

May 2023

Creation Tours: Part 1

By Dan Reynolds, PhD

Introduction

This month I decided to take you on a tour of a museum, a Creation Tour, that is. TASC and Reasons2Believe,¹ an apologetics organization headed by Ben LaCorte, have joined forces to create a tour of the North Carolina Museum of Natural Sciences (NCMNS)² given from a biblical creation perspective. We have named the effort Creation Tours. Creation Tours was created to provide a biblical alternative to the secular evolutionary and materialistic understanding of nature, primarily for Christian homeschool and private school groups. The tours usually cover eight stations in the museum, each station taking ten to fifteen minutes. The usual stations include (alleged) whale evolution, butterfly metamorphosis, animal migration, biodiversity, dinosaurs, alleged transitional forms (fossils), dating methods, cosmology, and abiogenesis. Each station is explained from both biblical and scientific perspectives. We have several scientists and engineers on our faculty, including Dr. David Greear (engineering and theology); Dr. Gerald VanDyke (botany); Ben LaCorte, MA (engineering and biblical literature); Paul Harry, PE; Mark Stephens, MCS (general science); Dr. Chris Berg (apologetics); and Dr. Dan Reynolds (organic chemistry). We have occasionally had others teach as well. To date, we have guided roughly thirty tours with students ranging from ten to college age. Parents and teachers often attend. Our goal is to show students that the Bible can be trusted as historically and scientifically accurate.

Exhibits and Discussion

Overview

To begin we provide an overview of the tour. We explain how the materialistic philosophy that currently

dominates our culture teaches that the universe started in a chaotic state and has been improving, organizing, and increasing in complex information ever since (cosmic and biological evolution). We contrast that view with the biblical view that God created a perfect universe that has been slowly decaying since the Fall of man.

During the tour, some of the instructors use visuals in the form of paper or tablet computers. Students can ask questions and make comments. In what follows, more detail has often been provided than is shared on the tour. We try to make our presentations be age-appropriate and concise.

Station 1: Whales

Our first science stop is a skeleton of a blue whale (Fig. 1), the largest creature to ever live on Earth, even larger than the dinosaurs. Many evolutionists believe that the fossil evidence for the evolution of whales from land mammals is one of the best examples of a series of transitional forms in the fossil record.³



Figure 1: Blue whale skeleton at NCMNS

¹ Reasons2Believe. reasons2believe.org Accessed 2023 Apr 17

² North Carolina Museum of Natural Sciences, <https://naturalsciences.org/> Accessed 2023 Apr 17

³ For an excellent video discussing many of the problems with the "whale series," see *Debunking Whale Evolution: Good Evidence for Darwin or Not?* by Long Story Short <https://www.youtube.com/watch?v=PRrVx3x6mA8> Accessed 2023 Apr 17

Evolutionists believe they have found a nearly complete fossil sequence for the evolution of modern whales from a land mammal called *Pakicetus* (52 mya, Fig. 2), but there are many problems (Table 1). Sometimes the fossil evidence in the “whale series” is partial and fragmentary with key diagnostic pieces missing. Nevertheless, evolutionary scientists are often quick to assume evolutionary relationships and fill in the gaps of fossil evidence with their creative imaginations. Such was the case with *Pakicetus*. The first fossil evidence consisted of a partial skull only. Nevertheless, published drawings of *Pakicetus* included flippers, a blowhole, eyes on the side of the head (like modern whales), etc. Later fossil discoveries showed there was no blowhole, no flippers, and the eyes were positioned in front like most land animals. Also, an ear bone called the *sigmoid process*, thought to be diagnostic of relatedness to whales, was found in *Pakicetus*.

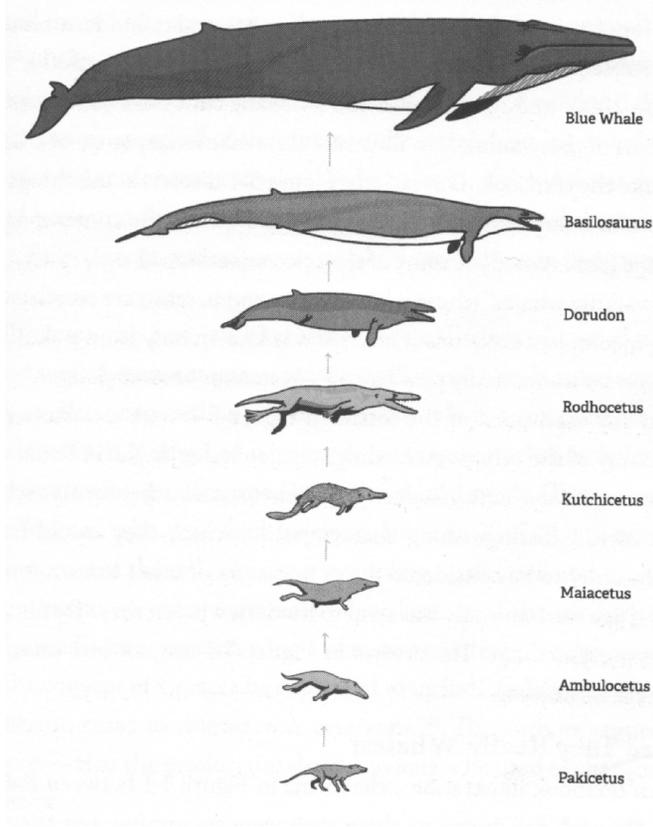


Figure 2: Alleged evolutionary whale series⁴

But it is now known the *sigmoid process* in *Pakicetus* is dissimilar to the same bone in whales. Also, the *involucrum*, another ear bone once thought to be unique to whales and present in *Pakicetus*, has now been found in other land animals (e.g., *Indohyus*), so it can no longer be considered diagnostic of whales (Table 1). So, there is now no compelling fossil evidence that *Pakicetus* was anything but a land animal with no obvious relationship to whales.

Other problems for the *Pakicetus*-to-whale evolutionary story include: (1) the short time (<10 million years)⁶ available to transform a land mammal into a whale; (2) the fact that some of the organisms in Table 1 lived at the same time (e.g. *Basilosaurus* and *Dorudon*); (3) that the oldest known fully aquatic whales were contemporaries of *Ambulocetus*;⁷ (4) that the alleged vestigial hind legs of whales facilitate reproduction and are different in males and females (Fig. 3); (5) the lack of an intermediate between *Rodhocetus* and *Dorudon*; and (6) whales are most similar to the hippopotamus genetically out of all extant land animals, but the earliest known hippos are purported to be only fifteen million years old, etc. In addition, the fossil evidence that *Rodhocetus* had a tail fluke and other whale-like characters is lacking, bringing into question its alleged transitional status.⁸



Figure 3: Alleged vestigial hind limbs of a blue whale (NCMNS)

⁴ Wells J (2017) *Zombie Science*, Discovery Institute Press, Seattle, 101

⁵ Werner C (2007) *Evolution: The Grand Experiment, Vol. 1*, New Leaf Press, 3rd Edition, Chapter 13 and Appendix F. This book contains many excellent photographs of the fossils referred to in Table 1, and interviews with some of the scientists who discovered them.

⁶ For the sake of argument, I am assuming evolutionary “ages” are correct.

⁷ Luskin C (2011 Oct 18) Discovery of “oldest fully aquatic whale” fossil throws a major bone into whale evolution story. *Evolution News*, https://evolutionnews.org/2011/10/discovery_of_oldest_fully_aqua/ Accessed 2023 Apr 17

⁸ Werner C (2007) 139

Table 1: Fossils of whales and their alleged ancestors

Species (in order of appearance in fossil record - top-most recent)	Dwells on land, sea, or amphibious	Fossil Remains	Date	Extant or Extinct	Involucrum	Size	Comments
Modern whales	Sea	Complete skeleton	49 mya to present	Extant and extinct	Yes	30–80 ft long	Tail fluke, flippers, blowhole, eyes on side of head in line with teeth, echolocation
Basilosaurus	Sea	Same time as Dorudon	40 mya	Extinct	Yes	65 ft long	Teeth not whale-like; nostrils not on top
Dorudon	Sea	Same time as Basilosaurus	40 mya	Extinct	Yes	16 ft long, giant freshwater otter	–
Rodhocetus	Amphibious	Incomplete	42–48 mya	Extinct	Yes		No flippers, had hoofed toes, no evidence for long tail, probably no fluked tail
Kutchicetus	Amphibious	Incomplete; smaller than Maiacetus and Ambulocetus	42-48 mya	Extinct	Yes	Long-snouted crocodile	–
Maiacetus	Amphibious	Incomplete	42-48 mya	Extinct	Yes		Size of a giant freshwater otter
Ambulocetus	Amphibious?	Incomplete, fragmentary	50 mya	Extinct	Not whale-like	7 ft long	No blowhole, had long neck like land animals, eye socket above teeth unlike whales
Pakicetus	Land	Almost complete; initially only a skull from which an aquatic animal with flippers, a blowhole, and eyes on the side of the head was conjectured, now debunked	52 mya	Extinct	Plate-like and similar to other land animals	Size of a wolf	Fossils buried with land animals, had hoofs, no flippers, no blowhole, eyes on top—not side

The changes required to evolve a land mammal into a whale are numerous: legs into flippers and tail fluke, nose into a blowhole, eyes in front above teeth into eyes on the side in line with teeth, relocation of testicles to inside of the body, development of a counter current cooling system to keep testicles cool for sperm production, and the development of echolocation in some species—just to name a few. Wells conservatively estimates the evolution of a land mammal into a whale would require thousands of specific beneficial coordinated genetic mutations in only a few million years at most. Richard Sternberg, an evolutionary biologist with two doctorates, says this would be *impossible* given our current understanding of population genetics.⁹

Station 2: Metamorphosis

Our next stop in the museum is to discuss metamorphosis.¹⁰ At this station, we discuss the transformation of a caterpillar into a monarch butterfly and ask how this metamorphosis could have ever evolved through a step-by-step process.¹¹ The butterfly life cycle includes an egg, a caterpillar (larva), a pupa (chrysalis), and finally a butterfly, which then lays eggs to complete the cycle.¹² The caterpillar may shed its skin (molt) five times before becoming a pupa. After five molts, the caterpillar attaches itself to the underside of a leaf and then sheds its yellow and black skin to reveal the green pupa. Once a caterpillar has formed a pupa, enzymes digest most of the tissues to provide a protein soup. This soup then provides the building blocks needed to build the butterfly. The pupal stage can last from ten to fourteen days. Incredibly, this insect has two body plans in its genome!

The caterpillar and butterfly differ in many ways, including their eyes (butterflies have compound eyes, caterpillars don't), butterflies have wings, and some butterflies have built-in navigational abilities for migration (see next section). Scientists have no clue how this process could have evolved on a molecular level. Special creation makes sense, however. Dr. David Greear, who

often teaches this station, tells us the Greek word *metamorphoo*, from which we get our word metamorphosis, is used to describe Christ's transfiguration (Mat. 17:2) and the sanctification of Christians (Rom 12:2). The transformation of a caterpillar into a butterfly and the transformation of a sinner into the image of Christ (2 Cor 3:18) are both mysterious and the result of divine activity.



Figure 4: Dr. David Greear explaining animal migration (NCMNS)

Station 3: Migration

Our next stop in the museum is a display of migration pathways. Many organisms are known to migrate each year, some over thousands of miles.¹³ Some of the most common examples include birds, whales, butterflies, caribou, seals, fish, dragonflies, penguins, turtles, and the wildebeest. There are many others. For navigation, some animals use the location of the sun (factoring time of day, date, and latitude), the location of stars, visual landmarks, and even the Earth's magnetic field.¹⁴ Some are able to navigate with accuracy rivaling GPS. Many

⁹ Sternberg R, Nelson P (2015) *Whale Evolution vs. population Genetics*. Excerpt from *Living Waters: Intelligent Design in the Oceans of the Earth*. Illustra Media, <https://www.youtube.com/watch?v=0csd3M4bc0Q> Accessed 2023 Apr 17

¹⁰ For a good discussion of monarch butterflies, see Buhler WG, Van Dyke G, Greear D (2023) Insects: Musings on the monarch it's migration, and butterfly metamorphosis. <https://tasc-creationscience.org/article/insects-musings-monarch-its-migrationand-butterfly-metamorphosis> Accessed 2023 Apr 17

¹¹ Jabr F (2012 Aug 10) How does a caterpillar turn into a butterfly? *Scientific American*, <https://www>.

[scientificamerican.com/article/caterpillar-butterfly-metamorphosis-explainer/](https://www.scientificamerican.com/article/caterpillar-butterfly-metamorphosis-explainer/) Accessed 2023 Apr 17

¹² The Academy of Natural Sciences of Drexel University. Butterfly life cycle. <https://ansp.org/exhibits/online-exhibits/butterflies/lifecycle/> Accessed 2023 Apr 17

¹³ Handwerk B (2019 Apr 19) Twelve epic migratory journeys animals take every spring. *Smithsonian Magazine*. <https://www.smithsonianmag.com/science-nature/twelve-epic-migratory-journeys-animals-take-every-spring-180972001/> Accessed 2023 Apr 17

¹⁴ Gould JL, Gould CJ (2012) *Nature's Compass: The Mystery of Animal Navigation*, (Kindle edition), Princeton University Press, Princeton

animals have built-in clocks that tell them when it is time to migrate. The Arctic Tern (bird) holds the animal migration record for flying yearly from the Arctic to the Antarctic and back for a round trip of 25,000 to 30,000 miles!¹⁵

Many species use internally formed magnetite (iron oxide) crystals to detect the Earth's magnetic field. Monarch butterflies use the Earth's magnetic field to navigate.¹⁶ Each spring, millions of monarchs mate and then begin migration from central Mexico northward to destinations as far as 3000 miles away in Canada.¹⁷ The original monarchs flying northward are not able to complete the journey, however. Instead, they lay their eggs on the leaves of milkweed plants. The eggs hatch, the resulting caterpillars grow, enter the pupa stage and finally a new butterfly emerges to continue the northward journey. It can take as many as four generations to reach the final destination with each generation lasting only two to five weeks.¹⁷ When autumn comes, monarchs begin their journey back to Mexico. Unlike the northern migration, the south bound migration is accomplished by a single generation of butterflies, referred to as the Methuselah generation, over an eight to nine-month period. A butterfly often returns to the same tree as its ancestors of the previous migration from Mexico!¹⁸ Monarchs have been observed to fly as high as 12,000 feet at speeds up to thirty miles per hour.¹⁹ They can fly hundreds of miles over many hours in a single flight. Monarchs blown off course are able to get back on track and find the way to their destination.¹⁵

The complexity of the navigational system of the monarch butterfly is obvious. It has been estimated there are over 500 genes involved in monarch navigation. How exactly does it know when to migrate? How does the destination location get passed on to the next generation? What is the mechanism of the formation of the magnetite crystals? Although often described as a result of evolution, no one knows how the complex life cycle and the navigational abilities of the monarch butterfly evolved at the molecular level through a random, step-by-step, mutation/natural selection mechanism. It defies common sense that such a creature could be the result of

countless fortunate accidents! Special creation is all that makes sense.

Station 4: Biodiversity

The next stop on our tour is biodiversity. At the museum, this exhibit consists of a display of numerous hummingbird species (Fig. 5).



Figure 5: Dr. David Greear explaining biodiversity (NCMNS)

The story presented at the museum is that the random mutation/natural selection mechanism is responsible for all of this “biodiversity” from a common ancestor. This type of evolution is referred to as microevolution and corresponds to the creationist concept of variation within kinds. We know from scripture (Genesis 1) that God created (Hebrew: *bara*) living things after their kinds (Hebrew: *min*).²⁰ Creationists believe that the original created kinds (*baramin*) had the potential for variation built-in for purposes of adaptation to various environments. Hence all dogs share a common ancestor with the original dog pair. The most reliable way to see if two organisms are of the same created kind is whether they can mate and bear offspring or can hybridize. There are many species that can hybridize with other species, demonstrating that both species belong to the same created kind: lions and tigers can mate to bear a liger; polar

¹⁵ Cassell E (2021) *Animal Algorithms: Evolution and the Mysterious Origin of Ingenious Instincts* (Kindle edition), Discovery Institute Press, Seattle

¹⁶ Gould JL, Gould CJ (2012) 114

¹⁷ Active Wild (2019 Jul 26) The life cycle of the monarch butterfly with pictures & facts. www.active-wild.com/life-cycle-of-the-monarch-butterfly Accessed 2023 Apr 17

¹⁸ Cassell E (2021) For evolution, monarch butterfly migration is a mystery. (excerpt from *Animal Algorithms*)

www.evolutionnews.org/2021/11/for-evolution-monarch-butterfly-migration-is-a-mystery Accessed 2023 Apr 17

¹⁹ Poirier J (1997) The magnificent migrating monarch. *Creation* 20 (1):28–31, <http://www.creation.com/the-magnificent-migrating-monarch> Accessed 2023 Apr 17

²⁰ A created kind does not necessarily correspond to the biological classification of a species but may be more similar to a genus or even a family.

bears and grizzly bears can mate to give offspring with white and brown fur; a false killer whale and dolphin can mate to bear a wholphin, etc. The idea of variation within kinds, or microevolution, is consistent with what scripture teaches and what we know about biology. In microevolution, there is either no change in the information content of an organism's genome or there may even be a loss. But evolutionists don't stop there. They



Figure 6: The dinosaur exhibit (NCMNS)



Figure 7: Dr. Dan Reynolds talks about dinosaurs (NCMNS)

reason that if a little change is possible over a short time (thousands of years or less), then large changes are possible over long periods (millions of years) of time. In other words, they believe that given enough time, the random mutation/natural selection mechanism will

build new body plans, new organs, new cells, new tissue types, new developmental pathways, new genetic instructions in the genome—in short, new genetic information that had not existed previously. This type of evolution, called macroevolution, is meant to explain the evolution from molecules to man, all by the random mutation/natural selection mechanism. This is the type of evolution for which there is no evidence. Evolutionists play bait and switch with microevolution and macroevolution. They show the evidence for microevolution and then claim they have demonstrated macroevolution on a small scale. But the evidence suggests that genomes are slowly deteriorating, not innovating.²¹ We know of many species that have microevolved from other species but at a cost of genetic information (e.g., blind cave fish, wingless beetles on windy islands, polar bears, etc.).²² These examples do not lend credence to macroevolution where an information *gain* is required. Hence, the random mutation/natural selection mechanism can explain the *survival*, but not the *arrival*, of the fittest.

Station 5: Dinosaurs

The next stop on our tour is the dinosaur exhibit (Figs. 6 and 7). We know from Genesis 1:24–25 that God created the terrestrial dinosaurs on day 6 of creation week. Why did God create the dinosaurs? We don't really know. Perhaps they were created to clear paths through the forests or some similar function. We know of roughly 650 dinosaur species from fossils. Creation scientists believe these species probably emerged from 55 baramin. Hence only about 110 dinosaurs boarded the Ark. Also, the specimens taken on board were plausibly very young (less than five years old) and hence small in size. Some dinosaurs may have been able to hibernate. Studies have shown that some dinosaurs may have grown rapidly after hitting a specific age.²³ Due to their small sizes and possible hibernation, they would not have required much food or water or produced much waste. All of this evidence suggests that the dinosaurs would have been easily accommodated on the Ark.

Once the Ark landed and the animals disembarked, many of the dinosaurs would have grown rapidly. Many may have died of starvation, been hunted by humans for food, turned to cannibalism, etc. However, there is much evidence in legends and artwork from around the world

²¹ Here are two excellent volumes that deal with this topic: Behe MJ (2019) *Darwin Devolves: The New Science About DNA That Challenges Evolution*, HarperOne, New York and Sanford JC (2014) *Genetic Entropy*, Feed My Sheep (FMS) Foundation, Canandaigua, NY.

²² Michael Behe's book *Darwin Devolves* discusses many examples of how damaging mutations may lead to adaptation but at the cost of genetic information. See the

January 2020 and March 2020 TASC newsletters <https://tasc-creationscience.org/newsletters?page=1> (accessed 2023 Apr 17) for a summary of Behe's book.
²³ Erickson GM, Rogers KC, Yerby SA (2001) Dinosaurian growth patterns and rapid avian growth rates. *Nature* 412: 429–433. <https://doi.org/10.1038/35086558> Accessed 2023 Apr 17

that some dinosaurs survived until recently (possibly a few hundred years ago).²⁴ Scripture mentions behemoth (Job 40:15–18), leviathan (Job 41:1), and dragons—all possible references to dinosaurs.

It is widely held by evolutionists that the last dinosaurs went extinct roughly sixty-five million years ago. In the last twenty years, evidence that dinosaurs lived only thousands of years ago has come from the world of paleontology. It is now well established that many dinosaur bones contain intact soft tissue, identifiable proteins, and perhaps DNA.^{25,26} Moreover, many dinosaur fossils and fossils of other organisms throughout the fossil record contain detectable radiocarbon.²⁷ Radiocarbon has a half-life of 5730 years. Nothing older than a hundred thousand years should have any remaining radiocarbon. Hence the historical and scientific evidence all point to the recent existence of dinosaurs, consistent with the Genesis account. There will be more discussion of radiocarbon in the Dating Methods (Station #7 of Part 2).

If you are interested in attending a Creation Tour or want more information, please visit reasons2believe.org.

COMING EVENTS

TASC Zoom Meeting, May 11, 7:00 pm EDT

Dan Reynolds, PhD will present part 2 of Creation Tours. We will discuss dinosaurs, transitional fossils, dating methods, cosmology, and abiogenesis.

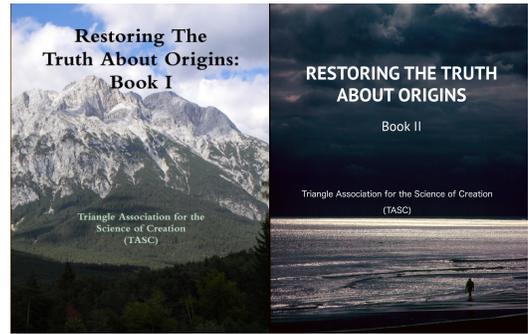
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²⁴ Nelson V (2018) *Untold Secrets of Planet Earth: Dire Dragons*, Untold Secrets of Planet Earth Publishing, <https://www.untoldsecretsofplanetearth.com/store/dire-dragons/#/> Accessed 2023 Apr 17

²⁵ Faulkner D (ed.) (2015) *The iDino Project Special Report*, Creation Research Society Quarterly (CRSQ) 51(4) <https://www.creationresearch.org/crsq-2015-volume-51-number-4> Accessed 2023 Apr 17

²⁶ Anderson K (2017) *Echoes of the Jurassic: Discoveries of Dinosaur Soft-Tissue* (2nd edition), CRS Books, Glendale, AZ

²⁷ Baumgardner JR (2005 Nov 1) Carbon-14 evidence for a recent global flood and a young earth. <https://www.icr.org/article/carbon-14-evidence-for-recent-global/> Accessed 2023 Apr 17