

Scientific Method and Human Dignity in the Balance

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ABSTRACT

This paper is the third in a series exploring the strengths and weaknesses of Bloom's Taxonomy of Learning Objectives. The first paper (*Cracks in Bloom's Taxonomy at 60*) looked at ambiguities. My other paper (*What is the 'Whole Thing'...?*) looked at potential upgrades and room for improvement. This article looks at the current damage being done in the hard sciences for lack of an adequate template of systematic learning. Two articles on Darwin's Theory of Evolution are scrutinised for the same ambiguities, vagueness and gaps in logic as are found in Bloom's Taxonomy. How, where and why the gaps should be *filled in* is presented in this article, and potential upgrades for Bloom's Taxonomy are illustrated with suggested examples and illustrations. The centerpiece of our article is a pair of articles from mainstream, accomplished and credible sources, *National Geographic* and the American Association for the Advancement of Science. Our argument is launched upon the equivocation and conflation between "descent with modification" and "natural selection."

Keywords: Bloom's Taxonomy, dignity, evolution, intelligent design, scientific method

INTRODUCTION

This article examines challenges to human dignity, reason and science posed by contemporary exponents of Darwinism. The objective here is not to disprove Darwinism but to promote objectivity itself,

to assess threats to objectivity posed by leading Darwinists and/or Neo-Darwinists, especially in the magazine *National Geographic* (NG), to illustrate the need for some revival of intellectual discourse with regard to objectivity, scientific method and taxonomies of learning, given the evident deterioration of objectivity in this very mainstream scientific discipline and in its pedagogy, and, finally, to develop and provide a rubric of systematic reasoning,

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in line with this author's earlier articles on learning taxonomies and scientific method, all in order to circumvent pseudo-science or "the path of ignorance." Like a two-part symphony, we expose the reality and then provide deep-healing by suggesting a fresh perspective and a refined methodology. The evasiveness of current Darwinian discourse must be seen to be believed; once seen, one must separate what it claims to prove from what it actually demonstrates; once the demonstration is over, we separate the car salesman from the car, and ask him to upgrade his seller's license, if at all possible.

MATERIALS AND METHODS

Darwinism: a theory of the origin and perpetuation of new species of animals and plants [and in short] that offspring of a given organism vary, that natural selection favors the survival of some of these variations over others, that new species have arisen and may continue to arise by these processes, and that widely divergent groups of plants and animals have arisen from the same ancestors.

Natural Selection: a natural process that results in the survival and reproductive success of individuals or groups best adjusted to their environment and that leads to the perpetuation of genetic qualities best suited to that particular environment.

(Merriam-Webster, 2003)

Our materials are mainstream definitions of Darwinism, like the one given above, often with attached rationales and allegedly supporting evidence. Our method is to compare the scope of the inherent claims with the vector of the evidence. Highlights of the above definition include the nuance that Darwin was not the only scientist contemplating potential modalities of evolution; hence, when one talks of Darwinian theory, something less sweeping in scope than generic evolution is at stake. Likewise, again referring to the quote, the specific *mechanism* of alleged evolution is the zone or dimension of Darwin's greatest contribution to posterity. Lastly, a distinction between micro-evolution and macro-evolution should be observed when talking about evolution, even though Darwin did not understand that definition as clearly as we do currently; that is to say, we must be sensitive to changes or adaptations within a species in addition to the leap or transformation from one species to another whenever we talk about mechanisms of evolution because it is the latter, called "macroevolution," that needs to be tied to Darwin's mechanism of natural selection, if one is to prove that Darwin was "right" or Darwinism is "true." The most salient distinction in this complex debate is stated here, again by a Darwinist (Bowler, 2003):

Charles Darwin's On the Origin of Species was successful in convincing most biologists that evolution had occurred, but was less successful in convincing them that

natural selection was its primary mechanism.

In separating logical arguments and attendant concept-formation, we have recourse to input from the science of logical fallacies, meaning that patent lying will be systematically isolated as such. Then, we will insert the logic of Bloom's Taxonomy of Learning Objectives (or an upgraded version of the same) in order to raise the bar in this debate, beyond fallacies.

STATE-OF-THE-ART DISCUSSION AND RESULTING HYPOTHESIS

We focus on two recent articles defending and promoting Darwinism in order to get at the heart of this issue. One was published by *National Geographic* (founded in 1888) and the other was published online by The American Association for the Advancement of Science (founded in 1848) in defense of a recent legal case against critics of *Darwinism*. Many will be surprised to find Darwinism 'fighting for its life' in the American courts. These articles exhibit archetypical Darwinist 'logic'. *National Geographic's* article was meant to be a full-scale defense of Darwinism in the face of American incredulity. The AAAS is likewise a very accomplished defender of mainstream scientific discourse. It categorically refuses public debate, and offers allegedly clear reasons why debate should be prevented. Let us unpack their vigorous, strident and uncompromising claims.

By the time my article went for publication, AAAS had withdrawn their

rebuttal of alternatives to Darwinism! Be that as it may, the AAAS article, which provides no author, and, therefore, allows the promoters to evade dialogue, states:

The risk, if intelligent design [or purposeful and directed evolution vs. random and accidental evolution] is incorporated into school curricula, is to undermine scientific credibility and the ability of young people to distinguish science from non-science.

(AAAS.ORG, 2012)

In this article, I would like to point out that the above quote certifies that Darwinian evolution is a lynchpin of contemporary scientific theory and methodology. Its author suggests that challenging Darwinism means challenging facts, truth and reason. *The National Geographic* article states the challenge in this way:

Two big ideas, not just one, are at issue: the evolution of all species, as a historical phenomenon, and natural selection, as the main mechanism causing that phenomenon. The first is a question of what happened. The second is a question of how. The idea that all species are descended from common ancestors had been suggested by other thinkers, including Jean-Baptiste Lamarck, long before Darwin....The gist of the concept is that small, random, heritable differences among individuals

result in different chances of survival and reproduction—success for some, death without offspring for others—and that this natural culling leads to significant changes in shape, size, strength, armament, color, biochemistry, and behavior among the descendants.[T]he supporting evidence is abundant, various, ever increasing, solidly interconnected, and easily available in museums, popular books, textbooks, and a mountainous accumulation of peer-reviewed scientific studies...

(Quammen, 2004)

One would expect the author of these statements to present evidence in support of Darwin when the title of the article is *Was Darwin Wrong?* – and when he claims to have at his disposal a “mountain” of evidence, and he speaks for the leading voice in the study of natural history. But here is what the author provides as reasons to believe in evolution:

Evolution is...[1] a beautiful concept and [2] an important one, [3] crucial...to human welfare, [4] crucial to...our understanding of the world [5] crucial to... medical science - [6] [the very thing which] gives meaning to biomedical research - [7] deeply persuasive—a theory you can take to the bank [8] [and it] involve[s] patterns that couldn't be explained

by coincidence. [9] Living creatures can [hereby] be easily sorted into a hierarchy of categories [10] [In fact, scientists] seem to have recorded a speciation event, or very nearly so, [11] [And] There's no better or more immediate evidence supporting the Darwinian theory than this process of forced transformation among our inimical germs.

(Quammen, 2004)

Note that only the last of the 11 points touches upon evidence possibly related to natural selection. Additionally, to unpack the rambling set of proclamations, one must at least recognise that the homology cited is a proof of descent-with-modification, not of natural selection. So we are back to square one.

Now, turning to the same set of arguments from AAAS (2012), we hear that

Very few scientists doubt that evolution happened, although there is lively ongoing inquiry about the details of how it happened... Intelligent design proponents may use the language of science, but they do not use its methodology. They have yet to propose meaningful tests for their claims... This is not about fairness. Science requires adherence to standards of research conduct and process. Intelligent design has not met those standards.

Two amazing background truths scream to be recognised in the context of this statement. Opposite the claim of lively debate about how evolution happened, there is no official public debate within the scientific establishment as to the verity of natural selection. Debate has been made illegal by the courts. The second obvious background scandal is the anonymity of the writer, in direct contradiction to the scientific standards he or she or they are demanding!

Casey Luskin (2012), in an online response to these claims of the scientific establishment, wrote

“Over 700 doctoral scientists have signed a public statement asserting their agreement that they “are skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life.”

This is a powerful and germane statement on a number of counts. First, it is a cogent response to very simplistic proofs of natural selection, as that above, in National Geographic, leveraged singly by analogy to successful mutation in bacteria. Second, it is a testimony to a suppressed debate: There is no visible or prominent forum for the scientists in question. See the talk by Huston Smith (2010) at the Kenan Institute on the modalities of suppressed debate.

This brings us to the revolving door of authoritarianism and logical fallacies, and in particular, to the *post hoc* fallacy, “because

one thing follows another, it is held to cause it” (onegoodmove.org, 2012); here “because higher organisms came afterwards, they were caused by lower organisms.”

CONCLUSION

Summarising the claims of NG’s broadside defence of Darwinism, a pattern of shoddy reasoning emerges:

Appeal to Authority & Style over Substance: People have not taken enough good biology courses.

Anonymous Authority & Slippery Slope: The mass media have not presented evolution clearly.

Begging the Question: Experts have not understood the mentality of the audience.

Fallacy of Exclusion plus the Ad Hominem: Religious fundamentalism is an ongoing threat.

Prejudicial Language: The beauty, usefulness and urgency of Darwinism has not been tabled.

Appeal to Pity: The competence of Darwinists has not been emphasised.

Hasty Generalisation & Post Hoc: Theories in the scientific community mean facts.

Equivocation, Straw Dog & Unrepresentative Samples: Almost all scientists accept evolution.

A first impression of the claims could well be that the authors are insulting our intelligence, by discussing everything but relevant evidence. But as leaders of the scientific establishment, their offence is more serious still. For the sake of intellectual freedom, we must deconstruct their condescension, patent hubris, and thinly-veiled attempts at remote-control lobotomy of their lay audience, or congratulate them for their sleight of hand, if we belong to the cheering section.

In order to undermine the crude thinking which led to this quandary of contradictions, we will also have reference to our newly formulated grid of scientific method and learning taxonomy. In perfect alignment with Bloom's Taxonomy, we have six aspects of cognitive learning, combined with one aspect of affective learning and one aspect of motor-sensory learning, together giving us these eight considerations (with caveats enumerated in earlier articles) as in Fig.1.

Stymying the Fallacies of Appeal to Authority & Style over Substance with True Reflection and Adaptation:

One aspect of human dignity is record-keeping, and this corresponds to Bloom's hard skills, adaptation and reflection. In a thinly-veiled confession of bad record-keeping, when NG blames us *for not reading enough good textbooks*, it is their text books which do not meet the very standards they set. Reflection and adaptation on our part should lead us to reject the textbooks which they themselves reject if we want to preserve our dignity vis-à-vis good records and achieving hard skills. The pursuit of hard skills without a clear sense of reflection and adaptation has led to the current morass and impasse.

Stymying the Fallacies of Slippery Slope & Anonymous Authority with True Synthesis & Circumspect Conclusions:

Another aspect of human dignity is diversified labour, symbolised by the irreducibly complex organ formation. While NG blames the mainstream media for not

Observations & Research	Comprehension or Perspective-Formation	Evaluation & Hypotheses	Reflection & Adaptation
Parallels Bloom's "Knowledge"(Info.)	Parallels Bloom's "Comprehension"	Parallels Bloom's "Evaluation"	Parallels Bloom's "Motor Skills"
Analysis & Classification	The Application Process & Experimental Control	Synthesis & Drawing Conclusions	Enterprise & Projection
Parallels Bloom's "Analysis"	Parallels Bloom's "Application"	Parallels Bloom's "Synthesis"	Parallels Bloom's "Affective Domain"

Fig.1: Upgraded Version of Bloom's Taxonomy

properly educating us, it neglects to mention that the mainstream media is an organ of NG science. They inveigh that the mainstream media are a slippery slope, but it is a slippery slope of their creation.

Stymying the Fallacy of Begging the Question with True Analysis and Classification:

When NG complains that too often scientists overlook that Americans do not know *Darwinism* as a fact, but a theory, again it is their scientists who ostensibly are not teaching this point clearly. “Out of touch with reality” takes on two meanings here i.e. from the perspective of the observer and the observed. If Bloom had connected classification to analysis, scientists might have appreciated the gulf that appeared between inorganic and organic material when DNA was discovered in the 1950s. Even if we today connected classification to analysis, we would label people who could not separate fact from belief as “non-scientists” unless we chose to remove the dignity of objectivity itself, which is the dignity of the human intellect.

Stymying Exclusionary & Ad Hominem Fallacies with Proper Projection and Enterprise:

When NG and its legions exclude fundamentalists from scientific debate, they preclude the affective and symbolic dimensions of meaning in the Big Bang theory from becoming legitimate material for debate, even while affectively and symbolically claiming to “only let the facts speak for themselves”. Symbolism is

part of human dignity, and to selectively and artificially deny that option in our thinking is to undermine dignity. Maybe Bloom practitioners focus on Coat of Arms precluded such an all-embracing scope of meaning for symbolism, and in particular, suggestive, transcendent symbolism.

Stymying the Fallacy of Prejudicial Language with Proper Hypotheses and Evaluation

When NG insists that *Darwinism* is extremely “useful,” it conflates hypothesis with evaluation, as we likewise see in the example of mutation being credited as the sole mechanism for new DNA, whence cause is conflated with effect (also called “circular reasoning”), and hypothesis is obviated. If only Bloom had said, “hypothesize when you evaluate” and allowed for a hierarchy of values, from relative to absolute, which is part of human dignity.

Stymying the Fallacy of Appeal to Pity with Proper Application and Experimental Control

Another aspect of human dignity is noble promotion or promotion by merit. When NG suggests that the **competence** of Darwinists has not been properly appreciated, the cat is really out of the hat, in terms of its baseless self-promotion.

Many good scientists have pointed out that Darwinian evolution is not falsifiable. (conservapedia.com, falsifiability_of_evolution, 2012). Why should we promote scientists just because they have a nice description – in their eyes – of what went on? Conversely, how many experiments of

Darwinists have failed, like the repeated attempts to make living material in a bottle of soup, in the ever-shifty and now infamous Miller-Urey experiment (Shapiro, 1986). If failures do not count in the realm of *Darwinism*, then there is no experimental control, and we are nowhere. Bloom's open-ended "application" without experimental control could be faulted here.

Stymying the Fallacies of Hasty Generalization & Post Hoc with True Perspective-Formation and Comprehension

Another aspect of human dignity is technical leveraging, meaning the human ability to develop a wide variety of tools. By contrast, the Darwinists pretend that the essence of science and humanity is but the corroboration or concatenation of facts, in a very one-dimensional fashion, that of "straight facts" which are really time-sequences. Bloom may be to blame for having equated information with perspective-formation in his "knowledge." His taxonomy, as it stands, lacks a sense of "the big picture," the combined leverage of information (or its absence) and the symbolic progress theoretically linked to it, which many call or consider "spiritual power."

Stymying the Fallacies of Equivocation, Straw Dog & Unrepresentative Samples with True Observations and Research:

When NG says, "Almost all scientists accept that **evolution happened**," they don't define which evolution it is that is being accepted. Does it mean "a change in life-forms" or

the mechanism of that change or both? Also, which life-forms are being referred to? This is the crux of our whole discussion. It is Bloom's disembodied information (in contrast to systematic research) which enabled this ambiguity to grow. Newman, Bloom, Phillips and Studenroth point out:

While it gives us the feeling that a "grand unification" has been achieved, it may lead us to overlook problems in one of these [multifarious sub-] theories by encouraging us to think that evidence for one is really evidence for the other.

In other words, when our methodology deteriorates into rash judgment, it is no longer scientific *per se*, at least not for scientists with an uplifting, and, therefore, real, sense of dignity, a sense of what it means to be uniquely human and therefore of higher intelligence; nay, they preclude the very possibility of meaningful change, which is the essence of the human spirit, or of meaningful growth.

REFERENCES

- American Association for the Advancement of Science. (2012, March). *Evolution and Intelligent Design*. Retrieved from aaas.org/news/press_room/evolution/qanda.shtml.
- Bennett, Donald. (2012). *Cracks in Bloom's Taxonomy at 60*. In the proceedings of the International Conference on Humanities, Society and Culture (ICHSC 2011), November 4-6, 2011, Kuala Lumpur. Published Feb.26-28, 2012. ISSN 2010-4626.

- Bennett, Donald. (2011). *What is the 'Whole Thing' in Islamic Education?*. In the proceedings for the 2nd Selangor International Conference on Islamic Education, (ICIED2011), Bangi-Putrajaya, Malaysia, December 19, 2011.
- Bowler P. J. (2003). *Evolution: the history of an idea*. University of California Press.
- Conservapedia.Com. (2013). *Falsability of Evolution*. Retrieved from http://www.conservapedia.com/Falsifiability_of_evolution.
- Davis, P., & Kenyon, D. H. (1989). *Of Pandas and People*. Richardson, TX: Haughton Pub.
- Dembski, W. A. (1999). *Intelligent Design: The Bridge Between Science and Theology*. Downers Grove, IL: Intervarsity Press.
- Hornyanszky, & Tasi, I. (2009). *Nature's IQ*. Balazs Hornyanszky and Istvan Tasi. Imperial Beach, Ca: Torchlight Publishers.
- Luskin, Casey. (2012). The Facts about Intelligent Design: A Response to the National Academy of Sciences *Science, Evolution, and Creationism*. Retrieved from <http://www.ideacenter.org/contentmgr/showdetails.php/id/1452>.
- Luskin, Casey. (2002). *Icons Still Standing: Jonathan Wells Comes Up Clean Despite Harsh Criticism*. Retrieved from www.arn.org/docs/wells/cl_iconsstillstanding.htm
- Merriam-Webster. (2003). *Merriam-Webster Dictionary*, 11th Edition, Springfield, Massachusetts, USA.
- Meyer, S. C. (2009). *Signature in the Cell*. New York: Harper Collins.
- Monton, B. (2009). *Seeking God in Science: An Atheist Defends Intelligent Design*. Peterborough, Ontario: Broadview Press.
- Newman, R. C., Bloom, J. A., Phillips, P. G., & Studenroth, P. G. (2001). *The Status of Evolution as a Scientific Theory*. Grand Rapids: Interdisciplinary Biblical Research. Retrieved from http://www.arn.org/docs/newman/rn_statusofevolution.htm
- Quammen, D. (2004, November). Was Darwin Wrong? *National Geographic*. November, 2004.
- Shapiro, R. D. (1986). *Origins: A Skeptic's Guide to the Origin of Life*. Summit: New York NY, 1986.
- Smith, H. (2010). *Why Religion Matters: The Future of Faith*. Published on Youtube by The Kenan Institute for Ethics, 2010. See minutes 33:00-34:00 for the relevant highlights.
- Stephen, D. (2012). *Stephen's Guide to Logical Fallacies*. University of Alberta. Retrieved from <http://onegoodmove.org/fallacy/welcome.htm>
- Wells, J., & Dembski, W. (2011). *The Design of Life*. Richardson, TX: The Foundation for Thought and Ethics.
- Wells, J. (2013). *Icons of Evolution Tenth Anniversary* Online Debate Archive between leading scientists. Retrieved on <http://www.iconsofevolution.com/articles.php3>.
- Wikipedia. (2012). *Darwinism*. Retrieved from <http://en.wikipedia.org/wiki/Darwinism>,
- Wikipedia. (n.d). *Modern Evolutionary Synthesis*. Retrieved from http://en.wikipedia.org/wiki/Modern_Evolutionary_Synthesis

