

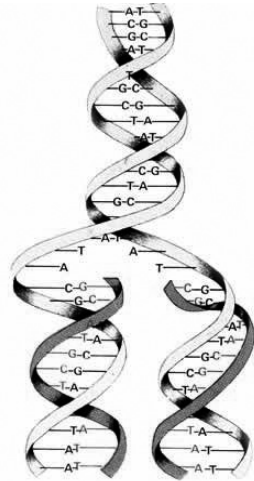
9 In the beginning - Evolution - the flaws

You will probably not have learned at school, or from television, that the theory of evolution is just that - a theory, and that nobody has ever proved that it is the true explanation of life. Most people don't want to know about the problems - and since the only alternative is that the universe was created by an Almighty being, the implications are more serious than they want to think about. So what are the problems? Here are just a few examples.

Evolution does not explain the origin of life

The basic idea of evolution is that life began very simply and then got more complicated. The theory is that the first life forms were rather like viruses, which evolved into single-celled creatures like bacteria or algae. Little by little they are supposed to have become more complex, each new complexity making them better able to survive, until finally humans appeared.

What Charles Darwin didn't know - in fact nobody knew until relatively recently - is that there is a sense in which the simplest forms of life are as complicated as the most advanced. In particular, all living cells contain enormous DNA molecules - joined-up sets of millions of atoms that occur in a particular sequence in every cell. In your body the sequence describes you exactly. Nobody else will have the same sequence, unless you have an identical twin. There's a diagram of a tiny part of a DNA molecule here, but a diagram of the complete thing would stretch for thousands of miles.



You may wonder why it was necessary for the very first living thing to have something as complicated as DNA in it. It's a good question. The problem, so far as evolution is concerned, is that even the simplest forms of life are very complex. Professor Wickramasinghe, the Professor of Applied Mathematics and Astronomy at Cardiff University of Wales and Director of the Cardiff Centre for Astrobiology, put it like this: "The chances that life just occurred on earth are about as unlikely as a typhoon blowing through a junkyard and constructing a Boeing 747".

From one of the men who discovered DNA

During the 1950s three scientists worked out the molecular structure of DNA, and in 1962 they won a Nobel Prize for their work. In 1981, one of them wrote a book about the origin of life. He said this:

An honest man, armed with all the knowledge available to us now, could only state that in some sense, the origin of life appears at the moment to be almost a miracle, so many are the conditions which would have had to be satisfied to get it going.

Francis Crick, 'Life Itself' - its Origin and Nature, MacDonald & Co (Publishers) Ltd.



The difference between vertebrates and invertebrates

The theory of evolution is a very good explanation of small and progressive change. It is easy to imagine that the giraffes with the longest necks would be best at reaching leaves, so they would eat most, and tend to survive better. What it does not explain very well is the great jumps that would need to have happened in order to have created the amazing diversity of living creatures that inhabit our planet today.

One illustration of this is the gap between vertebrates (animals with backbones - like fish, birds, reptiles, mammals and humans), and invertebrates (the rest - things like shellfish, coral, squids, and so on).

Textbooks on palaeontology (the study of fossils) often divide the subject into these two sections, and it is understandable because the difference between them is so great. You will find the same in natural history museums. They are sometimes laid out in an evolutionary sequence, beginning with plankton and moving up to things like jelly fish. You go through a door into another room and - hey presto - a shark!

The gulf between invertebrates and vertebrates is not just that the latter have a backbone. Vertebrates typically have:

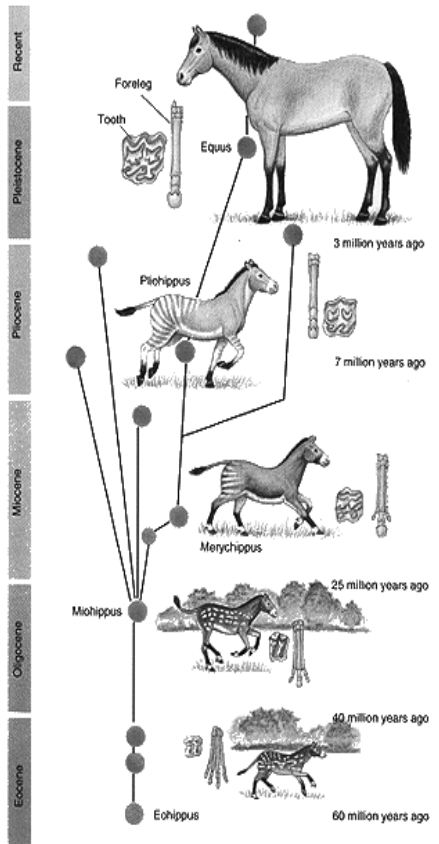
- An internal skeleton with a rib cage that protects delicate internal organs, and a muscular structure which uses the strength of the skeleton as its basis.
- A brain and a central nervous system. The spine has a spinal cord through the middle of it which carries signals from the brain to the rest of the body.
- A heart which pumps blood round the body.
- Limbs - arms, legs, wings, and so on.
- A means of sexual reproduction.

The question is, how did the first vertebrates arrive? There are many examples used to demonstrate evolution, but they do not explain this sort of dramatic transformation.

The evolution of the horse?

A good illustration is the explanation of the evolution of the horse from the dog-sized "dawn horse", Eohippus (at the bottom in the picture), to a modern horse (at the top in the picture). Eohippus had four toes on its front legs and three on its hind legs, while the modern horse has only one on each leg - its hoof.

There are questions over the explanation of



how this evolution is supposed to have happened, but basically what it describes is a small horse-like animal turning into a proper horse, and losing some toes along the way. It is probably not worth trying to argue the details about whether or not it happened as the theory says. The important point is that these two animals are fundamentally the same. They are both vertebrates with four legs and a tail, and the pictures look remarkably similar to each other.

This sort of change does not explain the sort of dramatic transformation that would have been necessary for all the life on earth to have evolved.

The peppered moth

Another example of evolution that is often cited concerns different forms of the peppered moth. It goes like this:

Normally the moth is speckled black and white. It rests on trees covered in lichen, and when the trees are clean it is well camouflaged. Another form of the moth, which was black, arose from time to time, but it was usually eaten because it was too clearly seen against the clean bark.

Then along came the industrial revolution, and many trees became blackened with soot. Suddenly the normal speckled moth was more readily seen by predatory birds, while the black moth was at an advantage since it blended more readily with the soot-discoloured bark. Thus the proportion of black moths apparently increased in industrial areas. Then when clean-air legislation came into force the proportion declined again as trees became cleaner.

In the picture above, the black moth is at the top, and the normal form is at the bottom (if you have trouble seeing it, that's because it is so well camouflaged!).



Again, there are questions about exactly what happened, but as in the case of the horse it may not be worth arguing about the details. The point is that what this example illustrates is evolution (if the changing balance between two forms can be described as evolution) within a species. The black form is still a peppered moth, not a new species.

From a shrew to a whale?

If evolution is the complete explanation of life then everything must have evolved, but there are creatures where this seems extremely improbable. Whales are an example; they are unusual animals in that although they are mammals they live in the sea. The common explanation of this is that mammals evolved on the earth, but that at some point a land mammal returned to the sea. Here is one account from 'Life on Earth' - the book that accompanied a BBC series about evolution.

Whales and dolphins, of course, are also warm-blooded, milk-producing mammals and they too have a long ancestry, with fossils dating back to the beginning of the great radiation of the 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 so extremely adapted to swimming that it gives no clue as to how the move into the sea was made.

David Attenborough, Life on Earth © David Attenborough Publications Ltd.



Did this ...



This is a tupaia. It's a tree shrew.

They look and behave a bit like squirrels, but they live on insects.

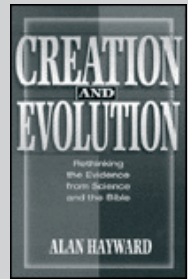
... evolve into this?



Here is an excerpt from another book, written by Alan Hayward, who is was a scientist and a Christadelphian. It too looks at the whale.

As everyone knows, the whale is not a fish although it lives in the sea as if it were one. It is a warm-blooded, air-breathing, mammal, specially adapted for life in, and mostly under, the water. Darwinists rarely mention the whale because it presents them with one of their most insoluble problems.

They believe that somehow a whale must have evolved from an ordinary land-dwelling animal, which took to the sea and lost its legs. That sounds simple enough until you stop to think of all the other changes that had to take place before a land animal had become a whale. Here are some of them.



1. The body of a land mammal ends in a pelvis, which supports a relatively flimsy tail. This always moves from side to side, and is used mainly as a fly swish. A whale has no pelvis; instead it has an entirely different bony structure that supports a large flat tail, which moves up and down so that it can be used for propulsion under water.
2. So that it can keep cool in hot sunshine a land mammal has a skin full of sweat glands. The whale does not need these, but instead his skin is lined with a thick layer of blubber (fat) to keep him warm in cold weather. Moreover his skin has a strangely fashioned outer surface which helps to streamline the flow of water.
3. An eye that is used for seeing under water had to be built quite differently from one that is used for seeing in air. That, of course, is why underwater swimmers have to wear goggles or face masks. Needless to say, the whale has an underwater eye.
4. Land mammals communicate by air-borne noise, conveyed between their vocal systems and their ears. Whales, on the other hand, have an underwater system of communication that is entirely different, being closely similar to the sonar system of submarine detection used in the navy.
5. It would be difficult for a land mammal to feed under water without drowning itself, but whales are so constructed that they can do this easily. Many of them eat very small fish, which they catch in a kind of sieve of whalebone in their mouths, a device which is perfectly suited for its purpose.
6. A land mammal giving birth in the water would immediately drown its infant, and there is no way in which it could suckle its young at sea. But whales have no problems because they are built to an entirely different plan which enables them to bear and nurse their offspring in deep water.

A land mammal that was in process of becoming a whale would fall between two stools - it would not be fitted for life on land or at sea, and would have no hope of survival. And to make the difficulty even worse, the fossil evidence shows that all these incredible changes had to happen within a timespan of five to ten million years - just a fraction of one per cent of the time that life is supposed to have been on earth. It is not surprising that zoology textbooks carefully avoid discussing the evolution of the whale in any detail.

from 'Creation and Evolution', by Alan Hayward

Spend a few minutes reflecting on what you think now about the theory of evolution. You may like to crystallise your thoughts by summarising one of two key points.



What difference does evolution make?

	if we evolved by chance	if God created us
What are we?		
Is there any right or wrong?		
Is there any purpose in life?		