Intelligent Design and Evolution Awareness Center

Icons Haven't Lost Their Touch

A Response to Eugenie Scott

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The following is a reply to Eugenie Scott's lecture at the California Science Teachers Association annual conference in Palm Springs on October 26th, 2001 entitled "Icons of Evolution: The Good, Bad and Ugly". It was passed out to teachers from the Access Research Network Booth the day following her lecture.

Dr. Eugenie Scott's lecture on the *Icons of Evolution*, a book by Dr. Jonathan Wells, makes some good points, but misses the crux of Wells' argument. The presence of false facts in textbooks is indeed an indication of something--but whether it is of dogmatic Darwinist propaganda or mere laziness on the part of textbook writers, many of Wells' arguments raise crucial questions about evidence for evolutionary theory or naturalistic accounts for the origins of life on Earth. We would like to discuss the implications of these icons for the validity of evolutionary theory and respond to some of the claims made by Dr. Scott.

Origins of Life

The natural chemical origin of life was said to not belong in *Icons of Evolution* because it is conceptually different from the actual "evolution" of life. While Wells might do better to qualify his discussion of the Miller-Urey experiment by noting that the chemical origins of life is indeed a field of study separate from biological evolution, Wells actually deals with this issue in much the same manner as many of the textbooks he reviews-- he preludes a discussion of evolution with one of the origins of life. Regardless, Scott finds this icon important enough to take the time to justify it as a support for the origins of life. For this reason, we discuss it here.

Just like many of the other "icons", the Miller-Urey experiment is flatly false, and persists merely because of scientific orthodoxy. Scott claims that the production of the building blocks of life can occur in the presence of very small amounts of oxygen, but this claim flies in the face of statements from Klaus Dose and Sidney Fox, well recognized origins of life researchers referenced in *Icons* (pg. 265-266). Scott implies that much other scientific progress has been made regarding the origins of life, but this was not the impression of Dose in 1988:

> *"More than 30 years of experimentation on the origin of life in the fields of chemical and molecular evolution have led to a better perception of the immensity of the problem of the origin of life on Earth rather than to its solution. At present all discussions on principal theories and experiments in the field either end in stalemate or in a confession of ignorance. New lines of thinking and experimentation must be tried." (Dose, Klaus, "The Origin of Life: More Questions Than Answers," Interdisciplinary Science Reviews, Vol. 13, No. 4, 1988, p.348)*

The natural origins of life may be explainable, but it is as of yet unexplained. After over 50 years of research, most answers aren't forthcoming. The proper scientific response in this situation should be, "we're clueless", but Wells finds the stakes are too high for textbooks to admit ignorance on the "soft underbelly of evolution".

Darwin's Tree of Life

In her *Science* review of *Icons*, Eugenie Scott claims that Wells' statements are "usually technically correct", but his conclusions are wrong. We are then told evolutionists lose no sleep over the Cambrian explosion, but some have admitted that the lack of intermediate forms in the origin of phyla is a "problem" (see *Interpreting Great Developmental Experiments: The Fossil Record* by Valentine and Erwin). Scott assures us in her talk that evolutionary biologists have this situation under control, but a more accurate depiction would be to repeat what she says in her review of *Icons* in *Science*: this Cambrian Explosion is as of yet, "unexplained".

Wells isn't the first to recognize that the Cambrian explosion counts as evidence against evolution. Even Richard Dawkins admits, "It is as though they [Cambrian explosion fossils] were just planted there, without any evolutionary history." (Dawkins, *The Blind Watchmaker*). These sorts of evidences do indeed pose a major challenge to Darwinian evolution, as the origin of these most recognizable body plans and body parts must take place in just a few million years, and there are no fossils documenting these transitions. This compresses the origin of a very large portion of the genetic diversity ever

to have existed on earth into an evolutionary instant, and the lack of transitional forms begs the question if common descent through natural selection had anything to do with this at all. Valentine and Erwin (referenced above) see typical microevolutionary processes as "implausible" to explain all of this. If this doesn't fly in the face of evolutionary predictions, what does?

Regardless of what appears later in the fossil record, the bottom line is that almost all phyla appear in the Cambrian without any previous animal fossils to account for their supposed evolutionary origin. There may be no "lions, tigers, or bears" in the Cambrian (oh my?), but the fact is that when other groups appear in the fossil record, again we often see an "explosion". Paleontologists have called the origin of mammals (with few plausible intermediate fossils) an explosion, for birds there's a bird explosion, and there's even a plant explosion.

Finally, Scott says that fossil fish are all post-Cambrian, yet a jawless fish is reported from Cambrian strata in "Catching the first fish" by Philippe Janvier (Nature Vol. 402, 6757 Pg 21-22). This is remarkable--fish, primitive though they may be, persist from the beginning of the animal fossil record with no plausible ancestral fossils. How something this complex evolved so rapidly with no apparent ancestors is one of the *mysteries of evolution*--perhaps Wells should write another book.

Wells also points out that molecular phylogenies of life's major groups don't look like a Darwinian tree. As Scott says, gene sharing among microorganisms is perhaps a plausible explanation, but regardless, a prediction of Darwinian evolution has again failed, and we are left with an epicycle. But what about cases where gene-swapping isn't an option? Animals don't swap genes like bacteria, but Darwinian trees of the phyla and many chordate classes based upon gene sequences are often little better than the non-Darwinian bush Wells describes for life's 3 domains. The literature is fraught with this failed Darwinian prediction. For starters, we recommend a review of molecular evolution, co-authored by Colin Patterson (*Ann. Rev. of Ecology & Systematics,* vol 24).

Vertebrate Embryos

Scott's major premise here is that vertebrate embryos still provide real evidence for evolution, even if Haeckel faked data. But Wells notes a paradox in embryology because if humans, fish, frogs, and chickens share a common ancestry, we would expect to find similarity of embryos in earliest stages. The fact that they begin very dissimilar, become more similar, and then again become dissimilar is a failed prediction for Darwinism.

Yet embryology, we are told by Scott, still reflects shared ancestry as human and chimp embryos start off looking similar and end looking different. But unlike Haeckel's argument (though flawed) for a human-fish common ancestor, there is no persistent unique feature of grown chimps found in human embryos to independently establish some ancestral link (for Haeckel, it was alleged fish gills in human embryos). Without this special element, Scott is making nothing more than a circular argument for common ancestry, much like Wells describes in his treatment of the "homology icon": similarities in human and chimp embryology are said to be evidence for common ancestry, but this common ancestry is inferred because of similarities.

In Scott's "10 Answers" the explanation is essentially that the more similar the species, the more recent the common ancestor, the more similar the embryology. This can be rewritten as, "the more similar the species, the more similar the embryology", an obvious statement saying nothing about common ancestry. The bottom line is that embryology does not provide support for common ancestry; common ancestry must be assumed.

Archaeopteryx

Wells notes that the alleged therapod dinosaurian ancestors of Archaeopteryx come millions of years after Archaeopteryx in the fossil record. Scott claims Wells' complaints are dismissed by paleontologists who know that a species can disappear from the fossil record for millions of years even though it was alive at that time. Furthermore, Archeaopteryx' position as a "missing link" remains even if it wasn't directly on the line which led to birds. We agree with Scott's sentiments, and within the context of evolutionary theory, they are not invalid assertions. Nonetheless, Wells is right to assert that "immense stretches of time are left with no fossil evidence to support cladistic phylogenies." This evolutionary story is not nearly as solid as it appears in many textbooks.

The 20 million years until Archaeopteryx' ancestors are found is troubling: The constraints of evolutionary theory aside, how sure can we be these therefore are ancestors of Archeopteryx? Although both theropod dinosaurs and birds both walk on 2 legs and have some skeletal similarities, differences such as digit configuration, pelvis shape, teeth, and internal organ setup have all been raised as challenges to the dino-bird hypothesis. Also the avian lung is unique and far different than the reptilian respiratory system. Furthermore, cladistical methods which have established this alleged relationship assume an evolutionary history and ignore major problems with the implications that dinosaurs evolved to fly

from the ground. The bottom line is that any scenario of bird evolution faces major difficulties. Will anyone ask if this means they all might be wrong?

Bird evolution is a great exercise in the storytelling of evolutionary theory. We are typically told stories by textbooks about how dinosaurs took to flight as birds which are supposed to be taken as true. These stories, plausible though they may be, illustrate that evolutionary theory is a historical science, dealing with unrepeatable unobservable events. This is not a fault of evolutionary theory *per se*, but an inherent limitation of historical sciences. Evidence for evolution is based upon inference, and inferences make a much weaker argument than evidence from repeatable observations, such as those which verify atomic theory. For this reason, Scott's analogy that Wells logic leads particle physicists to deny the existence of atoms, is flatly wrong. Wells' analysis of evidences for evolutionary theory show that evolutionary history--historic events of the past--are constantly inferred where there is no good evidence. This is hardly the case with particle physics where technology today literally allows us to photograph atoms using the right techniques. The only photographs Wells discusses are those of fake peppered moths on tree trunks they never rested upon…

Peppered Moths
With regards to the validity of evolutionary theory, it is our opinion that the arguments over moths are a waste of time for both parties. Scott makes some good points about valid methods of research while Wells' points highlight the lack of a clear cut mechanism to account for changing allele frequencies in melanic moths. The fact is that regardless of whether or not the moth story is valid, there are good examples of natural selection out there in scientific literature. But what is natural selection, and does evolution rely solely upon it?

Natural selection is simply non-random death: it is a mathematical certainty given variation in a species and some selection pressure from the environment. But evolution is more than just natural selection--there must be variation upon which selection can act. But where did this variation come from in the first place, and are the mechanisms for originating variation sufficient to account for great genetic changes claimed in evolutionary transitions? The problem lies in the mutation-selection mechanism, where mutations--the ultimate originator of all genetic variation--must somehow account for the origin of the vast and often irreducible complexity of life on earth. The need for mutations to build great complexity remains the Achilles heel for evolution.

Darwin's Finches
Similar to the moth example, Darwin's Finches may turn out to be a non-issue when evaluating the validity of evolutionary origin of life on Earth. Finches, though perhaps not a great example of natural selection themselves, could never provide evidence for anything more than the slightest example of microevolution. Microevolution, or minor change within a species is also a well documented fact. Some of Darwin's Finches may be considered to be different species simply because they are reproductively isolated, however, this is a constructed definition of species which doesn't necessarily imply any significant transformation has occurred.

Unlike microevolution, macroevolution--the ability to turn hominids into humans or reptiles into birds relies upon generally undocumented evidence. Even evidence for speciation might exist which still doesn't validate macroevolution, as it has not been observed to any large degree and biological complexity works against it. As opposed to temporary miniscule changes in the sizes of finch beaks, macroevolutionary claims of common ancestry and transitions between very different types of organisms are the controversial part of Darwin's theory.

Mutant Fruit Flies
In her "10 Answers", Dr. Scott charges that fruit fly mutations provide evidence for the "raw material" for evolution, as this type of mutation produces "new structures that become available for further experimentation and potential new uses". However, this is simply not the case.

Genes can be thought of in two categories: master control genes and body part genes. Body part genes code for actual body parts. Master control genes tell those body part genes when to be expressed and create their respective part. If a master control gene tells a leg-gene to grow out of the thorax in 6 places, then the fruit fly will develop 6 legs. However, without the "leg-gene" the master control gene is useless. "Body part genes" provide the raw material for evolution while master control genes simply activate body part genes. Fruit fly mutations deal only with mutations in master control genes and don't add "raw material".

When a fruit fly develops an extra set of wings, it is because the master control gene for growing wing sets fired in 2 different places during the development of the fly. The "structure" in question is the wings, and the "raw material" lies in the genes for growing wings--not the mutation which caused the second set of wings to grow. It might be a relatively simple mutation to grow an extra set of wings, but it is not a simple mutation to code for an create the "body part gene"

for the wing in the first place. Wells points out, though, that it still takes three specific mutations in the master control gene to get new a wing set, and even then the extra wings are non-functional. Even master-control gene mutations must be specific and complex to be beneficial to the fly.

Developmental biology shows us that organisms are built in a simple step-wise manner, but there is still vast complexity expressed in the organism along each step. Duplicating some steps along the way may be relatively simple and make interesting fruit flies, but this involves a minimal increase in genetic complexity. And even in these cases, it seems that the product isn't very advantageous for the fruit fly. Finally, Jonathan Wells show us that in his homology chapter that developmental biology does not even reflect predictions from common ancestry. The same genes might be present in many organisms, but they have completely non-analogous functions. This sounds like common design more than common descent.

Human Origins

Scott criticizes Wells for discussing some icons, such as the "Ape to human" icon, which weren't in textbooks. But Scott assumes that all of the icons are to be found in textbooks. The "Ape to human" drawing on the cover isn't found in textbooks, probably because most textbook writers are informed enough to recognize it's a false icon. In fact, Wells never claims it is found in textbooks. In his Appendix, "An Evaluation of Ten Recent Biology Textbooks", the "Ape to Human" icon is left off, probably because it wasn't present in the textbooks. However, this picture is prevalent in our society as an icon and many people surely believe it represents real fossil evidence. If anything, Wells' accounts of the amount of interpretation which goes into conclusions made about these few fossils alleged as our hominid ancestors make his point to question this icon very well taken.

Evolution a Fact?

Eugenie Scott claims that evolution is the best explanation we have for similarities and differences between living and extinct organisms. However, Jonathan Wells at least does a good job of showing where some similarities and differences are either non-evidence, or counter-evidence to evolutionary theory. We hope you would study the *Icons of Evolution* for yourself and come to your own conclusions. Whether all of Jonathan Wells' conclusions are true, two things are clear: evidence for evolutionary theory is surely lacking in some important places, and this book will continue to be a royal pain in the fanny for evolutionists in the future.

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