

IRON BREAKFAST

27.07.11

EVOLUTION

Discussion led by Phil Jackson

Where did your breakfast come from? Did some intelligent being create it or did it arrive by chance? Imagine putting Nick's two boys in the kitchen-lets even buy the bacon, eggs sausages beans and oil and leave them to get on with it- what chance an edible breakfast?

Simple picture of the origin of the universe debate. For years scientists didn't like the idea that the universe had a beginning-if it did, then who or what started it all off? Steady state theory- universe had always been there- just like kitchen had always been there. Breakfast (matter) was always being created and destroyed. Then discovered that the universe was expanding- doppler effect. Reverse time- must have all been together at one time- big bang (a term of abuse by Fred Hoyle). Lots of other evidence has been discovered to make us think that this was what happened (although not every scientist agrees)

So what made the big bang happen? Where did the material come from to cause it to happen? Who bought the sausages? Also it's not just enough to have the right ingredients- they must be put together in the right way- children in the kitchen.

Sometimes there are Christians with hollow heads- what do I mean. They say it must have happened literally as Genesis says it because the Bible says so.

"In matters that are so obscure and far beyond our vision, we find in Holy Scripture passages that can be interpreted in very different ways without prejudice to the faith we have received. In such cases, we should not rush in headlong and so firmly take our stand on one side that, if further progress in the search for truth justly undermines this position, we too fall with it."

[Augustine of Hippo](#) 400AD

Many eminent scientists have been Christians; Newton, Galileo. Today Francis Collins.

They looked at the science as well as the bible and said where does the evidence lead me. Kepler- I am thinking God's thoughts after him.

Remember that science and religion are trying to answer two different questions, how and why. Science asks how did that piece of bacon arrive like a burnt offering- can look at what temperature it was cooked at for how long using what oil. It can't answer the question why - Nick was talking to his boys and wasn't watching the pan.

So with the whole creation/evolution debate. Science attempts to look at how things could have happened-has come up with some interesting ideas. Cannot answer the ultimate question why? Can answer some why questions along the way- any dad knows that after a while you run out of answers to the why questions- because it is!

So we ask good scientific questions - where does iron come from- use salt pots to illustrate. The fact that we have found a lot of good answers to some difficult questions has led some scientists to say one day we will find out the answers to everything, so we won't need God to fill in the gaps. Look at God's charge to Job in ch. 38 - we now know the answers to many of these questions. If God were talking to Job today, what would he say? Do you have a solution to the unifying theory of everything?

There are many questions that we don't have an answer for today that one day we might have - God's questions need to keep changing. Ultimately though there are two main issues that seem to deny a materialistic explanation- beginnings and information.

Beginnings- we must be careful here to avoid God of the gaps thinking. Yet there is equally a danger of evolution of the gaps thinking. Evolution says we are here so it must have happened naturally- no matter how impossible it seems- one day we will discover how it happened. That is an article of faith. Evolution has gained acceptance because it can explain things Galapagos finches. . Its danger is that you can use it to explain anything! If a new piece of evidence comes along, the story can change 180o and still be credible- David loves crispy bacon.

However beginnings have nothing to do with evolution. Evolution says that once life has got going, change will happen due to selective pressures like availability of food, predators etc. So what is on offer at breakfast will depend on the cost of meat or whether Rob has any spare eggs this month. Lots of sense here. If I had a million children all different. Some taller and stronger, others smaller and weaker. That's just shuffling the genes around that Della and I have. Lets then say that one gene mutates, goes wrong. Gives some of my children pointed ears- they go and live on a desert island- lots of their children have pointed ears. If they could hear better, and they could sense predators in the dark, they would survive and others would not- in the end, everyone has pointed ears.

Evolution gives possible routes to where we are now- none are impossible on their own, but the whole story is unbelievable. If I won the national lottery this week you would congratulate me. If also won it next week you would be amazed. If I won it a third week you would know for certain that I was cheating.

The following story is a possible explanation that uses known scientific facts- but would you believe it?

"One day I was walking along the beach when I saw something yellow in the sand. It was one of those small, solid rubber balls that bounce so well. How did it get there? You may think that a child, playing on the beach, had lost it, but I am going to give you a different explanation.

Hundreds of years ago on a tropical island, there grew, side by side, a coconut palm tree and a rubber tree. One day a coconut fell from the palm striking a stone, which chipped off a piece of the shell, It was not long before the insects found the hole in the coconut and began to nibble away until eventually the shell was hollow.

It so happened, about that time that a second nut fell from the palm tree. In falling it struck one of the branches of the rubber tree, breaking off a piece of bark.

Milky rubber latex began to flow from the damaged branch and drip to the ground. It so happened (again!) that the empty coconut shell lay directly below the damaged limb, with the small hole in its shell facing upwards. By a wonderful coincidence the rubber latex began to drip into the hole until a pool of latex collected in the coconut shell. Then a wind sprang up, carrying dust across the island, and some of the dust contained natural sulphur, which fell into the hole and settled on the latex. Finally, the wind blew a leaf over the hole, and latex drips sealed it. The sea eventually swept the coconut shell away.

As the shell bobbed on the waves, the rubber latex mixed with the sulphur and sand and rolled itself into a ball. Now when sulphur was heated with rubber by the hot sun, it vulcanized the rubber into a solid, elastic lump. The latex rolled around inside the coconut shell while it was being vulcanized, and so took on a round shape. Eventually, the coconut was dashed against some rocks and broke, releasing the ball, which floated, and was finally thrown up on a beach where I found it!"

But how did life get going at all - no selective pressures exist here.

Simplest cell contains thousands of proteins, at least 50 amino acids long

Its like making words from random letters

DNA is a 4 letter language. DNA in your cells would take 800 bibles to write it out. Only 2% codes for genes- rest was called junk DNA as we thought it was useless, but we are finding out it is not junk after all.

Proteins are needed to make DNA, DNA needed to make protein. Which came first?

This leads us on to information

Monkeys typing at random- how long to type the first sentence in the bible. In the beginning God made the heavens and the earth 27 to the power $54 = 1.96 \times 10^{78}$

If SETI (search for extra terrestrial intelligence) hears random noise, no intelligence. If they heard a mathematical sequence like the prime numbers, everyone would agree life out there. No-one would say it happened by chance. Why do people regard extraterrestrial information as evidence of intelligence, but refuse to accept molecular information as equal evidence

Not only does DNA convey information, but the information must be recognised. I can speak in Russian, there is information there, but it is useless to you.

We cannot use science to prove Christianity- neither can an atheist disprove it. All we can do is keep our heads screwed on and not use silly arguments that can easily be demolished.

What do I believe- Old universe, big bang, but with creative acts followed by microevolution. Definite creative act to make man.

QUESTIONS THAT DESERVE AN ANSWER

I aim to look at these questions in more detail in the Deeper session on September 11th.

The evidence of physics

The universe is fine tuned for life to emerge- anthropic principle

The fundamental constants of nature have to be exactly what they are or life would be impossible.

The cosmological constant- part of Einsteins theories. If it was bigger, it would prevent stars clumping together- if it was smaller, the universe would collapse. It is fine tuned to 1 part in 10⁵³

Have a scale from here to the edge of the universe. Mark it off in inch divisions. This represents the possible strengths that gravity could have. Change it by 1 inch and animals like humans would be crushed.

Protons and neutrons have nearly the same mass. Increase the mass of a neutron by 1 part in 700 and nuclear fusion in stars would stop.

The electromagnetic force has to be what it is, or atoms would be torn apart.

The Drake equation attempted to work out how many planets there could be in the universe with just the right conditions for life to emerge. But the earth is much more special than that.

The amount of radioactive material in the earth (that keeps it hot) has to be just right- too much and the earth overheats, with volcanic eruptions everywhere. Too little and the iron core and magnetic field would never have developed

The earth's orbit is almost exactly circular. If it were not, we would alternatively freeze and boil

We are exactly the right distance from the sun to allow liquid water to exist on the surface

The size and position of the moon is exactly right to stabilise the tilt of the earth at 23.5o- necessary to give us mild seasons

The moon's gravity causes tides, necessary to help the large scale ocean circulation going- necessary to distribute heat around the surface effectively.

The length of rotation of the earth is just right to give us not too hot days and not too cold nights

The size of the moon and the sun are just right to give us eclipses

The evidence of biochemistry

The simplest cell contains hundreds of proteins, at least 50 amino acids long. It contains DNA at least 3 million base pairs long. In every case the order of the units making up the protein or DNA is vital.

The amino acids that make up proteins are made in left handed and right handed forms. If you make proteins from a mixture of the two forms you cannot ensure the 3 dimensional shape of the protein that is necessary to enable it to function. However all the amino acids in nature are only left handed ones. Where did the right-handed ones go? Now that nature has worked with left handed ones it rejects the right handed ones- but how did it select the left handed ones in the first place.

Fruit flies have been subjected to millions of generations with drug induced mutations- they have produced extra (useless) wings, legs where the antenna should be, but they are still fruit flies.

Artificial selection always reaches a limit of perfection with a particular trait (e.g. fast race horses). Further attempts to improve that trait always lead to regression. How could natural selection beat this?

We can observe microevolution (e.g. drug resistance) but no new bacteria are produced. In the absence of the drug, the non resistant forms almost always reappear and become dominant.

For a new organ to arise by natural selection, this would involve hundreds of small changes. Is it possible that each change would be beneficial to the organism?

The fossil evidence

Fossils show the existence of many creatures that are no longer alive today. They clearly did not adapt when the environment changed.

However, if evolution was real, we should expect to find myriads of transitional forms, where one species is changing in to another. Darwin knew that this was a weakness in his theory. We have fewer candidates for transitional forms than Darwin did in his day. Many organisms appear suddenly in the fossil record with no previous ancestors.

The question of information

Whenever we see order, we assume intelligence. The order must also be recognised by someone in order to have meaning. The information carried by DNA would be meaningless unless there were molecules (RNA) that can take that information and make sense of it - to make proteins. Also those proteins must have a function that makes use of the information.