

## **Expelled: No Intelligence Allowed. (2008)**

By Ben Stein

A Selected Response {5/20/09}.

After review of the movie, we decided there were four major points of the film that should be discussed.

- A. Academic freedom is being lost in American science. Scientists who doubt Darwinism are being expelled from academia and blacklisted. We are losing our freedom of thought and inquiry.
- B. Origin of life issue. Since no one knows for sure how life originated, all theories and hypotheses should be discussed. This should include that it could only have occurred through a creator or in the context of Intelligent Design.
- C. Evolution leads to atheism. Without religion there is a breakdown in ethics, morals, and ideas like eugenics are practiced and we become less human. Darwinism has become a religion, a philosophy.
- D. Intelligent Design – why can't all the questions be allowed into the scientific question? What's wrong with freedom of inquiry? Darwinism is wrong – 'no lie can live forever'.

This discussion will not be a point by point analysis of the movie. It will not involve a detailed critique of its intent, marketing techniques, quotes, interviews, etc. An analysis of these topics has been discussed by others (1, 16)

Presentation notes from the two speakers are below.

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### **A. Academic Freedom (Jon)**

1. Five scientists who have supposedly been suppressed for their views either against Darwinism and/or for ID were profiled: Sternberg, Crocker, Egnor, Marks, and Gonzales.
2. A common secular response is that they were *not* suppressed or blacklisted (1).

For example:

a. Sternberg – he was an unpaid research associate at the Smithsonian and an unpaid editor of *Proceedings of the Biological Society of Washington*. He also worked for the NIH. After he agreed to publish the 2004 Meyer's article, he remained at the NIH with full pay and benefits and his Smithsonian position was extended for two years. Mainstream scientific reviewers have not been favorable to the article (2, 3), and he was criticized not for his beliefs, but due to his publishing a paper that was inappropriate for its content and quality; he has been accused of this before (4). The PBSW is a small journal concerned with taxonomy and Meyer's article about the Cambrian 'explosion' was deemed not appropriate. Citing an AAAS resolution on ID (6), the paper was later withdrawn. Sternberg had voluntarily resigned from the editorship six months before the Meyer publication. The reason why this

has been such a flashpoint in the biological sciences is that ID is often criticized for not having any recognized scientific peer reviewed articles published and this gave them one.

b. Crocker – her position at GMU was a non-tenure tract position and her contract was simply not renewed. After leaving GMU she continued to teach at NVCC and later obtained a post doc position at the Uniformed Services University.

### 3. My synthesis:

a. They were indeed blacklisted and their careers hindered; the attempts by the scientific establishment to say otherwise are at best misleading and more likely cowardly. The movie interview with Iowa State University officials was an exception.

b. However, I propose these scientists were removed not for speaking out against Darwinism as the film implies, but for attacking the theory of Evolution. Two questions: what's the difference?, and was this treatment justified? The movie framed it as 'they are being suppressed, but should they be?', and then went on to interview Dawkins, Dennett, PZ Meyers and Scott. I propose that it's proper to criticize Darwinism – lots of practicing biologists do. For example: Stuart Kauffman (17), Ulanowicz (18), and Kirschner & Gerhart (19).

*“Anyone who thinks scientists do not question Darwinism has never been to an evolutionary conference...it is perfectly ok to question Darwinism (or any other ism in science), as long as there is a way to test your challenge. ID creationists have no interest in doing science at all”.* Shermer, Scientific American.

A major unfortunate failure of this movie is that Stein and his writers have not understood the difference between the theories of Evolution and Darwin's theory of natural selection. Darwin proposed not only that evolution had occurred horizontally, for example in the Galapagos finches, but also vertically when he studied extinct huge ground sloth fossils and compared those to present living smaller species. His main contribution was that he supplied a mechanism, natural selection, to explain how evolution occurred. He saw no reason why the vertical changes could not extend back through time to one or more common ancestors. Throughout the movie, mainstream scientists such as Dawkins proclaim that Evolution is fact only to have Stein then ask why Darwinism can't be questioned. Both sides seem confused by the others' statements throughout the film. If Darwin's theories were shown to be wrong or at least inadequate, we would still be able to show that evolution has occurred by examining the fossil record and looking for traces of evolution in our DNA (discussed below). Biologists would need to find another mechanism or improve/add to natural selection and mutation, but the overwhelming evidence that Evolution is a well established principle stands apart from Darwin's ideas and of course preceded 1859. We accept Evolution; we don't believe in it as a faith, philosophy or religion.

c. Conducting an ad campaign against evolution is similar to attacking cell, atomic or gravitational theories in the eyes of mainstream science. We would expect the astronomy/physics department to expel astrologers and the chemistry department to expel alchemists. Proposing ID in science is seen as teaching false science; would you want

pseudoscience taught in your classrooms or the foundations of science grounded in principles of the supernatural, which are un-testable?

Rather than looking at each Expelled scientist profiled in the movie, I propose to look at two in more detail. The reader will find that each of these scientists had ties to ID and were not just mainstream scientists who were dismissed because they questioned Darwin.

d. Sternberg background. He seems at heart to be more interested in philosophy, and has had many thoughts about the inadequacy of Darwinism (8). As a side issue, view the film again and note how many of the proponents of ID in this film have degrees in mathematics, philosophy and history rather than the biological sciences. Sternberg has two earned doctorates in the biological sciences. Sternberg's journey in his own words has been posted online, with his telling of the Meyer affair (8). Although he claims to not be an ID proponent, he has been affiliated with some interesting groups (9).

- 1) Editorial board of The Baraminology Study Group – a young earth creationist group attempting to define biblical 'kinds' (2001)
- 2) ISCID fellow – International Society for Complexity, Information and Design, an ID group that appears not to be very active at this time.
- 3) A signer of the DI's Dissent from Darwin Petition
- 4) Presented a paper on ID at an ISCID conference in 2002.
- 5) Became a research fellow at the Biologic Institute, a branch of the DI in Seattle after 2007 (perhaps because he could no longer obtain regular work).

e. Crocker background – although she claimed to have lost both of her teaching jobs because she only showed a 'few slides questioning Darwin', a review of her material shows significant creationist material and outdated information used in her lectures. Statements such as "no one has seen a dog turn into a cat", peppered moth slides from Wells' accusations, supposed origin of life experiment problems, etc. all point to a serious lack of basic biological understanding (11,12). These charges have been adequately addressed and it is baffling why she would just be repeating discredited creationist claims (even ID people don't tend to use creationist claims). PZ Meyers said she was dismissed for "educational malpractice". Some of the slides she has produced can be viewed on the Internet and were used by a creationist church that is pro-YEC (13). A critique of her slides showing her lack of understanding of basic evolutionary concepts has been profiled in detail (14).

In 2008 for a short time she became the Executive Director of the [Intelligent Design and Evolution Awareness Center](#). In 2008 she was the featured speaker at a Gutenberg College symposium in Eugene, Oregon on Academic Freedom. Gutenberg is a conservative Christian College, and she spoke of her many years of doubts regarding evolution and Darwinism. She also detailed how she became blacklisted and could not find new work in traditional teaching, speaking of a loss of her part-time work and inability to obtain further teaching positions (15). She also recalled how an attorney who wished to help her was subsequently terminated from his law firm.

f. There has been a well coordinated movement to use this film as part of a strategy to influence the American people that academic freedom is threatened. American antievolution groups have constantly attempted to frame the debate to their advantage during the last few decades: Teach two models – 1980s (but it is argued by scientists that ‘scientific creationism’ is not a theory, and renaming it and evolution a ‘model’ does not justify it being taught in the classroom), Teach the controversy – 1990s (What controversy?, scientists respond that Evolution is accepted by well over 95+% of scientists. The controversy issue is thus contrived), and now “Academic Freedom” – 2000s (They won’t let us have our say) and “Teaching a critical analysis of evolution”. Other ways Academic Freedom is being championed as a cause include:

g. Academic Freedom Day, 2/12/09, proposed by the DI to counter Darwin Day on the same date. See The Discovery Institute’s web site. (7,10).

h. Academic Freedom Laws (antievolution bills) have been introduced into many states with so far only Louisiana passing one (5). States include Alabama, Oklahoma, Maryland, Florida, Louisiana, New Mexico, Iowa, Missouri, South Carolina, and Michigan. Legal templates for passage are guided and pushed by the Discovery Institute (10).

i. If ID is a viable scientific theory, then win your case by the scientific evidence, not by producing films, going to churches, and sliding through the backdoors of school boards and legislatures to force scientists to teach and conduct research using a paradigm that they do not support. These stealth attempts also prompt lawsuits, the only way to stop unscientific ideas from being introduced into science using means outside of the discipline. Yes, it’s very hard to unseat an established scientific view, but not impossible. For example, look at what Marshall and Warren had to go through to convince the medical community that peptic ulcers were nearly always caused by an infection and not other etiologies (20). Yes, it will be difficult to obtain grant money, etc. but examine who funds the DI and in what amounts, and what about money sources such as the Templeton Foundation? Instead of a media programs, why not put that money into real scientific research showing ID a viable form of scientific inquiry?

**Summary:** *The scientists who were forced to resign, disciplined, or found it difficult to find work were indeed expelled from the scientific community for ‘conduct unbecoming a scientist’. Academic freedom is allowed in science but questioning a theory as well established as evolution without good reasons is not. Teaching astrology is not tolerated as a valid scientific enterprise within the astronomy/cosmology/physics departments nor is alchemy in the chemistry department. There are many active scientists who question Darwinism and have not been banished as the Expelled scientists have. The movie confuses Darwinian natural selection and Evolution. You don’t need Darwin to study the evidence for evolution. Other theistic scientists such as Francis Collins and Kenneth Miller have been able to continue their work without challenge because they accept the framework of methodological naturalism and that it leads to the acceptance of evolution as the best explanation for the diverse fields of science no matter what your theological worldview is.*

j. So, if ID is being suppressed and those scientists who question evolution (not Darwinism as the film claims) being expelled, often harshly, the question now is how solid is the evidence for evolution and what's the harm in at least talking about ID? Why can't ID at least have a seat at the scientific table?

Are there any independent reviewers outside the scientific community and ID that have looked at the issues and come to a conclusion about ID and 'scientific creationism' before it?  
(21)

These topics will be addressed in section D.

## A.

- (1) <http://www.expelledexposed.com/>
- (2) <http://pandasthumb.org/archives/2004/08/meyers-hopeless-1.html>
- (3) <http://www.palass.org/modules.php?name=palaeo&sec=newsletter&page=25>
- (4) <http://www.expelledexposed.com/index.php/the-truth/sternberg>
- (5) [http://en.wikipedia.org/wiki/Academic\\_Freedom\\_bills](http://en.wikipedia.org/wiki/Academic_Freedom_bills)
- (6) <http://www.aaas.org/news/releases/2002/1106id2.shtml>
- (7) <http://www.academicfreedomday.com/about.php>
- (8) <http://www.rsternberg.net/pdf/sternintellbio08.pdf>
- (9) [http://en.wikipedia.org/wiki/Richard\\_Sternberg](http://en.wikipedia.org/wiki/Richard_Sternberg)
- (10) [http://en.wikipedia.org/wiki/Discovery\\_Institute\\_intelligent\\_design\\_campaigns](http://en.wikipedia.org/wiki/Discovery_Institute_intelligent_design_campaigns)
- (11) [http://en.wikipedia.org/wiki/Caroline\\_Crocker](http://en.wikipedia.org/wiki/Caroline_Crocker)
- (12) [http://www.washingtonpost.com/wp-dyn/content/article/2006/02/03/AR2006020300822\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2006/02/03/AR2006020300822_pf.html)
- (13) <http://www.coralridge.org/medialibrary/default.aspx?oldUrl=http://www.coralridge.org/medialibrary.asp&mediaId=2799&rd=1>
- (14) <http://www.expelledexposed.com/index.php/the-truth/crocker>
- (15) Personal knowledge as I attended the symposium.  
<http://www.gutenbergcommunity.org/?p=158>;  
[http://www.gutenbergcommunity.org/pdfs/NV\\_08.10.pdf](http://www.gutenbergcommunity.org/pdfs/NV_08.10.pdf)
- (16) [http://blogs.suntimes.com/ebert/2008/12/win\\_ben\\_steins\\_mind.html](http://blogs.suntimes.com/ebert/2008/12/win_ben_steins_mind.html)
- (17) [http://www.salon.com/env/atoms\\_eden/2008/11/19/stuart\\_kauffman/](http://www.salon.com/env/atoms_eden/2008/11/19/stuart_kauffman/)
- (18) [http://en.wikipedia.org/wiki/Robert\\_Ulanowicz](http://en.wikipedia.org/wiki/Robert_Ulanowicz)
- (19) [http://www.amazon.com/Plausibility-Life-Resolving-Darwins-Dilemma/dp/0300119771/ref=sr\\_1\\_1?ie=UTF8&s=books&qid=1242931559&sr=8-1](http://www.amazon.com/Plausibility-Life-Resolving-Darwins-Dilemma/dp/0300119771/ref=sr_1_1?ie=UTF8&s=books&qid=1242931559&sr=8-1)
- (20) [http://en.wikipedia.org/wiki/Timeline\\_of\\_peptic\\_ulcer\\_disease\\_and\\_Helicobacter\\_pylori](http://en.wikipedia.org/wiki/Timeline_of_peptic_ulcer_disease_and_Helicobacter_pylori)
- (21) <http://ncseweb.org/taking-action/ten-major-court-cases-evolution-creationism>

## **B. Origin of Life (Kurt)**

1. We do not know how life began. This has nothing to do with Evolution. Evolution is only the process that acts on life after it exists. Not knowing how life began does not affect our study of evolution nor does it invalidate the evidence. We also do not know what causes gravity; this does not invalidate the evidence of general relativity. We do not know what started the Big Bang; this does not invalidate what we know about the processes that formed our solar system.
2. Impossible Odds? No scientist argues that DNA popped out by random chance. (1)  
Instead we believe that the creation of reproducible life came about from a series of steps each increasing in complexity. Many of these tests we have already found to be plausible in a laboratory or discovered to exist in space.
  - a. Steps of Increasing complexity:
    - i. Elements turn into Sugars, Alcohols and other Organic compounds used in RNA naturally in space (2), (3), (4)
      1. acetylene and hydrogen cyanide – in large disks around nearby stars, on comets, on Saturn’s moon Titan. (3)
      2. Glycolaldehyde (Glucose, Ribose) (2)
      3. methyl formate, acetic acid, Water, CO2 (2)
    - ii. Elements can turn into Amino Acids naturally which has been shown in an experiment simulating a Volcanic Eruption on Earth (5), (6)
    - iii. Replicating RNA can be formed from simpler compounds (7), (8), (9)
    - iv. We’re still working on how to turn RNA into DNA inside a cell.
  - b. Life could have began in space (by similar steps of increasing complexity) and then was seeded on earth (10), (11)
3. The impossible odds argument completely ignores a step based approach. It calculates odds for a completely different theory that no scientist claims happened... that complex life instantly appeared from simple chemicals. (12)

## **B.**

- (1) <http://www.youtube.com/watch?v=v8nYTJf62sE>
- (2) <http://www.spacedaily.com/news/life-00zi.html>
- (3) <http://www.sciencedaily.com/releases/2008/03/080313141418.htm>
- (4) <http://www.sciencedaily.com/releases/2009/02/090212161814.htm>
- (5) <http://www.sciencedaily.com/releases/2008/10/081016141411.htm>
- (6) <http://www.sciencedaily.com/releases/2008/10/081016141405.htm>
- (7) <http://www.sciencedaily.com/releases/2008/12/081218213634.htm>
- (8) <http://www.newscientist.com/article/dn4307>
- (9) <http://www.wired.com/wiredscience/2009/05/ribonucleotides/>
- (10) <http://www.sciencedaily.com/releases/2007/08/070814150630.htm>
- (11) <http://www.sciencedaily.com/releases/2007/08/070814093819.htm>
- (12) <http://www.talkorigins.org/faqs/abioprob/abioprob.html>

### C. Evolution leads to atheism, Eugenics, and all immorality (Kurt)

1. Accepting Evolution does not necessarily lead to Atheism
  - a. Of all the scientific fields, Biologists are the least likely to believe in God. Yet, only ~ 41% of American university faculty biologists are atheists (1)
  - b. Many Christian sects accept evolution with no theological problem. (2)
2. Does Darwinian Evolution lead to Eugenics? ...No more likely than Creationism.
  - a. Eugenics is animal husbandry for humans (micro-evolution). Even the staunchest creationists believe in micro-evolution. There is no reason why a believer in just micro-evolution couldn't misuse the theory to support eugenics.
  - b. Darwin warned against Eugenics. Darwin often stated rhetorical arguments in order to explain them away a sentence later. He did this with the complexity of the eye (3) and with Eugenics (4). By taking his argument out of context an unscrupulous person can make it look like he is saying exactly the opposite of what he believes. This was done in Expelled, the Scopes Trial, and the Discovery Institute's website (5).
    - i. Oft Quoted: "No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man," he complained. "...[E]xcepting in the case of man himself, hardly any one is so ignorant as to allow his worst animals to breed."
    - ii. Actual Quote: With savages, the weak in body or mind are soon eliminated; and those that survive commonly exhibit a vigorous state of health. We civilized men, on the other hand, do our utmost to check the process of elimination. We build asylums for the imbecile, the maimed and the sick; we institute poor-laws; and our medical men exert their utmost skill to save the life of every one to the last moment. There is reason to believe that vaccination has preserved thousands, who from a weak constitution would formerly have succumbed to small-pox. Thus the weak members of civilized societies propagate their kind. **No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man.** It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but **excepting in the case of man himself, hardly anyone is so ignorant as to allow his worst animals to breed.** The aid which we feel impelled to give to the helpless is mainly an incidental result of the instinct of sympathy, which was originally acquired as part of the social instincts, but subsequently rendered, in the manner previously indicated, more tender and more widely diffused. Nor could we check our sympathy, even at the urging of hard reason, without deterioration in the noblest part of our nature. The surgeon may harden himself whilst performing an operation, for he knows that he is acting for the good of his patient; but if we were intentionally to neglect the weak and helpless, it could only be for a contingent benefit, with an overwhelming present evil.
  - c. Eugenics pre-dated Darwin by several hundred years.
    - i. Darwin noted many savage tribes put it in practice (4)

- ii. Ancient Civilizations such as Rome, Athens, and Sparta practiced it through infanticide, allowing the weak to die (6)
    - iii. Plato was the first to write out a procedure on how to enact it. (6)
- 3. Hitler and the Nazi's were not Darwin loving Atheists (7)
  - a. Hitler constantly evoked God in his speeches and book Mein Kampf and seemed to consider himself a Christian doing God's work. (8)
  - b. Hitler did not believe in Macro-Evolution. His views were more consistent with Creationists.
    - i. Asserts Fixity of Kinds (one kind of animal cannot switch to another) (9)
    - ii. Believes God created man in their current form, nature, and faculties. (10)
  - c. Hitler had a disdain for atheists.(11)
    - i. "Secular schools can never be tolerated because such schools have no religious instruction, and a general moral instruction without religious foundation is built on air; consequently all character training and religion must be derived from faith . . ." [Nazi-Vatican Concordat, April 26, 1933]
    - ii. "National Socialism neither opposes the Church nor is it anti-religious, but on the contrary it stands on the ground of a real Christianity . . . For their interests cannot fail to coincide with ours alike in our fight against the symptoms of degeneracy in the world of today, in our fight against a Bolshevik culture, against atheistic movement, against criminality, and in our struggle for a consciousness of a community in our national life . . . These are not anti-Christian, these are Christian principles!" [speech at Koblenz, August 26, 1934]
    - iii. "We were convinced that the people need and require this faith. We have therefore undertaken the fight against the atheistic movement, and that not merely with a few theoretical declarations: we have stamped it out." [October 24, 1933, in a speech in Berlin]
- 4. "All the ills from which America suffers can be traced to the teaching of evolution" [Williams Jennings Bryan]
  - a. Countries which most accept evolution
    - i. Iceland, Denmark, Sweden, France, Japan (12)
  - b. Countries which most deny evolution
    - i. Turkey, USA (12)
  - c. USA murder rate per capita is 2.5X higher than Iceland, Denmark, France; 8.5X higher than Japan (13)
  - d. Iceland, Denmark, Sweden are among the top 6 least corrupt countries; France and United states are 17<sup>th</sup> & 18<sup>th</sup> on the list (14)
  - e. USA rape rate per capita is 1.2X higher than Iceland; 2.2X higher than France; 3.3X higher than Denmark; 17X higher than Japan. (15)
  - f. USA teenage pregnancy rate per capita is 1.9X higher than Iceland; 5.6X higher than France; 7.8X higher than Denmark; 9.4X higher than Sweden; 12.2X higher than Japan.



## C.

- (1) <http://www.msnbc.msn.com/id/8916982/>
- (2) <http://www.aloha.net/~mikesch/darwin.htm>
- (3) [http://en.wikipedia.org/wiki/Irreducible\\_complexity#Eye](http://en.wikipedia.org/wiki/Irreducible_complexity#Eye)
- (4) [http://en.wikipedia.org/wiki/Expelled:\\_No\\_Intelligence\\_Allowed#Charles\\_Darwin quotation\\_issue](http://en.wikipedia.org/wiki/Expelled:_No_Intelligence_Allowed#Charles_Darwin_quotation_issue)
- (5) <http://www.discovery.org/a/9051>
- (6) [http://en.wikipedia.org/wiki/Eugenics#Pre-Galtonian\\_eugenic\\_philosophies](http://en.wikipedia.org/wiki/Eugenics#Pre-Galtonian_eugenic_philosophies)
- (7) <http://atheism.about.com/od/isatheismdangerous/a/HitlerAtheist.htm>
- (8) [http://www.stephenjaygould.org/ctrl/quotes\\_hitler.html](http://www.stephenjaygould.org/ctrl/quotes_hitler.html)
- (9) [http://www.hitler.org/writings/Mein\\_Kampf/mkv1ch11.html](http://www.hitler.org/writings/Mein_Kampf/mkv1ch11.html)
- (10) [http://skepticwiki.org/index.php/Hitler\\_and\\_evolution](http://skepticwiki.org/index.php/Hitler_and_evolution)
- (11) <http://www.infidels.org/library/historical/unknown/hitler.html>
- (12) <http://news.nationalgeographic.com/news/2006/08/060810-evolution.html>
- (13) [http://www.nationmaster.com/graph/crime\\_mur\\_percap-crime-murders-per-capita](http://www.nationmaster.com/graph/crime_mur_percap-crime-murders-per-capita)
- (14) [http://www.nationmaster.com/graph/gov\\_cor-government-corruption](http://www.nationmaster.com/graph/gov_cor-government-corruption)
- (15) [http://www.nationmaster.com/graph/crime\\_rap\\_percap-crime-rapes-per-capita](http://www.nationmaster.com/graph/crime_rap_percap-crime-rapes-per-capita)
- (16) [http://www.nationmaster.com/graph/health\\_teenage\\_pregnancy-per-capita](http://www.nationmaster.com/graph/health_teenage_pregnancy-per-capita)

### Additional Resources:

Religion vs Societal Health Correlations:

<http://moses.creighton.edu/JRS/2005/2005-11.html>

“Charles Darwin” discussion between Atheists and Christians

<http://tinyurl.com/apologia-darwin>

## D. Intelligent Design (Jon) (6)

1. Definition – “*there exist natural systems that cannot be adequately explained in terms of undirected natural causes and that exhibit features which in any other circumstances we would attribute to intelligence*” (1). “*Intelligent-design theory states that certain features of the natural world are of such complexity that the most plausible explanation is that they are products of an intelligent cause rather than random mutation and natural selection*”. (2)

2. The evidence for evolution is voluminous and many articles and books have been published arguing that ID is not science, is in fact religious at its foundations, and should not be discussed within a scientific framework. It is impossible to summarize even a small part of these points in a limited section here. For the purposes of this brief discussion, the debate is best divided into the negative aspects of ID and the positive evidence for evolution. In this controversy, over the past several decades antievolutionists have finally agreed that evolution is true, at least in part. Nearly everyone agrees that species can arise from other species through Darwinian natural selection. Creationists and many ID scientists propose that this speciation is limited to certain ‘kinds’ – cats, dogs, horses, and perhaps larger groups such as birds. However, they propose that there is no evidence for large changes between groups. Thus, they accept microevolution (to them variation within ‘kinds’), but not macroevolution (to them change between groups such as fish to amphibians, amphibians to reptiles, reptiles to mammals, and apes to humans). It should be noted that evolutionists see these two categories as artificial and speciation continuous; showing any evolution true to them demonstrates all of evolution to be true. In fact, if evolution is true one would predict, as the film noted, that defining what a species is would be difficult since species would be changing through time.

Certain predictions should be possible then: 1) there should be no transitional forms if ‘kinds’ share no common ancestors. Indeed one often hears, “there are no transitional fossils”, and 2) the DNA of plants and animals should show evidence of common descent if evolution is true since some of the ancient genes would have been passed down to more complex organisms, albeit many with changes. The accumulation of mutations and the patterns of these changes should serve as robust evidence for evolution. In contrast, although a designer could have used the same parts to construct vastly different organisms, one would not expect to have two very distinct groups having identical mutations nor these changes in the genes to be in a sequence predicted by evolution from a common ancestor.

3. Common reasons given for ID not being accepted by mainstream science (The negative):

a. The ‘cannot be explained using natural processes’ is really “*I can’t explain it, so no one can*”; this is actually the new God-of-the-gaps argument. For example, when Newton formulated his planetary motion, he could not explain why they occurred in a plane and proposed the hand of God to keep them there; we now know how and why this occurs (8). People used to think that rainbows were a sign of design since the repetition and perfection of the colors could not be explained any other way. ID is in search of a negative – to find

examples that can never be explained by science through natural means, a record that has seen God diminished over time as the gaps are filled in.

b. Despite ID's denouncements, it appears ID has its foundation in religion. The Dover trial put ID as it is understood currently on trial and an independent non-scientist judge came down hard on ID and wondered why more people didn't know the strong evidence for macroevolution. The Wedge Document of the DI shows its religious roots, along with its funding (3, 4, 5, 42)

c. ID is not testable – a statement by the National Academies of Science, (7)

d. Methodological Naturalism combined with the scientific approach has one of the best track records for discovering truth than anything humans have developed. Why compromise it with proposed supernatural explanations?

e. Either – or fallacy. You can't prove ID by attempting to disprove Evolution. In the 1700s there was a fierce Preformation debate within biology about whether development occurred from egg or sperm. The Ovists with their evidence from parthenogenesis were pitted against the Animalculists with their homunculus (43). Of course, they were both wrong.

f. Books with arguments against ID as science are many and these arguments are much more developed than what can be discussed here. (8, 9, 10, 11, 12, 13, 14)

4. Besides the intuition that life and our universe is too complex to ever be explained naturally, the controversy really boils down to, and always has in recent decades, to two areas: the acceptance or rejection of evidence for *macroevolution* (often thought of as transitional fossils) and *human microevolution*.

5. Therefore, how strong is the evidence for Evolution given that many people really seem to focus on only those two areas? (The positive)

a. Macroevolution. What transitional fossils and other evidence are proposed? Are there a few or many? Are transitional fossils just new 'kinds' when they are found or do they indeed show transitions. Darwin certainly predicted they would be found as none were known when the *Origin* was published. Do recent DNA findings support the predictions of evolution and do they match the fossil record, such as dating with molecular clocks?

1) A list of 60 proposed transitional fossils between major groups (15)

2) Keith Miller, Department of Geology, Kansas State University (17). Mostly looking at the horse. "From this brief survey of fossil vertebrates, it is clear that transitional forms between higher taxa are common features of the fossil record. The morphology of species within a higher taxonomic group becomes less divergent toward the point of origin of that group. Morphological diversity and disparity increase with time. In addition, transitional species possess mixtures of morphologic characters from different higher taxa often to the extent that their taxonomic assignment is uncertain. This pattern is obscured by taxonomy which gives a false impression of discontinuity. The fossil record thus provides good evidence for the large-scale patterns and trends in evolutionary history. Recognizing its limitations, the fossil record appears to be consistent with the wide range of evolutionary mechanisms already proposed. Any wholesale abandonment of present paradigms would be very premature. Many critical gaps in our knowledge remain, but as evident from this review

important discoveries are continually being made that intrigue, surprise, and enrich our understanding of the evolutionary history of life.”

3) Talk.origins’s list of transitional fossils (18). “I wrote this FAQ as a reference for answering the "there aren't any transitional fossils" statement that pops up on talk.origins several times each year. I've tried to make it an accurate, though highly condensed, summary of known vertebrate fossil history in those lineages that led to familiar modern forms, with the known transitions *and* with the known major gaps both clearly mentioned. Version 6.0 of the FAQ has been almost entirely rewritten.”

4) 29+ examples of macroevolution (28). A talk.origins archive.

5) As early as the late 1600s, anatomists looked at the whale skeleton and proposed that it had an origin from land animals. Modern evolutionary theory predicted decades ago that fossils would be found showing the whale transition from land to water. With recent findings over the past 20 years this sequence is remarkably complete now. (25, 26, 27).

6) Another prediction of evolutionary theory is that there should be transition fossils between fish and amphibians. Researchers, knowing what rock strata and time period this fossil should be located in, went hunting in northern Canada. After five years they made one of the most important transitional fossil discoveries to date, Tiktaalik. This transition fills in a very nice and predicted sequence (29, 30, 31, 35). The article by Higgins is especially well presented.(35)

7) After human and other species’ genomes were sequenced it soon became apparent that most chromosomal DNA is non coding. As a matter of fact, huge sections are non-coding and appear to have no function; this was called ‘junk DNA’. Recent studies show that it may however have some effects on the active coding areas. However, also integrated into an organism’s DNA are genes that have been damaged and no longer function. These are called pseudogenes. Why a creator or designer would put damaged genes that are nonfunctional into an organism and would never be used seems to argue against ID. Invoking the theological concept of The Fall is not testable and thus not scientific. In addition, as will be discussed by looking at the mutation locations and patterns, a common ancestor explanation is much more satisfactory. More importantly, by examining the types of mutations and their locations when compared to other species, it became apparent that one could also build a relationship history best explained by common descent that conveniently also confirmed and matched the fossil evidence. It has been estimated that of the 30,000 human genes, there may be an additional 10,000 pseudogenes. These genes are relics from an organism’s ancestors and have been a fertile ground for testing evolutionary predictions. Not surprisingly, these damaged genes have indeed given us a ‘second fossil record’ to study the history of life and it definitely points to evidence for a common ancestry (36, 37, 39). A 3.5 min. YouTube video featuring Francis Collins makes this point quite succinctly (40). The best, simplest explanation for pseudogenes is common descent, and the pattern observed is best explained if these changes were inherited across major groups (macroevolution).

b. Human evolution. It has been mentioned by many that the only type of evolution that matters to most people, especially those hostile to the theory, is human evolution. Thousands of hominid fossils have been found. When examining brain size, angle of the foramen magnum, pelvis, knee joints, dentition, jaw angle, etc. it becomes obvious that these fossils are neither human nor ape. They are transitional, just as evolutionary theory predicts. The British Natural History Museum until 1976 attempted to catalogue all the known hominid fossils and they stopped at 3998; there are 6,000 estimated today. In China's Zhoukoudian cave system alone, 17,000 stone artifacts and fossils from 50 different *Homo erectus* individuals have been discovered to date (24). It is no longer tenable to claim that hominid fossils are diseased humans, types of apes, or too few in numbers to be able to draw highly probable conclusions.

1). Wikipedia list of hominid transitional fossils (16).

2) Hominid fossil summary from Talkorigins (19)

3) Hominid fossils in detail, Talkorigins (20)

4) Hominid fossils, Paleoanthropology (21)

5) Human chromosomal 2 fusion. Over the last decade it has become known that this chromosome is a result of fusion. The two sections are separated by an ancient fused telomere section in the middle and two inactivate centromeres more distally but away from the ends. The banding aligns exactly with chimp chromosomes 12 and 13. Mutations in the mid relic telomeric region indicate it is old and molecular dating matches the fossil record for hominid separation from other apes. This chromosomal aberration is common, occurring in 1/1000 human births and occurred after hominids had split from other apes. (32, 33, 34) Starr's short discussion is especially pertinent since he gently discusses why these findings taken together discount creationist claims (34).

6) Human pseudogenes. Vitamin C. (38, 44, 46) We carry a relic non-functioning gene for the production of Vitamin C. It is one of several needed to manufacture this vitamin and not be dependent on it for health through dietary sources. It is difficult to explain why a designer would give us a defective gene. If we agree that at one time it was functioning, then an analysis of the point mutation again points to a common ancestry as we share the same location as other apes. Invoking 'The Fall' would not explain the location of the knock-out mutation on the DNA across major species lineages, nor explain the same inactive gene in pigs but at a different location. There are many more pseudogenes known in many species. Their record of inactivation allows us to construct an evolutionary tree independent and confirmatory of the fossil record.

7) Endogenous Retroviruses. Some viruses are RNA types that when they infect an organism reverse copy their RNA into DNA which is then inserted into the host DNA. Many of these become inactivated over time due to mutations. In the germ line, these mutated viral DNA genomes can be passed down to offspring and leave another fossil DNA trail for us to

follow. Nearly 8% of human DNA consists of this fossil viral DNA. (45, 47, 48) A YouTube video presents this topic in a simplified but very effective format (45).

#### D.

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- (2) <http://www.discovery.org/a/2539>
- (3) [http://en.wikipedia.org/wiki/Kitzmiller\\_v.\\_Dover\\_Area\\_School\\_District](http://en.wikipedia.org/wiki/Kitzmiller_v._Dover_Area_School_District)
- (4) [http://en.wikipedia.org/wiki/Wedge\\_strategy](http://en.wikipedia.org/wiki/Wedge_strategy)
- (5) <http://www.pbs.org/wgbh/nova/id/>
- (6) [http://en.wikipedia.org/wiki/Intelligent\\_design](http://en.wikipedia.org/wiki/Intelligent_design)
- (7) <http://www.nap.edu/openbook.php?isbn=0309064066&page=25>
- (8) Why Darwin Matters. 2006. Michael Shermer
- (9) [http://www.amazon.com/Why-Intelligent-Design-Fails-Creationism/dp/0813538726/ref=sr\\_1\\_11?ie=UTF8&s=books&qid=1242618126&sr=8-11](http://www.amazon.com/Why-Intelligent-Design-Fails-Creationism/dp/0813538726/ref=sr_1_11?ie=UTF8&s=books&qid=1242618126&sr=8-11)
- (10) [http://www.amazon.com/Unintelligent-Design-Mark-Perakh/dp/1591020840/ref=pd\\_sim\\_b\\_4](http://www.amazon.com/Unintelligent-Design-Mark-Perakh/dp/1591020840/ref=pd_sim_b_4)
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- (14) [http://www.amazon.com/Science-Evolution-Creationism-National-Sciences/dp/0309105862/ref=pd\\_bxgy\\_b\\_img\\_c](http://www.amazon.com/Science-Evolution-Creationism-National-Sciences/dp/0309105862/ref=pd_bxgy_b_img_c)
- (15) [http://en.wikipedia.org/wiki/List\\_of\\_transitional\\_fossils](http://en.wikipedia.org/wiki/List_of_transitional_fossils)
- (16) [http://en.wikipedia.org/wiki/List\\_of\\_human\\_evolution\\_fossils](http://en.wikipedia.org/wiki/List_of_human_evolution_fossils)
- (17) <http://www.asa3.org/ASA/resources/miller.html>
- (18) <http://www.talkorigins.org/faqs/faq-transitional.html>
- (19) <http://www.talkorigins.org/indexcc/CC/CC050.html>
- (20) <http://www.talkorigins.org/indexcc/CC/CC200.html>
- (21) <http://www.talkorigins.org/faqs/homs/>
- (24) Peking Man Ups His Age. Bower, Bruce. 4/11/09. Science News
- (25) <http://www.talkorigins.org/features/whales/>
- (26) <http://www.sciencedaily.com/releases/2009/02/090204085133.htm>
- (27) [http://news.nationalgeographic.com/news/2004/08/0811\\_040811\\_whale\\_evolution.html](http://news.nationalgeographic.com/news/2004/08/0811_040811_whale_evolution.html)
- (28) <http://www.talkorigins.org/faqs/comdesc/section1.html>
- (29) <http://en.wikipedia.org/wiki/Tiktaalik>
- (30) [http://scienceblogs.com/pharyngula/2006/04/tiktaalik\\_makes\\_another\\_gap.php](http://scienceblogs.com/pharyngula/2006/04/tiktaalik_makes_another_gap.php)
- (31) <http://lancelet.blogspot.com/2006/04/tiktaalik-rosae.html>
- (32) <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=52649>
- (33) <http://www.thetech.org/genetics/ask.php?id=264>
- (34) <http://www.kqed.org/quest/blog/2008/05/12/chromosome-fusion-chance-or-design/>
- (35) <http://www.csicop.org/intelligentdesignwatch/fishibian.html>

- (36) <http://evolution-101.blogspot.com/2006/04/molecular-evidence-4-redundant.html>
- (37) <http://www.talkorigins.org/faqs/molgen/>
- (38) <http://www.indiana.edu/~ensiweb/pp.pseud.pdf>
- (39) [http://www.rxpgnews.com/specialtopics/evolution/article\\_4772.shtml](http://www.rxpgnews.com/specialtopics/evolution/article_4772.shtml)
- (40) <http://www.youtube.com/watch?v=IjthKYwR3a0>
- (41) <http://www.youtube.com/watch?v=OV6A8oGtPc4>
- (42) 121. "The Court concludes that while intelligent design arguments may be true, a proposition on which the Court takes no position, the theory is not science. Moreover, because intelligent design is ultimately predicated on a supernatural creator, the theory is religious, a finding required by the Supreme Court's holding in *Edwards v. Aguillard*." [Kitzmiller vs. Dover Area School District]
- (43) History of Biology. Eldon Gardner. 1972.
- (44) <http://www.youtube.com/watch?v=7e0Ic03c6f8&feature=related>
- (45) <http://www.youtube.com/watch?v=dbbh1P6DW5I&feature=related>
- (46) <http://whyevolutionistrue.wordpress.com/2009/04/04/what-counts-as-evidence-for-evolution/>
- (47) <http://www.nature.com/ng/journal/v29/n4/abs/ng775.html>
- (48) <http://www.sciencedaily.com/releases/2007/11/071114121359.htm>

## **Three series on evolution and One movie about how humans populated the earth and when.**

**1. *Made Easy (origins of the universe and life)***

[http://www.youtube.com/view\\_play\\_list?p=DB23537556D7AADB](http://www.youtube.com/view_play_list?p=DB23537556D7AADB)

**2. *Standup4Real Science (fossils and molecular genetics)***

<http://www.youtube.com/profile?user=standup4REALscience&view=videos>

**3. *Evolution 101 podcast (Evolution's fundamental questions answered for laymen).***

<http://www.learnoutloud.com/Catalog/Science/Biology/Evolution-101-Podcast/18776>

**4. *Human genetic markers to follow the human migration out of Africa – the when, where, and even why and number of times.*** (Y chromosome and mtDNA markers)

<https://genographic.nationalgeographic.com/genographic/lan/en/index.html>

<http://www.youtube.com/watch?v=OV6A8oGtPc4>

Jon Peters  
Kurt Johansen  
5/09

## Post Script Notes

The DVD for *Expelled: No Intelligence Allowed* comes with a dove sticker on the front case and a booklet inside, "*The Wonder of the Universe*" (a tract?). Several quotes are from American founding fathers. Other quotes are from early scientists who of course operated from a theistic worldview that was almost universal in their time. After all, one of the major goals of early natural philosophers was to show the hand of God in nature. The belief systems of founding American statesmen were diverse; many very religious but many also were deists, atheists and some of the believers were even hostile to religion as the quotes below demonstrate.

The film omits any discussion of the thousands of theistic scientists from various religions that accept Evolutionary theory and work with it every day. Evolutionary acceptance can lead to atheism, but it certainly has not in millions of believers (Catholics, for example). In addition, if the Discovery Institute and Stein wish ID introduced into the secular educational and research system, they will need to answer how this does not violate the American separation of church and state, and how religious schools would escape a requirement to adequately and fairly teach the positive evidence for evolution.



### **John Adams (1735-1826)**

2nd President of the United States

"As the government of the United States of America is not in any sense founded on the Christian religion ...."

Article 11, Treaty of Peace and Friendship between the United States and the Bey and Subjects of Tripoli of Barbary.

Signed in 1796 under George Washington's second term, ratified by unanimous Senate vote, and signed into law by Adams June 10, 1797

"As I understand the Christian religion, it was, and is, a revelation. But how has it happened that millions of fables, tales, legends, have been blended with both Jewish and Christian revelation that have made them the most bloody religion that has ever existed?"

Letter to F.A. Van der Kamp, Dec. 27, 1816

"Indeed, Mr. Jefferson, what could be invented to debase the ancient Christianity, which Greeks, Romans, Hebrews, and Christian factions, above all the Catholics, have not fraudulently imposed upon the public? Miracles after miracles have rolled down in torrents, wave succeeding wave in the Catholic church, from the Council of Nice, and long before, to this day."

To Jefferson, Dec. 3, 1813



**Ethan Allen (1737-1789)**

American Officer in the Revolutionary War

"I have generally been dominated a Deist, the reality of which I never disputed, being conscious I am no Christian, except mere infant baptism makes me one; and as to being a Deist, I know not strictly speaking, whether I am one or not."

Reason, the Only Oracle of Man, 1784, Bennington, Vt. ; Scholars Facsimiles and Reprints, N.Y.C.

"There exists, I believe, throughout the whole Christian world a law which makes it blasphemy to deny or doubt inspiration of all the books of the Old and New testaments, from Genesis to Revelations. In most countries in Europe it is punished by fire at the stake, or the rack, or the wheel. In England itself, it is punished by boring through the tongue with a hot poker. In America it is not better; even in our own Massachusetts, which I believe, upon the whole is as temperate and moderate in religious zeal as most states, a law was made in the latter end of the last century, repealing the cruel punishments of the former laws, but substituting fine and imprisonment upon all blasphemers of any book of the Old Testament or New. Now, what free inquiry, when a writer must surely encounter the risk of fine or imprisonment for adducing any argument for investigating the divine authority of those books."

Ethan Allen to Thomas Jefferson, January 23, 1825

"In those parts of the world where learning and science has prevailed, miracles ceased; but in those parts that are barbarous and ignorant, miracles are still in vogue."

Ibid., p. 265

"That tradition has had a powerful influence on the human mind is universally admitted, even by those are governed by it in the articles of discipline of their faith; for though they are blind to their own superstition, yet they can perceive and despise it in others. Protestants readily discern and expose the weak side of Popery, and papists are as ready and acute in discovering the errors of heretics."

Ibid., p 337

**Benjamin Franklin (1706-1790)**

American scientist, diplomat, writer

"The way to see by Faith, is to shut the eye of Reason."

Poor Richard, 1758

"Lighthouses are more helpful than churches."  
Ibid.

"I wish it (Christianity) were more productive of good works ... not holy day keeping, sermon hearing ... of making long prayers, filled with flatteries and compliments despised by wise men, and much less capable of pleasing Deity."  
Works, Vol. VII p.75.

"If we look back into history for the character of the present sects of Christianity, we shall find few that have not in turns been persecutors, and complainers of persecution. The primitive Christians thought persecution extremely wrong in Pagans, but practiced it on one another. The first Protestants of the Church of England blamed persecution in the Romish church, but practiced it on the Puritans. They found it wrong in Bishops, but fell into the practice both here (England) and in New England."  
Ibid.

**Thomas Jefferson (1743-1826)**  
3rd President of the United States

"Is uniformity attainable? Millions of innocent men, women, and children, since the introduction of Christianity, have been burnt, tortured, fined, imprisoned ; yet we have not advanced on inch towards uniformity. What has been the effect of coercion? To make one half the world fools, and the other half hypocrites. To support roguery and error all over the earth."  
Notes on Virginia

"They (the christian clergy) believe that any portion of power confided to me, will be exerted in opposition to their schemes. And they believe rightly: for I have sworn upon the altar of God, eternal hostility to every form of tyranny over the mind of man.  
To Sr. Benjamin Rush, 1800

"On the dogmas of religion, as distinguished from moral principles, all mankind, from the beginning of the world to this day, have been quarreling, fighting, burning and torturing one another, for abstractions unintelligible to themselves and to all others, and absolutely beyond the comprehension of the human mind."  
To Carey, 1816

"The day will come when the mystical generation of Jesus by the Supreme Being in the womb of a virgin, will be classed with the fable of the generation of Minerva in the brain of Jupiter."

"I have recently been examining all the known superstitions of the world, and do not find in our particular superstition (Christianity) one redeeming feature. They are all alike, founded upon fables and mythologies."

To Dr. Woods

**James Madison (1751-1836)**

4th President of the United States

"Who does not see that the same authority which can establish Christianity in exclusion of all other religions may establish, with the same ease, any particular sect of Christians in exclusion to all other sects?"

A Memorial and Remonstrance addressed to the General Assembly of the Commonwealth of Virginia, 1785

"In the Papal System, Government and religion are in a manner consolidated, and that is found to be the worst of Government."

To Adams, 1832

**Thomas Paine (1737-1809)**

American revolutionary writer

To Paine belongs the honor of naming our country the United States of America. He was the first to use the name in print, and it was his own creation.

"Whence arose all the horrid assassinations of whole nations of men, women, and infants, with which the Bible is filled; and the bloody persecutions, and tortures unto death, and religious wars, that since that time have laid Europe in blood and ashes; whence arose they, but from the impious thing called religion, and this monstrous belief that God has spoken to man?"

Cardiff

"I do not believe in the creed professed by the Roman church, by the Greek church, by the Turkish church, by the Protestant church, nor by any church that I know of. My own mind is my own church."

The Age of Reason

"All national institutions of churches, whether Jewish, Christian, or Turkish, appear to me no other than human inventions, set up to terrify and enslave mankind, and monopolize power and profit."

Ibid.

"Whenever we read the obscene stories, the voluptuous debaucheries, the

cruel and tortuous executions, the unrelenting vindictiveness, with which more than half the Bible is filled it would be more consistent to call it the word of a demon than the word of a god. It is a history of wickedness that has served to corrupt and brutalize mankind."

Ibid.

"Toleration is not the opposite of intolerance, but is the counterfeit of it. Both are despotisms, The one assumes to itself the right of withholding the liberty of conscience, and the other of granting it."

Declaration of the Friends of Universal Peace and Liberty, 1791

**Oliver Wendell Holmes (1809-1894)**

American poet, essayist, novelist

"The Pope put his foot on the neck of kings, but Calvin and his cohorts crushed the whole human race under their heels in the name of the Lord of Hosts.

**Oliver Wendell Holmes (Jr.) (1841-1935)**

U.S. Supreme Court Justice

Memorial Day Address, 1884

"I can't help an occasional semi-shudder as I remember that millions of intelligent men think that I am barred from the face of God unless I change. But how can one pretend to believe what seems childish and devoid alike of historical and rational foundations.

**Abraham Lincoln (1809-1865)**

16th President of the United States

"My earlier views at the unsoundness of the Christian scheme of salvation and the human origin of the scriptures, have become clearer and stronger with advancing years and I see no reason for thinking I shall ever change them."

To Judge J.S. Wakefield, 1862

"The Bible is not my book nor Christianity my profession. I could never give assent to the long, complicated statements of Christian dogma."