

# irefuteitthus....

cogitative writing, imaginative photography

home essays quotes about contact

---

## Missing Universe Museum: The Monty Python School of Evolution

Gary Hill

This essay was written several years ago when the website was first launched. For reasons that will become apparent, it was written with a high school age audience in mind and so I attempted to convey some complex ideas while simplifying the language somewhat. I'm unsure how successful this has been, other than to note that, for whatever reason, this has become the most viewed essay on this website.

Wandering around the web, I came across 'Missing Universe Museum' a website which claims to contrast literal Biblical and creationist ideas with evidence from the theory of evolution:

".....so that each person will be able to make an intelligent, informed decision as to which model best explains our universe".

A laudable aim. Many sites that aim to provide impartial information on any number of subjects do so very well. Missing Universe Museum, however does not. The fact that the theory of evolution has never purported to "explain our universe" merely kickstarts the myriad misconceptions they convey to their intended audience which, sadly, appears to be children. An attempt at education far less laudible than it is laughable.

Put simply, Missing Universe Museum haven't a clue about the mechanisms underlying the theory of evolution. By saying this, I don't mean that they haven't been keeping up to date with the life science literature, or that they possess a few minor misunderstandings concerning some of the finer points of evolution. I mean they peddle a view of biological evolution so far removed from current understanding that they appear to have invented a whole new surrealist genre, in a manner not dissimilar to Monty Python's rather more enjoyable reinvention of the field of comedy. It is commonplace for literal believers to (often falsely) claim that nonbelievers "haven't read the (insert religious text here)" or "haven't understood (insert relevant passage here)". Well, that argument works both ways, and clearly the folks at Missing Universe Museum have neither read nor understood the relevant literature.

Their example of the transitional forms required for the evolution of horse wings (sic), for example, bears more than a passing resemblance to director Terry Gilliam's acclaimed Pythonesque cartoon sequences from the early 1970s. Behold:



Missing Universe Museum claim that only such a sequence of 'events' would 'prove' evolution. Apart from the Biblical (and of course, Qur'anic) silliness of a winged horse, the problem here is obvious. Like creationists generally, they cannot rid their minds of the notion of teleology. They seem unable to comprehend that biological evolution has no intermediate or end goals, and a species can only evolve via changes in existing structures in response to environmental exigencies, not by simply sprouting new ones. Hence, their cartoon horse lineage has evolved wings, no doubt with the intention of eventually being able to fly, in the absence of, apparently, any other phenotypic changes.

At first I thought Missing Universe Museum actually intended to be Pythonesque, i.e., an inventive parody, an elaborate Poe. It certainly looks the part. And of course, when a Poe is meticulously enough conceived and executed, who indeed can tell the difference? A Whois search, however, reveals 'Ark Webs Ministries', a free Christian hosting organisation, to be the domain owners. So disappointingly, no, not a Poe.

Missing Universe Museum includes an 'Evolution Test'. The suggestion is that children:

".....give this test to your teachers. When they fail it, ask them why they are teaching this nonsense!"

Note the condescension and arrogance replacing critical inquiry: "When they fail..." Alternatively, they suggest:

".....teachers, give this test to your students if you really want them to know the truth about evolution!"

Of course, like their winged horse, Missing Universe Museum have conjured up their own cartoon view of evolution, unrecognisable in terms of modern biology. Nevertheless, in the spirit of "information that can lead to intelligent, informed decisions" I thought I'd take their test, publish it here and send it back to them. Of course, sites like Missing Universe Museum tend not to appeal to the true seeker of knowledge but more to those with a meagre and misinformed knowledge of the life sciences who simply desire to have their creationist indoctrination confirmed by a simplistic, colourful and forthright presentation. You never know, though, someone might be actually searching for Missing Universe Museum on the web, end up here and realise that the folks at Missing Universe Museum are either not really up to the task of providing objective information and/or are simply being duplicitous.

## 1. Which evolved first, male or female?

Missing Universe Museum tell us that "sex is a great problem for evolution" and this question acts as their slogan and appears in large red letters on just about every page on the site. It clearly demonstrates the highly simplistic view of biology they hold. Sex is problematic for evolutionary theory for two reasons. First, it is unsure as to why sex might have evolved because the majority of organisms are asexual and, second, there are a number of differing plausible hypotheses. The suggestion inherent in the question is that not only is sexual reproduction the only means of reproduction known, but that sexual dimorphism manifests exclusively in the form of polar opposites, i.e., that organisms are only ever either exclusively male or exclusively female, possessing either XX or XY chromosomes with an invariable phenotypic expression. This is not the case.

Accordingly, Missing Universe Museum inform us that "The Bible says that God created all living things, male and female to reproduce after their kind." This is patently untrue, as not all living things are comprised of a male and a female. The error is continued in Genesis 7:2, where we find the instructions that God gave Noah to fill his ark: "Of every clean beast thou shalt take to thee by sevens, the male and his female: and of beasts that are not clean by two, the male and his female."

If Noah had followed God's instructions we could not even get close to the sheer diversity of species that we observe today. Even disregarding the fact that many species reproduce asexually (and have done so for the majority of time life has existed on Earth),

some species are parthenogenetic and reproduce without the need for fertilisation by another organism. There is good evidence that some such species actually reproduced sexually in their evolutionary past and have now lost that ability. In all but a few parthenogenetic species, individuals are entirely female. Perhaps Missing Universe Museum would like to explain, then, how the checkered whiptail lizard (*Aspidoscelis tesselata*), to give just one example, can be found alive and thriving today, considering that it wouldn't have been a passenger species on Noah's ark and couldn't have resulted from any speciation event since then?

Many other species are simultaneous hermaphrodites, each individual possessing fully functional male and female gonads. That must have confused Noah no end. Hermaphroditism (or intersex) is observed in human beings too. Other species are observed to be sequential hermaphrodites in that they are born as one sex and at some point in the life cycle may change into the second sex, either naturally or in response to environmental exigencies. A few species can be born either male or female, but exhibit a second male-like sex. Adult females can then change into males and males can change to either females or the second type of male, the so-called 'terminal-phase' male. I wonder if Noah's god provided him with the instructions to ascertain which phase the individuals in sequential hermaphrodite species were in when they entered the Ark? Even within our own species, *Homo sapiens*, a small number of individuals possessing a Y chromosome (along with a functioning uterus of course) have given birth to viable young. Not surprisingly, the Bible is mute on the possibility of these occurrences too.

The two sexes displayed by some species (or more accurately their X and Y chromosomes) could not therefore have evolved separately as the question implies. The first organisms to evolve were certainly asexual, reproducing by cell mitosis and they have existed for the bulk of the time that life has existed on Earth. The next stages of evolution would be characterised by hermaphroditism, followed by the diversity of sexual reproduction that we observe today. Male and female must have evolved in unison.

## **2. How many millions of years elapsed between the first male and first female?**

Refer Question 1.

## **3. List at least 9 of the false assumptions made with radioactive dating methods.**

Not strictly a question on evolution and in any case a ridiculously leading question. There are indeed several assumptions as to the physics underlying radiometric dating of rock specimens but none of these are recognised by science as being false assumptions as the protocols employed in radiometric dating are invariably subject to rigorous controls. I assume Missing Universe Museum is questioning these controls. Where the figure nine comes from is anyone's guess.

The most essential factor is that radioactive elements decay at a constant rate. We know this is so by comparing the rate of nuclear decay on Earth with the rate of nuclear decay for every known element by spectographic analyses of the radiation produced by supernovas (and no they are not, nor have they ever been, calibrated against fossils, as is claimed by some creationist literature). In every observable case, the rate of nuclear decay is identical to that observed on Earth. Thus we can confidently say that carbon-14 has a half-life of 5730 years (a figure which Missing Universe Museum accepts and claims as evidence that the Earth is < 10,000 years old!), Uranium-235 has a half-life of roughly 700 million years, Uranium-238 is more stable, with a half-life of 4.3 billion years. Potassium-40 has a half-life of 1.25 billion years while Thorium-232 checks in at 13.9 billion years and Strontium-87 shows 47 billion years. With the exception of Carbon-14, all demonstrate considerably longer decay periods than young earth creationism claims. Surely, if the universe were a mere few thousand years old, all decay rates would converge on that first point in time.

Missing Universe Museum, however, claim that "*many things are known to affect decay rates*" and further that there is uncertainty as to the decay constant of Potassium-40, for example, with "*decay constants..... constantly being modified*". Both claims are patently untrue (ironically creationists often invoke the very constancy of physical laws as evidence of the existence of God). With a very few well documented exceptions, nuclear decay rates are found to be unaffected by external conditions such as temperature, pressure, the chemical environment, acceleration and electric, magnetic, or gravitational fields. In the few known exceptions decay rates for most elements differ by a maximum of 0.5% - 0.9%. The highest error rates ever discovered are for Rhenium (5%), Lutetium (3%) and Beryllium (3%), none of which are routinely used in radiometric dating. As the known age of the universe is about 13.7 billion years these percentages are a drop in the proverbial ocean. Thus, nuclear decay rates appear to be a

universal constant, which is why over 40 different radiometric dating methods are in use today and over 1000 research papers per year publish findings sourced from radiometric data.

To be taken seriously, creationists would need to specify exactly how and why the currently known radioactive decay rates are wrong and then proceed to rewrite large chunks of nuclear physics in line with their findings. Don't hold your breath. Other assumptions of radiometric dating are concerned with the viability of the rock samples under investigation and are specific to the type of radiometric dating being used. Needless to say, the methodologies employed in radiometric dating take these variables into account during collection and analysis. There are too many variables to go into here.

Of course, any physical analysis is subject to error, both statistical and human. To counteract this, sample data are collected from multiple sites within the same rock formation, at multiple times and the measurements obtained are pooled from different laboratories. A typically dishonest creationist ploy to cast doubt on the authenticity of radiometric dating is to highlight a selected number of analyses that differ from known dates and infer from this that the whole field of radiometric dating is invalid. For example, if 100 separate samples collected from 100 separate sites in the same rock formation were tested and the analyses showed four estimates of 1 million years, four estimates of 500 million years, and 92 estimates closely clustered around 250 million years it would surely be more reasonable to assume that 92% of the analyses were correct than 100% were incorrect. Creationists apparently do not think so. At the end of the day, their arguments against radiometric dating amount to no more than claiming that radiometric dating is necessarily erroneous because a literal interpretation of the bible suggests that the Earth is about 6-10,000 years old and this conflicts markedly with the radiometric evidence that consistently shows the oldest rocks found on Earth to be about 4 billion years old.

#### **4. Why hasn't any extinct creature re-evolved after millions of years?**

Missing Universe Museum appear to have shot itself in the foot with this question. The vast majority of species that ever lived on Earth, somewhere in the region of 99%, are now extinct. If all these species were designed by a god-like entity and appeared on Earth solely by the whim of their creator there is no reason at all why any or all could not reappear after having disappeared for even millions of years. However, out of the countless millions of extinct species, none have done so. The evidence, therefore, is against purposeful design and supports the algorithmic mechanisms underlying evolution by natural selection. Missing Universe Museum authoritatively informs us, however, that the theory of evolution predicts that extinction will either never occur or, in the unlikely event that it does, will always be a temporary event. Really?

Apart from cataclysmic environmental disaster, organisms become extinct because they are unable to reproduce and/or survive to reproductive age at more than replacement rate, i.e., they are unable to maintain the genetic viability of the species. The chances of an identical genome meeting with identical environmental conditions at some future point in time is beyond probability. As Stephen J. Gould observed:

*".....if the clock were rewound and evolution was able to run again then the outcome would be entirely different."*

Evolutionary theory does predict parallel and convergent evolution between different species, however (see Question 15). And so although existing geographically distant to each other, species are commonly found to have phenotypic similarities due to shared ecological niches. No such species has ever been observed to have sprung into existence suddenly without prior lineage, however.

#### **5. Which came first:...the eye...the eyelid...the eyebrow...the eye sockets...the eye muscles...the eye lashes...the tear ducts...the brain's interpretation of light?**

This question incorrectly supposes that only one type of eye exists and that it is a complex structure. However, visual organs of differing levels of complexity have been shown to have evolved separately over 40 times despite the fact that vision is not even a necessity for the success of a species (though a definite aid for locomotion). Plants get along fine without it. So a comprehensive answer to this question is only possible if the type of eye and particular species is specified. Missing Universe Museum also suggest that the complex eyes we commonly see today represent some perfect 'end point' in design. However, there is no such concept of an 'end point' in biological evolution. Any structure that has evolved, no matter how ancient or modern, simple or complex, must have some immediate value to the organism and be susceptible to further selection effects. My own eyes, for example, are less

than perfect. I need to wear correcting lenses to resolve the computer screen less than one metre front of my eyes.

A generic explanation of the evolution of a complex eye is as follows:

Some form of sensitivity to a light source was the the first to evolve in unicellular organisms, at least a billion years ago. All 800 species of the unicellular organisms known as Euglena, for example, have an eyespot that filters light. As the cell rotates relative to the light source, the eyespot senses differing intensities of light which enables it to compute a path toward the source. Housing a photosensitive spot within a small depression makes such directional sensitivity more accurate and so this adaptation would have been advantageous. We see just this in limpets. A deeper, narrower depression would be selected for as this would create a rudimentary aperture, much like a pinhole camera type of mechanism found in the nautilus. Photosensitive spots would also be expected to become gradually more complex, culminating in a retina. Transparent tissue growing over the eye would act as a rudimentary lens, such as we find in the ragworm. Eventually this would contain increasing amounts of liquid acting to protect the retina and focus the light onto the retina. Abalones have this feature. A bony surround would also protect the eye tissues. Eventually they have become connected to muscles that move the eyeball, as found in modern mammalian species. This progression of ever more complex 'eyes' can be found at all stages in thousands of species today. Missing Universe Museum disregards all this and observes with all seriousness:

*“.....isn't it fortunate that the eyes match up to the eye sockets rather than being hidden uselessly inside the skull.”*

As with any phenotypic attribute, the evolution of any particular eye would depend on the environmental exigencies faced by the species' lineage. Thus, eyes matching every stage in this sequence are found in existing species and species with advanced eye-like structures are known to have existed as long as 550 million years ago.

A cursory comparison of two types of complex eye, avian and human, demonstrate the profound differences resulting from natural selection. Avian eyes are very similar to reptilian eyes as would be expected from species that we know are descended from reptilian dinosaurs. Primate eyes, in contrast, are much younger in evolutionary terms. Most birds have minimal muscles holding the eye in place and so, unlike humans, have limited capacity for eye movement. Birds tend to move their head in order to bring a target into its field of vision. Birds (and reptiles) have three eyelids; one upper and one lower eyelid (which unlike humans is the more mobile) and a semi-transparent membrane which sweeps horizontally and acts to lubricate and clean the eye. Humans have only a vestigial remnant of the third eyelid, containing tear ducts. Birds have four distinct photoreceptor cells in the eye as opposed to three in humans. This means that some species of bird are able to perceive a wider range of the visible spectrum than humans, including ultraviolet light. Birds, especially birds of prey, have proportionally more photoreceptive cells than humans resulting in visual acuity at distance estimated to be about 2.5 - 3 times more effective than humans.

So why don't humans possess eyes with the superior visual acuity of many bird species? Perhaps it's because God doesn't like us as much as he likes birds. Or then again, perhaps it's because we haven't needed to resolve small moving objects at a great distance for our survival.....

## **6. How many millions of years between each in question 5?**

This cannot be answered. It all depends on which type of eye, which species and which ecological niches the question refers to.

## **7. If we all evolved from a common ancestor, why can't all the different species mate with one another and produce fertile offspring?**

So a mammal should be able to mate with a bacterium, right? After all, every individual of every species has bacteria as a long-distant ancestor. Indeed, one DNA sequence comprised of 63 base pairs has been found identically in every form of life known to us, including some things that aren't even technically alive such as mimiviruses. It codes for part of an RNA enzyme. At least 100 genes have been traced back to an organism that must have been the first to contain a rudimentary genome, the so-called Last Universal Common Ancestor, which existed about 3.5 billion years ago. Missing Universe Museum, in common with many creationists, do not appear to understand the definition of, nor grasp the concept, of a 'species'. It is simply a taxonomic label used

by biologists to describe organisms (especially sexually dimorphic) that are genetically related enough that they are able to breed successfully; a pragmatic and aesthetic consideration. Missing Universe Museum unwittingly agrees, noting:

*“.....you never see an elephant giving birth to a horse or anything other than an elephant”.*

Thus by definition, different species cannot normally interbreed because their genomes are not similar enough to develop a viable offspring. If two groups of the same species become separated either geographically, for example, the change in breeding patterns will eventually result in the two populations becoming less and less genetically related over time and eventually unable to interbreed. They become different species. Note that this ‘speciation’ event can only be identified retrospectively. It also occurs very slowly. A ‘sudden event’ in evolutionary history can be something that has taken place gradually over 100,000 years. Which is why we don’t see an elephant giving birth to a horse (we do observe something akin to speciation in bacteria with a very rapid rate of reproduction however). In some cases species that are genetically closely enough related may interbreed and bring viable offspring to term (hybridisation), as appears to have been the case with *Homo sapiens* and *Homo neanderthalensis*, approximately 50-80,000 years ago. Currently living non-African humans possess 1-4% of their DNA derived from neanderthals. Though, notably, the human and neanderthal Y-chromosomes are distinct. As genetic relatedness becomes increasingly tenuous, however, offspring are either stillborn e.g., as found in sheep-goat pairings, or sterile as in the case of horse-donkey pairings.

It is interesting to note also that individual groups belonging to the same species that are reproductively isolated, i.e., they could, but for some reason don’t interbreed, would also be predicted to eventually become separate species. An obvious example might be some modern breeds of dogs such as Irish wolfhounds and chihuahuas. Although genetically related enough to breed successfully they are physically incapable of coitus and, as a result, would be expected to drift apart genetically over time and become separate species.

Examples of ‘speciation’ have been found in a species of the Walking Stick insect (*Timena cristinae*) which is currently observed to be evolving into two separate species, and the Threespine Stickleback (*Gasterosteus aculeatus*) which is currently evolving into several divergent forms. Other examples of species that have become genetically isolated can be found in ring species. A ring species is a series of geographically close populations, usually occupying the same latitude in a ring around the globe, each of which can interbreed with neighbouring populations. However, at some point when the ring is completed, the two neighbouring populations in the series are found to be too distantly related genetically to successfully interbreed, and although morphologically similar, are two separate species. So, if population A can breed with population B, and population B can breed with population C, it does not follow that population A can breed with population C; they have become too genetically distinct and are considered different species. Herring gulls in the Northern hemisphere are probably the best known example. Other examples include salamanders of the genus *Ensatina* whose 19 distinct populations form a ring round the Central Valley in California and the Greenish Warbler (genus *Phylloscopus*) of which five populations form a species ring around the Tibetan Plateau.

The degree of genetic variability has within-species consequences also. For example, despite having overcome a population bottleneck of a few thousand approximately 70,000 years ago, human beings are now considered to be very diverse genetically, which explains why organ transplantation is not always possible between even two related individuals. Cheetahs, on the other hand, are much less genetically diverse, the current population all akin to close relatives, having survived a population bottleneck of perhaps less than 20 individuals only 10,000 years ago, and so organs can be transplanted successfully between any two random individuals.

**8. List any of the millions of creatures in just five stages of its evolution showing the progression of a new organ of any kind. When you have done this, you can collect the millions of dollars in rewards offered for proof of evolution!**

This one is too easy. In 1971, ten Italian wall lizards (*Podarcis sicula*), a protected species throughout Europe, were introduced from one small island to another, similarly sized island in the Adriatic Sea, 3.5 km away. The islands are similar also in terms of elevation and climate, though the new island had more lush vegetation. There are no serious predators for the lizards on either island. After 25 years, despite the initial bottleneck in population, the relocated *Podarcis sicula* had not only grown generally larger than their parent population, they had evolved larger heads relative to body size, shorter hind limbs, lower maximal sprint speed and demonstrated an increased bite force and an altered response to simulated predatory attacks. They had caused the local lizard (*Podarcis melisellensis*) to become extinct.

While the parent population of *Podarcis sicula* were largely insectivorous, the relocated population were observed to eat substantially more plant material. When relocated, *Podarcis sicula* lacked, like 99% of all lizard species, a caecum, an organ used to digest plant cellulose. After only 25 years of a change in diet, however, the relocated species were found to have evolved caecal valves which act as fermenting chambers where microorganisms digest cellulose, providing nutrients for absorption. The lifespan of *Podarcis sicula* is approximately ten years and they are able to produce offspring after only two years. So in only twenty or so generations, this species of lizard was observed to have evolved a wholly new organ in response to environmental exigencies. Five 'stages of evolution' were unnecessary.

There are plentiful other examples available over a longer time period, especially if we expand the term 'organ' to include other, harder structures. A good example would be that of the horse, with fossil remnants from the late Eocene era (approximately 33 – 37 million years ago) to the present. More than five transitional forms clearly demonstrate the gradual evolution from three separated toes in slower moving organisms to a single hoof that allows for rapid galloping. Another good example that the folks at Missing Universe Museum might care to examine is the evolution of wings, not in horses, but in the evolutionary sequence of theropod dinosaurs into modern birds. A number of flightless bipedal dinosaurs have been found covered with nascent evolutionary precursors to modern feathers. Onward from these species, without any morphological gaps, transitional fossils from well over 20 later species are available that clearly show the chronological sequence of evolved stages that have resulted in modern birds. Indeed, flight has been reliably identified as evolving four times in two separate phyla.

So where's my money?

## **9. Why is it that the very things that would prove Evolution (transitional forms) are still missing?**

This has already been answered in the preceding question but the important point to make here is that transitional forms are not (and logically cannot) be missing.

Again, the question reveals two fundamental misunderstandings of evolutionary theory. First, Missing Universe Museum claim that:

*".....a truly transitional form would be some plant or animal that has an organ or appendage that is not yet serving a useful purpose."*

Note the phrase "*not yet*." The notion they have is teleological, not evolutionary. They think that the organ or appendage will somehow evolve ahead of actual need, and so be ready for action at the appropriate time. Again, apparently in all seriousness, Missing Universe Museum inform us that:

*".....this would mean that our arms were useless appendages for millions of years."*

But why on earth would an evolutionary algorithm produce an organ or appendage that has no useful purpose.....yet? The concept is just plain stupid, even to a supernatural designer.

Missing Universe Museum also assume that there must be an abrupt temporal and genetic demarcation between one species and another within the same lineage. To support this point they claim that according to evolutionary theory, all genetic mutations will be beneficial. But evolutionary theory says no such thing. The transition from one species to another never occurs abruptly but in very slow, gradual transition of a portion of the population of the parent species. Rarely (if ever) would an entire population of one species evolve into another species, leaving no members of the parent species. This leaves a fossil record that is not entirely linear, but includes a number of collateral (remaining) species, and any further descendant species, from which we can glean even more data. Using family as an analogy, an example of a linear ancestor would be your grandmother and a collateral ancestor might be your great-uncle. Because they were born in a similar era, we would expect to see not only individual differences but some similarities in appearance (or morphology) and in lifestyle too.

Generally, the more complex the species, the slower the transition. If a video were shown, running backward through time, of the evolution of human beings, for example, it would not be possible by phenotypic attributes alone to ascertain an exact point where

Homo heidelbergensis became Homo sapiens, or Homo ergaster became Homo heidelbergensis etc. In other words, every organism that reproduces, living or dead, is a transitional form. My mother and father are transitional forms between myself and my grandparents, for example. Another way of putting this is to imagine a portrait photograph taken of yourself on every day of your life. Just by looking through the images in later life would you be able to pinpoint on which specific day you were no longer an infant? Or on which specific day you became an adolescent, or middle aged? Or on which specific day you were midway between adolescent and middle-aged? Why not? Are your transitional forms missing?

Missing Universe Museum (unwittingly) agree with this concept, stating:

*".....there would be trillions of transitional individuals all around us now if evolution was actually occurring!"*

Yes, there would, and yes, there are. And so it simply makes no empirical or logical sense to state that transitional forms are missing when every organism is a transitional form. The notion of missing transitional forms is yet another ploy commonly used by creationists to convince people with little or no scientific training that evidence for evolutionary theory is lacking. Missing Universe Museum is typical of this approach stating confidently:

*"We've all seen the 'fish with legs' illustrations that is supposed to be the transitional form between sea life and land life. Notice that these are always only illustrations! No such creature has been found alive or in the fossil record!"*

I'm sorry, Missing Universe Museum, but there are a number of living fish species with legs. **Here's one. Here's another. And another.** It might help if you consulted a zoologist specialising in fish biology. The intelligent design advocate Michael Behe has said much the same thing about whales, only a little more eloquently:

*".....most glaringly obvious, if random evolution (sic) is true there must have been a large number of transitional forms between the Mesonychid and the ancient whale: Where are they? It seems like quite a coincidence that of all the intermediate species that must have existed between the Mesonychid and whale, only species that are very similar to the end species have been found."*

On this point Missing Universe Museum and Michael Behe could not be more wrong. Several transitional species between whales and land-dwelling Eocene-era Mesonychids have been identified. Indeed, we now have an almost complete fossil record, beginning with fully terrestrial animals that have evolved more aquatic features over time. Take Ambulocetus, for example. Fossil remains comprising almost a complete skeleton and several partially complete skeletons, dated at 50 million years old, are available for study. Although the species had many features in common with ocean-dwellers, they clearly had four strong legs for travelling across land. Gradually, over time, we can observe fossils from their descendant species whose front limbs have evolved into flippers and their hind limbs and pelvic structure has become rudimentary and vestigial. For example, fossil remains of Tiktaalik roseae, dated at 375 million years old demonstrate a species that was able to function both as a land and sea animal, having both lungs and gills and able to swim and travel across land in a similar manner to a seal. Unlike any known fish it could move its head independently of its shoulders.

There is also a comprehensive range of fossils available that demonstrate a gradual transition from reptilian to mammalian species. Fossil reptiles are easily distinguished from mammalian fossils by a number of skeletal traits, particularly in the skull. Skeletal structures intermediate between reptiles and mammals have been dated to about 275 million years ago. In some cases the species shares both reptilian and mammalian features that classification as one or the other is near impossible. 25 million years later fossil specimens become more and more mammalian in appearance and there is no longer considered to be any 'missing links' between the two forms.

Creationists have continually left themselves open to ridicule when stating that transitional forms are absent, only for them to be discovered in the future. The truth is that natural history museums and university laboratories worldwide house many hundreds of thousands of examples of such transitional forms from single fossil specimens through to whole skeletons. The very nature of slow and gradual rather than abrupt evolutionary transition means that no single example of fossil remains can ever represent a single intermediate step between two species, simply because no single intermediate step or 'missing link' ever exists. In the case of human evolution, ample skeletal remains demonstrate a gradual progression over time with anatomical features associated with ape-like tree climbing to human-like terrestrial (bipedal) locomotion with considerable intermediate mixed anatomical stages.

It is important to note, also, that although fossil specimens have provided much of the evidence for evolution in the past, the importance of finding further fossils to inform evolutionary theory has diminished somewhat in favour of molecular genetics. Observations made from the fossil record have allowed biologists to make predictions about the relative genetic makeup of different species within the same lineage. When genomic sequencing and analyses became more widely available, these predictions were observed to be substantially correct. Without the prior identification of shared ancestry, accurate predictions about genomes would not have been possible. Perhaps not surprisingly, Missing Universe Museum makes no mention of molecular genetics at all.

**10. Explain why something as complex as human life could happen by chance, but something as simple as a coin must have a creator. (Show your math solution.)**

The scientific illiteracy gets even worse. There are three fundamental errors in this question. First, inorganic manufactured objects cannot be subject to natural selection because they have no reproductive mechanism of their own. This basic fact doesn't seem to bother Missing Universe Museum, however, as they confidently ask:

*"If we study two vehicles, a Ford, and a Chevrolet, and find that each has four tires, that they are round, they are made of rubber, and they are inflated with air ---- can we then conclude that these Ford and Chevrolet vehicles have evolved by chance from a common ancestor?"*

This ridiculous point is further made when Missing Universe Museum inform us that 'evolutionists' claim that "*clocks can evolve.*" Second, evolution does not ordinarily occur solely by chance. Third, it is simply illogical to demand a mathematical solution to what is a non-mathematical question.

**11. Why aren't any fossils or coal or oil being formed today?**

Not a question about evolution but about geology, not surprisingly from a young earth perspective. Nevertheless, the short answer is that all three are being formed today, albeit at much slower rates and at a much smaller magnitude than during the Carboniferous Period approximately 286-360 million years ago. Who, apart from creationists, says they aren't? For brevity, I will confine the answer to coal.

Coal is primarily comprised of carbon accumulations from fossil plant material deposited in swamps containing so little oxygen that bacteria and hence decomposition does not occur. This process of compression is ongoing and generally takes tens or hundreds of millions of years. Despite young earth claims to the contrary, there would not have been either enough vegetation or time to produce the vast coal reserves we see in the world today in just a few thousand years.

As mentioned, the majority of coal reserves were formed during the 'Carboniferous Period', when giant ferns and a profusion of other plant species evolved. After the Carboniferous period, lesser amounts of coal continued to form during the Permian (290-250 million years ago) and Mesozoic (250-65 million years ago) periods. However, coal has also formed during the more recent periods such as the Paleocene (65-55 million years ago) and Miocene (approximately 20 million years ago), in regions heated by plate tectonics.

Coal formation is an ongoing process and it still being formed today, albeit in considerably lesser quantities and at geologically slower rates, as climatic conditions have changed since the Carboniferous period. It takes approximately 10,000 years to collect enough vegetation for a 1 metre seam of coal, which then is ideally compressed for several millions of years. These accumulations are commonplace in Paludal ecosystems (peat bogs) of the north-western fringes of Europe and most notably in Sumatra, Indonesia, where the peat beds are 12 metres deep. The ground in peat bogs is rich in fibrous debris, with branches and roots (and early-stage fossils) readily visible.

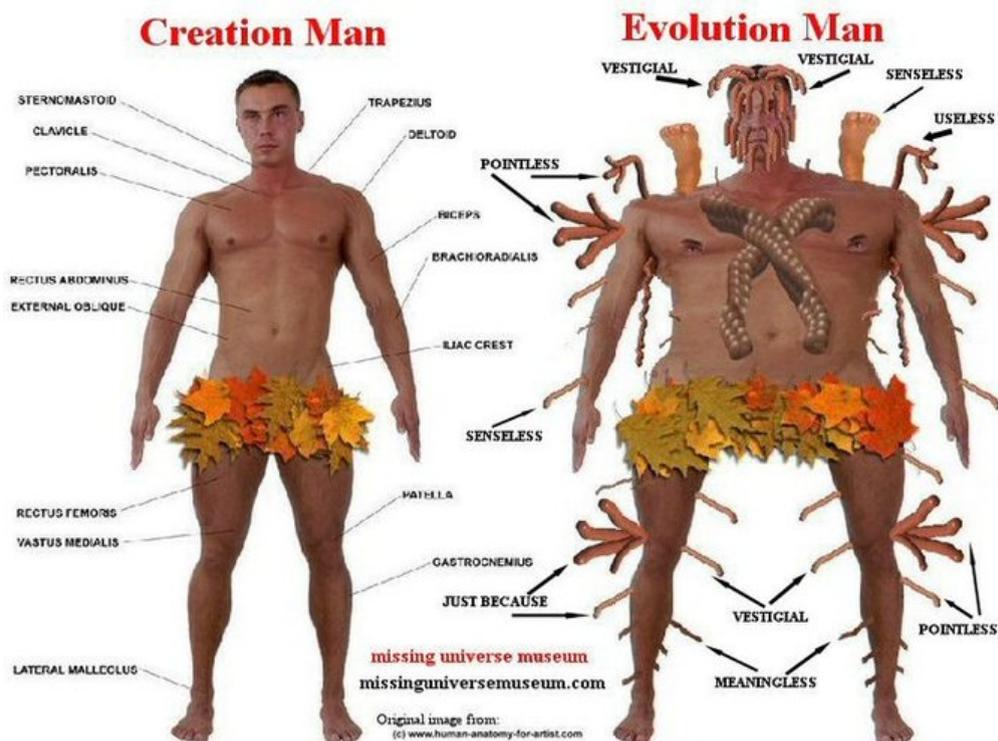
Missing Universe Museum claims that evolutionary theory predicts that coal and oil are renewable resources, though why they think that a theory of biology would make specific predictions concerning geological matters is not explained.

## 12. List 50 vestigial or useless organs or appendages in the human body.

The notion behind this question is that the human body contains no 'useless' organs or appendages as it has been perfectly created (as allegedly were all organisms), in the near past by some sort of god-like entity. Thus, creationists appear to hold a different definition of 'vestigial' than biology does, considering the term to mean 'useless'. However, to a biologist vestigial refers to something that has lost all or most of its original function as a result of the species evolving over time. It does not necessarily mean that it doesn't have any function at all. The organ or appendage was, could not, ever have been 'useless'. It is simply a part of the body that is no longer necessary for survival. The transitional whale species *Basilosaurus*, for example, had vestigial pelvic bones and hind legs that were not even connected to the rest of the skeletal structure yet appear to have played a role in guiding the penis during mating. Perhaps Missing Universe Museum would like to explain on their website why God created a sex aid for whales that has an uncanny resemblance to the rear skeletal structure of its ancestors! Thus, even if it has little or no function in the current organism, we can be sure it played a crucial functional role in the evolutionary processes that created the organism and, of course, it may be co-opted by evolutionary mechanisms to play some role in the future. Nevertheless, Missing Universe Museum make the claim that:

*"If evolution is truly occurring, vestigial organs would not only exist, but they would greatly outnumber the fully functional ones!"*

Why vestigial organs would "*greatly outnumber*" fully functional organs they do not say. They then offer this truly Pythonesque illustration of a 'created' man, magically devoid of vestigial structures as opposed to one who just evolved by 'chance':



There are many examples of vestigiality in all species, including plants. The common dandelion, for example, has a bright yellow flower that serves no current reproductive purpose (our perception of its beauty does not count as a purpose) as the species has now evolved to reproduce entirely by self-pollination meaning, effectively, that the next generation is a clone of the parent.

Obvious examples in humans are male nipples, the pilomotor reflex and growth of pubic hair. Other examples include:

The coccyx, the remnant of a vestigial tail that has some remaining use as an anchor point for muscles, tendons and ligaments.

Largely ineffective ear muscles, remnants of when our ancestor species were able to move their ears independently of their

heads.

The drainage holes in the sinus cavities are located at the top of the cavity because, when our ancestors were quadrupedal they would have been at the front.

The versiform appendix, a shrunken remainder of the caecum found in human ancestor species. Although this vestigial organ does play a minor (though unnecessary) role in immune system functioning, I wonder if the folks at Missing Universe Museum have ever thought about how many human beings have died in agony from peritonitis caused by a burst appendix when they so stupidly ask “*why don't we ever hear doctors mention vestigial organs?*”

The palmaris longus tendon in the arm. Although absent in approx 14% of humans, it has no effect on grip strength.

The plantaris muscle in the ankle is used by apes to grip and manipulate objects with their feet. It is still present in about 90% of humans. This muscle has no effect on gait and is often harvested for reconstruction elsewhere with little functional deficit.

The pyramidalis muscles of the rectus sheath are absent in 20% of the humans without effect.

The plica semilunaris of the conjunctiva of the eye is a vestigial remnant of the the ‘third eyelid’ still found in many species of birds, reptiles, and fish.

The Lanugo, a thin coating of hair that covers the foetus at about the 5th month of pregnancy. It has no function and normally disappears before birth.

Wisdom teeth (or ‘third molar’) are absent in approximately 20% of humans with no discernible effects on nutrition. In other primates this figure is as low as 5%. An ancestor species of present day humans, Homo erectus, shows an intermediate percentage of absence of wisdom teeth.

The ‘midtarsal break’, or the ability to lift the heel independently of the rest of the foot is possible through the actions of the cuboid-metatarsal joint and the calcaneocuboid joint. It occurs in approximately 10% of humans and is present in all non-human primate species.

Demanding 50 vestigial organs or appendages is unrealistic. However, if we were to extend the notion of vestigial organs to the human genome, identifying 50 examples in the form of pseudogenes which have lost their protein encoding ability would be a trivial task. Molecular geneticists calculate that an unused gene will remain in an otherwise functional state in the genome for perhaps 6-10 million years, after which it will almost certainly lose functionality and over 15,000 human pseudogenes have been recognised. The GULO pseudogene is a perfect example. Although humans possess the gene, located at the same locus on the same chromosome as all other mammals, our copy (along with that of the Old and New World monkeys and apes) is dysfunctional and became so approximately 63 million years ago, probably due to the ready availability of fruit and the corresponding lack of selective advantage in keeping a working copy of the gene. The result is that, unlike the majority of other mammals, we have to ingest Vitamin C on a daily basis, rather than manufacture it ourselves from chemical precursors.

Note that none of these examples have resulted in an evolved man bearing any resemblance to Missing Universe Museum’s imaginative artwork. One might also ask, in all seriousness, why the penile foreskin is treated as vestigial by so many monotheistic religious sects.

### **13. Why hasn't anyone collected the millions of dollars in rewards for proof of evolution?**

Because there is no ‘reward’. It’s a lie.

There has been more than ample evidence available for evolution from the scientific community for decades. Missing Universe Museum simply choose to ignore it and/or blatantly misrepresent it. As they state:

*“Reward of at least \$1,000,000 shall be paid in U.S. dollars. It would be no problem raising this amount of money if you have*

*evidence of Evolution, scientists from around the world will gladly pay dearly for it! An independent jury of Evolutionists and Creationists will review your submission and their conclusion is final"*

So they decide who gets the money but they don't actually pay up themselves. Perhaps Missing Universe Museum are confusing themselves with a similar offer of \$250,000 made by Kent (Dr Dino) Hovind to anyone who can give any empirical evidence for evolution (see my essay ['The St. Fagans Pterodactyl: Lies, Damned Lies and Christian Fundamentalism'](#) for further discussion of Hovind. The problem with these creationist rewards is that they invariably demand adherence to a set of rules that are unscientific in nature.

As Kent Hovind writes:

*"When I use the word evolution, I am not referring to the minor variations found in all of the various life forms (microevolution). I am referring to the general theory of evolution which believes these five major events took place without God":*

1. Time, space and matter came into existence by themselves.
2. Planets and stars formed from space dust.
3. Matter created life by itself.
4. Early life-forms learned to reproduce themselves.
5. Major changes occurred between these diverse life forms (i.e., fish changed to amphibians, amphibians changed to reptiles, and reptiles changed to birds or mammals).

Both Hovind's view of the theory of evolution and his expectations of evidence are clearly ridiculous. For a start, only two of his five 'major events' has anything to do with biology and only one of those is concerned with evolutionary theory. And it makes no sense to claim that early life-forms "*learned to reproduce themselves.*" Rather than accept the scientific definition of biological evolution as 'change in the frequency of alleles across generations' Hovind appears to have dreamed up some all-encompassing 'general theory of evolution' that embraces (1) cosmology, (2) astrophysics, (3) abiogenesis and (4) biochemistry in addition to (5) biological evolution. Indeed items (1) to (3) could all be shown to be impossible without impacting on the evidence for (4) and (5) in any way. Just ask a deist, or an evolutionary biologist who is also a theist; their not accepting (1) and (3) has no bearing on their acceptance of (2), (4) and (5). Furthermore, Missing Universe Museum and Kent Hovind appear to have little understanding of basic scientific methodology, never mind biology. He keeps asking for 'proof of evolution' but proofs are found in mathematics, logic, courts of law and alcoholic beverages. Not in science.

In any case, Kent Hovind recently finished a 10-year jail sentence for tax fraud so like Missing Universe Museum it seems unlikely he's in any position to pay up. Indeed, fundamentalist Christians have a history of offering sums of money for evidence then refusing to pay up. For example, in 1984 Pastor Jerry Falwell described members of the gay-friendly Metropolitan Community Church as "*brutal beasts*" promoting a "*a vile and Satanic system*" that will "*one day be utterly annihilated*" followed by a "*celebration in heaven.*" When confronted by Jerry Sloan, a minister at the gay-friendly Metropolitan Community Church, Falwell publicly denied making the statement and offered \$5000 to anyone who could prove he had done so. A videotape was duly produced but Falwell refused to pay up. He eventually paid the money only after being taken to court.

Compare these 'rewards' to the James Randi Educational Foundation's (JREF) offer of a reward for evidence of any supernatural event of any kind whatsoever, including a creation event:

*"At JREF, we offer a one-million-dollar prize to anyone who can show, under proper observing conditions, evidence of any paranormal, supernatural, or occult power or event. The JREF does not involve itself in the testing procedure, other than helping to design the protocol and approving the conditions under which a test will take place. All tests are designed with the participation and approval of the applicant. In most cases, the applicant will be asked to perform a relatively simple preliminary test of the claim, which if successful, will be followed by the formal test. Preliminary tests are usually conducted by associates of the JREF at the site where the applicant lives. Upon success in the preliminary testing process, the applicant becomes a claimant".*

The JREF provide, on an annual basis, evidence that the funds are available to issue the prize. It goes without saying that neither Missing Universe Museum, Kent Hovind nor any other scientific or religious individual or organisation has passed the preliminary

test. Yet any one firm piece of evidence for a creation event would fit the criteria for this reward. I suspect we'll be waiting an eternity.

#### **14. If life began hundreds of millions of years ago, why is the earth still underpopulated?**

This planet is definitely not underpopulated. Life is ubiquitous. Simply dig up a spadeful of soil and have it analysed for bacteria. Furthermore, life has been found in all ecosystems on the planet. Of course Missing Universe Museum is being anthropocentric and assuming that the world is underpopulated by Homo sapiens:

*"If life began 3.5 billion years ago, the world would have been overpopulated millions of years ago" and ".....the current population is consistent starting with 8 people (Noah and his family) about 4,500 years ago at the time of the Genesis flood".*

This claim is very easily refuted biologically, mathematically and historically: see my essay **The Generation Game: No Prizes for Young Earth Creationists** for details. Put simply, although it certainly is possible that the current world population could have originated from just eight people living about 4000 years ago (genetic bottleneck considerations aside, and that's a very big aside), there would not then have been enough people in the world at the earliest stages to have populated all regions of the world and accomplished all the subsequent events outlined in the Old and New Testaments, nor to have founded large-scale civilisations in China, India and elsewhere. Literal Biblical creationists cannot have their cake and eat it too. Their population figures just don't add up.

In any case, according to the Optimum Population Trust, using the global biocapacity and average ecological footprint of 2003 as a (very generous) benchmark, the current human population would need to be no more than 5.1 billion to be ecologically sustainable. As the world's population has reached 7 billion+ the demand for resources by Homo sapiens currently exceeds the planet's biocapacity by nearly 30%. Hardly an underpopulated planet.

#### **15. Why hasn't evolution duplicated all species on all continents?**

The fact that the majority of species occupy specific ecological niches in specific geographical areas is strong evidence that each has evolved by natural selection, in response to specific environmental factors. So what does Missing Universe Museum suggest? That if evolution occurs then we should expect a uniform distribution of species across the globe? Polar bears in the Sahara Desert? Elephants in Antarctica? Well, unbelievably, that's what they actually claim biological evolution would predict. That scenario really does bring to mind scenes thought up by Monty Python and would, of course, require the perverse whim of a creator. Ergo, there most probably is no creator.

Indeed, one of the strongest arguments in favour of evolution is the study of biogeography. While continental islands which were once connected to a continent, have similar species to the mainland, oceanic islands (those islands never connected to any larger land mass) have relatively impoverished and unique patterns of flora and fauna. For example, Hawaii has no native land mammals (and only one native sea mammal, the monk seal, and one flying mammal, the hoary bat). It also has no native reptile or amphibian species. St. Helena, in the mid-Atlantic ocean, has no freshwater fish. Oceanic islands do, however, tend toward having an unusual profusion of closely-related species, just as evolutionary theory predicts. For example, Hawaii has more than 300 species of fruit fly, all of which have evolved from a single ancestor species 20 million years ago. Similarly, St. Helena has a similarly large share of ferns and weevils while the Galapagos Islands have an unprecedented 14 species of finch. Note that all of these species (either alive or as seeds) are able to be naturally transported to mid-ocean either by sea, wind, or inside other animals, unlike land mammals and reptiles who have had to remain on or near the continental land masses. Why God decided that oceanic islands should be so depleted of diverse life forms has never been explained by creationists.

What can also be observed, and is also predicted by evolutionary theory, is convergent evolution, i.e., some species exhibiting analogous phenotypic traits in unrelated lineages when occupying similar ecological niches. This is strong evidence for evolution by natural selection. If all species had been created from scratch and were biologically immutable there is no design reason why they should show signs of analogous traits, despite occupying similar niches in different locales. A god-like entity could easily have populated the planet with any number of species he liked, showing no analogous features. This would be highly unlikely under

natural selection.

There are literally hundreds, if not thousands, of examples of convergent evolution in geographically separate regions. A very basic example would be leaves in the plant kingdom which have evolved many times, as have prickles, thorns and spines for protection. The succulent species such as cacti, found in Africa and the Americas, have evolved separately, for example. Examples in the animal kingdom can be observed in birds, fish, reptiles and mammals. For example, genera scattered across the world have independently evolved prickly protrusions of the skin, such as the Australian echidnas (of the family Tachyglossidae) which are egg-laying mammals; the European, African and Asian hedgehogs (of the subfamily Erinaceinae), which are distantly related to shrews; some species of Madagascan tenrecs (mammals of the family Tenrecidae); and the Asian, African and American porcupines, all of which are rodents belonging to the families Erethizontidae or Erethizontidae. The last common ancestor of all of these organisms was contemporary with the dinosaurs, which, apart from the lineage which resulted in extant bird species, became extinct about 65 million years ago. However, the American science journalist Natalie Angier describes convergent evolution with a little more flair than I do:

*"Take the spiny anteater of Australia, the pangolin of Africa and the giant anteater of Latin America.....each of these animals has a long sticky worm-like tongue, no teeth to speak of and scimitar claws. Each has bulging salivary glands, a stomach as rugged as a cement mixer and an absurd, extenuated hairless snout that looks like a cross between a hot-dog and a swizzle stick [note that these animals would be considered the same 'kind' by creationists].....despite their many resemblances the three creatures are unrelated to each other, the spiny anteater in fact lays eggs and is a close cousin of the duck-billed platypus, what has yoked them into morphological similitude is.....evolving convergence.....there really is a best approach and an ideal set of tools for grappling with life's most demanding jobs.....all subsist on a diet of ants and termites.....the predecessors of today's various ant hunters gradually and quite independently converged on the body plan most suited to exploit a food resource that violently resists exploitation."*

## **Concluding Remarks**

The basic message of Missing Universe Museum is that there are only two possible ways by which the diversity of life on Earth can be explained and these mechanisms are mutually exclusive. The first mechanism is wholly supernatural and involves a single-event creation in the recent past by a god-like entity who created a fixed number of allegedly immutable life forms. This entity also supervised the writing of a book composed of a large number of chapters, the contradictory and historically inaccurate contents of which were relayed to a tribe of illiterate bronze-age goat herders living in the small geographical area known today as the Middle-East. The book very briefly outlines the creation event but the details of the methodology remain wholly unknown. Valid data has yet to be produced and any hypotheses generated have either been unfalsifiable or have resulted in no viable explanatory or predictive power whatsoever. Furthermore, this specific creation event is disputed by many groups of people including those who have been influenced by the book and otherwise believe, to widely differing degrees, other claims it has made. It is also refuted by large numbers of people of other faiths, some of whom offer contrary supernatural creation mechanisms. Finally, it is in direct contradiction to the scientific evidence.

The second mechanism does not directly address how life began on this planet (though it might inform it) but does offer a detailed mechanism by which the diversity of life can be explained. This is evolutionary theory utilising mechanisms such as natural selection and genetic drift. More than a century's worth of a good quality data have been collected and analysed and results published only after having undergone rigorous peer review procedures. These data have been provided not only by biologists but have been confirmed and/or supported by data from a broad spectrum of disciplines including (but not confined to) zoology, geology, microbiology, nuclear physics, meteorology, medicine, and molecular genetics. Thus, the theory of evolution has been tested exhaustively, is yet to be falsified and is regularly employed to make useful predictions. It has exceptionally strong explanatory power.

The accepted method of engaging in science is to (i) formulate and test hypotheses by experimentation and/or careful observation, (ii) present your research findings at open scientific conferences and meetings then (iii) publish your data and findings in peer-reviewed journals. Only then do you write textbooks. Creationists blatantly bypass the first two stages. They present opinions, not scientific findings. They do no actual research (though they keep promising to) preferring to report and comment, usually in a highly distorted and uninformed fashion, on the hard work done by others, most often in closed meetings. They publish their opinions only in journals affiliated to their cause but, arrogantly and dishonestly, go right ahead and write textbooks aimed only

at a general public having little specialist knowledge. They rarely engage the wider scientific community. Not surprisingly, academically, their approach has been a failure; as far as the academic community is concerned creationists lack any scientific credibility whatsoever.

Unsurprisingly, Robert Park's seven warning signs for bogus claims ('The Seven Warning Signs Of A Bogus Science, Chronicles Of Higher Education, January 2003) show a particularly tight fit in the case of creationists; (i) their claims are pitched directly to the media and general public, thus bypassing scientific peer review; (ii) next, they play the victim by claiming that a powerful orthodox scientific establishment is suppressing their 'evidence'; (iii) a substantial number of their claims are highly speculative (i.e., at the limits of the data available to them); (iv) they make abundant claims utilising the 'argument by popularity' (e.g., Missing Universe Museum's "*most Americans have doubts about evolution*"); (v) their 'research' is done in isolation from the mainstream scientific community and (vi) accepting their claims would require ditching several well-established laws of nature and formalising new ones.

Now, imagine if you will, someone who had never had any religious or scientific education (but was otherwise intelligent), and had never heard of creationism or evolution. They wander through the exhibits at a museum of natural history. There are no explanations for the exhibits, but they are presented according to lineage and in chronological order. Two people act as interpreters. Both, using the exhibits as teaching aids, are given equal amounts of time to present the evidence for their competing theories. The first person describes creationism, the methods used to investigate creationism and the evidence in it's favour. The second then describes evolution, the methods used to investigate evolution and the evidence in it's favour. Which explanation would sound more reasonable and which the more nonsensical?

The arguments of Missing Universe Museum are nonsensical. Their knowledge of evolutionary theory is so poor that they have effectively substituted their own Pythonesque version in an unsophisticated attempt to persuade children of the veracity of the literal Biblical story of creation. Alternatively, they might actually understand the theory and simply be downright liars. Regardless, anyone who attempts to refute evolutionary theory to children by:

- (i) suggesting that all reproduction is sexual,
- (ii) claiming that radioactive decay rates are constantly changing,
- (iii) claiming that evolutionary theory predicts that extinctions will not occur and if they do will only be temporary events,
- (iv) claiming that, if evolutionary theory were true, all species should be able to interbreed with all other species,
- (v) stating that transitional forms do not exist,
- (vi) claiming that evolutionary theory predicts that vestigial organs and structures would greatly outnumber fully functioning organs,
- (vii) claiming that evolutionary theory predicts that species should be distributed uniformly across the globe,

ought to be ashamed of themselves. Denying the reality of evolution by natural selection is akin to saying that modern languages such as French, Spanish, Portuguese and Italian appeared simultaneously in history, fully formed, and the notion that precursor languages such as Indo-European and later, Latin, have ever existed is a gigantic hoax perpetuated by linguists.

The irony is that Missing Universe Museum, in common with many other creationists, appear to think that science has some ulterior motive when it comes to evolutionary theory. Science, however, is impartial and goes in whichever direction the data are pointing to. I, for one, don't particularly want evolution to be true, any more than I want to have two kidneys or the value of pi to be 3.141592 etc or to lack an inability to perceive the infra-red region of the electromagnetic spectrum. Moreover, I have no particular desire to be descended from a common ancestor shared with the other primate species. It's just the way it is. It's what the evidence says. It's the reality. Is it really feasible that science can be so successful in many ways yet when it comes to explaining the diversity of life on Earth, can get it so wrong? Is it really feasible that not only biology can get it so wrong but the other fields of science which provide supporting evidence such as geology, molecular genetics, computer modelling, bioinformatics etc also get it so wrong? Even though they get everything else they investigate pretty much right? I don't think so.

The folks at Missing Universe clearly have difficulty with reality. They just don't like it. They've been given a story that they like so much they are now hell-bent (pun intended) on finding ways to convince others that it's true, regardless of what science says. For these people blind faith in the Bible will always be superior regardless of the quality and/or quantity of evidence for evolution provided by sinners. Science is a myth because it cannot be allowed to contradict the Bible. That's the totality of their starting point, premise and conclusion. They have no credible or even testable hypotheses, just ludicrous theological just-so stories of a never-created creator magically popping a fixed number of immutable forms of life into existence ex nihilo. So they are forced to

resort to biblical quotations and vapid criticisms of science. Unfortunately for them, biblical quotations are not data and resorting to criticisms of science when they clearly don't understand either the methodologies or findings makes them look like buffoons.

As Sam Harris so correctly notes:

*"Science is the one endeavor in which we have developed a refined methodology for separating what a person hopes is true from what he has good reason to believe. The methodology isn't perfect, and the history of science is riddled with abject failures of scientific objectivity. But that is just the point-these have been failures of science, discovered and corrected by-what, religion? No, by good science."*

The fact that no legitimate accredited university biology department anywhere in the world conducts creationism-based research tells the story really. What is it that Missing Universe Museum wants science to do? Say to itself: Well, look at all the evidence we've got here, there's more than enough for a strong theory, but you know what? I don't like the sound of evolution and all it implies, and it doesn't even fit with what the Bible says, so why don't we just pretend all this evidence doesn't exist and believe in a specific creationist myth, because you know what? Supernatural creationism makes me feel all warm and fuzzy. If Missing Universe Museum want their arguments to be taken seriously they should drop the Pythonesque comedy routine and challenge the theory of evolution on it's own terms. Bring something to the table. But hang on a minute, Missing Universe Museum actually do conduct research. Here is their methodology:

*"On March 7, 1998, we dumped some toy bricks (Lego) onto this table to see what kind of house evolution could build with them. The light is on 24 hours a day to provide an energy source. Note that we gave evolution a big head start by providing the bricks which were already created by a human creator. So far, there has been no change since the bricks were first dumped. How many millions of years do you think it will take for evolution to build a house?"*

All original images and written content are copyright © Gary Hill 2013. All rights reserved. Not in public domain. If you wish to use my work for anything other than legal 'fair use' (i.e., non-profit educational or scholarly research or critique purposes) please contact me for permission first.

