to do both.
- Groups of whale fossils in the deserts of South America and Africa show that both of those areas were subjected to flood conditions some time in the past.
- Totally independent from cetaceans, bats would have had to develop the ability to navigate and find food by means of echolocation.
- There are a great many types of horses in the fossil record. The fossil record of the Eocene and Oligocene types is very limited. We cannot do generic testing be sure they really should be grouped with horses.
- Some so-called horses had three or four padded toes and browsing type teeth, but others had hoofed toes and grazing type teeth.
- Since we cannot do genetic testing on fossils, many different genus names have been assigned in the "horse series." However, there are also many types of horses living in he world today.
- The proboscideans (elephants and mammoths) appear in the fossil record suddenly and fully formed with nothing leading up to them.

All of the above features are more compatible with Creation (complex to simple) than with Evolution (simple to complex).

Besides those listed in this chapter, there are dozens of other orders of living and fossil mammals. To the chagrin of those who insist that they must have evolved from lower life forms, two of the most obvious characteristics of the fossil record are described by the late Harvard professor Stephen Jay Gould (who hated it when quoted by creationists):

Visual #9-66

"The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils...

" The history of most fossil species includes two features inconsistent with gradualism:

"1. Stasis. Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking much the same as when they disappear; morphological change is usually limited and directionless.

"2. Sudden Appearance. In any local area, a species does not arise gradually by the steady transformation of its ancestors; it appears all at once and 'fully formed'.."

(Gould, "Evolution's Erratic Pace." 1977)

These characteristics line up very well with the expectations of creationists.