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Fat chance—hippos evolved into whales!

The late zoologist Stephen Jay Gould wrote: “Every creationist book on my shelf cites the actual absence and inherent inconceivability of transitional forms between terrestrial mammals and whales.” (*The Richness of Life*, Vintage 2006, p.617). His final chapter focuses on arguing that the recent fossil find named *Pakicetus* was the oldest whale, despite it lacking a ‘fat pad’ found in modern whales and involved in hearing. He makes much of the limb bones of *Ambulocetus* as proof of being an amphibious ‘transitional form,’ but there is so much more about the Cetacea for which he has no explanation. Other evolutionists now claim that the hippopotamus is the closest living relative to whales on land, but as also for the extinct creatures, they are always claimed to be ‘cousins,’ not ‘grandparents’ in a direct hereditary succession. It’s not that simple! See within...

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EDITORIAL

Teilhard de Chardin – time to move on?

Back in the ‘60s, when I was at University, it was very much ‘the thing’ to have read *The Phenomenon of Man* and to be able to discuss it among fellow chattering ‘intellectual’ Catholics. American Fr David Becker wrote about his first encounter with Teilhard as a seminarian in Pennsylvania around 1962:

I knew of the Monitum issued by the Church authorities forbidding seminarians from reading his works, but sometimes forbidden fruit proves irresistible, and I plunged into an avid reading of all the writings of Teilhard I could get my hands on.

Teilhard set forth no evidence for evolution. His starting point was that evolution had been incontrovertibly established by science as fact. I had qualms of intellect and knew I should be seeking the EVIDENCE that presumably supported that contention. But the more I read the more I became captivated by his vision of the universe, and the more I believed he was providing the key insight which opened the way for the great *rapprochement* of the Church with modern culture. [...]

In the years following the Second Vatican Council I was caught up in the enthusiasm for change that became such a strong current within the Church. Evolutionary philosophy with its notion of progress through change seemed to provide a logical framework for understanding the changes the Church was undergoing.

After about thirty years, Fr Becker came to realise the damage that evolutionary theory was doing to Catholic theology:

I began studying the arguments for evolution, and was soon appalled by the dearth of supporting evidence. My faith in evolution collapsed, and straightaway I came to the realisation that I was a creationist.¹

Unfortunately there have been far too few Catholic clergy who have followed this journey, even when provided with abundant evidence against evolutionism. The main group to have promoted Teilhard's works in this country was the British Teilhard Association, founded in 1963, but recently closed down. Its chairman, Stephen Retout, reported that in the 1960s it had an office in Kensington and a full-time member of staff, but had dwindled to about 30 subscribers who received nothing in return. However, the group will continue its website www.teilhard.co.uk as the British Teilhard Network.

On February 22, 2018, Edinburgh University hosted a Teilhard day at which the recently-unearthed 'six propositions' that Teilhard was told to sign in 1925 were to be made public. Now the Pontifical Council for Culture has asked Pope Francis to cancel the '*Monitum*' against Teilhard's works, which Pius XII described as "a cesspool of error."² How can the Pope 'spin' that?

New books and articles

Several interesting books have appeared in the past few months and I hope to review some for the next issue. Websites with useful articles and reports include: www.evolutionnews.org (from the Discovery Institute)

www.creation.com (Creation Ministries International [CMI])

www.answersingenesis.org (Answers in Genesis [AiG])

For more technical and detailed articles, go to *Journal of Creation* from CMI.

3 issues a year, and the sub includes digital access to past issues.

Why whales, suddenly?

The Editor was recently inspired by (a) reading *Moby Dick* and (b) a visit to a special exhibition on whales at the Natural History Museum, and being reminded that everything about whales just shouts 'intelligent design'!

¹ Becker, Fr D., Creation or evolution? A call to intellectual conversion, *Daylight No 9* (Sep 1993), p. 5-6. [Reprinted from *Homiletic and Pastoral Review*, April 1993]

This issue (No. 9) also includes another article on Teilhard by Fr John Flanagan.

² *Catholic Herald*, Jan 12, 2018, p.8. (I intend to report on the 'propositions' in the next issue.)

Tales of Whales

Anthony Nevard



No survey of the animal kingdom would be complete without reference to the family of aquatic mammals classified as Cetacea. While extinct sauropod reptiles like *Diplodocus* seem to have been of similar length to the blue whale (c. 30m), their estimated mass was about half that of this 180 tonne giant.



Reckoned to be the heaviest animal that has ever lived, a skeleton of the blue whale has recently displaced that of the dinosaur in the main hall of the Natural History Museum in South Kensington. Secular storytellers who follow the Darwinian doctrine would have us believe that dinosaurs became extinct 65 million years ago. Small, terrestrial quadruped mammals then rapidly diversified into 29 highly varied orders of creatures, including flying bats, burrowing moles, cantering cattle, peculiar platypuses, enormous elephants, giraffes, carnivores, rodents etc. Some 50 million years ago, relatives of the hippopotamus decided there must be rich

reserves of food in the warm seas and the time was ripe for evolving into the first whales; from them were derived our 13 modern and greatly diverse families of Cetacea, with 89 recognised modern species, showing a wide range of body sizes and behaviours. Is this really a plausible tale?

Is it a fish or a mammal? The basics of whale classification

There were people in the distant past who considered all creatures that lived in the sea to be some kind of fish; we still use inaccurate common names for some aquatic creatures such as jellyfish, cuttlefish, crayfish and starfish, animals scientifically classified as Coelenterates, Molluscs, Crustacea and Echinoderms respectively. True fish (Class Pisces) have a spine and are vertebrates, with an internal skeleton of cartilage or bone; they are aquatic, breathe using gills, and are 'cold-blooded'. Members of Class Mammalia are vertebrates, typically with

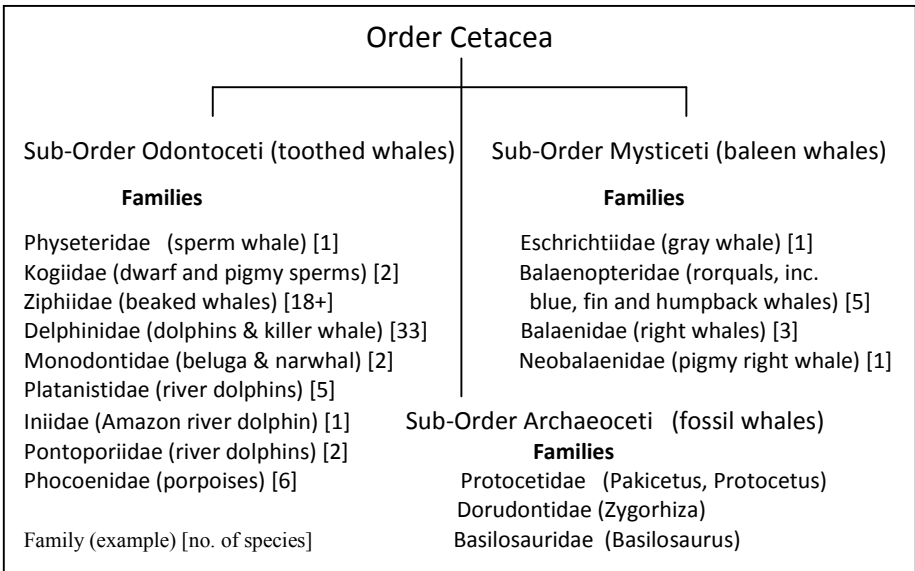
hair or fur, breath air using lungs, have warm blood, and bear live young, which they suckle with milk; whales are therefore mammals.

The Greek philosopher Aristotle (384-322 BC) recognised that whales were not fish:

All animals that are both internally and externally viviparous have mammae, that is, all that have hair, as man, and the horse, the cetacean, as the dolphin, seal and whale, for these also have mammae and milk.³

The dolphin, whale and other cetaceans which have a blow-hole but no gills, are viviparous [...] as in man and the viviparous quadrupeds.⁴

The broad distinction between toothed whales and baleen whales was also recognised by Aristotle. Following the binomial ‘System of Nature’ (1776) introduced by Linnaeus,⁵ the modern taxonomic groups include the following:



Under the modern system known as cladistics, taxonomic groups (clades) are organised together according to the extent of their apparent similarities, and therefore supposed evolutionary histories.⁶ This method is termed

³ Cresswell, R. (tr.), *Aristotle's History of Animals*, Henry G. Bohn (1862), p. 69

⁴ *Ibid*, p. 152.

⁵ “Linnaeus declares ‘I hereby separate the whales from the fish.’” *Moby Dick*, p. 163

⁶ Cladistics was developed by entomologist Hennig in 1950.

‘phylogenetic systematics’ and it raised a storm of controversy in the 1970s as Colin Patterson’s team at the Natural History Museum developed displays based on ‘radical cladism’ that seemed to ignore evidence from the fossil record and the search for ‘transitional forms’. There are still concerns over how it fits with homology, the importance of biochemical and genetic similarities, and the intrusion of circular reasoning in assuming evolutionary links.

What about the fossil evidence?

The NHM ⁷ has recently published a new book ⁷ on whales which, in my opinion, is very well produced and 95% non-fiction. However, the evolutionary story it tells of the origin of whales beggars belief.

“The first whales, archaeocetes, bore all the characteristics of land mammals. They had teeth typical of carnivores and walked on four legs with even-toed hoofs.” ⁸

So not a whale, obviously! Elsewhere we are told that the hippopotamus is “the closest living relative of whales on land, but its evolutionary path is very different from that of the cetaceans.” Another source informs us that hippos were around 55 MYA⁹, so why did they not evolve into cetaceans?

“One of the earliest archaeocetes, *Pakicetus*, did not look much like a whale, but its skull already had thick bony walls around the middle ear, which is a key feature of whales alive today and sets them apart from terrestrial mammals.” ¹⁰

As we shall soon review, there are a host of whale features much more significant than a couple of thick ear bones – how desperate can they be?

Then (after a few million years) comes *Ambulocetus* [the ‘walking whale’!] with short legs, paddle-like feet, and living in estuaries, later followed by *Dorudon*, salt-water dwelling and looking, “a lot like modern whales. However, it is not a direct ancestor of them but belonged to a parallel lineage that went extinct.” ¹¹

The diagram accompanying this text is entitled: “The evolutionary history of whales from terrestrial ancestors to fully aquatic modern whales.” It also notes

⁷ Natural History Museum, South Kensington, London; formerly the British Museum (Natural History) prior to its formal renaming in 1990.

⁸ Hammond, Heinrich, Hooker & Tyack, *Whales, Their past, present and future*, NHM, 2017, p.11

⁹ MYA = ‘million years ago’

¹⁰ *Ibid.*, p. 11

¹¹ *Ibid.*, p. 12

that “the separate branches for the archaeocetes [...] indicate that the direct whale ancestors are not known yet.”¹² In other words, there is no fossil evidence at all of the intermediates between the families or of the origins of cetaceans as a group. There is no evidence for a phylogenetic link between the fossils, or any proof that other whale species may have existed at the same time. And of course the supposed dating is based on untestable assumptions and assumed evolutionary lineages, as seen by dotted lines in the diagram.

Various speculative comments are made regarding the replacement of teeth by baleen plates as “filter feeding on energy-dense prey enabled baleen whales to grow and attain the large body sizes of modern whales.”¹³ This begs the question as to why there are several different-sized species of modern baleen whales, and reads as if, in Lamarckian fashion, greedy obese whales therefore had fatter babies that acquired their parents’ characteristics. We are told that toothed whales dived deeper and so (somehow) acquired echo-location. “The fossil record indicates that early deep diving beaked and sperm whales diversified rapidly around 15 million years ago, and today’s species represent only a fraction of the past diversity.”¹⁴ Since it is admitted that none of the 89 modern species of whale are ancestors to any of the others, why should we expect any of them to have descended from fossil whales?

There is an interesting reference to the discovery in 2011 in the Atacama desert in Chile of a ‘whale graveyard’ containing “15 almost complete skeletons of ancient whales dating back seven million years.”¹⁵ The text suggests that these individuals died *en masse*, “during four separate events over a period of several thousand years,” from algal bloom poisoning, becoming stranded in shallow waters and then covered by marine sediments. If one considers the effect of scavenging, decay and tidal currents on dead animals in the sea, and the sheer bulk of the corpses involved, this is a highly implausible scenario. Rapid burial by flood waters would be a much more logical cause, and some experts also believe the animals died at around the same time.¹⁶

But these fossils cannot be ancestral whales if we take account of the statements by renowned palaeontologist Dr Niles Eldredge, who writes:

¹² *Ibid.*, p. 13

¹³ Hammond et al, op. cit., p. 13

¹⁴ *Ibid.*, p.13

¹⁵ *Ibid.*, p.14

¹⁶ See <http://www.starmythworld.com/mathisencorollary/2011/12/scientists-are-at-something-of-loss-to.html>

But anyone looking at 50 million year old Eocene whale fossils from the Fayyum [in Egypt] will immediately be struck by the fact that these early whales are very whale-like indeed. [...] But in most essentials, Eocene whales are very definitely whales – and not some creature distinctly intermediate between a terrestrial progenitor and full-blown whales.¹⁷

Eldredge describes the dilemma faced by George Simpson to reconcile the fossil record with new ideas on genetics in the 1930s. Taking the evolution of modern whales from Eocene whales to have occurred in 50 million years, he reckoned that it would have taken at least 100 million years for them to have evolved from terrestrial ancestors – which would have preceded the appearance of the first small ‘true mammals’.

We cannot blame the lack of transitional forms on a faulty fossil record. The only sensible conclusion [...] is that *macroevolution* must occur much more rapidly than the gentler pace typical of subsequent evolutionary transformation [...]

Nor, Simpson also saw, were whales an isolated example. Bats, too, tell the same sort of story to a mammalian palaeontologist. [...] It isn't just mammals that tell this story. Virtually all the major groups of animals and plants show the same fossil pattern: rather abrupt first appearances in the fossil record, in a form that is destined not to change too radically throughout tens of millions of years during the rest of their recorded history. It is the large-scale, mega-version of the same sort of pattern that we see all the way down to the species level. New species appear relatively abruptly, implying rapid transition with little hope of finding samples intermediate between ancestral and descendant species. The origin of a species is typically followed by a vastly longer period of stability, or *stasis*, with little further evolutionary transformation: the phenomenon of punctuated equilibria.”¹⁸

Niles Eldredge and Stephen Jay Gould first proposed this theory in 1972 and raised a storm of controversy as it appeared to conflict with Darwinian gradualism. In summary, it argues that we would not expect to observe macroevolution now as organisms are in a state of stasis, but it occurred so fast in the past that few if any transitional forms were fossilised! Convenient for those who are just convinced evolution had to have happened, whatever the actual evidence shows. But you can't argue with the existence of fossils, and you can't get more ‘macro’ than a whale!

¹⁷ Eldredge, N., *Fossils – The evolution and extinction of species*, Aurum Press (1991), p. 164.

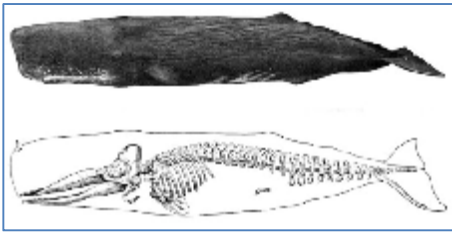
¹⁸ *Ibid.*, p. 171.

Note: Eldredge (b. 1943) was then Curator of the Department of Invertebrates, American Museum of Natural History.

Gould (1941-2002) was professor of geology and curator of invertebrate palaeontology at the Harvard Museum of Comparative Zoology.

So what makes whales so special?

There is a strong impulse to expect to find a use for every part of a plant or animal. In an age of mechanical devices, many of extraordinary ingenuity, we do not find useless parts if the device is made to be of ideal efficiency. Likewise we generally find every living creature to be “a bundle of adaptations or fitnesses”, as Sir Arthur Thomson describes here:



Sperm whale drawing and skeleton

Think of some of the whale’s fitnesses. It is a truly wonderful list:

The torpedo-like shape, so well suited for cleaving the water; the frictionless skin and the absence of projecting structures like ear-trumpets; the flattened flukes of the tail, forming a powerful propeller that works well without going round; the balancing

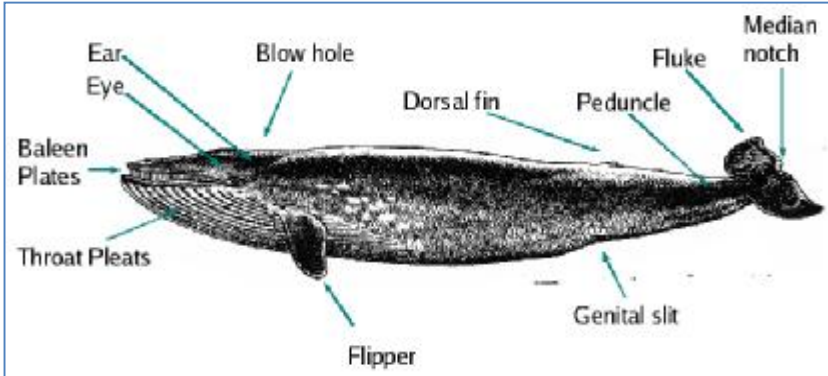
flippers; the valved nostrils high up on the back of the head; the blubber a foot thick which makes the marine giant more buoyant and keeps the precious animal heat from being lost in the cold water; the shortening of the neck and the soldering of its vertebrae together, for a long flexible neck would be very awkward in deep diving; the sponginess of the big bones; the spacious chest and the huge lungs; the usual reduction of the offspring to one at a time; and the arrangements for giving the young one a big gulp of milk when it comes to its mother.¹⁹

Many of the wonders of whale anatomy and physiology are not primarily of recent scientific discovery but have been known for centuries. The most famous literary source is the novel *Moby Dick or The Whale*, by Herman Melville (1819-1891), first published in 1851. He drew on his experiences as a young man at sea, including his time served on a whaling vessel.²⁰ In his chapter entitled ‘Cetology,’ he quotes several authorities, including Cuvier and Hunter, as expressing their confusion and frustration at the task of classification

¹⁹ Thomson, Sir J. Arthur, *Scientific Riddles*, Williams and Norgate, 1932, p.326-327

²⁰ “Moby Dick is a dramatic story, with movement and suspense and human passion, but more than half its pages are given to an exact account of the parts of the whale and of the process of whale-hunting. And if one concludes at the end of it that Herman Melville is one of the greatest of all imaginative writers, it is as much for each page of scientifically accurate description as for any other part of it. There has never been such imaginative description of fact. The infinite detail of the whale, its measurements, its blubber, its oil, its lashless eyes, its riddled brow – these are the reality with which the wild spirit of thought is interlocked.”

of the groups and families of whales. Melville therefore devises his own scheme, creating three groups ('Books') based on their size: large ('Folio'), medium ('Octavo') and small ('Duodecimo'). This original and somewhat humorous system does not detract from the serious scientific content that follows, which is expressed in an entertaining but informative style.



The Baleen Whale

Returning to the unique features found among the whales, brief reference will be made to some of the other unique adaptations to be found in different types.



FIG. 270.—The left fore-limb of *Balaenoptera*, a whalebone whale.—From Thomson.

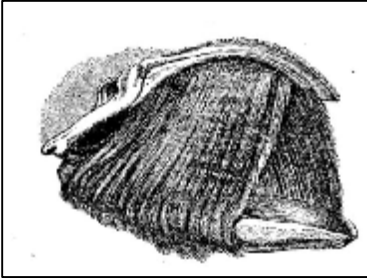
Sc., scapula with spine (SA.); H., humerus; R., radius; U., ulna; C., carpal articulation in manus; M., metacarpals; P., phalanx.

- The head is very large, with no visible neck
- The body tapers towards the tail, which has large horizontal 'flukes', with no internal bones, whereas the tail of the fish has a vertical caudal fin.
- The fore-limbs are paddle-shaped flippers which contain bones relating to a modified pentadactyl plan, but with no arm, hand or nails. [graphic source see footnote ²¹]
- There are no collar bones and the pelvis is much reduced in size.
- The body is naked of hair and lacks sweat glands, but a thick layer of fat (blubber) lies under the skin to assist heat regulation and to store energy.
- A dorsal fin is present in most species; it contains no bones but has a good blood supply.
- The whale's eye has no third eyelid, or 'nictitating

²¹ Borradaile, L.A., *Manual of Elementary Zoology* (4th Edn.), Henry Froude (1923), p.507

membrane,' or eyelashes, and the two eyes have separate fields of vision.

- There is no external ear, though there is a narrow tube opening behind the eye. Sound waves travel through the water, skin and body tissues directly to the inner ear.
- The nostrils open separately in baleen whales, but join up to form a single opening in toothed whales. The blowhole on top of the head has a valve to close automatically before submerging.
- The baleen whales have well formed olfactory organs and plates of 'whalebone' grow from the palate to act as a filter for feeding.

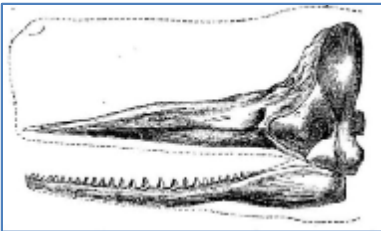


Skull of *Balaena mysticetus* ²²



Detail of jaw and baleen fringe ²³

- The windpipe and lungs do not open into the mouth, so feeding through the mouth bears no risk of flooding the lungs.
- The olfactory nerves are poorly developed in toothed whales.
- The rorquals have many furrows on the throat and chest forming longitudinal pleats.
- The female has two teats far back on the underside, supplied by large mammary glands.
- Members of the Order Cetacea are found in all known waters, some inhabiting the larger rivers of South America and Asia.



- They are all predaceous, feeding on various animal food – some on krill, others on fish, cuttlefish, seals, dolphins, or even other whales.

- Sperm whales have no teeth in the upper jaw but many in the lower jaw. ²⁴

²² Borradaile *op. cit.*, p.506

²³ From specimen in NHM (2018) [photo – A. Nevard]

²⁴ Skull of Sperm Whale (*Physeter macrocephalus*) – Borradaile, *op. cit.*, p. 506

- Dolphins have about 50 pairs of teeth in both jaws in a distinct ‘beak.’²⁵
- Porpoises are similar to dolphins but lack a beak.
- Sperm whales have the largest head of all mammals, up to one third of the body length. The upper region, largely above the nasal passages, contains the spermaceti organ, which yield valuable oil used for lighting and industrial lubricants. Melville reports that, in a large whale, this region (the ‘Case’) “generally yields about five hundred gallons.” The lower region above the upper jaw was less valuable and was called ‘junk’. Neither has any function once thought related to sperm storage; this region is now believed to contribute to differing sound production in males and females.²⁶
- Ambergris (‘grey amber’) may be found floating in the sea or washed up, and comes from the intestine of some sperm whales. Melville describes it as looking, “like ripe Windsor soap, or rich mottled old cheese; very unctuous and savory withal [...] (it is) soft, waxy, and so highly fragrant and spicy, that it is largely used in perfumery, in pastiles, precious candles, hair-powders, and pomatum. The Turks use it in cooking...”²⁷
- Beaked and sperm whales regularly dive to one to two km depths for up to an hour. This requires the whale to withstand a pressure 200 times that at the water surface. Their rib cage is more flexible so that the alveoli (air sacs) in the lungs are emptied, reducing the hazard of nitrogen dissolving into the blood and inducing ‘the bends’ when pressure falls as it surfaces. Much more oxygen can be stored in the blood and as myoglobin in muscles than in land mammals. They also slow down their metabolic rate, heart beat is reduced, and blood flow diverted to maintain constant blood pressure.²⁸
- Vision is ineffective below about 200m deep but sound travels much better in water than in air. Whales use hearing to perceive their surroundings, locate food, and communication. Vocalisation involves different mechanisms in baleen and toothed whales. The latter can



“I’m enjoying this article
— please carry on!”

²⁵ Dolphin head photo © RNG@fotolia.com

²⁶ Melville, *op.cit.*, p. 406

²⁷ Melville, *op.cit.*, p. 487-488

²⁸ “All marine mammals possess a suite of anatomical and physiological adaptations to aquatic life.” Hammond et al, *op.cit.*, p. 72, and see the rest of Chapter 4 for a really good account.

produce higher frequency sounds of whistles and clicks that involve special structures called ‘phonic lips’ below the blowhole, and a fatty structure in the front of the head, the ‘melon’, that directs the sound into a beam and facilitates ‘echo location’.

- Maintaining a constant body temperature in cold water is easier for a large animal as it has a relatively small surface area-to-volume ratio from which heat is lost. Avoiding overheating in warm water requires extra heat to be dissipated through counter-current heat exchanges in flippers and fins.
- Male whales have their testes inside the body but they are supplied with a flow of cooler blood diverted from their fins to maintain the ideal temperature for sperm production.
- The whale has a slow life history but some can live for over 100 years. After gestation of about a year, they normally have a single calf, which may be one third the length of its mother. Lactation in odontocetes may continue for several years. There is considerable variation in the reproductive cycle across the cetacea, e.g. porpoises may breed every year.
- Cetacea are generally gregarious, going about in ‘schools’ or ‘packs’, though their distribution may vary seasonally in relation to their breeding needs and feeding opportunities. Most baleen whales, e.g. humpback and blue whales, migrate across climatic zones between polar and temperate regions, while male sperm whales also inhabit waters in the tropics. Tagging studies using a satellite connection have shown one whale swam 9,200km in 42 days.²⁹
- A unique feature is found in the Narwhal, *Monodon monoceros*, which inhabits Northern waters and grows to some 30–40 feet. It has only a single pair of incisor teeth, with usually the left one growing into a long, horizontal and spirally-twisted tusk up to nine feet long.



Southern right whale and calf,
Nuevo Gulf, Argentina
© wildestanimal@fotolia.com



Narwhal pod, Baffin Island, Canada
wildestanimal@fotolia.com



Male narwhal, Baffin Island
wildestanimal@fotolia.com

²⁹ Hammond et al, op.cit., p. 39

Whales everywhere (in the briny)

Making a comparison with the distribution and activity of mankind, the NHM book on whales proclaims:

“Yet the most versatile and successful explorers of the oceans, which cover almost 72% of the surface of our planet, are the whales. Cetaceans (whales, dolphins and porpoises) call all oceans their home, from the poles to the equator, from the shallow coastal waters to the great depths of the open ocean.”³⁰

They range from the coasts and estuaries to the deep, dark seas, while some dolphin species live exclusively in freshwater rivers. This versatility poses another problem for evolutionary theory: natural selection is required to explain not only the *origin* of novel features to accumulate to form new varieties and eventually species, but also their *separation* from the original inter-breeding population to create a different gene pool. Any back-crossing, as with breeds of pedigree dog, risks diluting the new strain and its advantageous features. If we assume the intermediate ancestral whales have become extinct, selection must have eventually eliminated them as ‘unfit’. There is no evidence that the “bundle of fitnesses” shown by Order Cetacea, as outlined in earlier pages, could have arisen by mutations in gradual steps.

Could ‘punctuated equilibrium’ [PE] theory provide an answer? This invokes the notion of “allopatric speciation” to explain how new species might arise rapidly. A small part of the species population becomes geographically separated (e.g. by a river course changing, mountains arising or islands being created and colonised), such that different environmental pressures could cause divergence in the daughter population. So the ancestors of whales *must* have been reproductively isolated from each other while new traits were evolving. But now *all* of these highly specialised species could potentially meet each other in the sea!

While no-one will deny that environmental factors³¹ may result in selection and even extinction, this process does not create the entirely new and different anatomical structures that macro-evolution requires. Dr Stephen Meyer, discussing various theories to account for the ‘Cambrian explosion’ of the sudden appearance of millions of fossils of the major phyla of animals with no evidence of their ancestry, shows that PE also depends on neo-Darwinian natural selection acting on random mutations and variations, and states:

³⁰ Hammond et al., op. cit., p.31

³¹ The ‘environment’ includes ‘biotic factors’ involving other living organisms (e.g. predation) and ‘abiotic factors’ caused by the non-living surroundings (e.g. temperature or soil conditions).

“Species selection *eliminates* less fit species in a competition for survival; it does not *generate* the traits that distinguish species and establish the basis for interspecies competition.”³²

But what about the vestigial remains of the whale’s hind legs?

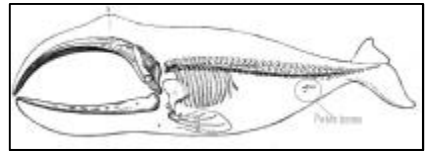
The basic body plan shared by vertebrates was recognised by Aristotle, who named five classes of such ‘blood animals’ as mammals, reptiles, birds, whales and fish. One reason for not including whales as mammals was their lack of hind limbs. Cuvier outlines the features of mammals and comments:

There are never more than two pairs of limbs; but sometimes one or the other is wanting, or even both [e.g. in snakes]: their forms vary according to the movements which they have to execute. The anterior limbs may be organised as hands, feet, wings or fins; the posterior as feet, or instruments for swimming.³³

The anatomy of the whale had been studied in detail before the 19th century from beached specimens and products of the whale fishing industry. Herbert Spencer theorized at length on the role of natural selection in evolution:

Zoologists are agreed that the whale has been evolved from a mammal which took to aquatic habits, and that its disused hind-limbs have gradually disappeared. When they ceased to be used in swimming, natural selection played a part — probably an important part— in decreasing them; since, being then impediments to movement through the water, they diminished the attainable speed. [...] But during the latter stages of the process it had no effect; since the rudiments caused no inconvenience and entailed no appreciable cost.³⁴

Spencer includes some measurements of these bones made by anatomist Dr Struthers (Aberdeen). Only rudimentary pelvic bones are to be found in the Black whale (*Balaenoptera borealis*).



Skeleton of the Greenland whale

“A sample of the Greenland Right Whale, estimated to weigh 44,800 lbs., had femurs weighing together 3½ ozs; while a sample of the Razor-back Whale (*Balaenoptera musculus*), 50 feet long, and estimated to weigh 56,000 lbs., had rudimentary femurs weighing together one ounce; so that these vanishing remnants of hind-limbs weighed but one-896,000th part of the animal.”³⁵

³² Meyer, Stephen C., *Darwin’s Doubt. The explosive origin of animal life and the case for intelligent design*, Harper One, (2013), p.147

³³ Cuvier, Baron, *The Animal Kingdom* (2nd Edn. 1828), W.H.Allen & Co, 1893, p.23

³⁴ Spencer, Herbert, *The Principles of Biology*, Revised edition (1898), Vol. I, p. 668

³⁵ *Ibid.*, p. 668

Spencer points out that, in view of the supposed enormous increase in size of the whale during its evolution, why should we not suppose that these rudimentary bones have also grown *larger* over time? However, allowing for the last variation in some individuals to have been a sudden reduction of, say, one half of the weight of the femurs, and assuming this to have been preserved in posterity:

“... may we reasonably assume that, by inter-crossing, this decrease, amounting to about a millionth part of the creature’s weight, will gradually affect the constitutions of all Razor-back Whales distributed over the Arctic seas and the North Atlantic Ocean, from Greenland to the Equator? Is this a credible conclusion?”³⁶

The writer goes on to argue that the only reasonable alternative is “the inheritance of acquired characters,” and states that:

“If the effects of use and disuse, which are known causes of change in each individual, influence succeeding individuals [...] then this reduction of the whales hind limbs to minute rudiments is accounted for.”³⁷

Most readers will be well aware that this evolutionary theory, first described by Lamarck (*Philosophie Zoologique*, 1809), has been thoroughly discredited following the work of Mendel (1865) that formed the foundation of modern genetics. It is worth mentioning that a significant part of Spencer’s book is a critique of the arguments of evolutionist Prof. Weismann, who attempted a disproof of Lamarckism by his experiments, repeatedly cutting off the tails of five generations of mice and showing that their average tail lengths did not decrease. Spencer claimed that he had presented to Weismann his arguments denying, among other things, that natural selection could have produced vestigial whale hind-limb bones: Weismann provided no reply. (p. 685)³⁸

Eighty years later, zoologist Sir David Attenborough offers the same story:

“The forelimbs have become paddles. The rear limbs have been lost altogether, though there are a few small bones buried deep in the whale’s body to prove that the whale’s ancestors really did, at one time, have back legs.”³⁹

³⁶ Spencer, *op.cit.*, p. 669

³⁷ *ibid.*, p. 669

³⁸ The following remark by Spencer still rings so true in our present-day debates: “It is curious what entirely opposite conclusions men may draw from the same evidence.” *Ibid.*, p. 671

³⁹ Attenborough, D., *Life on Earth – a Natural History*, Fontana/Collins, (1979), p. 242.

[“Evolutionary biologists have noted that what Kipling did in fiction, they have done in reality, providing explanations for the evolutionary development of animal features.” *Wikipedia.*]

Anything to add, Charlie?

In the first edition of *Origin of Species*, Darwin gave his carefully considered opinion on the origin of whales:

In North America the black bear was seen by Hearne swimming for hours with widely open mouth, thus catching, like a whale, insects in the water. Even in so extreme a case as this, if the supply of insects were constant, and if better adapted competitors did not already exist in the country, I can see no difficulty in a race of bears being rendered, by natural selection, more and more aquatic in their structure and habits, with larger and larger mouths, till a creature was produced as monstrous as a whale.⁴⁰

Apparently this fanciful idea was not received as contributing positively to Darwin's arguments (i.e. people thought it ridiculous) and it was dropped from later editions. It is not always appreciated that Darwin's theory came under attack by scientists as well as philosophers and theologians.⁴¹ One line of criticism was that the theory precluded large and sudden beneficial variations coming into being spontaneously, but that very small changes would be insufficient for the action of natural selection to take hold at all. This is part of Darwin's response:

The Greenland whale is one of the most wonderful animals in the world, and the baleen, or whale bone, one of its greatest peculiarities. The baleen consists of a row, on each side, of the upper jaw, of about 300 plates or laminae, which stand close together transversely to the longer axis of the mouth. Within the main row there are some subsidiary rows. The extremities and inner margins of all the plates are frayed into stiff bristles, which clothe the whole gigantic palate, and serve to strain or sift the water, and thus to secure the minute prey on which these great animals subsist. [...]

With respect to the baleen, Mr Mivart remarks that if it "had once attained such a size and development as to be at all useful, then its preservation and augmentation within serviceable limits would be promoted by natural selection alone. But how to obtain the beginning of such useful development?" In answer, it may be asked, why should not the early progenitors of the whales with baleen have possessed a mouth constructed something like the lamellated beak of a duck? Ducks, like whales, subsist by sifting the mud and water; and the family has sometimes been called Criblatores, or sifters. I hope that I may not be misconstrued into saying that

⁴⁰ Darwin, C. *Origin of Species* (1st Edition) (1859) p. 184.

⁴¹ And, of course, it still is under such attack today. Biologist Richard Lewontin criticised neo-Darwinians for telling 'Just so' stories about evolutionary origins. ("Science Contra Darwin", *Newsweek*, 8 April 1985, p.80)

the progenitors of whales did actually possess mouths lamellated like the beak of a duck. I wish only to show that this is not incredible, and that the immense plates of baleen in the Greenland whale might have been developed from such lamellae by finely graduated steps, each of service to its possessor.⁴²

Somehow the image of a succession of thousands of generations of duck-billed hippopotami does seem an unconvincing route to achieve the blue whale.

Still sure whales evolved? You shouldn't be!

The whale evolution story may have once 'had legs' but not any more:

A recent study found that pelvic bones are not functionless relics, as previously thought, but instead support the whale genitalia and might play an important role during mating.⁴³

As noted above, we expect body organs we find in animals to have a function. Darwinists who labelled them as being 'useless vestigial parts' closed the door to further meaningful research. Creation scientists, of course, would have predicted correctly that these bones did have a function.

Even David Attenborough admits that whale evolution is hard to swallow:

Whales and dolphins [...] have a long ancestry, with fossils dating back to the beginning of the great radiation of mammals fifty million years ago. But could these immense animals really be descended from a tiny creature like a tupaia? It is difficult to believe, and yet the logic of the deduction is undeniable. Their ancestors must have entered the sea at a time when the only mammals in existence were the little insectivores. But their anatomy is now so extremely adapted to swimming that it gives little clue as to how the move into the sea was made. It may be that the two main groups of whales have different ancestries, those with teeth having come from insectivores by way of primitive carnivores and the rest, the baleen whales, being descended more directly.⁴⁴

Fossilised bones which suggest some shared features with whales do not prove them to be their ancestors – this is admitted. In recent years, claims have been made by Dr Gingerich for the fossil *Pakicetus* being ancestral to whales based on its ear-bone, with its skull reconstructed to form a 'blowhole', despite the skeleton showing hooves and a neck typical of a land mammal. A study by Dr

⁴² Darwin, C. *The Origin of Species* (6th Edn.), John Murray, (1902 reprint), p. 285-286. (Darwin describes Mr St. George Mivart as 'a distinguished zoologist.'

⁴³ Hammond et al., op. cit., p. 17. Study by Dean & Dines of University of Southern California (2014) – see <http://pressroom.usc.edu/whale-sex-its-all-in-the-hips/>

⁴⁴ Attenborough, *Life on Earth*, p. 242. [*Tupaia* is a tree shrew]

Carl Werner published in 2014 destroys the credibility of any connection of Pakicetus, Ambulocetus or Rodhocetus being ancestral to cetaceans.⁴⁵ Fossils found in different places cannot be placed in a time sequence based on the assumption of evolutionary change – this is circular reasoning. In any case the concept of the Cetacea all evolving from terrestrial shrews, bears or hippopotami in 50 million years is unimaginable and contrary to known scientific evidence, despite confident assertions by materialists of unproven arguments for evolution. Their only justification is their *a priori* assumption that non-material explanations of observed facts are inadmissible – in the words of Richard Lewontin, “That materialism is absolute, for we cannot allow a divine foot in the door.”⁴⁶

Whales have been whales since their creation

The Genesis account of origins states that on the fifth day,

God also said: Let the waters bring forth the creeping creature having life (*reptile animae viventis*), and the fowl that may fly over the earth under the firmament of heaven.

And God created the great whales (*cete grandia*), and every living and moving creature (*omnem animam viventem atque motabilem*), which the waters brought forth, according to their kinds, and every winged fowl according to its kind. And God saw that it was good. (Gen.1, 20-21)

Here is the first reference to ‘life’ (Hebrew *nephesh*) using a word also used for the soul of man and the life of animals, and whales were the first animals specifically named as a product of this act of creation. As Dr Morris points out:

Having made the atmosphere and hydrosphere on the second day and then the lithosphere and biosphere on the third day, God then proceeded to make animal life for the atmosphere and hydrosphere on the fifth day, and then animal life for the lithosphere and biosphere on the sixth day. All the necessities for living creatures were present on the earth by this time: light, air, water, soil, chemicals, plants, fruits and so forth. [...]

Once again it is obvious that the orthodox evolutionary order is not the same as the order of creation recorded here in Genesis. Evolutionary theory says that marine organisms evolved first, then land plants, later birds. Genesis says that land plants came first, then marine creatures and birds simultaneously.⁴⁷

⁴⁵ Batten, D., Whale Evolution Flops, *Creation*, Vol. 36, No 4, 2014, pp.34-35.

⁴⁶ Lewontin, Richard (1997), “Billions and Billions of Demons,” *The New York Review*, January 9, p.31

⁴⁷ Morris, H.M. *The Genesis Record*, Evangelical Press (1976), pp 68, 70.

Further reading on whales and whaling (additional to previous footnotes)

Texts from a pre-Darwinian perspective

Wood, J.G., *Natural History*, 19th Edn., George Routledge & Sons, (1892)

‘The Cetacea, or Whale tribe’, pp. 77 – 87.

Figuiet, Louis, *Mammalia*, Frederick Warne & Co., (1870)

‘Order of Cetacea’, pp. 31 – 96.

Includes ‘numerous anecdotes’ of whale observations and details of whaling, designs of harpoons, etc. which may prove to be ‘too much information’ for some readers.

Modern account of whales’ natural history and impact on human history

Hoare, P., *Leviathan or, The Whale*, Fourth Estate, London (2008)

A very enjoyable read, with frequent allusions to Melville and *Moby Dick*. Includes an Index, and useful Bibliography of over 100 titles on the subject (but ignore Thomas Hobbes’ book *Leviathan*, which is devoted to political theory, not biology!)

Detailed critique of whale evolution

Sodera, Dr Vij, FRCS, *One Small Speck to Man*, Vij Sodera Productions,

2nd Edn., (2009), www.onesmallspeck.com

‘The whale: something fishy’, pp. 220 - 263

Discusses in much detail, with many illustrations, claims of whale evolution based on genetics, fossils and comparative anatomy.

Brief articles from a creation science position

Chapman, G., *Sea Mammals*, Creation Resources Trust, Factsheet No. 13, 1989

Dykes, J., ‘The Blue Whale’, *Creation*, CMI, Vol. 40, No 1, 2018, pp. 28-31.

Gish, Dr D.T. ‘When is a Whale a Whale?’, *Impact #250*, Institute of Creation Research, April 1994

Hayes, S., *Design of a whale*, Creation Science Movement, Pamphlet 384, Nov 2011

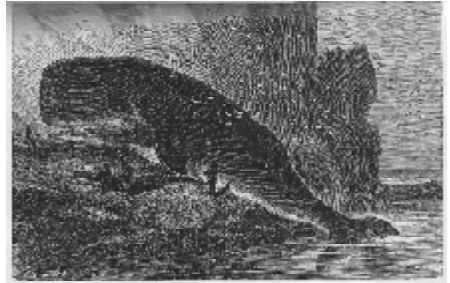
THE FOSSIL WHALE

Herman Melville

From *Moby Dick or The Whale*, Chapter CIV [104] ⁴⁸

FROM his mighty bulk the whale affords a most congenial theme whereon to enlarge, amplify, and generally expatiate. Would you, you could not compress him. By good rights he should only be treated of in imperial folio⁴⁹. Not to tell over again his furlongs from spiracle to tail, and the yards he measures about the waist; only think of the gigantic involutions of his intestines, where they lie in him like great cables and hawsers coiled away in the subterranean orlop-deck⁵⁰ of a line-of-battle-ship.

Since I have undertaken to manhandle this Leviathan, it behoves me to approve myself omnisciently exhaustive in the enterprise; not overlooking the minutest seminal germs of his blood, and spinning him out to the uttermost coil of his bowels.



Physeter macrocephalus - Sperm Whale

Having already described him in most of his present habitatory and anatomical peculiarities, it now remains to magnify him in an archaeological, fossiliferous, and antediluvian point of view.⁵¹ Applied to any other creature than the Leviathan — to an ant or a flea — such portly terms might justly be deemed unwarrantably grandiloquent. But when Leviathan is the text, the case is altered. Fain am I to stagger to this emprise⁵² under the weightiest words of the dictionary. And here be it said, that whenever it has been convenient to consult one in the course of these dissertations, I have invariably used a huge quarto edition of Johnson, expressly purchased for that purpose; because that famous

⁴⁸ Spellings and archaic expressions are in the original text. Footnotes & graphics by Editor.

⁴⁹ Imperial folio = large size of cut paper (15" x 22") often used for art prints.

⁵⁰ Orlop = the lowermost of four or more decks above the space at the bottom of a hull.

⁵¹ Sperm whale picture from Figurier, L., *Mammalia*, Warne & Co., (1870), p. 67.

⁵² Emprise = an adventurous, daring, or chivalric enterprise or undertaking.

lexicographer's uncommon personal bulk more fitted him to compile a lexicon to be used by a whale author like me.



Dr Samuel Johnson, by
Sir Joshua Reynolds

(Wiki Commons, public domain)

One often hears of writers that rise and swell with their subject, though it may seem but an ordinary one. How, then, with me, writing of this Leviathan? Unconsciously my chirography expands into placard capitals. Give me a condor's quill! Give me Vesuvius' crater for an inkstand! Friends, hold my arms! For in the mere act of penning my thoughts of this Leviathan, they weary me, and make me faint with their outreaching comprehensiveness of sweep, as if to include the whole circle of the sciences, and all the generations of whales, and men, and mastodons, past, present, and to come, with all the revolving panoramas of empire on earth, and throughout the whole universe, not excluding its suburbs. Such, and so magnifying, is the virtue of a large and liberal theme! We expand to its bulk. To produce a mighty book, you must choose a mighty theme, No great and enduring volume can ever be written on the flea, though many there be who have tried it.

Ere entering upon the subject of Fossil Whales, I present my credentials as a geologist, by stating that in my miscellaneous time I have been a stone-mason, and also a great digger of ditches, canals and wells, wine-vaults, cellars, and cisterns of all sorts. Likewise, by way of preliminary, I desire to remind the reader, that while in the earlier geological strata there are found the fossils of monsters now almost completely extinct; the subsequent relics discovered in what are called the Tertiary formations seem the connecting, or at any rate intercepted links, between the antichronical creatures,⁵³ and those whose remote posterity are said to have entered the Ark; all the Fossil Whales hitherto discovered belong to the Tertiary period, which is the last preceding the superficial formations. And though none of them precisely answer to any known species of the present time, they are yet sufficiently akin to them in general respects, to justify their taking rank as Cetacean fossils.

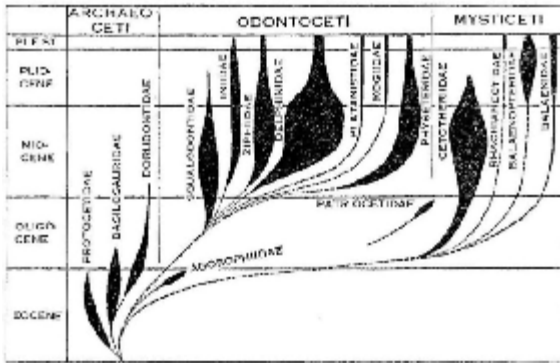
⁵³ Antichronical = deviating from the proper order of time.

Detached broken fossils of pre-adamite whales, fragments of their bones and skeletons, have within thirty years past, at various intervals, been found at the base of the Alps, in Lombardy, in France, in England, in Scotland, and in the States of Louisiana, Mississippi, and Alabama. Among the more curious of such remains is part of a skull, which in the year 1779 was disinterred in the Rue Dauphiné in Paris, a short street opening almost directly upon the palace of the Tuileries; and bones disinterred in excavating the great docks of Antwerp, in Napoleon's time. Cuvier pronounced these fragments to have belonged to some utterly unknown Leviathanic species.

But by far the most wonderful of all cetacean relics was the almost complete vast skeleton of an extinct monster, found in the year 1842, on the plantation of Judge Creagh, in Alabama. The awe-stricken credulous slaves in the vicinity took it for the bones of one of the fallen angels. The Alabama doctors declared it a huge reptile, and bestowed upon it the name of *Basilosaurus*. But some specimen bones of it being taken across the sea to Owen, the English Anatomist, it turned out that this alleged reptile was a whale, though of a departed species. A significant illustration of the fact, again and again repeated in this book, that the skeleton of the whale furnishes but little clue to the shape of his fully invested body. So Owen rechristened the monster *Zeuglodon*; and in his paper read before the London Geological Society, pronounced it, in substance, one of the most extraordinary creatures which the mutations of the globe have blotted out of existence.

When I stand among these mighty Leviathan skeletons, skulls, tusks, jaws, ribs, and vertebrae, all characterized by partial resemblances to the existing breeds of sea-monsters; but at the same time bearing on the other hand similar affinities to the annihilated antichronical Leviathans, their incalculable seniors; I am, by a flood, borne back to that wondrous period, ere time itself can be said to have begun; for time began with man. Here Saturn's grey chaos rolls over me, and I obtain dim, shuddering glimpses into those Polar eternities; when wedged bastions of ice pressed hard upon what are now the Tropics; and in all the 25,000 miles of this world's circumference, not an inhabitable hand's breadth of land was visible. Then the whole world was the whale's; and, king of creation, he left his wake along the present lines

of the Andes and the Himmalehs. Who can show a pedigree like Leviathan? Ahab's⁵⁴ harpoon had shed older blood than the Pharaoh's. Methuselah seems a schoolboy. I look round to shake hands with Shem. I am horror-struck at this antemosaic, unsourced existence of the unspeakable terrors of the whale, which, having been before all time, must needs exist after all humane ages are over.⁵⁵



The phylogeny of the whales [Romer]

But not alone has this Leviathan left his pre-adamite traces in the stereotype plates of nature, and in limestone and marl bequeathed his ancient bust; but upon Egyptian tablets, whose antiquity seems to claim for them an almost fossiliferous character, we find the unmistakable print of his fin. In an

apartment of the great temple of Denderah, some fifty years ago, there was discovered upon the granite ceiling a sculptured and painted planisphere, abounding in centaurs, griffins, and dolphins, similar to the grotesque figures on the celestial globe of the moderns. Gliding among them, old Leviathan swam as of yore; was there swimming in that planisphere, centuries before Solomon was cradled.⁵⁶

Nor must there be omitted another strange attestation of the antiquity of the whale, in his own osseous post-diluvian reality, as set down by

⁵⁴ Ahab was the Captain of the Pequod, the whaling ship featured in the Moby Dick story.

⁵⁵ The diagram shows a mid-20th century chart of extinct fossil cetacea (Archaeoceti) as represented in Eocene and Oligocene strata, and most of the living families of baleen and toothed whales having ancestry in Miocene rocks. Some of the living families had not been found as fossils. Note the curved dotted lines showing the complete absence of transitional fossils between the major groups of cetacean – the connections are imaginary, as are those in other animal phyla. Romer, A.S., *Vertebrate Palaeontology*, University of Chicago Press, (2nd Edn., 1945), p.492.

⁵⁶ The Temple and planisphere are real enough, and can be viewed online, but there is no part of the image that can reasonably be considered whale-like.

the venerable John Leo, the old Barbary traveller.

‘Not far from the Sea-side, they have a Temple, the Rafters and Beams of which are made of Whale-Bones; for Whales of a monstrous size are often-times cast up dead upon that shore. The Common People imagine, that by a secret Power bestowed by God upon the Temple, no Whale can pass it without immediate death. But the truth of the matter is, that on either side of the Temple, there are Rocks that shoot two Miles into the Sea, and wound the Whales when they light upon ’em. They keep a Whale’s Rib of an incredible length for a Miracle, which lying upon the Ground with its convex part uppermost, makes an Arch, the Head of which cannot be reached by a Man upon a Camel’s Back. This Rib (says John Leo) is said to have layn there a hundred Years before I saw it. Their Historians affirm, that a Prophet who prophesy’d of Mahomet, came from this Temple, and some do not stand to assert, that the Prophet Jonas was cast forth by the Whale at the Base of the Temple.’⁵⁷

In this Afric Temple of the Whale I leave you, reader, and if you be a Nantucketer, and a whale-man, you will silently worship there.

CHAPTER CV.

DOES THE WHALE’S MAGNITUDE DIMINISH ? WILL HE PERISH?

INASMUCH, then, as this Leviathan comes floundering down upon us from the head-waters of the Eternities, it may be fitly inquired, whether, in the long course of his generations, he has not degenerated from the original bulk of his sires.

But upon investigation we find, that not only are the whales of the present day superior in magnitude to those whose fossil remains are

⁵⁷ This is a quotation from a famous medieval cosmopolitan, Al-Hasan ibn Muhammad al-Wazzan al-Fasi, known more popularly in Europe as “Leo Africanus.” Ishmael [i.e. the narrator, Melville, in *Moby Dick*] calls him “the venerable John Leo, the old Barbary traveller” and quotes from his *A Geographical Historie of Africa* (1550; English translation 1600) a description of a mosque that al-Wazzam found near Massa on the Atlantic Coast of Africa.
Ref: <http://ahistoryofnewyork.com/2012/12/moby-dick-big-read-day-104/>

found in the Tertiary system (embracing a distinct geological period prior to man), but of the whales found in that Tertiary system, those belonging to its formations exceed in size those of its earlier ones.

Of all the pre-adamite whales yet exhumed, far the largest is the Alabama one mentioned in the last chapter, and that was less than seventy feet in length in the skeleton. Whereas, we have already seen, that the tape-measure gives seventy-two feet for the skeleton of a large sized modern whale. And I have heard, on whalemens' authority, that Sperm Whales have been captured near a hundred feet long at the time of capture.

But may it not be, that while the whales of the present hour are an advance in magnitude upon those of all previous geological periods; may it not be, that since Adam's time they have degenerated?

Assuredly, we must conclude so, if we are to credit the accounts of such gentlemen as Pliny, and the ancient naturalists generally. For Pliny tells us of Whales that embraced acres of living bulk, and Aldrovandus of others which measured eight hundred feet in length — Rope Walks and Thames Tunnels of Whales! And even in the days of Banks and Solander, Cooke's naturalists, we find a Danish member of the Academy of Sciences setting down certain Iceland Whales (reydan-siskur, or Wrinkled Bellies) at one hundred and twenty yards; that is, three hundred and sixty feet. And Lacépède, the French naturalist, in his elaborate history of whales, in the very beginning of his work (page 3), sets down the Whale at one hundred metres, three hundred and twenty-eight feet. And this work was published so late as A. D. 1825.

But will any whaleman believe these stories? No. The whale of to-day is as big as his ancestors in Pliny's time. And if ever I go where Pliny is, I, a whaleman (more than he was), will make bold to tell him so. Because I cannot understand how it is, that while the Egyptian mummies that were buried thousands of years before even Pliny was born, do not measure so much in their coffins as a modern Kentuckian in his socks; and while the cattle and other animals sculptured on the oldest Egyptian and Nineveh tablets, by the relative proportions in which they are drawn, just as plainly prove that the high-bred, stall-fed, prize cattle

of Smithfield,⁵⁸ not only equal, but far exceed in magnitude the fattest of Pharaoh's fat kine; in the face of all this, I will not admit that of all animals the whale alone should have degenerated.

But still another inquiry remains [...] whether Leviathan can long endure so wide a chase, and so remorseless a havoc; whether he must not at last be exterminated from the waters, and the last whale, like the last man, smoke his last pipe, and then himself evaporate in the final puff.

Comparing the humped herds of whales with the humped herds of buffalo, which, not forty years ago, overspread by tens of thousands the prairies of Illinois and Missouri [...] an irresistible argument would seem furnished, to show that the hunted whale cannot now escape speedy extinction.

To paraphrase the rest of this chapter, 'Ishmael' points out significant differences between hunting whales and buffaloes.

Forty men in one ship hunting the Sperm Whale for forty-eight months think they have done extremely well ... if at last they carry home the oil of forty fish [...] the same number of moccasined men, for the same number of months, mounted on horse instead of sailing in ships, would have slain not forty, but forty thousand and more buffaloes.

Ishmael is aware of the argument that Sperm Whales have been reported as being less frequent than in earlier years, which might gradually lead to their extinction. However, he counters that changes in their behavior may have resulted in them retreating to the Polar regions, "in defiance of all pursuit from man." The whale will "outlast all hunting, since he has a pasture to expatiate in, which is precisely twice as large as all Asia, both Americas, Europe and Africa, New Holland, and all the Isles of the sea combined." Also in consideration of their longevity, with several contemporary adult generations, "we account the whale immortal in his species."⁵⁹

⁵⁸ The major meat market in London, England, dating back to the 10th century.

⁵⁹ Moby Dick, pp. 548-550 summarised. The International Whaling Commission was set up in 1946 and much of the commercial trade was banned in 1986. Melville's prediction seems correct, but more due to changes in human attitudes and behaviour than that of the whales.

Of Sheep and the Lamb ¹

Howard Law-Thompson

A 'Daylight' reader offers this reflection upon the rich symbolism of sheep, lambs and goats in the Easter season ²

'In the beginning was the Word ... all things were made by Him, and without Him was not anything made that was made' (*John 1*)

'In Him were created all things in heaven and on earth ... all things were created through Him and for Him; He is before all things and in Him all things hold together' (*Colossians 1*)

THE CREATION OF ALL THINGS in and through the Word means that each creature reflects that Word at a radical level. In his *Collationes in Hexaemeron*, St Bonaventure talks about creatures as external words echoing the Word eternally expressed within the most holy Trinity. All creatures manifest and represent the divine goodness, offering an image of God to the extent of their capacity, as He reveals Himself to us in them. What this means is that any creature, even the humblest of animals, is fit to represent its maker; and God is depicted — and the incarnate Christ prefigured — under many symbolic images throughout the Old Testament.



Lamb of God with banner
© Marina Andrienko
@ fotolia.com

Pre-eminent amongst these images are those of the sacrificial victims ³ which directly indicate the redemptive Sacrifice of Calvary. When we remember that each creature reflects its Creator in the depths of its being, and is fit to represent Him, we are struck by the immense value and dignity of all things; and when we meditate upon what it meant to prefigure our Lord as His great work of our redemption came to its very climax, we cannot help but be awestruck

¹ This article originally appeared in *The Ark*, the tri-annual *Journal of Catholic Concern for Animals*, a publication with a predominantly modern-rite readership: see website at www.catholic-animals.org

² Lamb, eaten with 'the green herbs of hope', was traditionally eaten on Easter Sunday. Vegetarians may like to continue the tradition by adopting the Greek custom of baking a festive bread containing sheep's milk cheese.

³ Cf. St John Fisher's *Commentary on the Seven Penitential Psalms*, Ps. 50

by the honour of which God has deemed His animals to be worthy.

Now *lex orandi, lex credendi* — and vice versa, ‘as we believe, so do we pray’ — so, when we affirm these facts liturgically, as we do at every Mass, but more particularly during Lent and Eastertide, we deepen our faith in the dignity of all creation. It is also fitting that we should look to the liturgy for guidance as to the meaning and relative importance of the various types and figures of the Old Testament in relation to the New and to ourselves. When we do so we find the figure of the Lamb at the very heart of our worship, as we make repeated use (beginning with the Gloria) of the title St John the Baptist was inspired to make of our Lord: ‘This is the Lamb of God who takes away the sins of the world.’

This phrase echoes several other biblical passages as it forms a bridge between St John the Evangelist’s apocalyptic vision of our Lord in glory, and the sacrifices of the Law, through the vision of the prophets of the Old Testament. St John’s vision was based upon existing forms of worship, and was itself influential in the development of liturgy in the early Church; images and antiphons taken from it are used in the eastern rites, and the Sanctus reminds us at every Mass that, ‘The Lamb Who was slain is worthy to receive strength and divinity, wisdom and power and honour: to Him be glory and power for ever’ (Apocalypse 5:12; Introit, Feast of Christ the King).⁴ There has been some dispute over the centuries as to whether the ‘Lamb’ of the vision was in fact seen by St John as a lamb; but it seems quite impossible to talk of the vision having been ‘seen’ in any particular way. The western Church has certainly always upheld the practice of depicting the Lamb as a lamb; when the eastern bishops attempted to ban such images at the Quinisext Council of 696, Pope St Sergius I (who also introduced the *Agnus Dei* to the Mass) annulled their conciliar decrees. Amongst other things, the ‘living creatures’ of the vision confirm that God’s own nobility, strength, wisdom and power are reflected by His creation.

During the rest of the year, it is primarily to this visionary Lamb that we would relate the liturgical title, but the liturgies of Holy Week and Eastertide connect that figure of our Lord to the types of the paschal lamb, which prefigured His passion. The form for blessing the Easter lamb is remarkable in that it does not hesitate to speak of the lamb having died ‘in the likeness of our Lord’; an old translation of the prayer reads as follows (the Book of Blessings in English omits it):

⁴ The visionaries of Knock certainly described ‘the Lamb that was slain’ as a lamb.

O God, Who by Thy servant Moses, in leading Thy people out of Egypt, didst command that a lamb should be slain in the likeness (*in similitudinem*) of our Lord Jesus Christ and that both the doorposts of the houses should be smeared with its blood: graciously bless and hallow this flesh Thy handiwork; of which we Thy servants desire to partake to Thy honour and glory

Reference to the killing of the paschal lamb (Exodus 12:1-11), by whose blood the chosen people of God were saved from death, and which led to their liberation, was removed from the liturgy of Holy Saturday in 1955, although the words of the Easter proclamation ensure that it is called to mind: ‘This is our Passover feast, when Christ, the true Lamb, is slain, Whose blood consecrates the homes of all believers’.

The sacrifice of Abraham (Genesis 22: 1-18), however, was restored to the Easter Vigil in 1969 after having been removed at the same time as the other passage; it introduces the notion of vicarious sacrifice, the ram having died in place of Isaac. The Roman Canon connects it with the priest-king Melchizedech’s offering of bread and wine, looking forward to the sacrifice of the altar; and to the sacrifice of Abel, the first of the Old Testament to have been found acceptable, and the first type of the incarnate Word.



Big-horned sheep
© Kim de Been @ fotolia.com

Yet the ram caught in the thicket was not simply a figure of the Lord: its condition makes it also a representation of human nature in our fallen state. Through original sin, fallen man was caught up in the bonds of death, and even we, the baptised, find our horns (that is the will and the other powers of the soul) so weakened by the remaining scars left by the stain of which we have been healed that we are unable to free ourselves. In representing mankind in this way the ram attests to all that we, as the head of creation, share with our fellow-creatures, and calls us to reflect upon the essential connection between all creatures — in Adam all creation fell; and in our Lord human nature is assumed into the glory of the Godhead, redeeming the entire created order in our own salvation (Romans 8:21) — caught up, as we all are, in a common bond.

All we like sheep ...

The ram leads us to a second group of biblical and liturgical sheep, namely those which represent us as Christians rather than (directly) representing our Lord. As a perfect representation of Christian baptism, the ram is found as the image of fallen man, but in its death it is made into the figure of Christ; even as baptism is a death of the natural, fallen man and a refashioning of the Christian soul (which is to be perfected in grace throughout the Christian life) into utter conformity with the pattern of Christ, worthy to be drawn into His glory and 'hidden' with Him in God (Colossians 3:3). This is what salvation means, for the saved, formed in the likeness of our Lord, to be assumed into the glory of the Godhead as members of His body. Because our Lord is the perfect lamb without spot, those who are conformed to His image are suitably represented as sheep, as we find, for example, three weeks after Easter on Good Shepherd Sunday, when our Lord describes Himself as the sheepgate and shepherd and His people as His sheep who enter into the fold through Him, who know Him, and for whom He dies (John 10: 1-30).

The link between the Lamb and His sheep is made liturgically in the Easter sequence, *Victimae paschali*, 'The sheep are ransomed by the Lamb'; and in year C of the Lectionary cycle we proclaim that 'We are His people, the sheep of His flock' (Psalm 99), and hear that the Lamb is to be the shepherd of the elect (Apocalypse 7:17). We are entrusted to the care of St Peter as sheep and as lambs (John 21:15-17); and we also recall that the last judgment is described in terms of the separation of the sheep from the goats (Matthew 25:33, echoing Ezechiel 34: 17) and pray in the *Dies Irae*:

'With Thy sheep a place provide me,/ From the goats afar divide me,/ To Thy right hand do Thou guide me.'

The goats, incidentally, merely represent those who are not 'sheep'. Like all other creatures, the goat is fit to represent its Creator; indeed, it does so scripturally, as the kid was a suitable substitute for the paschal lamb (Exodus 12:5), and our Lord is represented by the combined figure of the goat that dies for the sins of the people on the Day of Atonement and the goat that escapes and bears their sins away (Leviticus 16: 15-22).



Example of virtue

The Christian flock is not a mere figure of speech. The Good Friday lesson from Isaiah, speaking of our Lord being ‘like a lamb led to the



Tuscan sheep flock © foredan @ fotolia.com

slaughter or a sheep before the shearers’ (Isaiah 53:7); and the office hymn *Sanctorum meritis*, which speaks of the martyrs, saying that, ‘like sheep their blood they poured: and without groan or tear, / They bend before the sword for Him, their King most dear,’ indicate the meaning of these sheep for us. We learn that the humble sheep in its very lowliness may be considered as an example of virtue — it represents and manifests the goodness of God, and is His instrument in teaching us meekness, humility and perfect submission.⁵

There can be no doubt that His creatures give glory to God or that we do Him honour by recognising Him in them. When we do we are strengthened in our love of Him through their ministry, and our love of them in Him — and it is that bond of love that transforms our relationship with other creatures into a reflection of and participation in the action of God. As we participate in His action, we are conformed to His image; and as we become sheep in the Lamb, the incarnation is made present in us; and in the incarnation of our Lord all creation is reconciled with God — reconciled not merely from the effects of the Fall, but reconciled as mortal, limited, contingent creatures with our eternal, boundless and absolute Creator, so that all creation might ‘share in the glorious freedom of the children of God’ (Romans 8:21). What, precisely, this might mean we cannot know in this life, but we may, perhaps, hope that we might find that those who have ministered to us here below might be found as a throng of ‘living creatures’ amongst the choirs ministering at the heavenly throne.

⁵ In the vesting prayers before High Mass, the bishop prays,

“Clothe, O Lord, my hands in the purity of the new man who comes down from heaven that, just as Jacob Thy beloved obtained his father’s blessing by offering most pleasing meat and drink to his father with his hands covered in the skins of goats, so too I might merit the blessing of thy grace in an offering of the saving Sacrifice by our [sic] hands. Through our Lord Jesus Christ Thy Son, Who in the likeness of sinful flesh offered up Himself for us,”

making the goatskins Jacob wore a symbol of the purity in which the celebrant must approach the altar to offer Mass worthily – a fine affirmation of the worthiness of the goat as a symbolic creature.

Creation, Fall and Flood in the Holy Week Liturgy

Palm Sunday

*Dómini est terra et quae replent eam,
orbis terrárum et qui hábitant in eo.
Nam ipse super mária fundávit eum,
et super flúmína firmávit eum.*

Psalm 23, 1-2, sung at the distribution of palms.

The earth is the Lord's and the fullness thereof: the world and they that dwell therein.

For He hath founded it upon the seas; and hath prepared it upon the rivers.

Allusion to Creation in Genesis

Maundy Thursday

*Orémus Dóminum Deum nostrum
omnipoténtem, qui incomprehensibilem unigéniti Filii sui sibique
coaetérni divinitátem mirabili dispositi-
one verae humanitáti inseparabiliter
conjúnxit, et cooperánte grátia
Spíritus Sancti, óleo exultati-
onis prae participibus suis linívit,
ut homo, fraude diaboli pérditus,
gémína et singulári constans matéria,
perénni redde-rétur, de qua
excíderat, hereditáti.*

Prayer of the bishop when mixing the balm and chrism oils.

Let us beg our Lord God Almighty, who inseparably united the incomprehensible Godhead of His only-begotten and co-eternal Son unto a true humanity, and by the grace of the Holy Ghost anointed Him with the oil of gladness above His fellows, in order that man who is made of two substances united in one, and who had been undone by the fraud of the devil, might be restored to the everlasting inheritance from which he had fallen.

Human nature and original sin

*... Qui in principio ... terram
producere fructifera ligna jussisti,
inter quae hujus pinguíssimi liquóris
ministrae olivae nasceréntur ...*

Preface of the blessing of the holy oils.

... Who in the beginning ... didst command the earth to yield fruit-bearing trees, among which should be the olive, which produces this most rich liquor ...

Allusion to Genesis 1: 11-12

*... et cum mundi crimina dilúvio
quondam expiaréntur effúso, similit-
udinem futúri múnere columba
demónstrans per olivae ramum
pacem terris rédditam nuntiávit.*

Preface of the blessing of the holy oils.

... and when the sins of the world were expiated of old by the deluge, a dove announced that peace was restored to the earth, by bearing an olive branch, the type of the gift to come ...

Allusion to Gen 8:11

*Fecisti lunam ad témpora signánda;
sol cognóvit occásum suum. [...]*

*Quam multa sunt ópera tua, Dómine!
omnia cum sapiéntia fecisti: plena est
terra creatúris tuis.*

*Ecce mare magnum et late patens:
illic reptília sine número, animália
parva cum magnis.*

*Illic naves perámbulant, Leviáthan,
quem fecisti, ut ludat in eo.*

Psalm 103 during Holy Communion.

He hath made the moon for seasons:
the sun knoweth his going down. [...]

How great are Thy works, O Lord?
Thou hast made all things in wisdom:
the earth is filled with Thy riches.

So is this great sea, which stretcheth
wide its arms: there are creeping
things without number, creatures
little and great.

There the ships shall go. This sea-
dragon which Thou hast formed to
play therein. [Gen. 1: 14, 24-25]

Good Friday

*Deus, qui peccáti véteris
hereditárium mortem, in qua
posteritátis genus omne succésserat,
Christi tui, Dómini nostri, passióne
solvísti ...*

Collect beginning solemn liturgy.

O God, by the Passion of Christ, Thy
Son, our Lord, Thou hast banished
the inheritance of death due to
original sin which had fallen on all
posterity ...

Allusion to Gen. 3. 19

*De paréntis protoplásti / Fraude
Factor cóndolens, / Quando pomi
noxialís / In necem morsu ruit: /
Ipse lignum tunc notávit,/
Damna ligni ut sólveret.*

Hymn 'CruX Fidelis'

Eating of the tree forbidden, / Man
had sunk in Satan's snare, / When his
pitying Creator / Did this second tree
prepare, / Destined, many ages later, /
That first evil to repair.

Allusion to Gen. 3. 17

*Per lignum servi facti sumus, et per
sanctam Crucem liberáti sumus:
fructus árboris sedúxit nos, Fílius
Dei redémit nos.*

Antiphon before Communion.

By the tree we were made slaves and
by the holy Cross we have been set
free; the fruit of the tree ensnared us,
the Son of God redeemed us.

Allusion to Gen. 3



Easter Night

Qui pro nobis aetérno Patri Adae débitum solvit: et vétēris piáculi cautiónem pio cruóre detērsit.

O certe necessariū Adae peccátum, quod Christi morte delétum est! O félix culpa, quae talem ac tantum méruiť habére Redemptórem!

‘Exultet’ hymn of the Paschal Candle

... [Jesus Christ] who paid for us to His eternal Father the debt of Adam, and by His merciful blood cancelled the guilt incurred by original sin [...]

O truly needful sin of Adam, which was blotted out by the death of Christ! O happy fault, that merited so great a Redeemer! [Gen. 3.17]

In principio creávit Deus caelum et terram

First Lesson of the Baptismal Service

In the beginning God created heaven and earth ...

Full text of Genesis: 1. 1-31; 2. 1-2

Deus, cujus Spíritus super aquas inter ipsa mundi primordia ferebátur; ut jam tunc virtútem sanctificatiónis aquárum natúra conciperet. Deus, qui, nocéntis mundi crimina per aquas ábluens, regeneratiónis spéciem in ipsa dilúvii effusióne signásti: ut unius ejusdémque eleménti mystério, et finis esset vitiis et origo virtútibus.

Blessing of the Baptismal Water

O God, whose Spirit in the very beginning of the world moved over the waters, that even then the nature of water might receive the virtue of sanctification. O God, who by water didst wash away the crimes of the guilty world, and by the pouring out of the deluge didst give a figure of regeneration, that one and the same element might in a mystery be the end of vice and the beginning of virtue. [Gen. 1. 2; chapters 6-9]

Unde benedico te, creatúra aquae, per Deum vivum, per Deum verum, per Deum sanctum: per Deum, qui in principio verbo separávit ab árida: cujus Spíritus super te ferebátur.

Qui te de paradísi fonte manáre fecit, et in quátuor fluminibus totam terram rigáre praecépit.

Blessing of the Baptismal Water

Wherefore I bless thee, O creature of water, by the living God, by the true god, by the holy God, by that God who in the beginning separated thee by His word from the dry land, and whose Spirit moved over thee.

Who made thee flow from the fountain of paradise and commanded thee to water the whole earth with thy four rivers. [Gen. 1 ; 2. 10-14]

From Adam and Eve to the Present – A Human Journey

Patrick Redmond



From Adam and Eve to the Present
A Human Journey
Patrick Redmond

When IBM and the National Geographic Society implemented the Genographic Project to chart the migratory history of the human race through sophisticated laboratory and computer analysis of DNA contributed by hundreds of thousands of people worldwide, the author participated by having his DNA analyzed. The analysis showed he belonged to Y-chromosome Haplogroup R1b, M343, a haplogroup very common in parts of Spain and Ireland, to which more than 90% of men belong.

Further analysis of the results proved intriguing. It suggested a recent, dramatic worldwide dispersion of people from the Near East, from a couple known as Adam and Eve, not a slow evolution from earlier species in a distant and little known past.

Even more remarkable was the similarity between the movement of his ancestors, as traced through markers in the DNA, with information provided by Greek, Roman and other ancient manuscripts and documents as well as recent studies.

Combining the journey provided by the DNA analysis to these historical and religious documents unveiled a fascinating history of the origins of the Irish and others with a similar Haplogroup, which started in the Near East and, from there, moved through Iraq and into Iran and neighbouring lands, then westwards into Europe and through it to France and ultimately the British Isles and Ireland. During this journey, groups regularly split off and, over time, started other peoples and nations throughout the world.

The result is an explanation of Irish history going back to Adam and Eve that accepts a theistic interpretation of creation in which God created humans as a unique, distinct species in the recent past, and then remained involved in their evolving history.

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Extracts from your letters

Please accept this small donation towards your work for Daylight. I love it and hope you will continue to thrive. A.C., Essex

Further to our telephone conversation I have pleasure in sending you a cheque for £x which will cover at any rate the next three issues. I have no house of my own to keep back copies, so I give them away when I have finished reading them and perhaps do some good in this way. Often it is like sowing in the night, you don't know what fruit will ripen from the seed broadcast. B.J., Surrey

Thank you for all your hard work. M.P., Essex

I always pass my magazines onto friends with a hope that they will be interested in the creation side of the arguments, it is surprising how many priests are not. I wish people would read and appreciate Mother Mary of Agreda's book, *The City of God*, which as you no doubt know talks about the revelations by Our Lady to a Spanish nun, especially on the Creation of the world. Adam was created 7316 years ago at the same time, early in the morning, as the Annunciation took place 2017 years ago. Our Lady explains it all in great details and the book *The City of God* has been highly recommended by most of the Popes until recent times... With many thanks for your wonderful publication. I am not a scientist so a lot of it is above my head, but even so as a laywoman in these matters it is very interesting and informative. P.T., Sussex

Thank you so much for the book and all your good work Fr J.D.

Renewal and small donation – worth every penny! God bless. T.M., London

Thank you so much for sending me the Daylight books and the newsletters, their absolutely great, you are doing an amazing job please keep going. S.A., Yorkshire

Thank you so much for your support and prayers!

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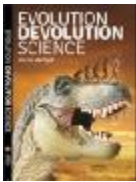
Gerard J. Keane



Subtitled “Catholicism and the Origins Debate”, and published by the Kolbe Center in 2004, this booklet was the last work from the late author, summarising but also updating his “Creation Rediscovered” text. “How much longer will evolution theory be portrayed as fact in Catholic schools, in disregard of Tradition and of truth known from modern science?” **Kolbe Center** 96 pp **£3.00**

Evolution, Devolution, Science

Prof. Maciej Giertych, PhD



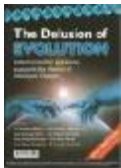
Based on a conference in the European Parliament, Oct 11 2006, on the teaching of the theory of evolution in European schools. Prof. Giertych gained his MA in forestry at Oxford and was a population geneticist for the Polish Academy of Sciences (1962-2006). First published in Polish as “Ewolucja, Dewolucja, Nauka.” (2016) 184 pp **£10.00**

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