

Creation Sunday School Class #6

Definitions and Discussion

Part 4

2/21/10

Definitions and Discussion

Evolution

a theory that the various types of animals and plants have their origin in other preexisting types and that the distinguishable differences are due to modifications in successive generations.

a process in which the whole universe is a progression of interrelated phenomena.

(Webster's Ninth New Collegiate Dictionary, 1988)

Further Descriptions of Evolution

- the development of all systems in this world by chance, random processes
- all processes and life become more complex over time
- all life descended from a single-celled organism which arose spontaneously from non-living chemicals
- all life has come from a common ancestor

- changes occurred through natural processes, including mutation, natural selection and genetic recombination
- vast amounts of time are needed to accomplish this
- an a-theistic model whose purpose is to explain everything by naturalistic means
- matter is considered to be eternal

7 Types of Evolution

1. **Microevolution**
2. Macroevolution
3. Cosmic evolution
4. Stellar or planetary evolution
5. Organic evolution
6. Chemical evolution
7. Molecular evolution

Microevolution

comparatively minor evolutionary change involving the accumulation of variations in populations, usually below the species level.

(Webster's Ninth New Collegiate Dictionary, 1988)

Further Descriptions of Microevolution

- small adaptations within a population of organisms which allow a certain trait to be expressed to a greater or lesser degree than before
- variation within a kind
- **only kind of evolution ever observed**
- occurs regularly
- occurs by natural selection or by artificial means such as breeding animals

7 Types of Evolution

1. Microevolution
- 2. Macroevolution**
3. Cosmic evolution
4. Stellar or planetary evolution
5. Organic evolution
6. Chemical evolution
7. Molecular evolution

Macroevolution

evolution that cumulates in relatively large and complex changes, as in species formation.

(Webster's Ninth New Collegiate Dictionary, 1988)

Further Descriptions of Macroevolution

large changes which occur in an individual or in a population of organisms which produce an entirely new category or novel trait

these changes are hypothetical and have never been observed within living populations

The secrets of evolution are death and time – the deaths of enormous numbers of lifeforms that were imperfectly adapted to the environment; and time for a long succession of small mutations that were by accident adaptive, time for the slow accumulation of patterns of favorable mutations.

Carl Sagan, *Cosmos*, 1980 p.30

Patterson, Colin, "Cladistics," Interview by Brian Leek, interviewer Peter Franz, March 4, 1982, BBC.

"No one has ever produced a species by mechanisms of natural selection. No one has ever gotten near it and most of the current argument in neo-Darwinism is about this question: how can a species originate and is it there that natural selection seems to be fading out and chance mechanisms of one sort or another are being invoked....

all one can learn about the history of life is learned from systematics, from groupings one finds in nature. The rest of it is story-telling of one sort or another.

We have access to the tips of a tree; the tree itself is theory and people who pretend to know about the tree and to describe what went on with it, how the branches came off and the twigs came off are, I think, telling stories.”

Punctuated Equilibrium

a theory in evolutionary biology which proposes that most sexually reproducing species will experience little evolutionary change for most of their geological history (in an extended state called *stasis*).

When evolution occurs, it is localized in rare, rapid events of branching speciation (called cladogenesis).

Cladogenesis is simply the process by which species split into two distinct species, rather than one species gradually transforming into another.

Wikipedia

Punctuated equilibrium

macroevolution occurring rapidly

used to explain and allow for evolution in the absence of transitional fossil forms

also called quantum speciation or “hopeful monsters”

still uses long ages, but there are long period of stasis punctuated by occasionally rapid bursts of evolution

not based on actual science but on the absence of evidence

History of Punctuated Equilibrium

1900s – geneticist Hugo De Vries - saltation

1930s - O. H. Schindewolf – paleontologist -
reptile laid an egg and hatched out a full-
fledged bird

1940 - Richard Goldschmidt – “hopeful
monsters”

"O.H. Schindewolf . . showed that the material presented by paleontology leads to exactly the same conclusions as derived in my writings, to which he refers...

He shows by examples from fossil material that the major evolutionary advances must have taken place in single large steps, which affected early embryonic stages with the automatic consequence of reconstruction of all the later phases of development.

He shows that the many missing links in the paleontological record are sought for in vain because they never existed: 'The first bird hatched from a reptilian egg.' "

Richard Goldschmidt, Material Basis of Evolution (1940; 1982 reprint edition), p. 395.

R. Milner, *Encyclopedia of Evolution* (1990)

"Although he [Goldschmidt] recognized the constant accumulation of small changes in populations (microevolution) [changes within species], he believed they did not lead to speciation. Between true species he saw 'bridgeless gaps' that could only be accounted for by large sudden jumps, resulting in 'hopeful monsters.'" "

Punctuated Equilibrium History

1972 - Stephen Jay Gould and Niles Eldridge,
promoted a theory called Punctuated
Equilibrium

Other Names for Punctuated Equilibrium:

quantum speciation

Schindewolfian theory

monster mutationism

comprehensive theory

Mark Ridley, "Evolution and Gaps in the Fossil Record," in Nature 286(5772):444-445 (1980).

"Although uncertainty exists about just how recently the pairs of species diverged and about the relation between range and population size, Anderson and Evenson's data does not support Eldredge and Gould's claim that speciating populations are very small."

S. J. Gould, *"The Return of the Hopeful Monsters,"* *Natural History*, 86(6):22

"I do, however, predict that during the next decade Goldschmidt will be largely vindicated in the world of evolutionary biology."

Russell Lando, "*A Review of Microevolution in Relation to Macroevolution*," in *Paleobiology* 8(2):234-5.

"Advocates of punctuated equilibrium and macromutation cite as evidence the frequent absence of transitional forms from the fossil record. This negative information is not convincing."

R. Milner, *Encyclopedia of Evolution* (1990), p. 393.

"Saltation, derived from the Latin, means jumping and leaping from place to place. It can be used to describe the peculiar locomotion of grasshoppers...

"When Charles Darwin first expressed his theory of evolution, he adopted this time-worn cliché as [not being] part of the evolutionary process: '*Nature non facit saltum*' (*Nature makes no leaps*). "

Martin Brookes, "May the Best Man Win," *New Scientist* (volume 158, April 11, 1998), p. 51.

“For an argument about science, you would be hard pressed to find an exchange of views so full of hollow rhetoric, pompous quotations and insults.... The spat between Pinker and Gould . . . has no apparent function other than intellectual one-upmanship. It is precisely because there is so little evidence for either of their views that they can get away with so much speculation and disagreement.”

Stephen Jay Gould, "*Evolution as Fact and Theory*," *Discover* 2(5):34-37 (1981).

"I can envision observations and experiments that would disprove any evolutionary theory I know."

Gould, Stephen Jay, “Evolution’s Erratic Pace,”
Natural History, vol. 86 (May 1977), p. 14

“The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils.”

“Paleontologists have paid an exorbitant price for Darwin’s argument. We fancy ourselves as the only true students of life’s history, yet to preserve our favored account of evolution by natural selection we view our data as so bad that we never see the very process we profess to study.”

“The history of most fossil species includes two features particularly inconsistent with gradualism.

“1. Stasis. Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking much the same as when they disappear; morphological change is usually limited and directionless.

“2. Sudden appearance. In any local area, a species does not arise gradually by the steady transformation of its ancestors; it appears all at once and ‘fully formed.’”

Theodosius Dobzhansky, *Genetics and the Origin of Species* (1941), p. 80.

"Systemic mutations [large numbers of positive, perfect, coordinated mutations suddenly changing one species to another] have never been observed, and it is extremely improbable that species are formed in so abrupt a manner."

Wheeler, David L., “An Eclectic Biologist Argues that Humans Are Not Evolution’s Most Important Result; Bacteria Are,” *Chronicle of Higher Education*, vol. 43 (September 6, 1996), p. A23

“Even his critics grant that Dr. Gould is popular with lay readers, but this has also made him a favorite target of attack. In *The New York Review of Books* last year, John Maynard Smith, a prominent British evolutionist, said of him that ‘the evolutionary biologists with whom I have discussed his work tend to see him as a man whose ideas are so confused as to be hardly worth bothering with, but as one who should not be publicly criticized because he is at least on our side against the creationists.’”

Ernst Mayr, *Evolution and the Diversity of Life* (1976), p. 95.

"The evidence, whether genetic, morphological, or functional, is so uniformly opposed to a saltationist origin of new structures that no choice is left but to search for explanations in terms of a gradual origin. "

Gould, Stephen Jay, “The Return of Hopeful Monsters,” *Natural History*, vol. 86 (June/July 1977), pp. 22-30.

- p. 22 “The fossil record with its abrupt transitions offers no support for gradual change, and the principle of natural selection does not require it—selection can operate rapidly.”
- p. 24 “All paleontologists know that the fossil record contains precious little in the way of intermediate forms; transitions between major groups are characteristically abrupt.”

Mutations

changes in the genetic material of an organism
which may be passed on to offspring

while some are neutral, many are lethal.

no mutations which could be supportive of
macromutation have ever been observed

Weaver, Warren, *et al.*, “*Genetic Effects of Atomic Radiation*,” *Science*, vol. 123 (June 29, 1956), pp. 1157-1164. Summary report of the Committee on Genetic Effects of Atomic Radiation. p. 1159

“Many will be puzzled about the statement that practically all known mutant genes are harmful. For mutations are a necessary part of the process of evolution. How can a good effect—evolution to higher forms of life—result from mutations practically all of which are harmful?”

Ernst Mayr, *Animal Species and Evolution* (1963),
p. 176.

"It must not be forgotten that mutation is the ultimate source of all genetic variation found in natural populations and the only raw material available for natural selection to work on."

Ernst Mayr, *Animal Species and Evolution* (1983),
p. 7.

"We now believe that mutations do not guide evolution; the effect of a mutation is very often far too small to be visible."

Pierre P. Grasse, *The Evolution of Living Organisms* (1977), pp. 8788.

"[Mutations are] merely hereditary fluctuations around a medium position; a swing to the right, a swing to the left, but no final evolutionary effect... they modify what pre-exists. No matter how numerous they may be, mutations do not produce any kind of evolution."

Ernest Albert Hooton, *Apes, Men, and Morons* (1970), p. 118.

"Now I am afraid that many anthropologists (including myself) have sinned against genetic science and are leaning upon a broken reed when they depend upon mutations."

Russell Lando, "*A Review of Microevolution in Relation to Macroevolution*," in *Paleobiology* 8(2):234-5.

“There are few (if any) genetically well-established cases of morphological macromutations which have been fixed in natural populations of animals. Mutations of large effect are almost always deleterious...

"Advocates of punctuated equilibrium and macromutation cite as evidence the frequent absence of transitional forms from the fossil record. This negative information is not convincing."

Michael Ruse, *Philosophy of Biology* (1973), p. 111.

"However, although geneticists know of some mutations which cause fairly drastic changes, they have entirely failed to discover the kind of macromutations required by the saltation theory, the kind of mutation which would take a group of organisms from one order to another.

Moreover, the large-effect mutations which are known are usually just those mutations which are the most crippling to their carrier ...

Of course, one might argue that the failure to find the right kind of macromutations does not necessarily prove their non-existence, but, like unicorns, there is a difference between saying that logically they might exist, or that it is reasonable to suppose that they exist."

C.H. Waddington, *Science Today* (1961), p.
36.

"[A mutation] happens rarely, perhaps
once in a million animals or once in a
million lifetimes."

Ernst Mayr, *Animal Species and Evolution*
(1983), p. 7.

"We now believe that mutations do not guide evolution; the effect of a mutation is very often far too small to be visible."

H.L. Carson, "Genetic Conditions which Promote or Retard Species," in Cold Spring Harbor Symposia on Quantitative Biology 24, p. 95.

"One of the great dilemmas that modern evolutionary theory has had to face is the fact that most of the mutations found repeatedly, for instance, within populations of different *Drosophila* species, do NOT constitute the kind of differences which constitute [a change of] species."

George Gaylord Simpson, *Major Features of Evolution* (1953), p. 96.

"With an average effective breeding population of 100 million individuals and an average length of generation of one day, again extremely favorable postulates, such an event [of five mutations possibly occurring in one organism] would be expected only once in about 274 billion years, a about a hundred times the probable age of the earth. Obviously . . . such a process has played no part whatever in evolution."

R.A. Fisher, "*Measurement of Selective Intensity*," in Proceedings of the Royal Society of London, Series 8, 121(820):58-62.

"The explanatory content of a theory of evolution only reaches its absolute zero [of probability] with the mutation theory."

Fred Hoyle, *The Intelligent Universe: A New View of Creation and Evolution* (1983), p. 48

"The Darwinian theory is wrong because random variations tend to worsen performance, as indeed common sense suggests they must do."

Crow, James F., “Ionizing Radiation and Evolution,” *Scientific American*, vol. 201 (September 1959), pp. 138-160. Crow was Chairman of Medical Genetics at the University of Wisconsin. p. 156

“The process of mutation also produces ill-adapted types. The result is a lowering of the average fitness of the population...

Intuition tells us that the effect of mutation on fitness should be proportional to the mutation rate; Haldane has shown that the reduction in fitness is, in fact, exactly equal to the mutation rate.”

Kimura, Motoo, “Population Genetics and Molecular Evolution,” *Johns Hopkins Medical Journal*, vol. 138 (June 1976), p. 260

“From the standpoint of population genetics, positive Darwinian selection represents a process whereby advantageous mutants spread through the species.

Considering their great importance in evolution, it is perhaps surprising that well-established cases are so scarce; for example, industrial melanisms in moths and increases of DDT resistance in insects are constantly being cited.

On the other hand, examples showing that negative selection is at work to eliminate variants produced by mutation abound ...

Martin, C. P., “A Non-Geneticist Looks at Evolution,” *American Scientist*, vol. 41 (January 1953), p. 103

“For any acceptable theory of the mechanism of evolution, a great number of fully viable hereditary variations is necessary.

Mutation does produce hereditary changes, but the mass of evidence shows that all, or almost all, known mutations are unmistakably pathological and the few remaining ones are highly suspect.”

First Law of Thermodynamics

The first law of thermodynamics, an expression of the principle of conservation of energy states that energy can be transformed (changed from one form to another), but cannot be created or destroyed.

The increase in the internal energy of a system is equal to the amount of energy added by heating the system minus the amount lost as a result of the work done by the system on its surroundings.

Wikipedia, the free encyclopedia

Isaac Asimov, *"In the Game of Energy and Thermodynamics You Can't Even Break Even," Journal of Smithsonian Institute*, June 1970, p. 8.

"This law is considered the most powerful and most fundamental generalization about the universe that scientists have ever been able to make."

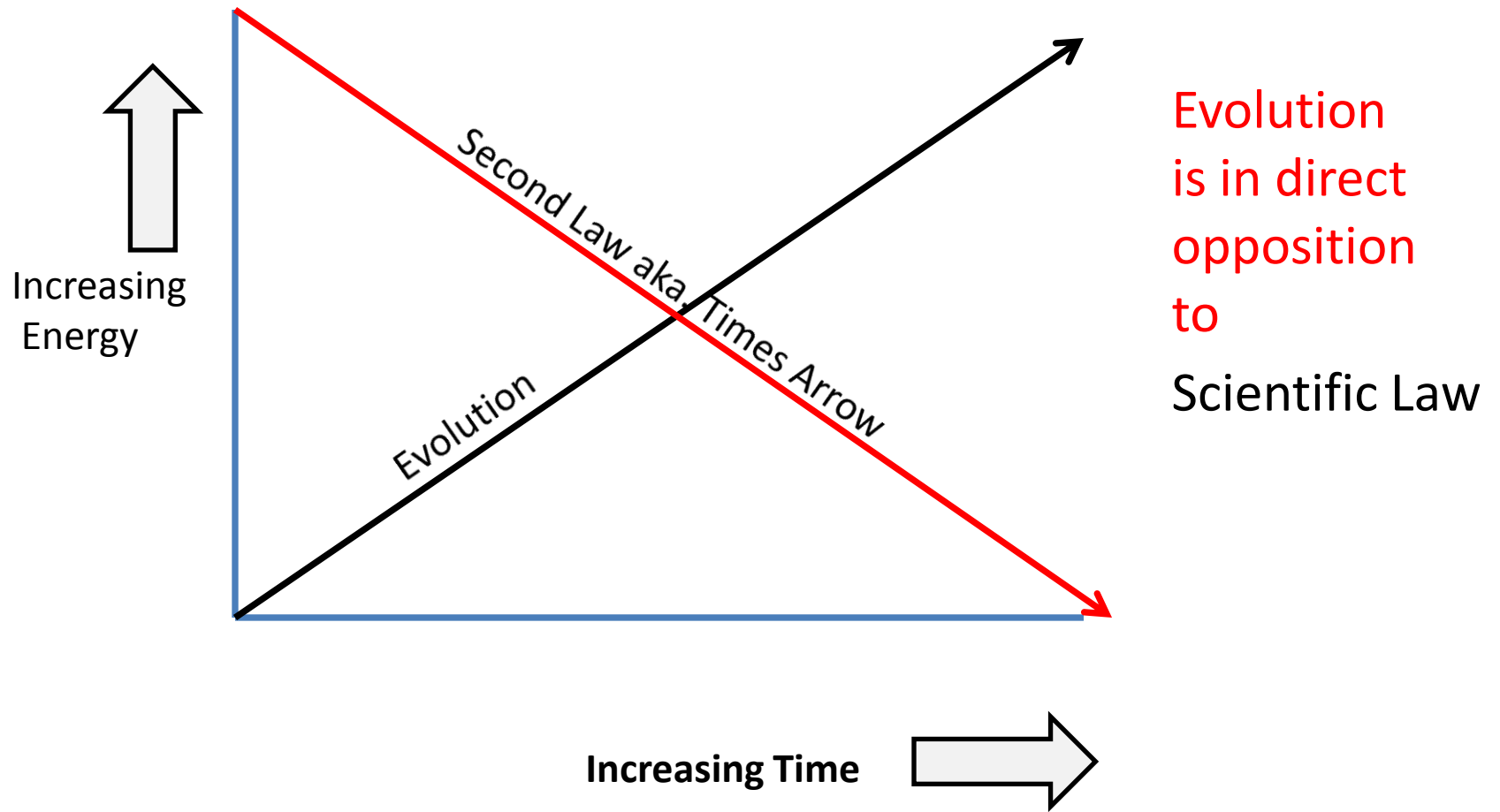
THE SECOND LAW OF THERMODYNAMICS

The Second Law of Thermodynamics refers to the qualitative degeneration of energy.

That energy decay is also called "*entropy*."

Entropy increases as matter or energy becomes less usable.

Second Law of Thermodynamics



Arthur S. Eddington, *The Nature of the Physical World* (1930), p. 74.

"If your theory is found to be against the second law of thermodynamics, I can give you no hope; there is nothing for it [your theory] but to collapse in deepest humiliation."

J.R. Jungck, *"Thermodynamics of Self Assembly: an Empirical Example of Relating to the Entropy and Evolution,"* in *Molecular Evolution*, p. 107.

"Entropy will not be the nemesis of evolution; on the contrary, the selection of entropy-driven processes in biological systems has been responsible for the evolution of the sophisticated organization of contemporary biota."

Lincoln Barnett, *The Universe and Dr. Einstein* (1957), pp. 102-103.

" the fateful principle known as the Second Law of Thermodynamics, which stands today as the principal pillar of classical physics left intact by the march of science, proclaims that the fundamental processes of nature are irreversible. Nature moves just one way."

A.B.Pippard, Elements of Chemical Thermodynamics for Advanced Students of Physics (1968), p. 100.

"There is thus no justification for the view, often glibly repeated, that the Second Law of Thermodynamics is only statistically true, in the sense that microscopic violations repeatedly occur, but never violations of any serious magnitude. On the contrary, no evidence has ever been presented that the Second Law breaks down under any circumstances."

John Ross, *Chemical Engineering News*,
July 7, 1980, p. 40 (Harvard University
researcher.)

"Ordinarily the second law is stated for
isolated systems, but the second law
applies equally well to open systems."

Charlesworth, Brian, “Entropy: The Great Illusion,” review of *Evolution as Entropy* by Daniel R. Brooks and E. O. Wiley (Chicago: University of Chicago Press, 1986, 335 pp.), *Evolution*, vol. 40, no. 4 (1986), p. 880

“It should be clear that the claim for an inherent evolutionary increase in entropy and organization is based on an arbitrary model which shows signs of having been constructed simply to yield the desired result....

There is nothing in evolutionary or developmental biology that justifies their assumptions that a successful mutation is always associated with an increase in some global measure of phenotype.

Nor is there anything to support the assumption that new species arise as the result of single gene mutations and are initially genetically uniform.

If these assumptions are removed, the whole edifice collapses.”

There are 3 main evidences that creationists can use to confound evolutionists:

1. 2nd Law of Thermodynamics

(Genesis 3:14-19)

2. Origin of life

(Genesis 1:11-27)

3. Origin of the universe

(Genesis 1:1)