

The Theory of Evolution & Intelligent Design

Paul Schmid-Hempel
ETH Zürich
Institute for Integrative Biology (IBZ)

around 1800: The Holy Script vs. nature

- The Holy Script explains the origin of nature and of the organisms
- These principles should be identical to what can be observed in nature (“nature is the creation of God”)
- To detect the plan of the Creator: Carl von Linné, Isaac Newton,....

Schrift: Genesis (1. Buch Mose)

- *“In the beginning God created animals and plants...”*
- ...
- on day 3: plants...
- on day 5: marine organisms and birds...
- on day 6: animals on land, man

- i.e. this is more or less simultaneously...

Layers & Fossils



The book of nature

young layers

This is not simultaneous.
Nature contradicts the Script.

old layers

The book of nature

ent creation


1817: Baron Georges Cuvier
(1769-1832)

1830/33: Charles Lyell (1797-1875)


The book of nature

(1) Inc

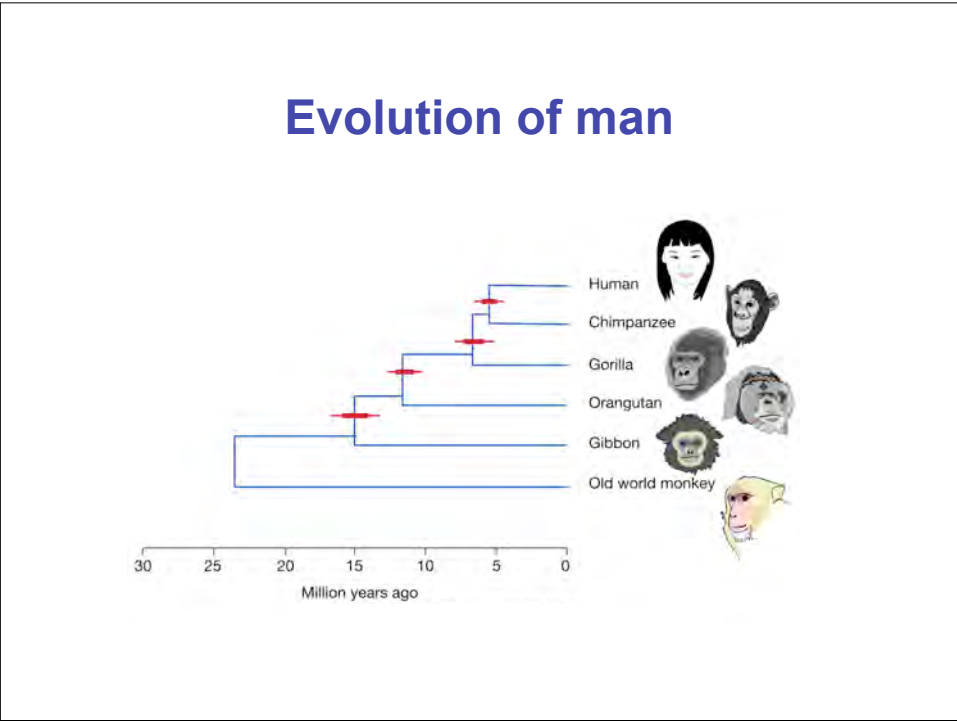
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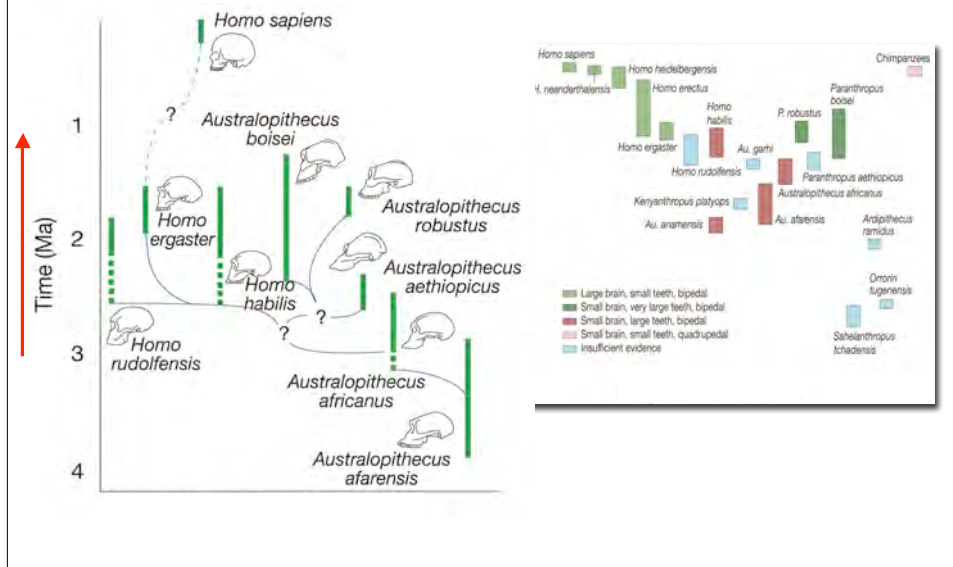
1837: Charles Darwin
(1809-1882)



1858: Alfred Russel Wallace
(1823-1913)



Evolution in the genus *Homo*



Darwin: Descent and process

1. Individuals within a population differ in their characteristics (Variation)
2. These characteristics are partly heritable (Heritability)
3. There are more offspring born than can survive and reproduce (Fecundity)
4. Variants with suitable characteristics have higher chances to survive and reproduce (Selection)
5. These variants inevitably will become more frequent (Adaptation)

Genetic information: Transmission



- Gregor Mendel (1823-1884) Laws of heredity (1860). Modular transmission (“genes”).



- August Weismann (1834-1914): Soma and germ line. Significance of selection.



- Hugo de Vries (1848-1935): Re-discovers Mendel’s laws around 1900. Macro-mutations.

Genetic information: Carrier



- Thomas Hunt Morgan (1866-1945): Chromosomes, - map (1911), Experimental evolution. *Drosophila*. Nobelprize for Medicine (1933).



- Hermann J. Muller (1890-1967): Chromosomes. Mechanisms of mutation (1926), -frequencies. Nobelprize for Medicine (1946).



- James D. Watson (*1928), Francis Crick (1916-2004). DNA is the carrier of hereditary information (1953). Nobelprize for Medicine (1962).

Genetic information: Modification

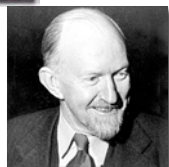


- Hermann J. Muller (1890-1967): Chromosomes. Mechanisms of mutation (1926), -frequencies. Nobelprize for Medicine (1946).

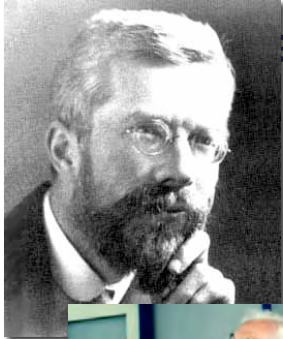


- Max Delbrück (1906-1981), Salvador Luria (1912-1991), Alfred D. Hershey (1908-1997): Mutations are random. Bacteriophages. Nobelprize for Medicine (1969).

Modern Synthesis (1930-1950)



- Theodosius Dobzhansky (1900-1975): Variation, Population genetics.
- Sewall Wright (1889-1988): Inbreeding, Adaptive landscapes, Epistasis. Population genetics.
- George Gaylord Simpson (1902-1984): Palaeontology. Variation.



Modern Synthesis (1930-1950)

- Ronald Aylmer Fisher (1890-1962): *Genetical Theory of Evolution* (1930). Fundamental theorem of natural selection. Experimental design. Statistics.
- Ernst Mayr (1904-2005): Synthetic theory. Biogeography. Speciation processes.
- John B.S. Haldane (1892-1964): Population genetics. Human genetics. Mutational load. Physiology.

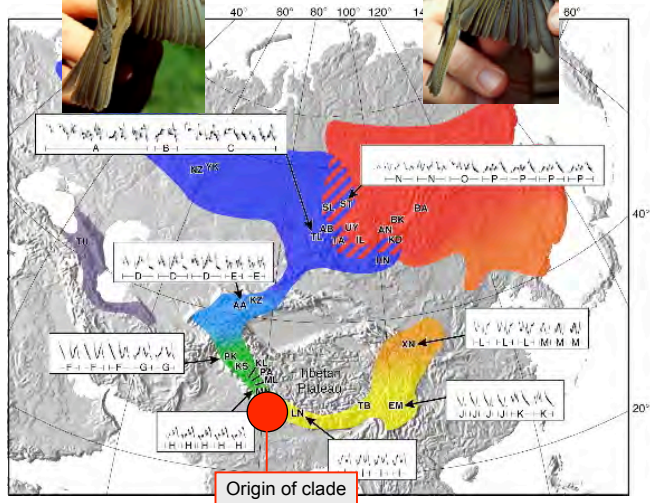


Phylloscopus trochiloides
(Grünlaubsänger, Green warbler)

P. t. viridianus



P. t. plumbeitarsus



Recent developments (post 1960)



- William D. Hamilton (1936-2000): Kin selection (1963). Unification of evolutionary biology. Social evolution. Senescence. Sex ratio. Sexual selection (1982). Evolution of sex (1980). Parasites.



- John Maynard Smith (1920-2004): Evolutionary genetics. Evolution of sex. Phenotypic models. Game theory (1973, with George Price)



- George R. Price (1922-1975). Covariance equation. ESS. Modern version of the fundamental theorem.

... on “meaning” in nature

- Descent, relationships among the organisms
- Sex ratio (why is there often a 50 : 50 & ratio?)
- Evolution and adaptive value of sex
- Sexual selection: differences between the sexes
- Senescence and life span
- Cooperation and conflict
- Social structure, life in groups
- Parasitism, symbiosis
- Biodiversity
- Immune systems
- Vaccination strategies: virulence of parasites
- Cognition and learning
-
-

The three pillars of Darwin's theory

1. An old Earth
2. Common descent with modification
3. Process: Evolution by natural selection

The three pillars of Creationism /ID

1. Some aspects of organic evolution cannot be explained by Darwin's theory
2. Therefore, an "intelligence" is needed
3. Because it is an alternative view, it has the status of a scientific theory

Levels of critique by ID

- 1. Rejection of all three pillars of Darwin (Age of Earth, Descent, Selection). Literal truth of the Bible.**
- 2. Novelties and transitions cannot be explained by Darwin.**
- 3. Selection is not the process.**

Critique 1: Total rejection

- Genesis is true
- Age of Earth: based on life data in the Holy Script:
 - Bishop Usher (1581-1656). Earth was made on the evening of 8. Oct. 4004 B.C.; Adam on 23. Oct 4004 BC. at 09:00 h.
- The Flood (Genesis 7, 8) explains the layering of fossils: Fish are below, birds on top.
- “Young Earth Creationists”

The eras

Eon	Era	Period	Epoch	Age Ma	Life Forms	
Phanerozoic	Cenozoic	Quaternary	Holocene			
			Pleistocene	1.8		
		Neogene	Pliocene	5.2	Earliest Homo	
			Miocene	23.8	First daisy-family plants	
			Oligocene	33.5	First apes	
		Paleogene	Eocene	55.6	First extensive grasslands	
			Paleocene	65	First whales	
					First horses	
					Extinction of dinosaurs	
		Mesozoic	Cretaceous	Late	98.9	First placental mammals
	Early				First flowering plants	
	Jurassic		Late	144		
			Middle	160	First birds	
			Early	180		
	Triassic		Early	206	First mammals	
			Late	228	First dinosaurs	
			Middle			
			Scythian			
				251		
	Paleozoic	Permian		290	First plants with water-conducting vessels	
		Carboniferous	Pennsylvanian		First mammal-like reptiles	
			Mississippian			
				353.7	First reptiles	
		Devonian		408.5	First amphibians	
		Silurian			439	First woody plants
					495	First insects
		Ordovician			495	First vascular plants
Cambrian					543	First fish with jaws
						First fish (no jaws)
Proterozoic				2500	First land plants	
					First multicellular organisms	
Archaean					First eukaryotes	
Hadaean					3600	First bacteria?
						Origin of life?
					4600	Oldest rocks
						Formation of Earth

Continental drift



Late Carboniferous
(300 million years ago)



Eocene
(50 million years ago)

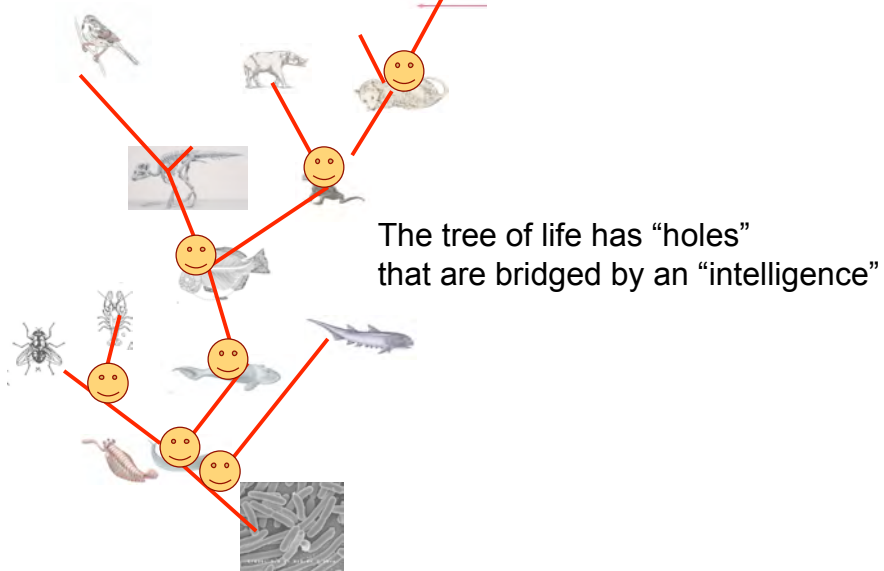


Early Pleistocene
(1.5 million years ago)



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Critique 2: Intervention of an "Intelligence":



Darwin's cave dwellers

Europe



N. maculosus



© Daniel Heuclin / www.nhpa.co.uk

Proteus anguinus F. Proteidae
(caves, Slovenia)

North America

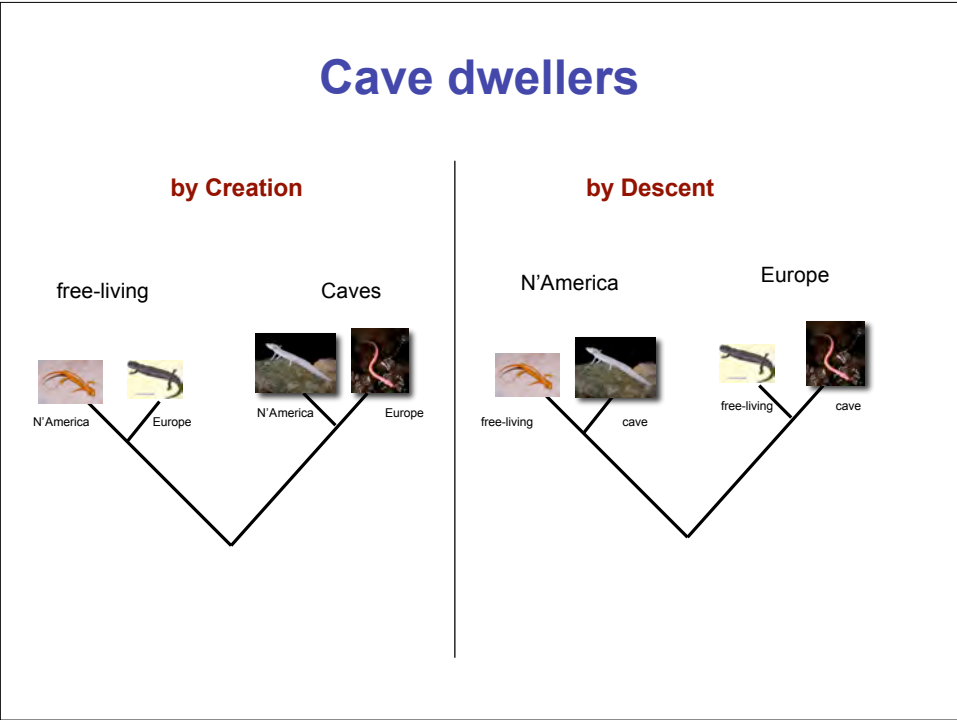


E. bislineata

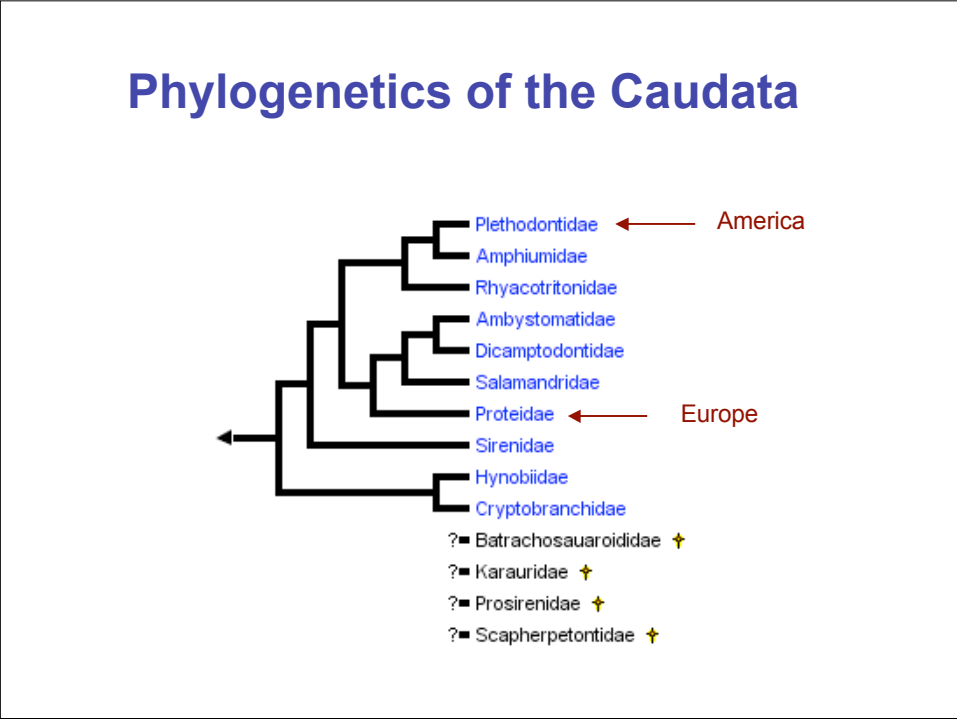


Eurycea rathbuni F. Plethodontidae
(caves, Texas)

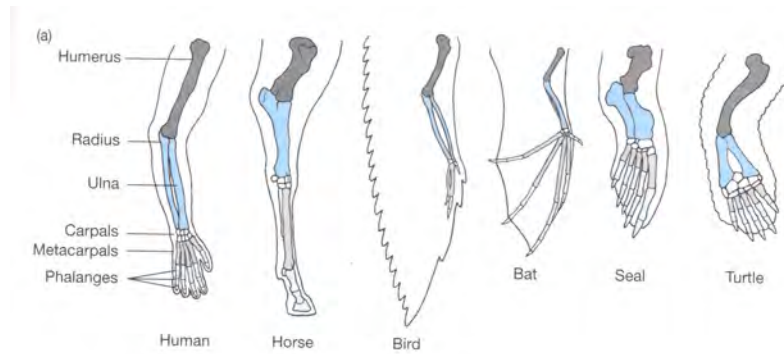
Cave dwellers



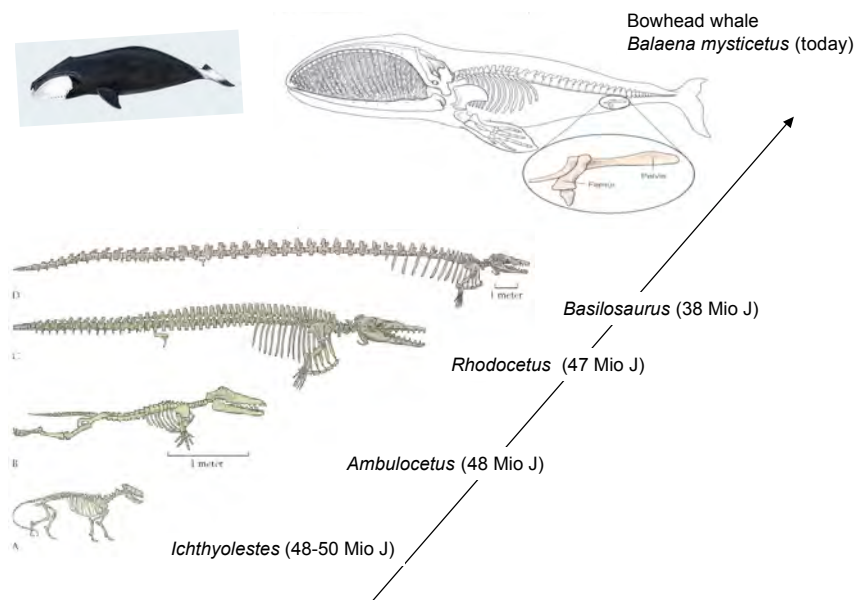
Phylogenetics of the Caudata

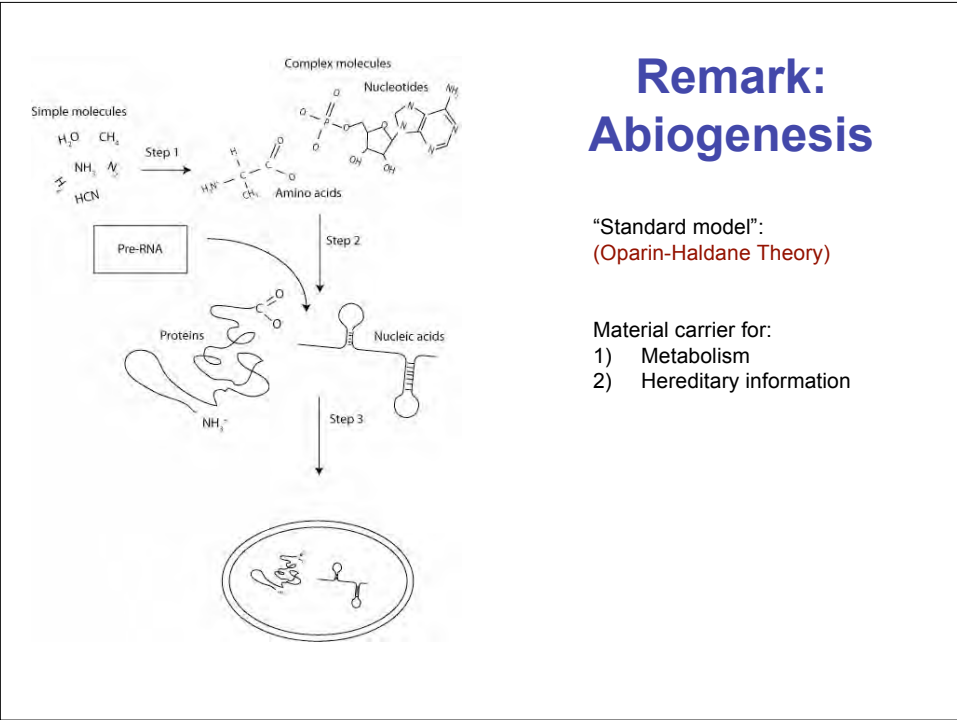


Homologies show descent with modification



Vestigial structures

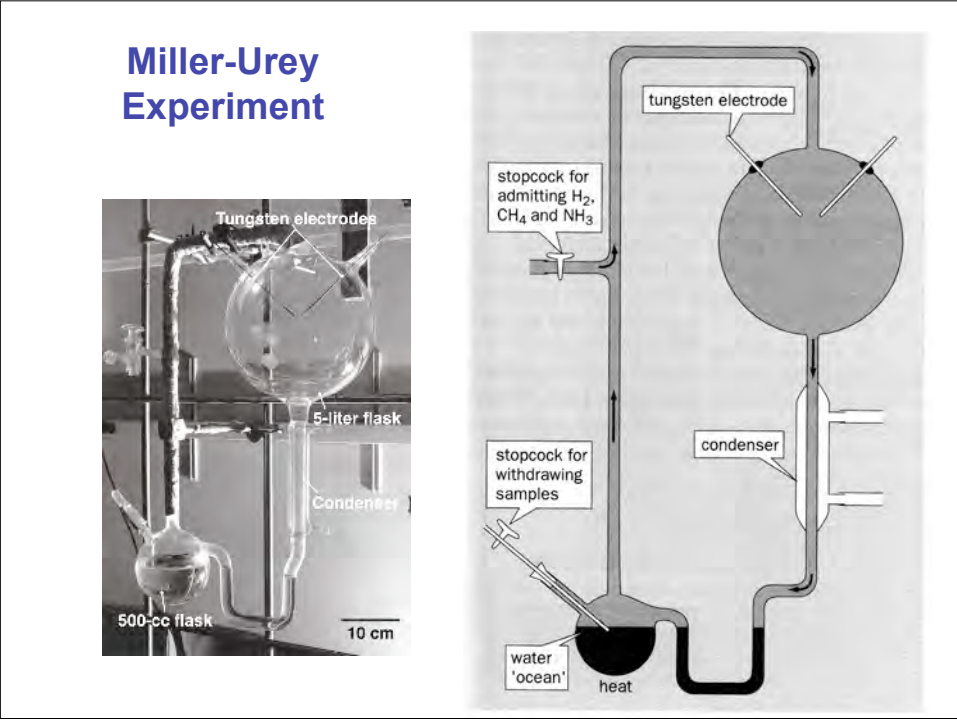




Remark: Abiogenesis

"Standard model":
(Oparin-Haldane Theory)

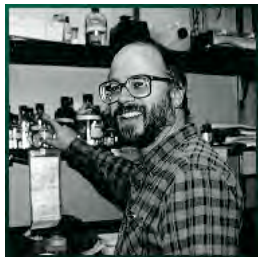
- Material carrier for:
- 1) Metabolism
 - 2) Hereditary information



Critique 3: Selection is not the process

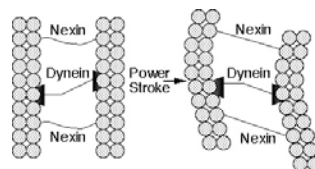
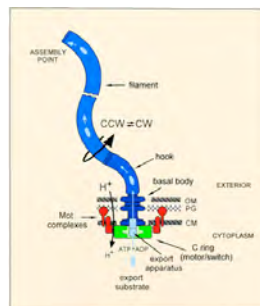
- Evolution yes, but no process of natural selection
- Instead an Intelligence intervenes
- Demonstrated by non-reducible complexity

Behe's Flagellum



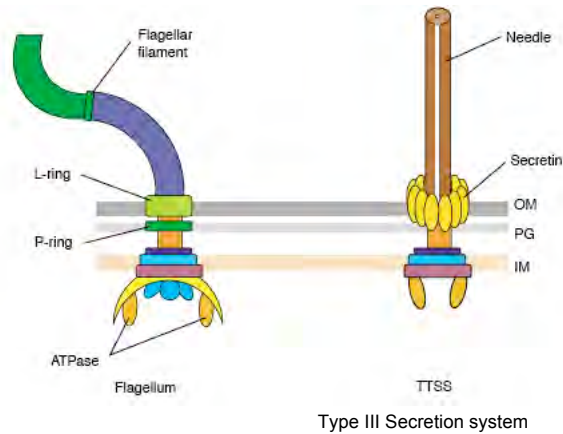
Michael Behe Professor of Biochemistry. Leigh University, Pennsylvania.

"Darwin's Black Box: The Biochemical Challenge to Evolution" (1996). Free Press.



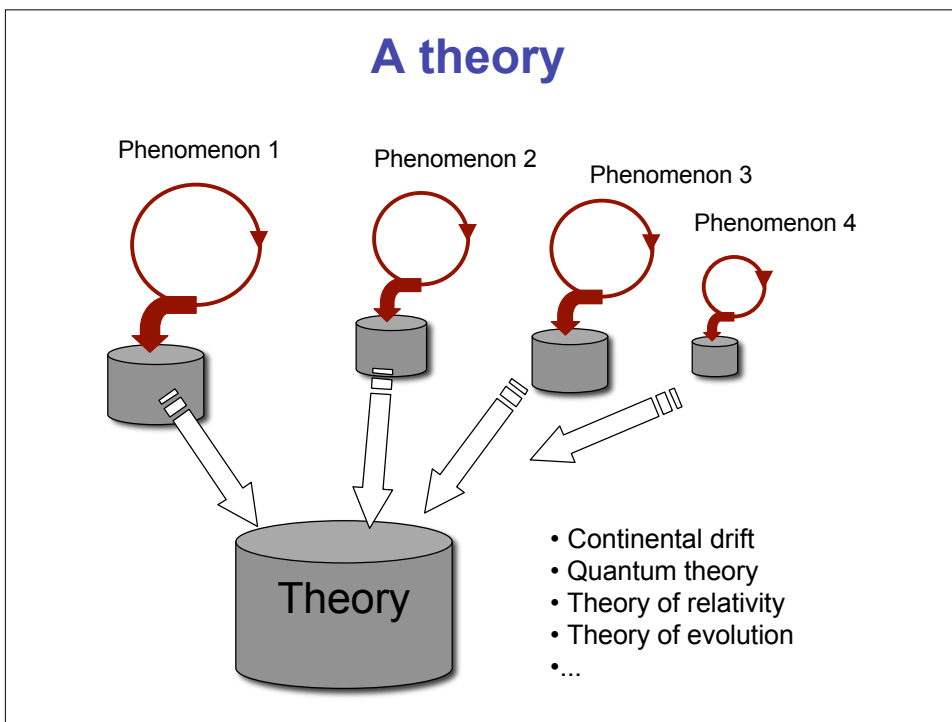
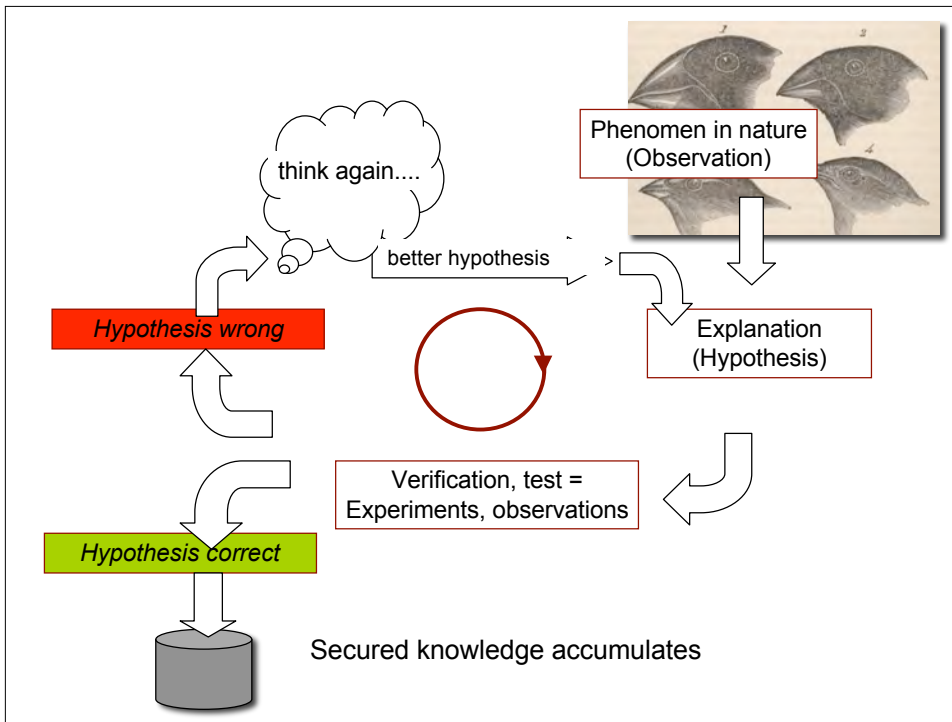
Proteins: α -tubulin, β -tubulin, dynein, nexin, spoke protein, bridge protein..

Behe's Flagellum



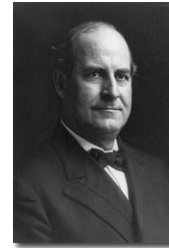
(4) ID has a scientific status

- General hypothesis of ID is clear
- However, there are no precise arguments or predictions formulated
- ID has not withstood the test: ID was disproved already around 1860-1870 !
- “Modern” examples are wrong



Resistance

- William Jennings Bryan (1860-1925): Lawyer, politician, 3-times presidential candidate of the Democrats, State Secretary of Woodrow Wilson (1913-1915), gifted speaker, peace activist, presbyterian;
- Fight against Darwin's Theory:
 - "...all attempts to discover the origin of species have been failing....."
 - "Darwin's Theory is not only just a guess but also detrimental, since it undermines the belief in the Bible..."
 - "Religion is the only basis for moral, therefore, this has to be defended against its most insidious enemy..."



Resistance: Scopes Trial (Juli 1925)

- After 1920: Laws against evolution
- William Jennings Bryan often the
- March 1925: Tennessee ("Butler Act") that denies the biblical account of
- John Scopes (High School teacher) American Civil Liberties Union (ACLU)
- His students testify against him.
- Scopes sentenced (fine \$ 100).
- Appeal: Acquittal for technical reasons
- Chief Judge (John T. Raulston):
 - Prohibition of evolution in schools
 - civilisation
 - "Evolution" is an incentive to theft
 - If faith in the Genesis gets lost, it gets lost
- 1926: American Association of University Teachers stop the spread of creationism.
- 1967: Butler Act is withdrawn.



Strategies keep changing...

- Around 1920-30: **Preventing the teaching of evolution**; 15 states (Scopes trial)
- 1950's: Evolution no longer prominent in school books (publishers aim at avoiding trouble). This changes after the Sputnik-shock (Oct 1957).
- Around 1960: **Equal time in schools**; 11 states (California 1975; Arkansas: 1968 Epperson, 1981 McLean)
- 1973: Tennessee with a new law (1975 cancelled by Court of Appeals).
- 1982 McLean vs. Arkansas ("balanced treatment")
- 1987: Louisiana Act cancelled by Supreme Court (Edwards vs. Aguillard)

Strategies keep changing...

- 1989: Percival & Kenyon: "*Of Pandas and People*": **Alternative to Evolution = "Intelligent Design"**.
- Around 1990: **There is a right for a different opinion** (c.f. Louisiana case - Judge Scalia:.. justified with hints of dissent in science. Ohio, Tennessee, Georgia). Dover trial (2004-05).
- Around 2000: **Undermining the acceptance of evolution and cosmology in society** (1999 Kansas: prohibits all hints to evolution in school books, incl. geology).
- Sentences in the USA: ID is a religion, therefore, unconstitutional for activities by the state (separation of Church and State).

Creationismus: very large scene

- “Young Earth Creationists”
 - ICR (San Diego), publications for 100'000's of subscribers.
 - Answers in Genesis (Kentucky): *Creation Technical Journal*
 - Bible-Science Association (Minnesota): *Bible-Science News*
 - Creation Research Society (Ohio); *CRS Quarterly*
 - Biblical Creation Society (U.K.): *Origins*
- “Old Earth Creationists”: Re-interpretation of the *Genesis*.
 - Discovery Institute (Seattle)
- Many other movements.....
- In CH:
 - Pro Genesis
 - Genesis Technology Fund (St. Vincent)
 - Schwengeler Verlag (Berneck, St. Gallen): *Factum*
 - Kt. Bern Schulbuch (redrawn)

The image shows a page from a Swiss school textbook. At the top, it says 'WISSENS-WERT'. Below that is a section 'Erklärungsversuche' (Explanation attempts) with text about the origin of life and the 'Schöpfungsglaube' (Creation belief). There are two main columns: 'Schöpfung' (Creation) on the left and 'Evolution des Lebens' (Evolution of life) on the right. The 'Schöpfung' section includes an illustration of gears. The 'Evolution des Lebens' section includes a diagram of bird evolution and a map of the world showing migration routes. At the bottom, there are small text boxes with 'K10 1.3' and 'K11 1.4'.

“Naturwert”
Schulmittelverlag des Kt. Bern (2007)

The Catholic Church

- 1950: Pius XII; Encyclica *Humani generis*. "... a serious hypothesis that is worthy of investigation". No contradiction to Faith, yet some points cannot be negotiated (e.g. origin of the soul).
- 1996: John Paul II. Address to the Papal Academy: "... it is more than a hypothesis, it is a scientific theory (among several theories ?)". John Paul II (1997) Q Rev Biol 72: 381-383

John Paul II (1996)

of epistemology. A theory is a metascientific elaboration, distinct from the results of observation but consistent with them. By means of it a series of independent data and facts can be related and interpreted in a unified explanation. A theory's validity depends on whether or not it can be verified; it is constantly tested against the facts; wherever it can no longer explain the latter, it shows its limitations and unsuitability. It must then be rethought.

of the News, 2 December 1996, p 6.) It is indeed remarkable that this theory has been progressively accepted by researchers, following a series of discoveries in various fields of knowledge. The convergence, neither sought nor fabricated, of the results of work that was conducted independently is in itself a significant argument in favour of this theory.

Consequently, theories of evolution which, in accordance with the philosophies inspiring them, consider the mind as emerging from the forces of living matter, or as a mere epiphenomenon of this matter, are incompatible with the truth about man. Nor are they able to ground the dignity of the person.

tological leap, one could say. However, does not the posing of such ontological discontinuity run counter to that physical continuity which seems to be the main thread of research into evolution in the field of physics and chemistry? Consideration of the method used in the

John Paul II (1997) Q Rev Biol 72: 381-383

- Cardinal Schönborn (2005; *New York Times*):
“... Evolution in the sense of common descent could be true, but evolution in the Neodarwinian sense - an unguided, unplanned process of random variation and natural selection - is not true. Every system of concepts that denies the overwhelming proofs for a design in biology or attempts to explain them away is an ideology not science...”

- Benedict XVI -- against creationism but otherwise not clear where he stands:
 - “...evolution cannot be proven, because one cannot keep 10'000 generations in the lab...”
 - “... The origin of life cannot be proven by science....”
 - “ origin of rationality (reasoning?) is not a study subject of the sciences....”

Hence, these are common arguments:

- Evolution is not proven, it is just a theory
- Evolution is a theory of chance
- Mutations are not sufficient, novel information cannot be generated, no speciation,

- Many scientists are against evolution, there is internal critique

- Evolution favours egoism and competition
- Evolution favours immorality and racism (Stalin, Hitler, ...)
- Evolution undermines the foundations of society
- Evolution cannot explain man
- Evolution leaves no hope for man
-

Dover trial (Kitzmiller vs. Dover 2005)

Behe asserts in Darwin's Black Box that "the scientific literature has no answers to the question of the origin of the immune system" and "the complexity of the system dooms all Darwinian explanations to frustration." I showed Professor Behe more than 50 articles, as well as books on the evolution of the immune system. He had not read most of them, but he confidently, contemptuously dismissed them as inadequate. He testified that it is a waste of time to look for

answers about how the immune system developed. The citizens of the Dover area were poorly served by the members of the Board who voted for the ID Policy. It is ironic that several of these individuals, who so staunchly and proudly touted their religious convictions in public, would time and again lie to cover their tracks and disguise the real purpose behind the ID Policy. (Urteil, Judge Jones, p.137)

For the sake of this research for writers, the public would be better served by the search for answers to the question of the origin of the immune system. Our defense against debilitating and fatal diseases. The scientists who wrote (Richard Thomson, Advances 2012) in their field of research, without book royalties or speaking engagements. Their efforts help us combat and cure serious medical conditions. By contrast, Professor Behe and the entire Intelligent Design Movement are doing nothing to advance scientific or medical knowledge, and are telling future generations of scientists, don't bother.

Is creationism a danger?

NO

- Science is 150 years in its concepts...
- Creationism is not science

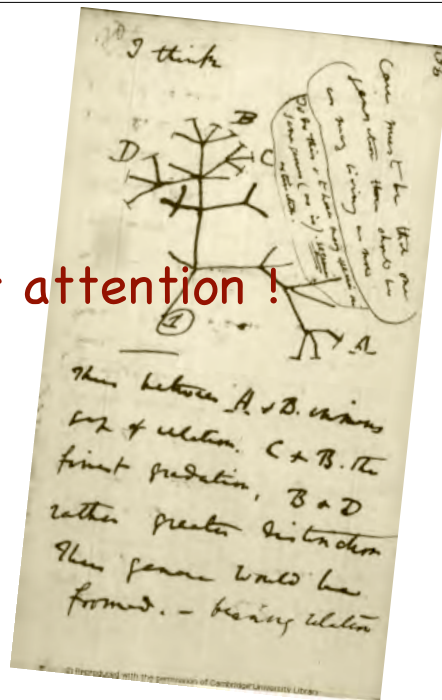
YES

- "political correctness" (G. W. Bush, E. Dole, **John McCain**, Al Gore). Pluralistic societies.
- Targets politicians, voters
- Targets schools, parents
- Targets managers, opinion leaders
- often has a lot of money and good connections

Universities:

- in USA: Infiltration; people start to avoid the word "Evolution"
- General loss of positive image for scientists
- Pressure for applied research, not "meaning of life"
- But fundamental questions about us and nature require basic research and fundamental questions

Thanks for your attention !



“Islamistic” movements



- Harun Yaha (= Adnan Oktar):
“An invitation to the truth”
- “...the Western world turns to God...”
- cites M. Behe, C. F. von Weizsäcker,....

“... Many well-known scientists have abandoned Darwinism, to which they had been attached as if to a religion, and have instead turned to God....”

“...These developments are an encouragement to the whole world, and good news for Muslims. They are also each one a sign that Allah will soon keep his promise to make the religion that He has chosen for His servants influential all over the world is approaching....”

www.riseofislam.com/western_world_04.html