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Shaking Up Kansas Education

If you've been on this planet for the past three months, you've undoubtedly heard of the Kansas school board's decision on evolution and the state's science curriculum Standards. Unfortunately, much of what you "heard" in the secular media may not have been correct. On pages 6 and 7 we have reprinted a couple of opinion articles which provide perspectives on some of the major issues surrounding the Kansas decision.

Lions and tigers and bears; Oh my!

To listen to the media and the evolutionists, you would have thought this was the end of education in the free

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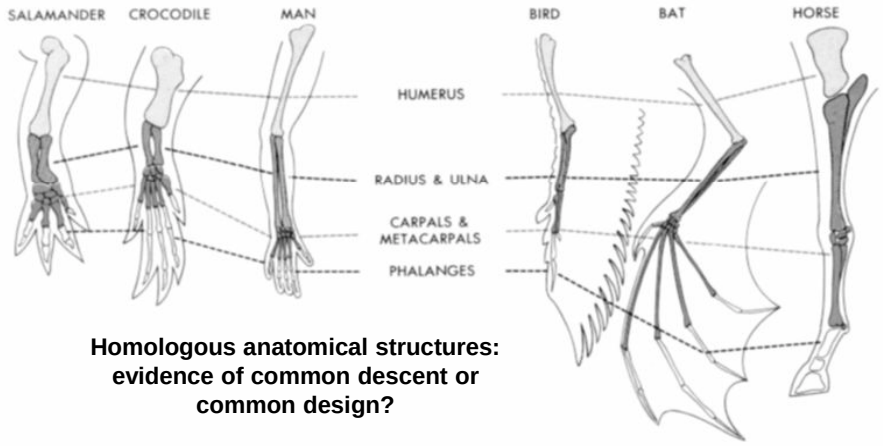

Homologous anatomical structures: evidence of common descent or common design?

Homology and Origins

by George F. Howe, Ph.D.

Homology is a biological term used when comparing features of one organism with those of a different organism. If two widely separated creatures have a similarity of structure between particular body parts, those parts or organs are said to be **homologous** to each other. From comparative anatomy, one example of homology would be the resemblance of the human hand and arm bones to the corresponding bones inside a bat's wing.

Creationist roots

The concept of homology was originated by scientists who believed in creation. The key 18th-century biologist, Carolus von Linnaeus held that the Creator utilized various patterns, plans, or (as he called them) "archetypes." Based on this arche-

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"Not by Chance" Comments by the Author

by Lee M. Spetner, Ph.D.

Editor's note: *This is used by permission of the author. Dr. Spetner's book is an important contribution to the origins dialogue. A very thorough review was published in* Creation Matters *Volume 2, Number 4 (1997).*

After having seen comments made about my book — some correct, some incorrect — I think it appropriate to indicate my own comments about the significance of my book.

In the book I show that neo-Darwinian evolutionary theory cannot do what is claimed for it. The theory cannot account for the development of life from some simple beginning. It cannot account for the broad sweep of evolution.

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"Not by Chance" Comments

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The book is a bit technical in spots, but I have tried to write it in a form that a layman could follow, even if it takes some effort. I had to make it somewhat technical because I attack a paradigm to which most biologists declare allegiance. I had to present my argument comprehensively enough to withstand any potential criticism from evolutionists. Indeed, several respected biologists, including a Nobel laureate, have praised my book and have acknowledged the force of my argument. Others have criticized the book, but none of the criticism so far has been substantive. No one has yet been able to point to a flaw in my basic argument. No one has so far refuted my conclusion.

Claims by biologists

When prominent biologists claim that "evolution is a fact," they are stating a half-truth that means far less than what they would like the public to believe. The theory states that the development of life is a purely natural process, driven by known mechanisms. This is simply not true. There is no evidence that life developed, or even could have developed, by a purely natural process.

According to neo-Darwinian theory, the process that accounts for the evolution of all life is that of random mutations shaped by natural selection. The theory says that evolution is built up by a long series of many steps. In each step many random changes occur in the hereditary storage of organisms. If one of these random changes should by chance happen to make the organism better adapted to its environment, then natural selection will spread that change through the population. Each of these changes is said to be small, but the accumulation of a long series of them is said to account for large changes in populations adapting them to their environment. This process is assumed to work, and on the basis of that assumption evolution is said to account for the development of all life.

Experiments have also been performed to show that the process of selection does indeed work under the right conditions. Moreover, random mutations have been observed that do improve the adaptiveness of the organism under certain conditions. From these observations, evolutionists have extrapolated to say that random mutations and natural selection can account for the development of life.

Probability is too small

I have shown in my book that the broad sweep of evolution cannot be based on random mutations. I have shown it on both theoretical and experimental grounds. On theoretical grounds, I have shown that the probability is just too small for random mutations to lead to a new species. On experimental grounds, I have shown that there are no known random mutations that have added any genetic information to the organism. I go through a list of the best examples of mutations offered by evolutionists and show that each of them loses genetic information rather than gains it. One of the examples where information is lost is the one often trotted out by evolutionists nowadays in an attempt to convince the public of the truth of evolution. That is the evolution of bacterial resistance to antibiotics.

Now, clearly, if random mutations could account for the evolution of life, then they must have added a lot of information to the genome from the time of the putative first simple organism until the appearance of all present life. If this vast amount of information was built up by an accumulation of long series of random mutations and natural selection, then each of these many billions of mutations must have, on the average, added some information. Yet after all the molecular studies that have been done on mutations, not a single one has been found that adds any genetic information! They all lose information!

Nonrandom mutations

There is, however, evidence that some evolution has occurred. There is some indirect evidence and there is even some direct evidence. How did it occur? In Chapter 7 of my book, I suggest that although significant evolution cannot occur by random mutations, it could occur by nonrandom mutations. Nonrandom here means that the environment itself influences what mutations can occur. I cite a lot of evidence for evolution by nonrandom mutations — evidence that spans life forms from bacteria through vertebrates.

Whereas standard neo-Darwinian theory relies on point mutations that are essentially mistakes in replicating the DNA, there are other kinds of mutations that are not mistakes. Genetic rearrangements are complex genetic changes. They are carried out with precision and are driven by sophisticated cellular mechanisms. These mutations appear to be triggered by cues from the environment and they do not appear to be the product only of chance. I suggest that these genetic rearrangements are part of a built-in mechanism that permits a line of organisms to adapt to a new environment. I suggest that built into the genetic program of the organism is a set of genetic switches that can be triggered by the environment and enable a heritable switch in the organism to one of a limited set of alternate forms. An interesting feature of this mechanism is that it can cause a population to adapt rapidly to a new environment.

Since my book has been published I have seen that biologists are beginning to acknowledge the importance of these nonrandom mutations in evolution. They suggest, though, that these built-in mechanisms have themselves evolved. Can this be? Classic neo-Darwinian evolution calls for many steps, each consisting of a large number of trials whose duration is a generation. For the evolution of these built-in mechanisms one must invoke the same kind of process, but each trial would have a duration of millions of generations. Can this really be?

type philosophy, Linnaeus correctly assumed that living creatures would fit into an outline of classification. Linnaeus developed that outline and produced our modern system of natural taxonomy based on a philosophy of scientific creationism.

Linnaeus is also remembered for a sweeping statement, written early in his career, that "There are just so many species as in the beginning the Infinite Being created."[1] In his mature years, however, Linnaeus modified this position to accommodate the biological variation which he observed. He believed that species can change or vary within fixed, created limits. His theory of variation, which can occur only inside boundaries established by the Creator, is the forerunner of modern scientific creationism. This theory also fits well with the facts of genetics and taxonomy.

Botanist hall-of-famer

Linnaeus has been called the greatest botanist of all times, and he possessed a scientific genius that was motivated by creationism. Writing of Linnaeus, Loren Eiseley noted that ". . . he glimpsed, more than his fellows, the wonderful pattern of creation, the unities as well as the diversities of form that existed in the mind of God."[2] John Greene indicated that "In the fruiting organs of plants Linnaeus believed he could discern characters 'written by the hand of God' to aid man in distinguishing the genera."[3] Greene also recognized that it was creationism which led Linnaeus to construct what Greene rightly called " . . . an imposing edifice of systematic natural history."[4] The development of systematic biology owes its soul to Linnaeus and to scientific creationism.

In the early 19th century Georges Cuvier devised a systematic approach to the animal world. Now he is remembered as the "father of comparative anatomy." Eiseley reported that Cuvier saw four great animal groups (Vertebrata, Mollusca, Articulata, and Radiata) which he felt were created according to four basic plans. Differences between animals in each great group were, according to Cuvier, ". . . merely slight modifications, founded on the development or addition of certain parts, which produce no essential change in the plan itself."[5] Concerning Cuvier's zoological system, Gordon Taylor asserted that it ". . . was the greatest advance in classification since Linnaeus, and it has formed the basis of all subsequent animal classification."[6] Cuvier's opinions on taxonomy and homology were based on the belief that the creator worked with a limited number of basic archetypes. The creator then modified each plan (archetype) somewhat in producing the various species of animals in each particular group.

Cuvier scorned those who held a materialistic or agnostic philosophy as seen in this quotation: "but we also see how puerile are the philosophers who have given nature a kind of individual existence, distinct from the Creator, from the laws which he has imposed upon motion, and from the properties or forms which he has given to the creatures."[7] Dobzhansky readily acknowledged that Cuvier's classification according to archetypes was founded on his clear understanding of homology: "Cuvier's four types of animal structure were also based on his ability to perceive the homologies of the corresponding parts in different animals."[8] Cuvier's contributions to the study of taxonomy and homology were based on his belief in an orderly creation. William Coleman paraphrased Cuvier as follows: "Nature was orderly because she was subject to the laws ordained by the Creator; our factual knowledge was useful to us and was also a means to glorify the Creator; and nature's intelligibility was nothing less than the direct product of the Creator's provisions."[9] Thoughts similar to these motivate and energize creation scientists of today.

His theory of variation . . . is the forerunner of modern scientific creationism.

Creationist logic

Cuvier's creationist understanding of homology was **scientific** in that it rested on the facts of nature in addition to what he considered to be the truths of revelation. Homology not only fits with scientific creationism but actually resulted from Cuvier's use of creationist logic. Cuvier opposed the idea that creatures of one *kind* could ever change into another, and he was right. Nobody has ever observed the sweeping changes which evolutionists propose. Cuvier's antievolutionism was a scientific decision. It is still possible to present the scientific aspects of creationism to public school students in a scientific format like Cuvier did. The books and papers needed for this are numerous.

We must next mention Richard Owen, an antievolutionist who stressed the biological differences between humans and apes quite vigorously and opposed the concept of their common origin. He even denounced Darwin's book by asserting that Darwin had left "The determination of the origin of species very nearly where . . . [he] found it."[10] After reading *The Origin of Species*, I have to agree with Owen in that regard. This same Owen also rejected what he disdainfully called "literal scripturalism."[11] Like Agassiz, Owen thus represents those scientists who believe in scientific creation but are not otherwise "religious." I mention this, not because I advocate such a stance, but because this group of workers puts to rest the false assertion that it is only Biblebelieving Protestant Fundamentalists who hold to scientific creationism.

Assimilation by evolutionists

Owen is credited with actually coining the word "homologous" as it is currently used in biology. But after such scientific creationists and antievolutionists had developed the useful idea of homology, macroevolutionists began to assimilate it and to claim it as a support for their theory. Similarities between finger bones of man and the bat were said to indicate that both bats and people had diverged from some common ancestry. Furthermore, some evolutionists began to maintain that only macroevolutionary descent can account for such underlying similarity of structure. A closed-minded stance like this can become an impediment to science and to liberal education.

Some of today's one-sided thinking and teaching on origins may hark back to Charles Darwin's own unwillingness to give creationism an open evaluation. He dogmatically wrote on the subject of ho-

mology that: "Nothing can be more hopeless than to attempt to explain this similarity of pattern in members of the same class, by utility or by the doctrine of final causes . . . On the ordinary view of the independent creation of each being, we can only say that so it is — that it has pleased the Creator to construct all animals and plants in each great class on a uniform plan; but this is not a scientific explanation."[12] What Darwin did not admit, however, was that his own statements concerning divergent evolution and common ancestry to explain homology were also beyond the range of all empirical science, and that his theory of common ancestry for all life was and still is an even greater step of faith. Dobzhansky took Darwin's exclusivist position even one step further when he accused creationists of blasphemy for asserting that homology fits with the creation view.[13]

Analogy vs homology

We must consider a slightly different comparative term which has also been widely used in biology — analogy. Two organs which have similarity of overall function, but differ in terms of their basic structure, are said to be **analogous**. The wing of a bat with its skin stretched over elongated finger bones is analogous to the filmy, boneless wing of an insect because both promote the function of flight while each wing is of a very different composition than the other.

Both homology and analogy find coherent explanation in the context of scientific creationism. Creationists maintain that homologous structures were produced because the Creator used the *same* basic archetype or pattern which was modified to fulfill different functions in various animals of that plan. Analogous structures, on the other hand, were produced by the Creator to fulfill similar functions, but the analogous structures were based on a *different* plan or developmental system. To a creationist, the presence of widely different taxa with organs having similar functions (bird wing versus insect wing) are a tribute to the Creator's versatility in making winglike organs from very different biological "materials" (analogy).

Evolutionary problems

Macroevolutionists usually account for homology as the result of divergent evolution from a common ancestry. By way of contrast, they believe that analogous structures developed independently in widely different groups, by an unsubstantiated process they call "convergent evolution." Ernest Mayr succinctly summarized macroevolutionary thought about homology and analogy as follows: "The first step then toward the achievement of a phylogenetic classification is an analysis of the taxonomic characters to determine which of them are derived from common ancestors (homologies) and which are spurious similarities (analogies), usually convergent adaptations correlated with similar habits."[14] In Mayr's scenario, the evolutionary biologists who attempt to produce a natural classification are confronted with a confusing "true-false" exam in which they are forced to discern which resemblances are valid indicators of common ancestry (homology) and which ones are the "misleading" and "superficial" similarities resulting from convergence or parallel evolution in vastly different creatures (analogy).

The macroevolutionists' explanation of homology and analogy is fraught with problems.

To people who have not made an *a priori* philosophical commitment to anti-supernaturalism, the principle of parsimony (sometimes called Occam's razor) favors the creationist explanation of both homology and analogy because it is simpler and more coherent. The macroevolutionists' explanation of homology and analogy is fraught with problems. For a first example, it is highly improbable that so-called analogous features would ever rise in widely separated groups. Leo Berg commented on the extreme unlikelihood of this evolutionary view: "This explanation seems quite improbable. Since every useful variation according to Darwin's theory arises by chance, it is scarcely credible that such a variation should arise accidentally even in one species; but still more incredible would be its occurrence in different species."[15]

Secondly, it may be difficult if not impossible in many circumstances to decide which biological resemblances are "true" indicators of divergence and which are the "false" parallelisms of analogy. Leo Berg lists many zoological examples of parallelism which would be exceedingly difficult to explain in the framework of evolutionary thought.[16] The European toad (*Bombinator*) is very widely separated from the flagellate *Trichomonas angusta* in anybody's taxonomy. Yet Berg illustrates and discusses many striking resemblances between that toad's sperm and these single-celled flagellated organisms. Interested workers will find numerous lists of "embarrassing" resemblances between widely diverse creatures in books by Michael Denton[17] and Evan Shute.[18]

I developed a laboratory exercise which I presented at a National Association of Biology Teachers conference in 1972.[19] In it I showed how students can be introduced to creationism as a reasonable alternative to evolutionary explanations of homology and analogy. I also published an earlier article on homology, analogy, and creation.[20]

In the 1972 paper I showed that the idea "homology means common design not common ancestry" has an important counterpart in the domain of human engineering, construction, and manufacturing. For example, parking garages, bowling alleys, and college classrooms all have light switches on the walls and steel I-beam support structures inside the walls. Not for a second, however, does anyone imagine that the light switch and I-beam homologies in these three types of buildings indicate their derivation from a common ancestry. Nor do we believe at all that they converged to each produce the switches and the beams independently.

We know that such similarities in diverse structures derive instead from each having had a **common designer** (in this case *Homo sapiens*). Creationists believe we should proceed with similar logic in the life sciences to conclude that homologies and analogies are both a tribute to an intelligent designer.

Biochemical homology

Biochemical homologies can also be found. For many years biochemical evolutionists have asserted that molecular similarities between widely different creatures are a tribute to their descent from a common ancestry. Intertaxon differences in the structure of proteins, nucleic acids, and other macromolecules have been used to estimate the evolutionary distance between various groups and to measure the rate of evolution in terms of a phylogenetic "molecular clock." Michael Denton rejects the idea that one can employ biochemical comparisons to devise an evolutionary family tree or a phylogenetic clock. He affirms instead that these comparative biochemical data fit with the predarwinian concept of typology in which all members of one "type" possess all the outline features of that type. All members of a different type possess an entirely different suite of characters peculiar to their type. There are great gaps separating most of the types from other types.

Denton turns this discussion of typology to biochemistry because it is possible to quantify the boundaries of a type more accurately there than in morphology or anatomy. He illustrates typological distinctions from comparative cytochromeC data. In his figure 12.1, for example, it is obvious that the cytochromes of everything from horse, dog, and tuna to lamprey, sunflower, and yeast are **equidistant** from the cytochromes of the bacterium *Rhodospirillum rubrum* (all being about 65% different from that bacterium).[21]

Denton is also amazed that the cytochromes of yeasts are 69 percent different than *R. spirillum* cytochromes and the cytochromes of horse differ also by 64% from *R. spirillum* bacteria. There is no basis here to assert that R. spirillum is any "closer" to a yeast than it is to a horse. There is no phylogenetic series. Likewise the cytochrome differences between the carp (fish) and mammals, reptiles, or birds are all the same — 13%. In terms of cytochromes, a carp is no closer to a bullfrog than it is to a horse. These data are at odds with the usual macroevolutionary belief that amphibia served as a link from fish to "higher" vertebrates.

The lamprey, favorite prototype for a phylogenetic link, has cytochrome differences that put it equidistant from carp, frog, chicken, kangaroo, and human — roughly 76%. All of this means that biochemical homologies do not demonstrate patterns of phylogeny, as is often touted. And where biochemical studies do support a graded scale of differences (proteins of human, chimpanzee, tarsier, etc.), one would predict this scale on the basis of creation design; the data do not demand a macroevolutionary interpretation.

Genetic homology

With the development of genetics it was surmised that homology simply results from similar genes in different animals. But geneticists and embryologists discovered the puzzling fact that nonhomologous structures can be produced even when two organisms have homologous (nearly the same) genes. In their perceptive review, Wells and Nelson[22] have noted that mouse and fruit fly have very similar Hox genes (the "eyeless" locus), but those genes trigger production of very different eyes: compound eyes in fruit fly versus mammalian eyes in mice.

Conversely, it has been noted by embryologists that some structures which are "homologous" can be produced by nonhomologous (different) gene pathways. Here Wells and Nelson cite flies with a mutated homeobox "eyeless" allele which yielded eyeless flies for many generations; but some of their later descendants produced normal eyes even though they still possessed the mutant Hox "eyeless" allele. Evidently genes that are nonhomologous here are causing a similar phenotype: normal eyes. Wells and Nelson imply that studies like these are what led Gavin de Beer to conclude that "homologous structures need not be controlled by identical genes. . ."[23] de Beer pondered: "What mechanism can it be that results in the production of homologous organs ... in spite of their not being controlled by the same genes?"[24] Wells and Nelson state that twenty-six years later, de Beer's question still has not been answered. I believe the truth is rooted in acknowledging the overwhelming versatility of the designer who has evidently chosen to bring the same pattern into existence by different biochemical pathways. The two concepts of homology and analogy thus need to be completely restructured by both scientific creationists and macroevolutionists to square with new biological discoveries like the above.

References

1 Clark, Robert E. D. 1958. *Darwin: Before and After*. Moody Press. Chicago. p. 39, p. 64, 65.

2 Eiseley, Loren. 1958. *Darwin's Century*. Doubleday. Garden City, NJ. p. 23.

3 Greene, John. 1959. *The Death of Adam*. The New American Library. New York. p. 137.

4 *Ibid.*, p. 136.

5 Eiseley, *op. cit.*, p. 87.

6 Taylor, Gordon. 1963. *The Science of Life*. McGraw Hill. New York. p. 138.

7 Coleman, William. 1964. *Georges Cuvier: Zoologist*. Harvard University Press. Cambridge, MA. p. 26.

8 Dobzhansky, Theodosius. 1955. *Evolution, Genetics, and Man*. John Wiley, New York. pp. 227-228. (Here Dobzhansky also wrote ". . . This opinion may be said to be implicitly blasphemous: it actually accuses the Creator of arranging things so they would suggest evolution merely to mislead honest students of His works.")

9 Coleman, *op. cit.*, p. 28.

10 Clark, *op. cit.*, p. 64.

11 *Ibid.*, p. 65.

12 Darwin, Charles. 1959. *The Origin of Species*. Dent: Dutton. NewYork. pp. 414-415.

13 Dobzhansky, *op. cit.*

14 Mayr, Ernst. 1953. *Methods and Principles of Systematic Zoology*. McGraw Hill. New York. p. 42.

15 Berg, Leo. 1969. *Nomogenesis or Evolution Determined by Law*. MIT Press. Cambridge, MA. p. 158.

16 *Ibid.*, p. 160.

17 Denton, Michael. 1985. *Evolution: A Theory in Crisis*. Adler and Adler. Bethesda, MD. 368 pp. (A scientist but not a creationist, this author takes most aspects of neodarwinism to task and shows that the data have better fit with a predarwinian philosophy of biology called typology in which many distinct types of life appear to be unconnected by linking forms.)

18 Schute, Evan. 1961. *Flaws in the Theory of Evolution*. The Ternside Press. London, Canada. 285 pp.

19 Howe, George F. 1971. Homology, analogy, and innovative teaching. National Association of Biology Teachers Convention. San Francisco, Oct. 27.

20 Howe, George F. 1965. Homology, analogy, and creative components in plants. *Creation Research Society Quarterly* 2:14-21.

21 Denton, *op. cit.*, p. 279.

22 Wells, Jonathan, and Paul Nelson. 1997. Homology: a concept in crisis. *Origins and Design* 18:1219.

23 de Beer, Gavin. 1971. *Homology, An Unsolved Problem* (Oxford Biology Readers, J.J. Head and O.E. Lowenstein, editors). Oxford University Press, London. p. 15.

24 *Ibid.*, p. 16.

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THE WALL STREET JOURNAL

The Church of Darwin

by Phillip E. Johnson

A Chinese paleontologist lectures around the world saying that recent fossil finds in his country are inconsistent with the Darwinian theory of evolution. His reason: The major animal groups appear abruptly in the rocks over a relatively short time, rather than evolving gradually from a common ancestor as Darwin's theory predicts. When this conclusion upsets American scientists, he wryly comments: "In China we can criticize Darwin but not the government. In America you can criticize the government but not Darwin."

That point was illustrated last week by the media firestorm that followed the Kansas Board of Education's vote to omit macro-evolution from the list of science topics which all students are expected to master. Frantic scientists and educators warned that Kansas students would no longer be able to succeed in college or graduate school, and that the future of science itself was in danger. The New York Times called for a vigorous counteroffensive, and the lawyers prepared their lawsuits. Obviously, the cognitive elites are worried about something a lot more important to themselves than the career prospects of Kansas high school graduates.

The root of the problem is that "science" has two distinct definitions in our culture. On the one hand, science refers to a method of investigation involving things like careful measurements, repeatable experiments, and especially a skeptical, open-minded attitude that insists that all claims be carefully tested. Science also has become identified with a philosophy known as materialism or scientific naturalism. This philosophy insists that nature is all there is, or at least the only thing about which we can have any knowledge. It follows that nature had to do its own creating, and that the means of creation must not have included any role for God. Students are not supposed to approach this philosophy with open-minded skepticism, but to believe it on faith.

The reason the theory of evolution is so controversial is that it is the main scientific prop for scientific naturalism. Students first learn that "evolution is a fact," and then they gradually learn more and more about what that "fact" means. It means that all living things are the product of mindless material forces such as chemical laws, natural selection, and random variation. So God is totally out of the picture, and humans (like everything else) are the accidental product of a purposeless universe. Do you wonder why a lot of people suspect that these claims go far beyond the available evidence?

. . . one reason the science educators panic at the first sign of public rebellion is that they fear exposure of the implicit religious content in what they are teaching.

All the most prominent Darwinists proclaim naturalistic philosophy when they think it safe to do so. Carl Sagan had nothing but contempt for those who deny that humans and all other species "arose by blind physical and chemical forces over eons from slime." Richard Dawkins exults that Darwin "made it possible to be an intellectually fulfilled atheist," and Richard Lewontin has written that scientists must stick to philosophical materialism regardless of the evidence, because "we cannot allow a Divine Foot in the door." Stephen Jay Gould condescendingly offers to allow religious people to express their subjective opinions about morals, provided they don't interfere with the authority of scientists to determine the "facts" — one of the facts being that God is merely a comforting myth.

There are a lot of potential dissenters. Sagan deplored the fact that "only nine percent of Americans accept the central finding of biology that human beings (and all the other species) have slowly evolved from more ancient beings with no divine intervention along the way." To keep the other 91% quiet, organizations like the National Academy of Sciences periodically issue statements about public school teaching which contain vague reassurances that "religion and science are separate realms," or that evolutionary science is consistent with unspecified "religious beliefs."

What these statements mean is that the realms are separate because science discovers facts and religion indulges fantasy. The acceptable religious beliefs they have in mind are of the naturalistic kind that do not include a supernatural creator who might interfere with evolution or try to direct it. A great many of the people who do believe in such a creator have figured this out, and in consequence the reassurances merely insult their intelligence.

So one reason the science educators panic at the first sign of public rebellion is that they fear exposure of the implicit religious content in what they are teaching. An even more compelling reason for keeping the lid on public discussion is that the official neo-Darwinian theory is having serious trouble with the evidence. This is covered over with the vague claim that all scientists agree that "evolution has occurred." Since the Darwinists sometimes define evolution merely as "change," and lump minor variation with the whole creation story as "evolution," a few trivial examples like dog-breeding or fruit fly variation allow them to claim proof for the whole system. The really important claim of the theory — that the Darwinian mechanism does away with the need to presuppose a creator — is protected by a semantic defense-in-depth.

Here's just one example of how real

science is replaced by flim-flam. The standard textbook example of natural selection involves a species of finches in the Galapagos, whose beaks have been measured over many years. In 1977 a drought killed most of the finches, and the survivors had beaks slightly larger than before. The probable explanation was that larger-beaked birds had an advantage in eating the last tough seeds that remained. A few years later there was a flood, and after that the beak size went back to normal. Nothing new had appeared, and there was no directional change of any kind. Nonetheless, that is the most impressive example of natural selection at work that the Darwinists have been able to find after nearly a century and a half of searching.

To make the story look better, the National Academy of Sciences removed some facts in its 1998 booklet on "Teaching About Evolution and the Nature of Science." This version omits the flood year return-to-normal and encourages teachers to speculate that a "new species of finch" might arise in 200 years if the initial trend towards increased beak size continued indefinitely. When our leading scientists have to resort to the sort of distortion that would land a stock promoter in jail, you know they are in trouble.

If the Academy meant to teach scientific investigation, rather than to inculcate a belief system, it would encourage students to think about why, if natural selection has been continuously active in creating, the observed examples involve very limited back-and-forth variation that doesn't seem to be going anywhere. But skepticism of that kind might spread and threaten the whole system of naturalistic belief. Why is the fossil record overall so difficult to reconcile with the steady process of gradual transformation predicted by the neo-Darwinian theory? How would the theory fare if we did not assume at the start that nature had to do its own creating, so a naturalistic creation mechanism simply has to exist regardless of the evidence? These are the kinds of questions the Darwinists don't want to encourage students to ask.

This doesn't mean that students in Kansas or elsewhere shouldn't be taught about evolution. In context, the Kansas action was a protest against enshrining a particular worldview as a scientific fact and against making "evolution" an exception to the usual American tradition that the people have a right to disagree with the experts. Take evolution away from the worldview promoters and return it to the real scientific investigators, and a chronic social conflict will become an exciting intellectual adventure.

Mr. Johnson is professor of law at the University of California, Berkeley, and the author of "Darwin on Trial" (Intervarsity Press, 1993).

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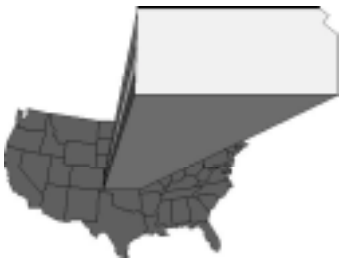

Darwinism and Design

by Jay Richards

The Washington Post

Last week the Kansas Board of Education voted to remove from state standards references to evolution as the underlying principle of biology. While the vote allows schools the freedom to teach about evolution, the battle is being reported as a simple conflict between scientific "evolutionists" on one side and fundamentalist "creationists" on the other, following the standard trope of the Scopes "monkey trial," immortalized in the 1960s movie "Inherit the Wind."

But whatever truth it holds, this description misses the more interesting and complex story. A scientific controversy is afoot, but it does not follow the script of "Inherit the Wind."

To see the issue clearly, one must focus not on "evolution" but on "Darwinism." Biologist George Johnson recently wrote that "organic evolution" is "one of the most solidly validated facts of science." In a sense, this is correct, if "evolution" simply means change over time. But orthodox Darwinists generally use "evolution" to mean much more: namely, that all living things have evolved — without purpose or design — from a common ancestor by natural selection working on random genetic mutations. Life itself, they tell us, emerged from a mindless combination of chance and necessity.

Here's the problem. Any such denial of purpose and design concerning our origins is inevitably ideological. Because of this, many parents — religious and otherwise — object to its dogmatic acceptance in public education. Of course, if it were true, then denying it would be foolhardy. But in fact this broader story contradicts a large body of scientific evidence. At present, most school textbooks either avoid these facts or misrepresent them.

Consider the hypothesis of universal common descent. Numerous molecular comparisons now suggest that bacteria, fungi, protozoa, plants and animals — while they share interesting commonalities — are not descended from a single organism. Fossil evidence reveals that the major groups of animals appeared relatively suddenly in the "Cambrian explosion," with no record of common ancestors.

In addition, most textbooks still present illustrations of similarities in vertebrate embryos as evidence of common ancestry, even though embryologists now know that such drawings distort the truth.

But even if we knew that universal

common descent was true, the (neo-) Darwinian mechanism of random mutations and natural selection would face severe obstacles. The mechanism can preserve populations and produce antibiotic and pesticide resistance, but it can do little else. To account for evolution writ large, some mutations must modify embryo development in beneficial ways. But recent experiments show that all developmental mutations are harmful.

For years the most popular evidence for natural selection was "industrial melanism" in peppered moths. When tree trunks were darkened by pollution, dark moths prospered while the light ones became bird food. When the trunks lightened, the situation reversed. However, as biologist Jonathan Wells showed in the May 24 issue of the Scientist, this story was discredited in the 1980s, when biologists discovered several errors in the studies, including the fact that peppered moths do not normally rest on tree trunks. Even if accurate, all this "evidence" would have shown was that natural selection can affect an existing population, which no one disputes. It never told us anything about the origin of moths.

Before Darwin, most scientists argued that living things display the hallmarks of intelligent design. In 1859 Darwin offered what many claim is the decisive refutation of design arguments in biology. To prevent a counteroffensive, Darwin redefined "science" to eliminate explanations that appeal to design, since he knew that design was the most likely alternative to his theory.

Likewise, contemporary Darwinists insist that while teachers can offer "scientific" arguments against design, they can't mention arguments for design. But if scientific arguments against design are possible, then — at least in principle — there can be scientific arguments for design. They may be wrong, but they can't be ruled out by definition.

. . . Darwinists insist that while teachers can offer "scientific" arguments against design, they can't mention arguments for design.

In fact, a growing number of scientists and other scholars are finding scientific evidence that life and the universe were intelligently designed. While their arguments have religious implications — as do all theories of origin, including neo-Darwinism — they are based on contemporary scientific discoveries, not religious authority or biblical texts.

For example, in "Darwin's Black Box," Michael Behe described several "molecular machines," such as the bacterial flagellum, that resist Darwinian explanation and give us reason to conclude that they are designed. Less known is a recent book by philosopher and mathematician William Dembski, "The Design Inference." Dembski offers scientists a rigorous way to distinguish and detect design in the natural sciences, including biology. Since science teachers can do this without assuming the identity of the designer, it provides a way to discuss evidence for and against design while avoiding specifically religious disputes.

Unfortunately, the vote in Kansas will not resolve this conflict any more than will mandating the exclusive teaching of Darwinism. Students certainly should be taught about Darwinian evolution, because it is the prevailing view in modern biology. But its rivals should be discussed as well, so students will have the resources to evaluate the theory rationally. Fairness and objectivity in the science classroom require that teachers teach the controversy, not deny its existence.

The writer is a senior fellow and program director of the Discovery Institute's Center for the Renewal of Science and Culture in Seattle.

Note: This opinion article appeared in the Saturday, August 21, 1999 edition of the WP (p. A19).

Shaking Up Education

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world: Kansas universities will not be able to fill openings in science departments, Kansas students will be denied admittance to college, parents will not take jobs in Kansas because their children will face poor science education, good teachers will have no choice but to pursue other careers, science will no longer be taught, and the sky will fall . . . The editor-in-chief of *Scientific American* (October, 1999) actually encouraged college and university admission boards to contact Kansas officials, saying that the qualifications of high school graduates from that state "will have to be considered very carefully" in light of the "newly lowered education standards."

Here are some facts: evolution was not banned from schools, and the teaching of intelligent design/creation was not mandated. The issue, how evolution should be taught, can now be determined by local school districts rather than being mandated by the state board of education. Leading up to the board's August decision was an April rewrite of the state's Science Education Standards by a writing committee of educators appointed by the state commissioner of education.

The committee's proposed Standards elevated evolution to "a broad, unifying theoretical framework in biology" providing "the context in which to ask research questions..." Apparently, anyone who rejects evolution cannot practice science. Evolution, as used in this context, means that "living things share common ancestry, and that through time changes have occurred in different lineages as they became adapted to different ways of life" (i.e., macroevolution).

The rewrite was unacceptable to the board of education, resulting in the document that was approved by a 6-4 vote on August 11. The board removed certain sections of the document dealing with macroevolution, because the idea doesn't meet the expectations of empirical science, and left intact those areas dealing with the more testable and falsifiable aspects of evolution, viz., microevolution. Furthermore, the board added "creed" to the Standards' nondiscrimination, inclusion clause — an omission which was obvious in the April draft.

Current status

The new Standards have yet to be published. They contain copyrighted ma-

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Speaking of Science

Evolutionists flee rapid reversals

Some anticreationists are beginning to bray about an article by several paleomagnetic experts which, only at first glance, seems to be a retraction of their earlier evidence for rapid changes of the earth's magnetic field, evidence I have pointed to frequently. The new article, by Pierre Camps, Robert Coe, and Michel Prevot [*Journal of Geophysical Research*, Vol. 104, No. B8 (August 10, 1999) pp. 17,747-17,758], is entitled "Transitional geomagnetic impulse hypothesis: Geomagnetic fact or rock magnetic artifact?" For now, I have just a few comments.

(1) Camps *et al.* did not answer the question their title posed. They are merely, as good scientists, considering an alternative explanation (other than rapid changes in the earth's magnetic field) and pointing out some additional complexities they have found in the data. They did *not* retract their rapid-change hypothesis.

(2) As they say in their introduction, the only reason the secular world found their first hypothesis (rapid field changes) incredible was because it requires very fast (meter per second) flows in the fluid of the earth's core. Such rates would require a catastrophe in the earth's interior to cause them. That is not a problem for young-earth creationist flood models, especially not for the catastrophic plate tectonics model. So creationists have no strong reason not to take the rapid-reversal evidence at face value. *It is only the evolutionists who are motivated to look behind the obvious explanation.*

(3) The authors point out that they could not find any minerological evidence in the rocks they examined which would support the alternative hypothesis, "thermochemical alteration." They wrote:

> A weakness [of the alternative hypothesis] is that we must assume variable rock magnetic properties that we have not succeeded in detecting in order to explain why [thermochemical] alteration was most intense in the centers of these flows rather than nearer the tops.

Personally, I would consider such intelligent and selective changes in the rock magnetism incredible. I would place the burden of proof on advocates of the "alteration" hypothesis. In the absence of solid minerologic data, the rapid field change explanation appears to make much more sense.

Why didn't Camps *et al.* draw that conclusion explicitly? We can only speculate, but perhaps they left the unlikely alternative hypothesis to their colleagues as a straw to grasp at. That would suggest a good deal of desperation among those of their colleagues who want paleomagnetism to support evolutionism at any cost.

Whether one considers the Camps-Prevot-Coe data as evidence for "impulses" in the earth's field, or as parts of full reversals, the data have been difficult for secularists to face up to. I once asked a paleomagnetic expert in New Mexico (who did not know at the time that I was a creationist) what his colleagues thought of those data. He said, "They're perplexed!" It looks as if the perplexity has been painful.

— D. Russell Humphreys, Ph.D.

Selection is no gene genie

In a 9/13/99 column in *Time* magazine (p. 62), Stephen Jay Gould deplores the one-gene-one-trait notion and decries "false beliefs in genetic determinism." He cites the novelty-seeking gene and points out that it also enhances the vulnerability to heroine addiction. He says "the very notion of a gene 'for' something ... lapses into absurdity."

If genetics is so much more complex than we have imagined, if our true level of understanding here is so very incomplete, then how can anyone state categorically that genetic evolution is even possible? Say natural selection "tries" to produce some new trait, by either creating a new gene or by mutating a preexisting one. Either of these events, then, would likely alter, simultaneously, a whole suite of traits in addition to the target trait.

It logically follows that, as the grand unfolding of evolution were to progress, it would every time run into multiplied snags that would then prove fatal to each and every prototype it produced. Our current estimate of our current lack of knowledge would then indicate that evolution is not only unlikely, but completely impossible, right here at the biomolecular level where it's supposed to happen.

— Sam Fox

Brother fungus

Experts who attended the 16th International Botanical Congress (August 1999) came up with a new idea — that fungi are closer to animals than to plants in their anatomy. They also decided that it was freshwater plants that first colonized the land, not the marine plants as has been long taught.

On page 15 of the August 23 *US News & World Report* it was suggested that science textbooks will have to be re-written to modify the "tree of life." Additionally, it is stated that the specific place of each species in the evolutionary tree is important for understanding the species — a total endorsement of evolution as the key to understanding all life.

It has even been suggested by evolutionary biologists, that the reason why we humans have so much trouble fighting off fungal infections is because fungal proteins are too similar to our own, making it difficult for our immune systems to recognize them as being "other" rather than "self." I don't think that this is enough to prove that my ancestors were mushrooms.

— Sam Fox

Shaking Up Education

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terials from other secular science organizations. Since these groups do not support the changes adopted by the board, they have refused permission to use the copyrighted portions. It appears that these sections will have to be reworded or paraphrased to resolve this situation.

The real problem in science education nationwide is illustrated by a statement from a Kansas State University biology professor who commented on the standards controversy.

> Even if all the data point to an intelligent designer, such an hypothesis is excluded from science because it is not naturalistic. (1999. Nature 401:423)

The new Kansas Standards are certainly a step in the right direction when they state that "[N]o evidence or analysis of evidence that contradicts a current science theory should be censored." No wonder the evolution apologists feel threatened.

— Glen W. Wolfrom, Ph.D.

Creation Calendar

Note: Items in "Creation Calendar" are for information only; the listing of an event does not necessarily imply endorsement by the Creation Research Society.

1999

Nov. 16
Creation: What's the Fuss? by R. Walsh
Creation Science Fellowship, Pittsburgh, PA
7:30 pm, Mars CM&A Church, Mars, PA
Contact: (412)341-4908; csf@trfn.clpgh.org

Nov. 20
The Petrified Forest, by Dave Phillipps, M.S.
Bible Science Assoc'n, San Fernando Valley Chapter
7:00 pm, Our Saviour's First Lutheran Church, Granada Hills, CA
Contact: Mark Armitage (626)815-6000 x5519; marmitage@apunet.apu.edu

Nov. 20
Squaw Creek Wildlife Refuge / Fossil Hunt
9 am - 5 pm, CSA for Mid-America (Kansas City Area)
Contact: Tom Willis (816)618-3610; csahq@juno.com

2000

May 19-20
Creation Research Society Annual Board Meeting
Atlanta, Georgia

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