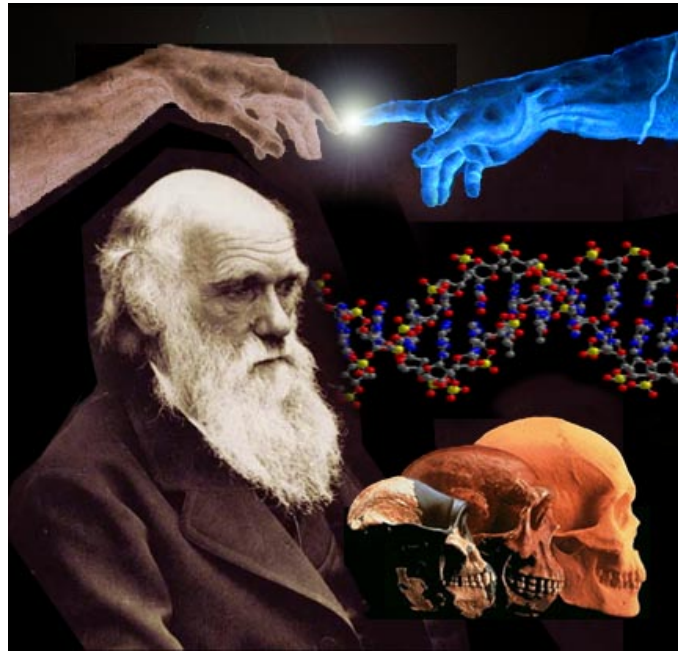
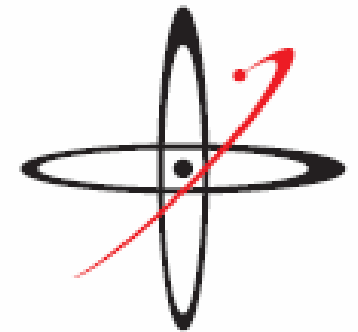


# THEISTIC EVOLUTION



**Keith Fox**

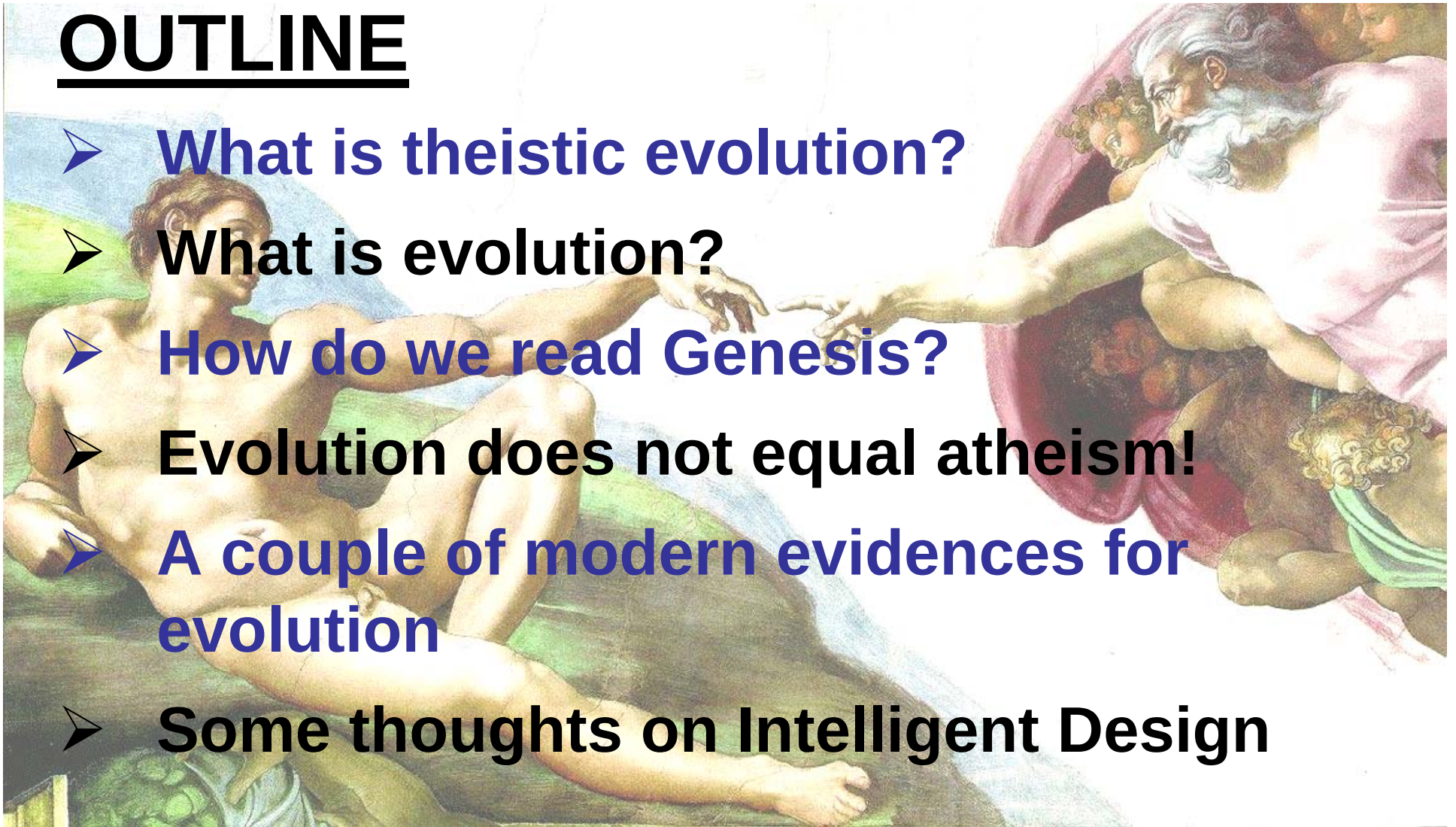
*Professor of Biochemistry,  
University of Southampton  
Chair, Christians in Science  
k.r.fox@soton.ac.uk*



Creation Day November 2009

# OUTLINE

- **What is theistic evolution?**
- **What is evolution?**
- **How do we read Genesis?**
- **Evolution does not equal atheism!**
- **A couple of modern evidences for evolution**
- **Some thoughts on Intelligent Design**



# All Christians are creationists!

“I believe in God, the Father almighty, creator of heaven and earth...”

Creation is:

- Distinct from God
- Dependent on God
- Made from nothing

BUT..

- How did biological creation occur?
- How does this relate to the biblical accounts
- Can these acts of creation be detected?



# What is Theistic Evolution?

The opinion that classical religious teachings about God and creation are compatible with the modern scientific understanding about biological evolution. Theistic evolution is not a theory in the scientific sense, but a particular view about how the science of evolution relates to some religious interpretations. In this way, theistic evolution supporters deny that there is a conflict between religion and the science of evolution.



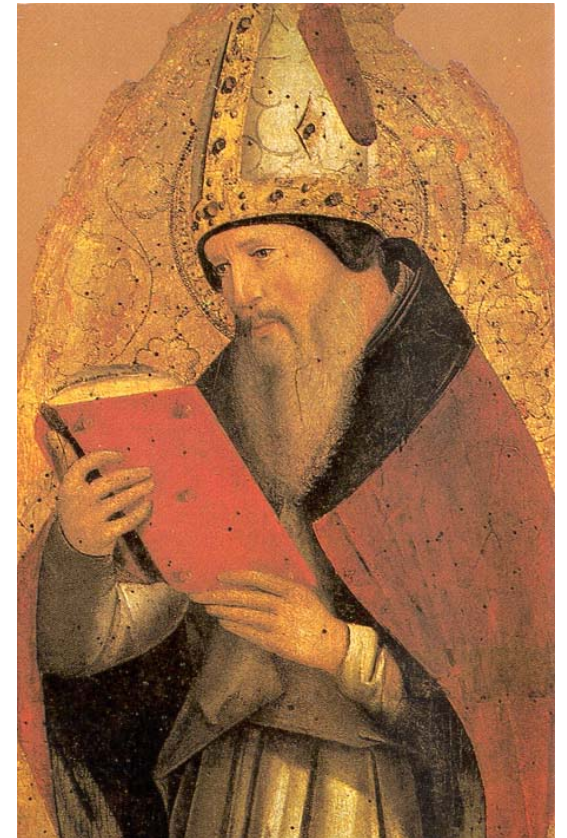
## The Clergy Letter

While virtually all Christians take the Bible seriously and hold it to be authoritative in matters of faith and practice, the overwhelming majority do not read the Bible literally, as they would a science textbook. Many of the .. stories found in the Bible – the Creation, Adam and Eve... – convey timeless truths about God, human beings, and the proper relationship between Creator and creation expressed in the only form capable of transmitting these truths from generation to generation. Religious truth is of a different order from scientific truth. Its purpose is not to convey scientific information but to transform hearts.

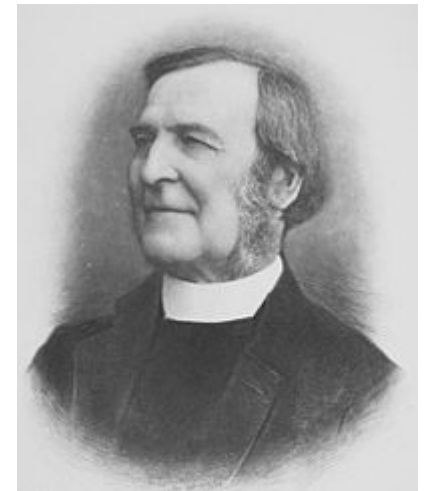
We the undersigned, Christian clergy from many different traditions, believe that the timeless truths of the Bible and the discoveries of modern science may comfortably coexist. We believe that the theory of evolution is a foundational scientific truth, one that has stood up to rigorous scrutiny and upon which much of human knowledge and achievement rests. To reject this truth or to treat it as “one theory among others” is to deliberately embrace scientific ignorance and transmit such ignorance to our children...

Christians who are scientists believe that God is the Creator and Sustainer of everything that exists.... God is the prime first cause of all things. Scientists can only study the secondary causes which God has used to bring the universe into being

Nature is what God does  
*Augustine*



“Evolution touches not on the evidence of design, but the mode in which the design was executed. In the one case the creator made the animals at once such as they are, in the other he impressed on certain particles of matter such inherent powers that in the ordinary course of time living creatures were developed. He did not make things, He made them make themselves”.  
*(Archbishop Frederick Temple).*



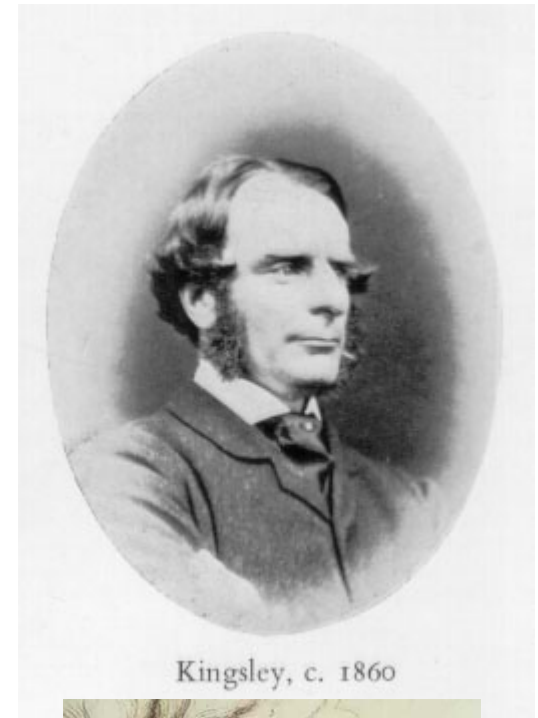
Rather than attributing to God a rigid "plan" for the universe, evolutionary theology prefers to think of God's "vision" for it. . . . The God of evolution does not fix things in advance, nor hoard selfishly the joy of creating. Instead God shares with all creatures their own openness to an indeterminate future.

John F. Haught, *God After Darwin: A Theology of Evolution*

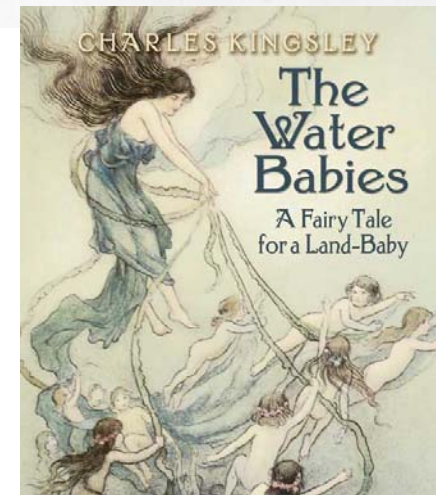


It is just as noble a conception of the Deity to believe that He created a few original forms capable of self-development into other and needful forms, as to believe that He required a fresh act of creation to supply the voids caused by the action of His laws'."

*Charles Kingsley*



Kingsley, c. 1860



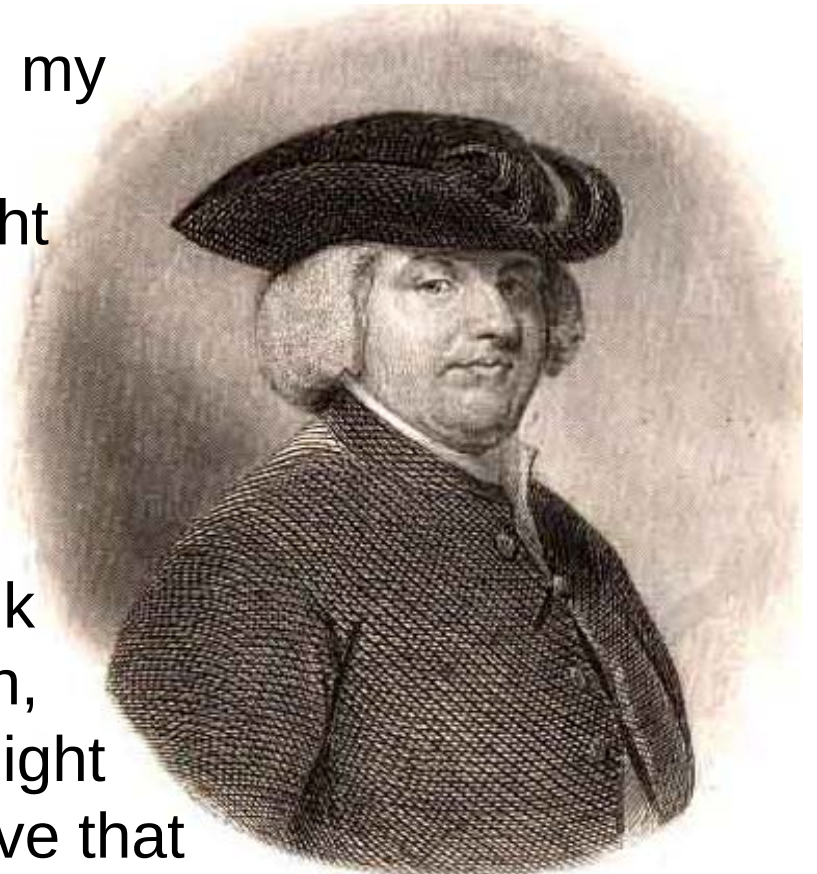
“The Bible tells us that God created, but it does not tell us how, and we need to be careful that we do not force the God of the Universe into one of our human molds. [...] What do we learn about the nature of God’s activity from studying the Bible? One thing we learn is that God builds freedom into His creation. [...] Just as God builds freedom into our lives today, so freedom may well be a central component of God’s biological world as well. This is not to say that God is not playing a supervisory role in creation in a manner resembling the role God plays in my life and yours. But there is no a priori scriptural reason to assume that the biological world was created one species at a time by the God of the Universe “pushing creation buttons” each time he wanted a new species. [...] God’s spirit guides the progression of life. His presence is never far from creation, just as it is never far from the events of my life. Nonetheless God respects my freedom and (I suspect) values freedom in the rest of creation as well.”

*Darrell Falk: Coming to Peace with Science*

## Contrast to 18<sup>th</sup> Century “natural theology”

In crossing a heath, suppose I pitched my foot against a stone, and were asked how the stone came to be there, I might possibly answer, that it had lain there Forever. But suppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place, I should hardly think of the answer which I had before given, that, for any thing I knew, the watch might have always been there. ... we perceive that its several parts are put together for a purpose. We think that the watch must have had a maker: ...

*William Paley - Natural Theology.*



The 18th century deists emphasized the rationalistic arguments of natural theology to such an extent that Biblical revelation was devalued in the process, in the end nurturing atheism.

“Darwinism appeared and, under the guise of a foe, did the work of a friend. ... There is no division of labour between God and nature, or God and law... For the Christian theologian the facts of nature are the acts of God.”

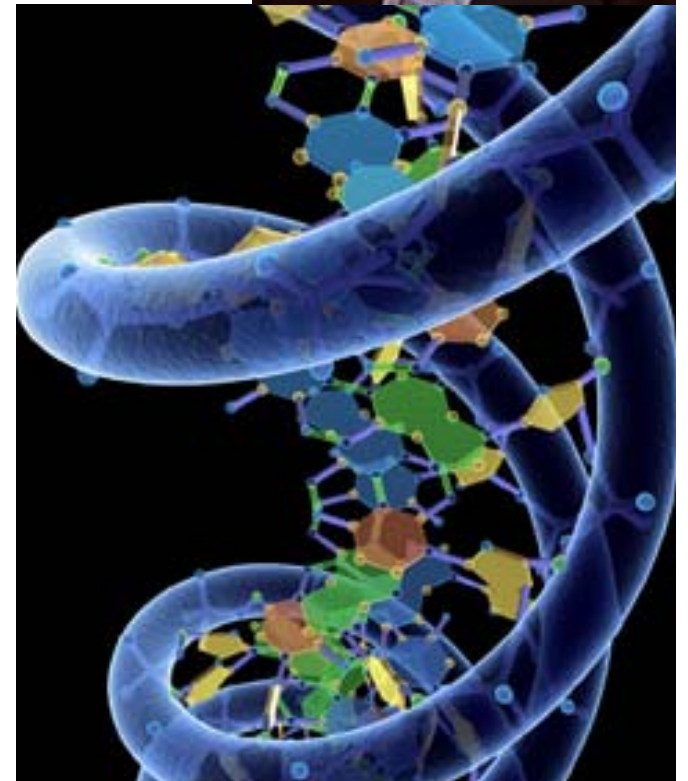
*Aubrey Moore*

So, when the writer to the Hebrews states: “By faith we understand that the universe was formed at God’s command, so that what is seen was not made out of what was visible”, he is not talking about a blind faith against the facts, or that we can deduce God’s existence from looking at nature, but that from within the Christian worldview, God’s action can be perceived in nature, and the whole things still makes sense.”

**Great are the works of the Lord, studied by all who delight in them. Psalm 111:2**

‘I think scientist-believers are the most fortunate. We have the opportunity to explore the natural world at a time in history where mysteries are being revealed almost on a daily basis. We have the opportunity to perceive the unravelling of those mysteries in a special perspective that is an uncovering of God’s grandeur. This is a particularly wonderful form of worship.’

Dr Francis Collins, Director of Human Genome Research Institute, Washington.



My heart goes out to sincere believers who feel threatened by evolution and who feel that they have to maintain their position against it in order to prove their allegiance to God. But if God used this process and gave us the chance to discover it, then it seems anachronistic, to say the least, that we would feel we have to defend him against our own scientific conclusions. God is the author of all truth.

You can find him in the laboratory as well as in the cathedral. He's the God of the Bible; he's the God of the genome. **He did it all.**



## **Positive contributions of evolution to our view of “creation”?**

What sort of creator?

no longer deism

Theodicy – suffering is part of the process

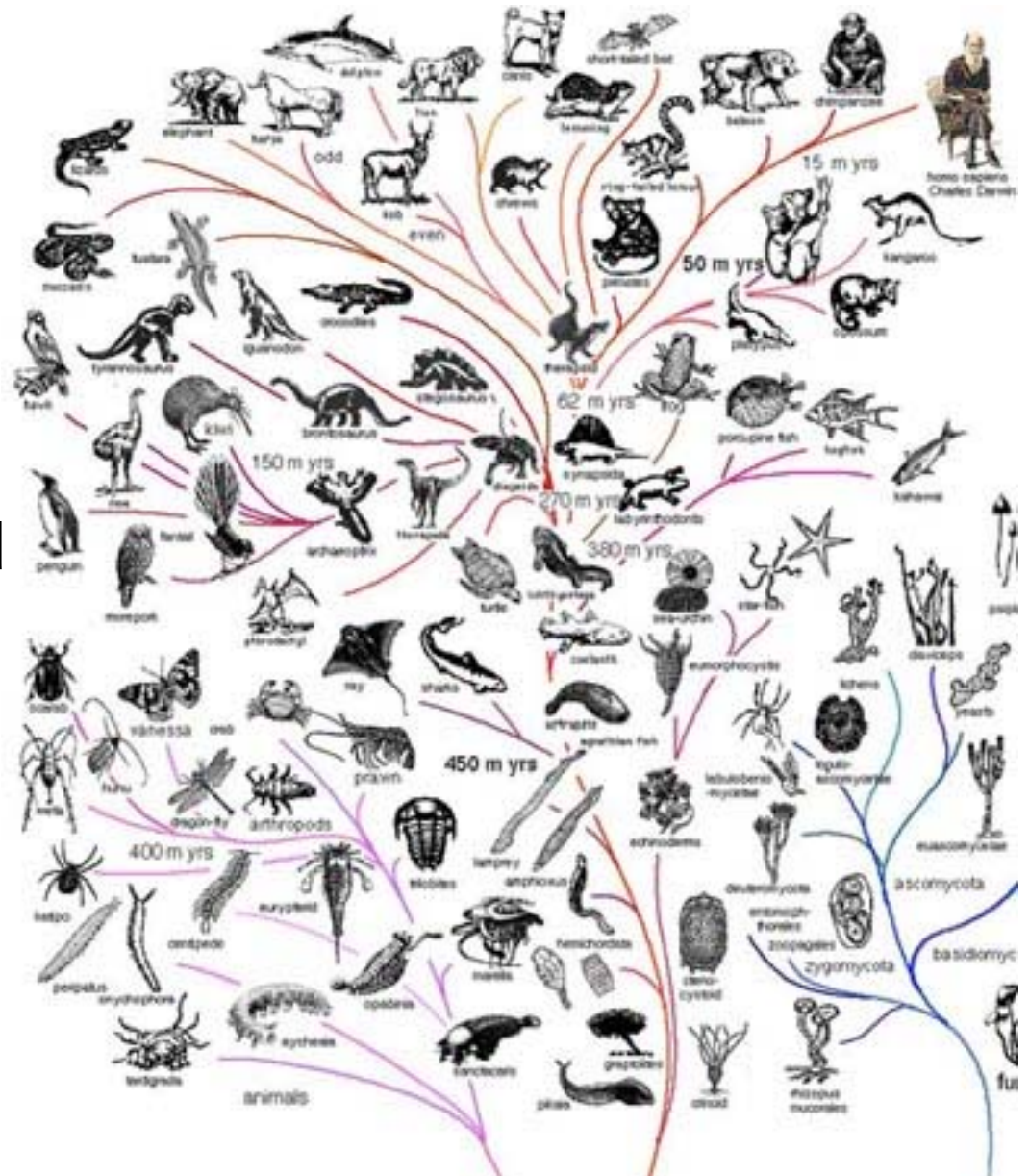
What sort of God? One who works through process or miracle?

We must not say that miraculous events are the only ways in which God works.

Analogy with history and personal experience.

# Evolution - Natural selection

- Everything has evolved
- Descent by modification
- Gradual change over long periods of time
- Everything is fitted to its own particular niche.
- Things appear designed because they are adapted for their particular environment and evolution
- Descent with modification and selection has shaped the biological world around us.



# “Evolution is only a theory”

## What is a scientific theory?

In science it is different from the everyday meaning of a ‘hunch’.



Theory

Law

Explanation

Data

Hypothesis

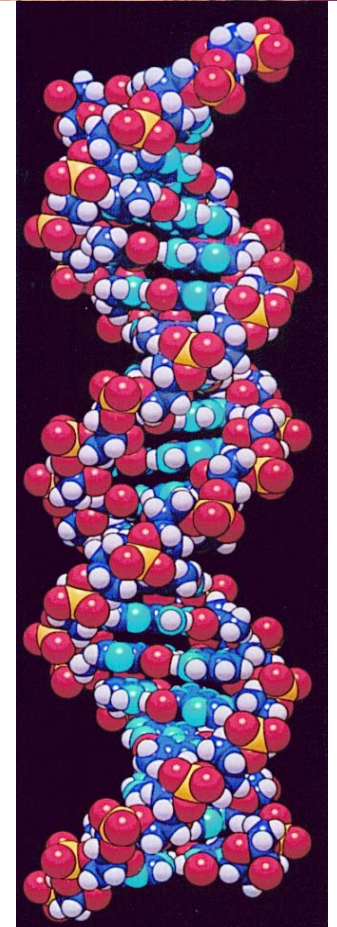
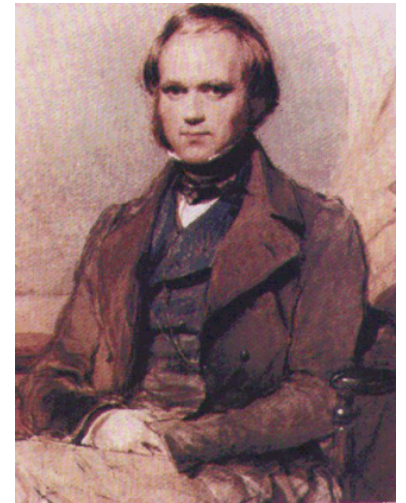
## Scientific developments since Darwin

Darwin proposed natural selection as an explanation for how things could evolve over long periods of time. **BUT:** he had no mechanism to account for this.

Evolution, like all good theories, makes itself vulnerable to disproof. Darwinism is testable: what might disprove evolution: "Fossil rabbits in the pre-Cambrian."

*J B S Haldane*

The theory is now supported by a wealth of experimental evidence. Molecular genomics is fully consistent with older approaches based on whole animal studies



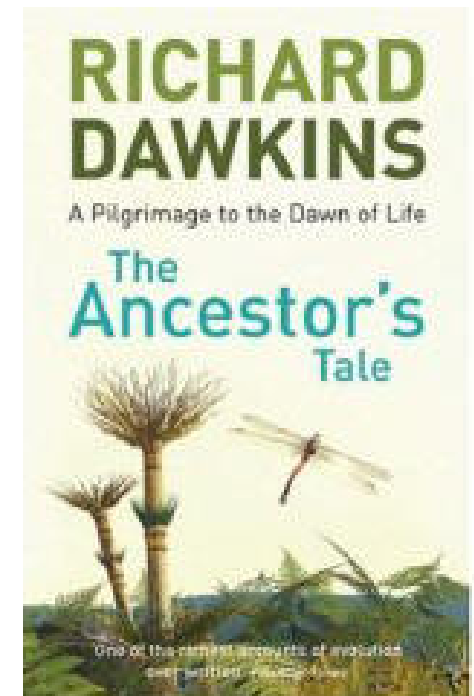
Age of the Universe ~13,700,000,000 years

BIG BANG

Age of earth ~ 5,000,000,000 years

Living things ~ 2,000,000,000 years

Modern Homo Sapiens ~ 200,000 years ?

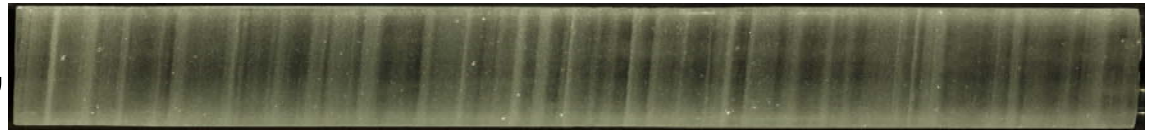


# The earth is very old

Tree rings:  
10,000 years  
(dendrochronology)



Ice cores:  
100,000 years  
“Green land ice  
core/sheet project”  
800,000 year core  
from the Antarctic



Fossils

Genomics – molecular fossils

Comparative Genomics

# Radio-isotopes: millions/billions years

70 million years half life  
X 20 (less than 0.0001%)  
= 1.4 billion years minimum

| Nuclide           | Half-Life<br>(years)      | Found in<br>Nature? |
|-------------------|---------------------------|---------------------|
| <sup>50</sup> V   | $6.0 \times 10^{15}$      | yes                 |
| <sup>144</sup> Nd | $2.4 \times 10^{15}$      | yes                 |
| <sup>174</sup> Hf | $2.0 \times 10^{15}$      | yes                 |
| <sup>192</sup> Pt | $\sim 1.0 \times 10^{15}$ | yes                 |
| <sup>115</sup> In | $6.0 \times 10^{14}$      | yes                 |
| <sup>152</sup> Gd | $1.1 \times 10^{15}$      | yes                 |
| <sup>123</sup> Te | $1.2 \times 10^{13}$      | yes                 |
| <sup>190</sup> Pt | $6.9 \times 10^{11}$      | yes                 |
| <sup>138</sup> La | $1.12 \times 10^{11}$     | yes                 |
| <sup>147</sup> Sm | $1.06 \times 10^{11}$     | yes                 |
| <sup>87</sup> Rb  | $4.88 \times 10^{11}$     | yes                 |
| <sup>187</sup> Re | $4.3 \times 10^{10}$      | yes                 |
| <sup>176</sup> Lu | $3.5 \times 10^{10}$      | yes                 |
| <sup>232</sup> Th | $1.40 \times 10^{10}$     | yes                 |
| <sup>238</sup> U  | $4.47 \times 10^9$        | yes                 |

| Nuclide           | Half-Life<br>(years)   | Found in<br>Nature? |
|-------------------|------------------------|---------------------|
| <sup>40</sup> K   | $1.25 \times 10^9$     | yes                 |
| <sup>235</sup> U  | $7.04 \times 10^8$     | yes                 |
| <sup>244</sup> Pu | $8.2 \times 10^7$      | yes                 |
| <sup>146</sup> Sm | $7.0 \times 10^7$      | no                  |
| <sup>205</sup> Pb | $5.0 \times 10^7$      | no                  |
| <sup>247</sup> Cm | $1.6 \times 10^7$      | no                  |
| <sup>182</sup> Hf | $9 \times 10^6$        | no                  |
| <sup>107</sup> Pd | $\sim 7 \times 10^6$   | no                  |
| <sup>135</sup> Cs | $3.0 \times 10^6$      | no                  |
| <sup>97</sup> Tc  | $2.6 \times 10^6$      | no                  |
| <sup>150</sup> Gd | $2.1 \times 10^6$      | no                  |
| <sup>93</sup> Zr  | $1.5 \times 10^6$      | no                  |
| <sup>98</sup> Tc  | $1.5 \times 10^6$      | no                  |
| <sup>153</sup> Dy | $\sim 1.0 \times 10^6$ | no                  |

There is NO scientific evidence that the earth is only a few thousand years old.

All such claims are *scientifically* false

Holders of this position take a different *worldview*. Scripture is a higher authority and their interpretation of it trumps any other interpretation of the evidence

## THE SCIENTIFIC METHOD

HERE ARE THE FACTS. WHAT CONCLUSIONS CAN WE DRAW FROM THEM?



## THE CREATIONIST METHOD

HERE'S THE CONCLUSION. WHAT FACTS CAN WE FIND TO SUPPORT IT?



# So how should we read the Genesis stories?

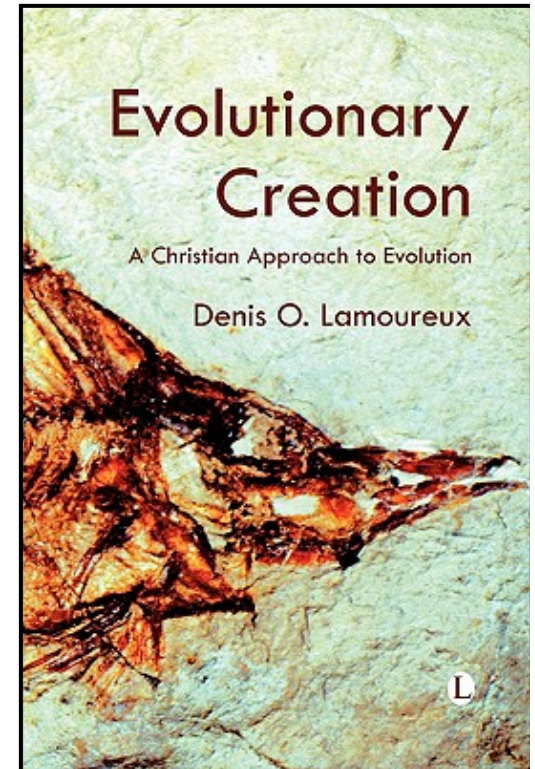
They are not written as scientific texts.

**Do the scriptures give any scientific insights in advance?**

They all show a “science-of-the-day” approach.

*Accommodation:* Truths expressed in terms of the contemporary science; Flat earth, geocentric, three tier universe. Firmament,

Perhaps Sacred Scripture in its customary style is speaking with the limitations of human language in addressing men of limited understanding. ... The narrative of the inspired writer brings the matter down to the capacity of children." *Augustine*



## **How do we interpret Genesis 1-3?**

- What kind of literature is it?
- What is the expected audience?
- What is the purpose of the text?
- What relevant extra-textual knowledge is there?

## **What type of literature is Genesis 1-2?**

- Elevated prose
- Theological essay
- Theological manifesto

The text that lays down the distinctive creative character of the one true God who stands in stark contrast to the polytheistic gods that were so dominant in the Near East religious culture of that era.

## *Genesis 1*

7 days, 7-fold repeat 'and it was so' and that 'God saw that it was good'

The Hebrew verses comprise multiples of 7 words:

the first verse contains 7 words,

the second verse 14 words,

and the summary in 2.1-3 contains 35 words.

The word "God" is mentioned 35 ( $5 \times 7$ ) times passage, "earth" and "heaven/firmament" occur 21 ( $3 \times 7$ ) times each.

One Babylonian tradition regarded the 7th, 14th, 19th, 21<sup>st</sup> and 28th days of each month as unlucky.

In Genesis 1 the 7<sup>th</sup> day is set aside as a special day for rest and God's blessing.

Adapted from *Creation or  
Evolution do we have to choose*

The earth was:

***Tohu* [formless]** and

***Bohu* [empty]**

Form was created:

**DAY ONE:**

The separation of light and darkness

**DAY TWO:**

The separation of the waters to form the sky and the sea.

**DAY THREE:**

The separation of the sea from the dry land. The creation of the plants

Fullness was created:

**DAY FOUR:**

The creation of lights to rule the day and the night

**DAY FOUR:**

The creation of birds and fishes to fill the sky and the sea.

**DAY SIX:** The creation of humans to fill the land and eat the plants.

# Distinctiveness of the Genesis account

- Creation is good – matter matters!

For a long time I wanted to become a theologian... now however I behold how through my efforts God is being celebrated in astronomy. Keppler

[But note that GOOD does not necessarily mean PERFECT; GOOD refers to its beauty – not necessarily its moral qualities]

- There is only one God.
- God is distinct from creation.  
The stars do not control our destiny
- God's creation is consistent.
- Not wacky!

*Origen* (185-254 AD)

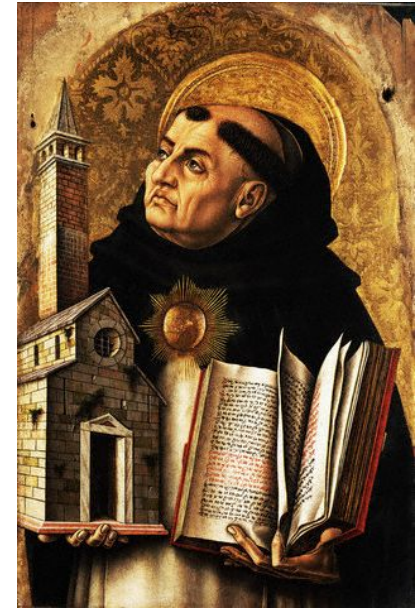
“What man of intelligence, I ask, will consider a reasonable statement that first and the second and the third day, in which there are said to be both morning and evening, existed without the sun, moon and stars, while the first day was even without a heaven?



And who could be found so silly as to believe that God, after the manner of a farmer, “planted trees in a paradise eastward in Eden.... I do not think that anyone will doubt that these are figurative expressions, which indicate certain mysteries through the semblance of history.

"Sacred writings are bound into two volumes: that of creation and that of Holy Scripture."

*Thomas Aquinas*



"God must first be known from nature and afterwards recognised by doctrine; from nature by his works and from doctrine by his revealed words"

*Francis Bacon*



**All truth is God's truth**

# Following the Evidence

We must not then, as Christians, assume an attitude of antagonism towards the truths of reason, or the truths of philosophy, or the truths of science, or the truths of history, or the truths of criticism.

As children of the light, we must be careful to keep ourselves open to every ray of light. Let us then, cultivate an attitude of courage as over against the investigations of the day.



*Benjamin B. Warfield*

None should be more zealous in them than we. None should be more quick to discern truth in every field, more hospitable to receive it, more loyal to follow it, whithersoever it leads

# Biblical Interpretation

In matters that are so obscure and so beyond our vision, we find in Holy Scripture passages which 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**  
*The Literal Meaning of Genesis*  
Early 5th Century

"I don't think that there's any conflict at all between science today and the Scriptures. I think that we have misinterpreted the Scriptures many times and we've tried to make the Scriptures say things they weren't meant to say, I think that we have made a mistake by thinking the Bible is a scientific book. The Bible is not a book of science.

*Billy Graham: Personal Thoughts of a Public Man*  
(1997, p. 72-74)



# What does Genesis tell us?

- A description of the natural world as a product of the mind of a good creator
- A sense of moral order
- A clear indication of the unique identity of humanity
- A reason for all that we perceive
- A basis for future covenant

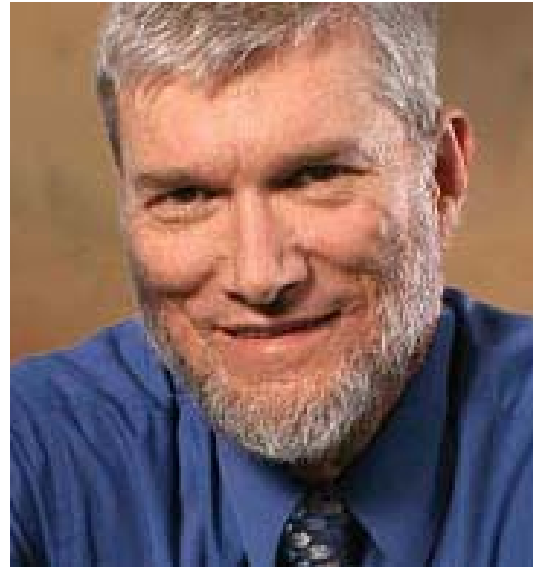
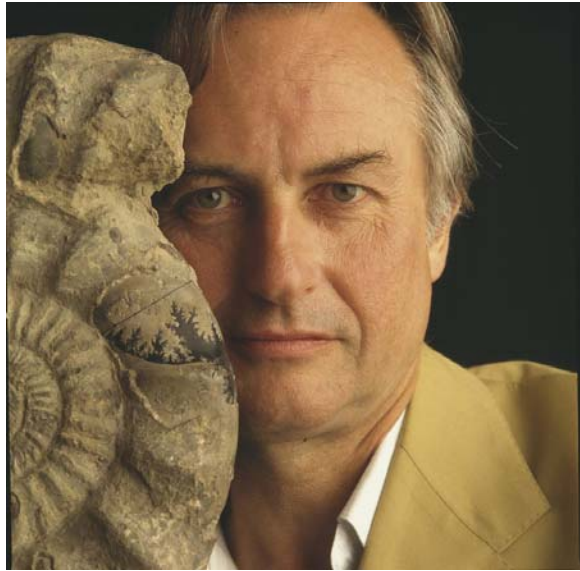
# **Why do some people feel uncomfortable with Evolution?**

They wrongly assume that:

1. Natural explanations = atheism.
2. Darwinism has been improperly applied to other areas. It cannot say what is right, it only explains what is.
3. They think that it contradicts the bible and questions its authority

# Does Evolution = Atheism?

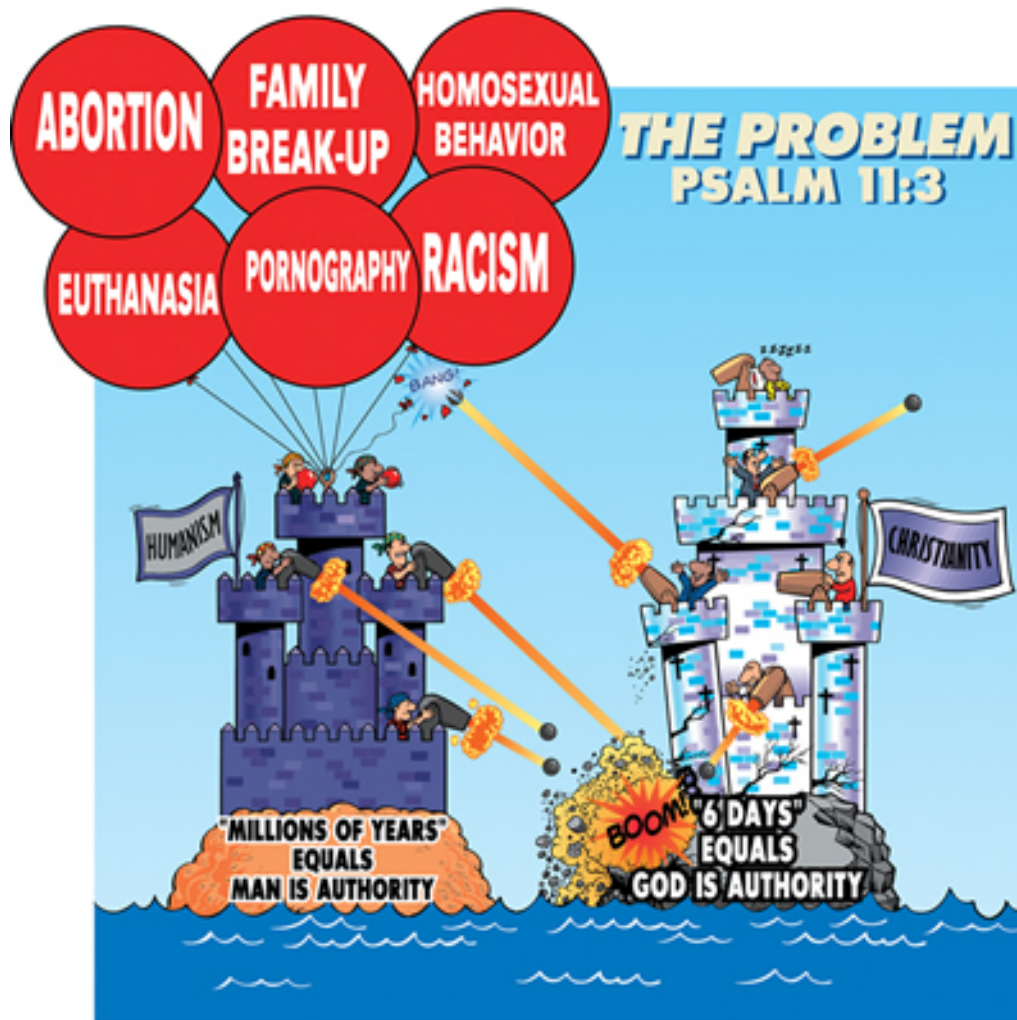
Richard Dawkins and Ken Ham agree that it does



But.... Knowledge of mechanisms does not exclude the presence of God.

God is the creator, whether I understand how He created or not!

**Evolution  $\neq$  Atheism**



If the Church wants to be successful in changing society's attitudes toward abortion, pornography, and homosexuality, it is going to have to fight the issue at a foundational level. The foundational basis of evolution needs to be destroyed and the foundational basis of creation restored to its rightful place of importance.

*Ken Ham*

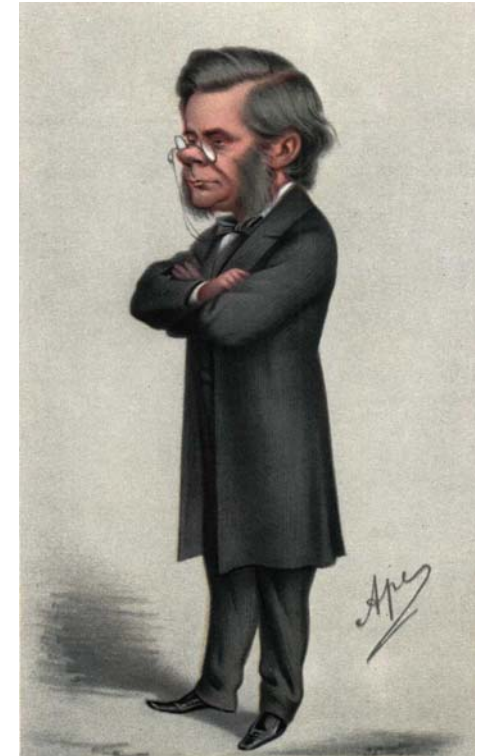
**IF** we accept that evolution requires atheism then some of this may be correct – but this is a critique of atheism – not of evolution

# Does evolution lead to atheism?

If anything it leads to agnosticism  
At the most general level, the scientific method is incapable of deciding whether there is a God or not.

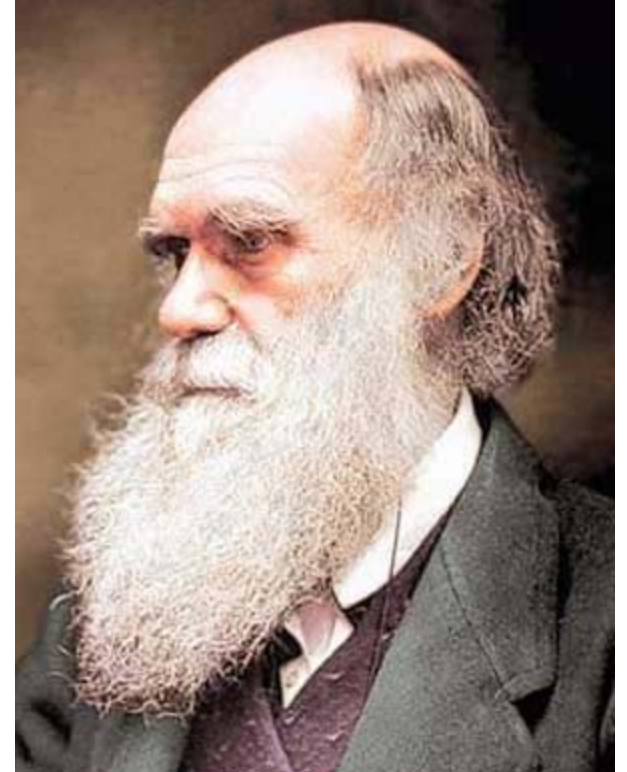
## ***T.H. Huxley on Agnosticism***

I invented the word "Agnostic" to denote people who, like myself, confess themselves to be hopelessly ignorant concerning a variety of matters, about which metaphysicians and theologians, both orthodox and heterodox, dogmatise with utmost confidence. Agnosticism is of the essence of science, whether ancient or modern. It simply means that a man shall not say he knows or believes that which he has no scientific grounds for professing to know or believe. . . .



“It seems to me absurd to doubt  
that a man may be an ardent  
Theist and an evolutionist.”

*Darwin*



# Genomics

We can now compare the DNA sequence (the genomes) of many different species, and see how closely they are related to each other.



Some portions of DNA are inserted many thousands of times within our DNA sequence.  
*Alu* repeats.



|               | 2B ASS                                                                                     |     | 2B DSS    |     |
|---------------|--------------------------------------------------------------------------------------------|-----|-----------|-----|
| Alu Y         | GGCCGGGCGCGGTGGCTCACGCCTGTAATCCCAGCACTTTGGGAGGCCGAGGCGGGCGGATCACGAGGTCAGGAGA               |     |           | 76  |
| Homo          | taatccttacagtgg.....A.....T.....A.....                                                     |     |           | 90  |
| Pan           | taatccttacagtgg.....A.....A.....                                                           |     |           | 90  |
| Gorilla       | taatccttacagtgg.....G.....A.....T.....                                                     |     |           | 90  |
| Pongo         | taatccttacagtgg...A...TA.....T.....G.....T.....A.....T.....                                |     |           | 90  |
| Symphalangus  | taatccttacagtgg.....T.....T.....T.....                                                     |     |           | 90  |
| Cercopithecus | taatccttacagtgg-----                                                                       |     |           | 15  |
| Saguinus      | taatccttacagtgg-----                                                                       |     |           | 15  |
| Lemur         | gaat-----cagtgg-----                                                                       |     |           | 10  |
|               | 2B+32 DSS                                                                                  |     |           |     |
| Alu Y         | TCGAGACCATCCTGGCTAACACCGGTGAAACCCC-GTCTCTACTAAAAA-----TACAAAAA-TTAGCCGG-GCGTGGTGGCGGCGG    |     |           | 155 |
| Homo          | .....T.....T.....C.....T.....                                                              |     |           | 169 |
| Pan           | .....T.....T.....C.....C.....                                                              |     |           | 170 |
| Gorilla       | .....T.....C.....                                                                          |     |           | 169 |
| Pongo         | .....T.....AAAAAAA..G.....T.....T.....                                                     |     |           | 177 |
| Symphalangus  | .....T.....T.....A.....CA..A.....                                                          |     |           | 171 |
| Cercopithecus | -----                                                                                      |     |           | 15  |
| Saguinus      | -----                                                                                      |     |           | 15  |
| Lemur         | -----                                                                                      |     |           | 10  |
| Alu Y         | CCTGTAGTCCCAGCT-ACTCGGGAGGCTGAGGCAGGAGAATGGCGTGAACCCGGGAGGCGGAGCTTGCASTGAGCCGAGATCGCGCCACT |     |           | 244 |
| Homo          | .....A.....T..A.....                                                                       |     |           | 258 |
| Pan           | .....T.....A.....T..A.....                                                                 |     |           | 260 |
| Gorilla       | .....A.....T.....                                                                          |     |           | 258 |
| Pongo         | .....A.....T.....A.....A.....A.....                                                        |     |           | 266 |
| Symphalangus  | ..C.....G.....A.....A.....A.....A.....                                                     |     |           | 260 |
| Cercopithecus | -----                                                                                      |     |           | 15  |
| Saguinus      | -----                                                                                      |     |           | 15  |
| Lemur         | -----                                                                                      |     |           | 10  |
| Alu Y         | GCACTCCAGCCTGGGCGACAGAGCGAGACTCCGTCTCAAAAAA                                                |     | 287       |     |
| Homo          | .....AT.....AAAAAAAAAGAAAAAA-----tcctttacagtggatt                                          | 334 | U75285    |     |
| Pan           | .....A.....AAAAAAAAAGAAAAAGAAAAAAtcctttacagtggatt                                          | 341 | NW 119078 |     |
| Gorilla       | .....AT.....AAAAAAAAAGAGAAAAAA-----tcctttacagtggatt                                        | 335 | DQ508255  |     |
| Pongo         | .....A.....GG..AAAAAAAAA-----tcctttacagtggatt                                              | 334 | DQ508254  |     |
| Symphalangus  | .....G.....AAAAAAAAAAAAAAAA-----tcctttacagtggatt                                           | 334 | DQ508253  |     |
| Cercopithecus | -----att                                                                                   | 18  | DQ508252  |     |
| Saguinus      | -----att                                                                                   | 18  | DQ508251  |     |
| Lemur         | -----att                                                                                   | 13  | DQ508250  |     |

There are many cases where exactly the same insertion of a retrotransposon into a precise spot is shared by people who are related to each other.

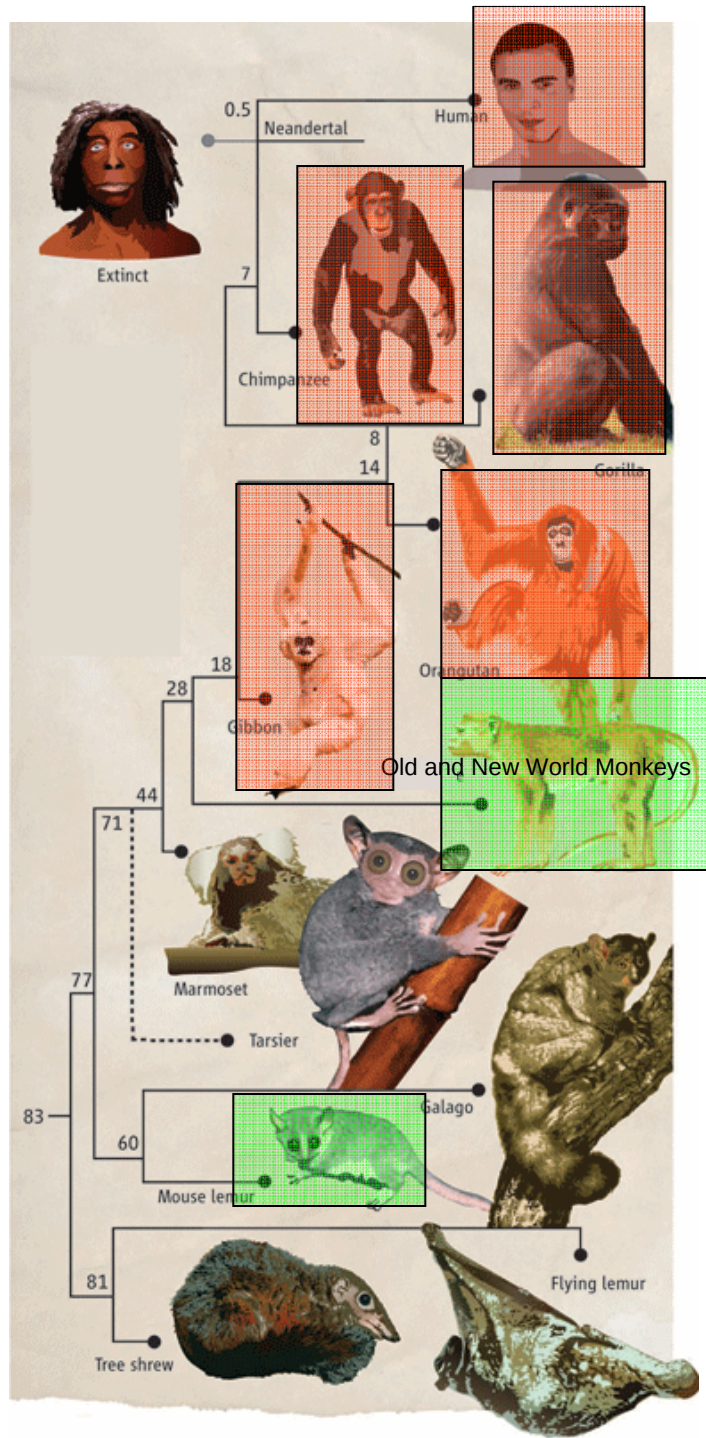
This is because hundreds of years ago an insertion occurred in an ancestor they all share

There are many cases in which exactly the same insertion of a retrotransposon into a precise spot is shared by humans and chimpanzees.

Almost all geneticists are certain that this is because the insertion occurred in an ancestor that both share

**If God created humans by a gradual process over a long period of time, would this somehow make it less than God's creation?**





There have been about 1,100,000 events...each unique.

By examining which organism share the same insertion, most biologist believe they can tell when in the lineage the insertion occurred.

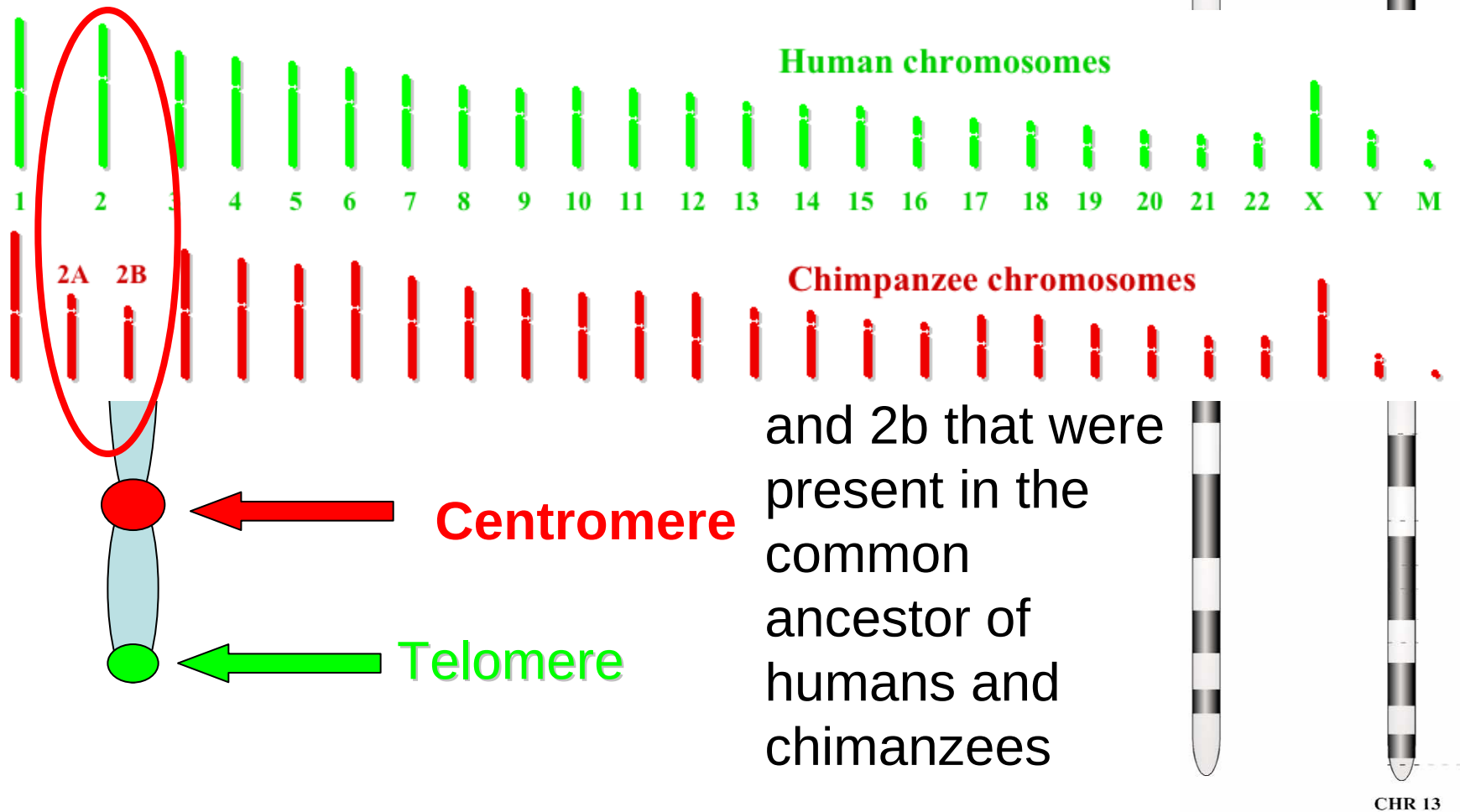
Some occurred early in the lineage, others occurred later

7,000 insertions have occurred since humans and chimps had a common ancestor

# Chromosome 2

We have  $2 \times 23$  chromosome = 46

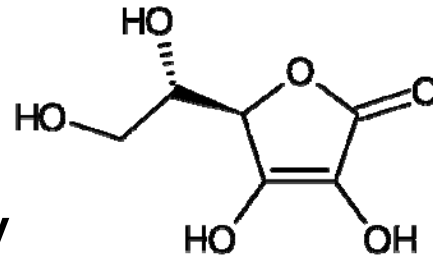
Chimpanzees have  $2 \times 24 = 48$



## ***Pseudogenes***

Our DNA contains many unused (and now corrupted)

DNA sequences – molecular fossils that were used by our distant ancestors.



Vitamin C is an essential part of our diet, while many other species can synthesize their own ascorbic acid.

We can't make vitamin C as we lack the enzyme protein *L-gulonogamma-lactone oxidase* (GLO).

Molecular geneticists have shown that we have non-functional mutant GLO gene copies - known as "pseudogenes"

*Nishikimi et al. J Biol Chem 267: 21967, 1992; Nishikimi et al. J Biol Chem 269:13685, 1994,*

## Are humans special?

Being “made in the image of God” does not depend on any special *physical* characteristics.

Our genomes are 98% identical to chimpanzees.

**BUT** we have the capacity to know God, to distinguish right from wrong etc. etc.



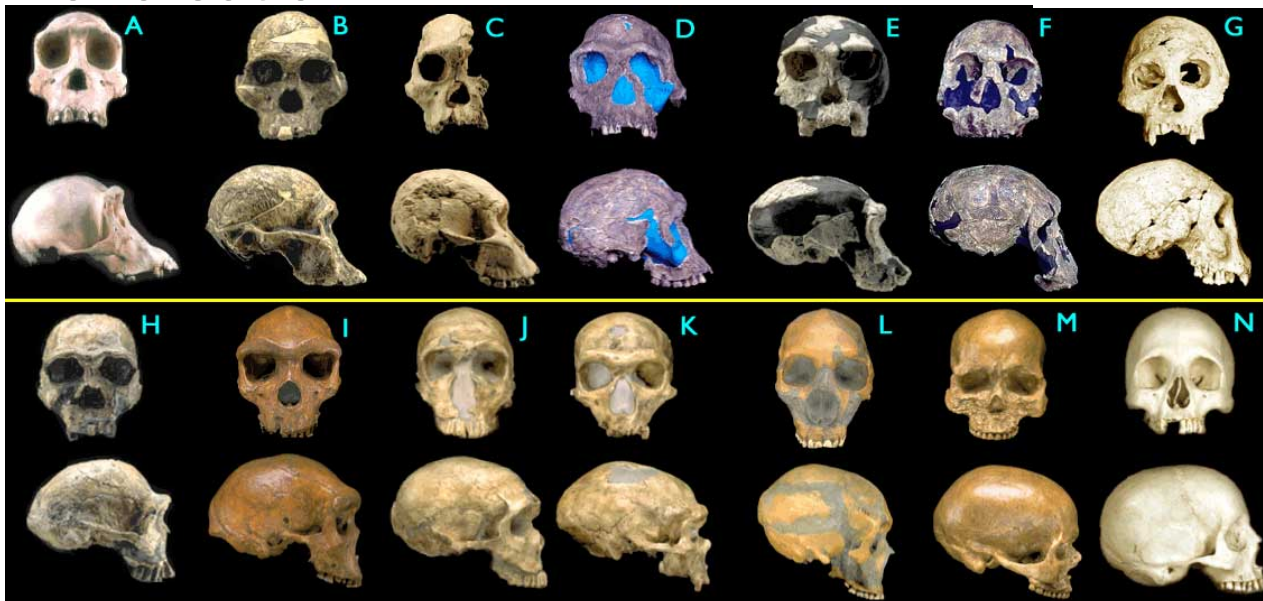
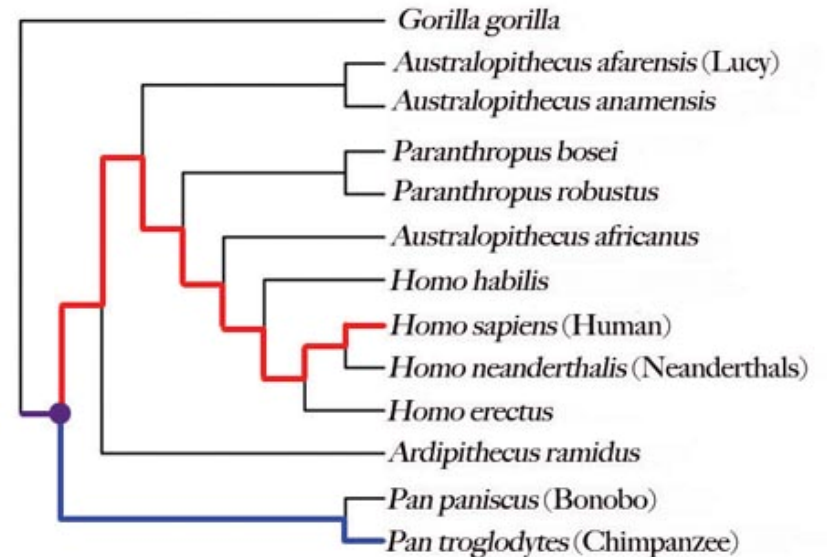
God breathed life into Adam and Eve, creating them in His image, with the ability to relate to Him.

# Are humans special?

Biologically we can trace our origins from other hominids.

There is plenty of evidence for the existence of other earlier hominid forms.

It appears that we are not the result of a special *physical* act of creation.



## **Who was Adam?**

How did this happen?

1. Gradual development as we slowly became aware of God.
2. There was a single Adam and Eve – representatives
3. God breathed His Spirit into all mankind at a fixed time.

The Genesis story suggests that they were Neolithic farmers living about ten thousand years ago.

# **Adam and Paul's teaching**

## **Romans 5:12-15**

When Adam sinned, sin entered the entire human race. Adam's sin brought death, so death spread to everyone, for everyone sinned. Yes, people sinned even before the law was given. And though there was no law to break, since it had not yet been given, They all died anyway - even though they did not disobey an explicit commandment of God, as Adam did. What a contrast between Adam and Christ, who was yet to come! And what a difference between our sin and God's generous gift of forgiveness. For this one man, Adam, brought death to many through his sin. But this other man, Jesus Christ, brought forgiveness to many through God's bountiful gift.

## **1Corinthians 15:21f**

For since death came through a man, the resurrection of the dead comes also through a man. For as in Adam all die, so in Christ all will be made alive.

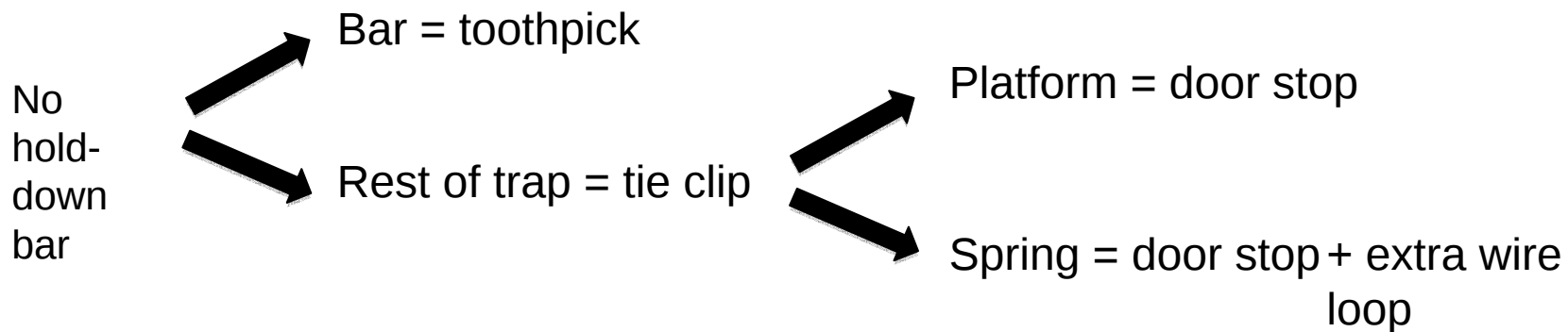
# What about Intelligent Design?

Claims that some things are too complex to have arisen by evolutionary mechanisms

“Irreducible complexity”



Weaker spring → Different shape platform → Smaller overall } Still mouse-trap





## **ID “examples”**

Bacterial flagellum

Blood clotting cascade

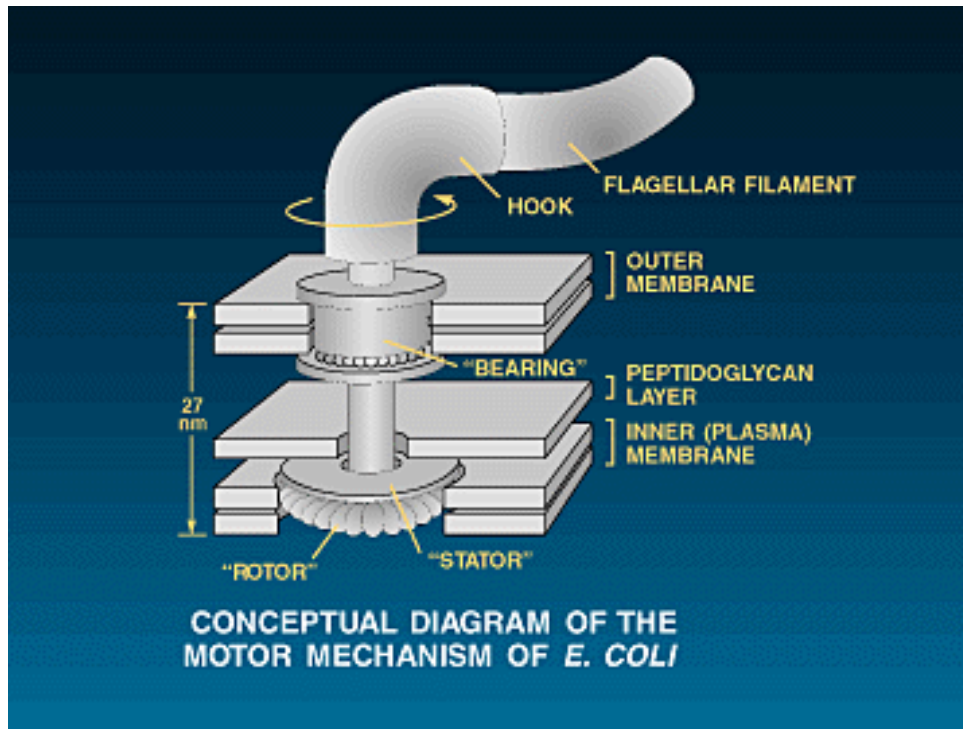
Immune system

Etc etc. etc.

Each example has been refuted by  
scientific explanations

# **‘Irreducible complexity’**

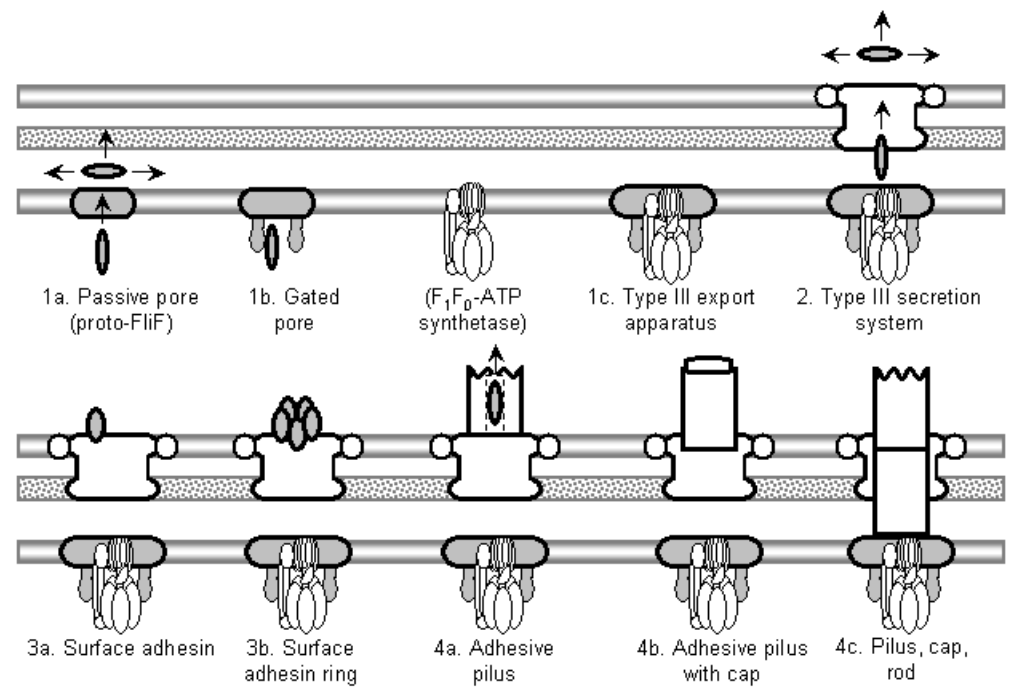
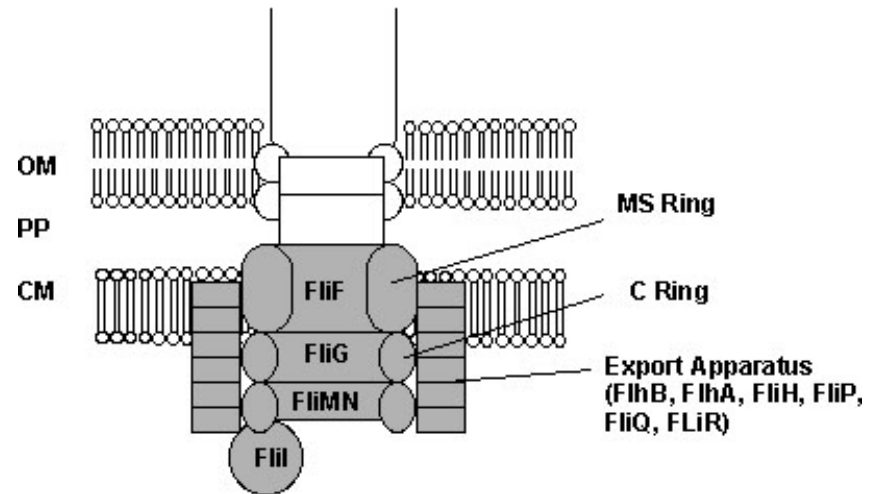
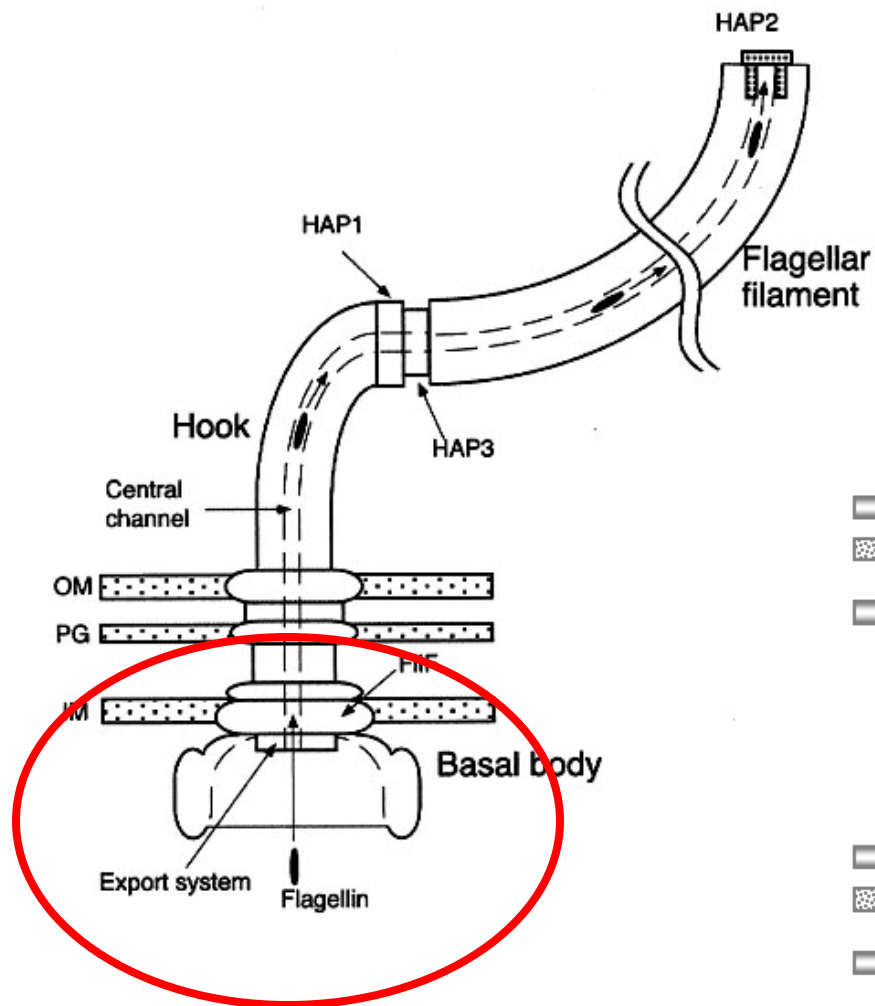
## **Bacterial flagellum**



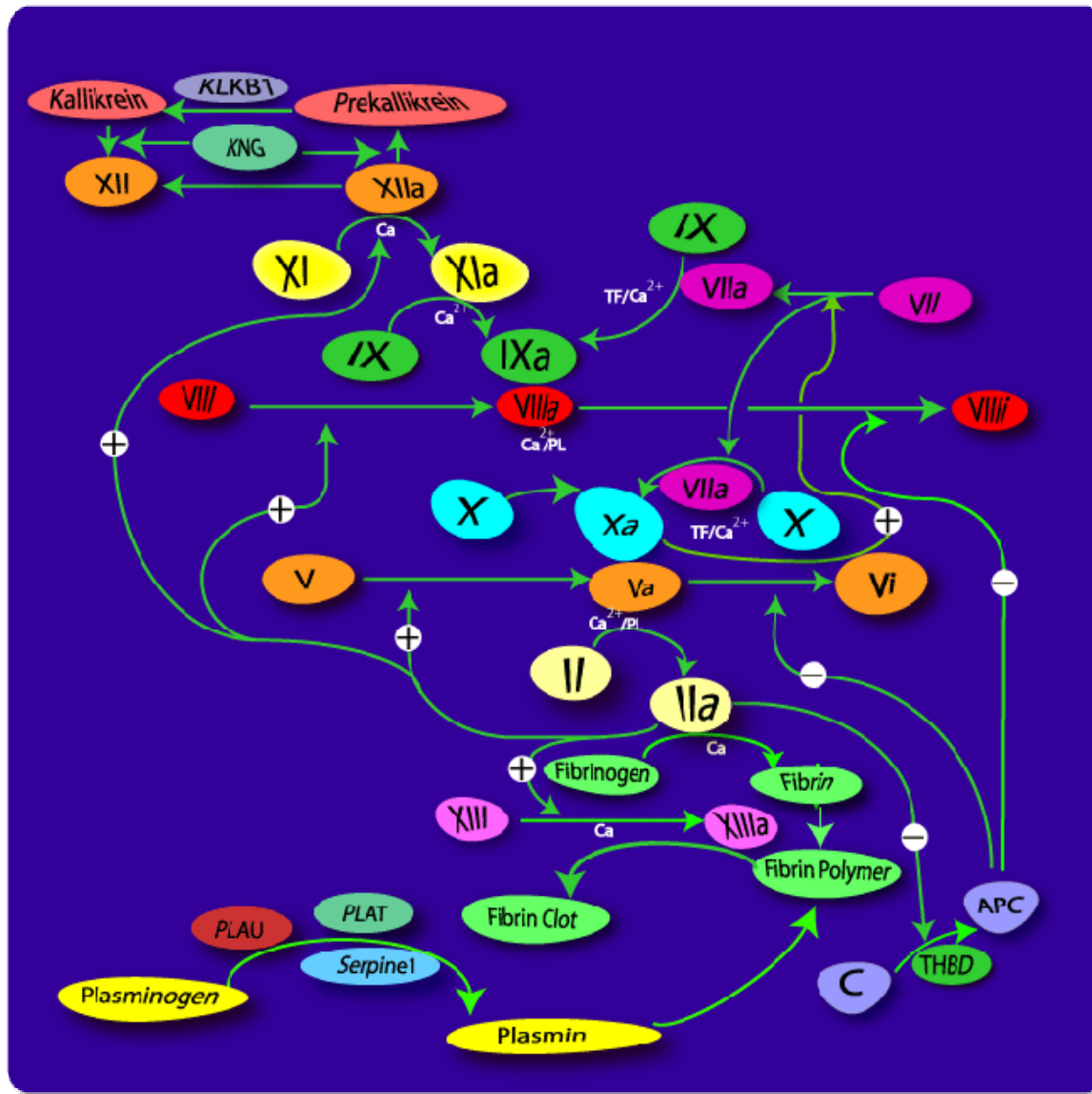
**At least three parts:  
motor, shaft,  
propeller**

**Without any of these  
parts it would not  
work at all.**

**“Cannot have evolved through gradual Darwinian evolution”**



# Blood clotting cascade



- Over 20 components - gives rapid amplification of clotting process
- Simpler systems found in e.g. starfishes – not as good but they work
- All components are proteases

# **Biology is resourceful!**

re-using components in different ways.

Gene duplication

Redundancy

Exaptation – taking components and using them for another function.

## **Arguments from design are not new**

Mankind has always looked at the world with awe and wonder and seen the hand of God in the entire created order.

Even in this scientific world people still look at the world and say “wow”, and are moved by the complexity and immensity of life.

## **After Darwin**

Things appear designed because they are adapted for their particular environment and evolution - descent with modification and selection - has shaped the biological world around us.

The physical/biological world runs on logical and scientific principles (which do not exclude God).

Intelligent Design appears to provide a scientific apologetic for the existence of God.

**BUT** Evolution puts aside “natural theology” as an apologetic *proof* for the existence of God.

“The heaven’s declare the glory of God” is the view of someone who is already within faith.

Is this a retreat to Paleyan natural theology”? – an attempt to prove God’s existence from natural phenomena



An earlier generation of natural theologians pointed to God's wonderful design in creation in those things that science *does* currently understand: the more we understand the more amazed we are!

So within the context of ID arguments, the 'designer god' can easily conjure up images of a heavenly engineer or intelligent supercomputer, occasionally tinkering about with the bits of the patch-work quilt that natural forces couldn't cope with.

# Is ID Science?

“We find that while ID arguments may be true, a proposition on which the Court takes no position, ***ID is not science***”

ID violates the centuries-old ground rules of science by invoking and permitting supernatural causation

**Science** is based on the principle that everything in the physical world can be explained by natural forces – the spiritual, miraculous or supernatural lie beyond the boundaries of science, which is concerned with the reproducible, measurable and testable.

# Is ID Science?

## ID stifles proper scientific research

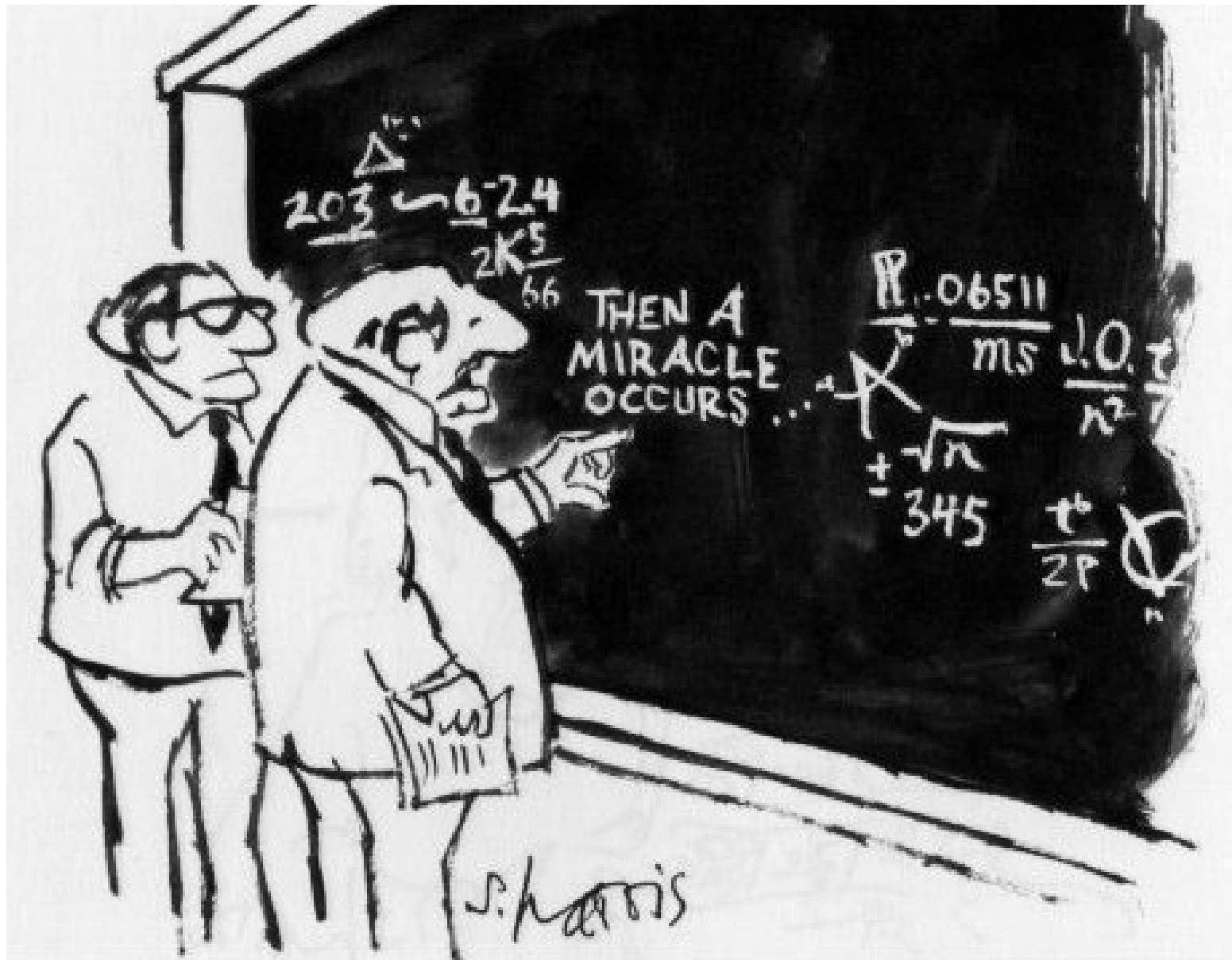
Attributing unsolved problems about nature to causes and forces that lie outside the natural world is a “science stopper.” Once you attribute a cause to an untestable supernatural force, a proposition that cannot be disproven, there is no reason to continue seeking natural explanations as we have our answer.

ID is the logic of ignorance, idleness and incuriosity  
*(Steve Jones)*

**It is essentially the “God of the gaps”.**

The consequences of believing in a 'God-of-the-gaps' are two-fold. For the believer it can result in an unnecessary fear of scientific discoveries, lest God gets 'pushed further out of the picture'. It can also foster the belief that certain aspects of the physical world will never yield up their secrets because they belong to God's domain.

Science is concerned with understanding the things that we don't know - that's what makes it fun!!



**“I think you should be more explicit here in step two.”**

*from What's so Funny about Science? by Sidney Harris (1977)*



*C. A. Coulson*

“When we come to the scientifically unknown, our correct policy is not to rejoice because we have found God; it is to become better scientists”

Prof Charles Coulson, Professor of Theoretical Chemistry, University of Oxford

God upholds the universe by His word – now

He has always done so! – by the same means, using His logical and reasonable processes.

# Is ID good theology?

ID assumes that there are gaps in nature that science cannot bridge.

The bible does not point to the unknowable  
but to the pattern that can be seen in God's  
creation –

God is creator and sustainer of the entire world.  
ID makes God to be the maintainer – not God the  
sustainer of the universe.

The biblical view is that God creates and sustains the smallest details of biology, including making grass grow for cattle (Ps.104:14), supplying food for lions (Ps. 104: 21) and “for the raven when its young cry out to God” (Job 38: 41).

The ‘designer’ that ID arguments deliver is very distant from the Biblical revelation of the personal God who is immanent in every aspect of the created order, the “Word made flesh” without whom “nothing was made that has been made” (John. 1:3).

For whereas traditional design arguments perceive the whole universe to be designed by God, ID proponents argue that certain components of the world around us are designed whereas others are not.

ID therefore envisages that there are two types of explanation for biological phenomena: the 'naturalistic explanations' that are represented by our current scientific knowledge, and 'design explanations' which depend on 'intelligent causes'.

# **Does ID create more problems?**

1. Did God create suffering?

What sort of God (malicious, tinkerer)?

2. How did the designer (God) create?

by natural processes or by miraculous intervention?

# Some very helpful books

