

Resource Material
Intelligent Design/Evolution
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Intelligent Design

Intelligent design is a scientific inference based on empirical evidence, not on religious texts. The theory proposes that many of the most intricate features of the natural world (like the amazing molecular machines within the cell) are best explained as the product of an intelligent cause rather than an undirected process like natural selection.

John G. West: Intelligent design is based on science, not religion But it doesn't belong in schools - yet.

05:29 AM CDT on Sunday, September 4, 2005 Discovery Institute

Darwin's Black Box (Behe, 1996)

Biochemical systems were designed not by the laws of nature, not by chance and necessity; rather, they were planned. The designer knew what the systems would look like when they were completed, then took steps to bring the systems about.

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Claims made by ID advocates:

Claim 1: we can often recognize the effects of design in nature.

Claim 2: the physical marks of design are visible in aspects of biology

Claim 3: We have no good explanation for the foundation of life that doesn't involve intelligence.

Claim 4: In the absence of any convincing non-design explanation, we are justified in thinking that real intelligent design was involved in life.

The strong appearance of design allows a disarmingly simple argument: if it looks, walks and quacks like a duck, then, absent compelling evidence to the contrary, we have warrant to conclude it's a duck. Design should not be overlooked simply because it's so obvious.

Behe, M. (2005). Design for living, *New York Times*, February 7.

Behe: Irreducibly complex systems appear very unlikely to be produced by numerous, successive, slight modifications of prior systems, because any precursor that was missing a crucial part could not function. Natural selection can only choose among systems that are already working, so the existence in nature of irreducibly complex biological systems poses a powerful challenge to Darwinian theory. (example: mouse trap)

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On cross-examination, Professor Behe admitted that: "there are no peer-reviewed articles by anyone advocating for intelligent design supported by pertinent experiments or calculations which provide detailed rigorous accounts of how intelligent design of any biological system occurred.

It is our view that a reasonable, objective observer would, after reviewing both the voluminous record in this case, & our narrative, reach the inescapable conclusion that ID is an interesting theological argument, but that it is not science. (p. 89)

...defense experts concede that ID is at best "fringe science" which has achieved no acceptance in the scientific community. (p. 70)

ID is at the bottom premised upon a false dichotomy, namely, that to the extent evolutionary theory is discredited, ID is confirmed. (p. 71)

Irreducible complexity is a negative argument against evolution, not proof of design, a point conceded by defense expert Professor Minnich. (p. 72)

TAMMY KITZMILLER, et.al. v. DOVER AREA SCHOOL DISTRICT, et. al., Case No. 04cv2688 US District Court for the Middle District of Pennsylvania

Denton (1998) *Nature's Destiny: How the Laws of Biology Reveal Purpose in the Universe* Free Press.

But although the journey was long, the route often slow and tortuous, the evidence increasingly suggests that the end was never in doubt, that we followed a path already charted to an end foreseen and that our success was not in the least a matter of contingency. Like pilgrims seeking the source of their own transcendence, we have been drawn along a predetermined path from the discovery of fire to the birth of science to the revelation of our own centrality in the order of nature. We have deciphered the meaning of the constellations, and in science the cosmos has called us home.

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Overall, if the natural world and human history are the result of a plan and choices made by an intelligent agent, causality and contingencies are eliminated out of necessity. As a result, causal forces in nature do not exist or are limited and "the things of the world cause nothing." (Olding, 1991)

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Fortey, R. (2005) Blind to the end, *New York Times* December 26, 2005

Disasters are still described as "acts of God." Whenever a natural catastrophe occurs, old questions resurface. How can we reconcile tragedy with the idea of a beneficent deity? And with that question, the notion of punishment is never far behind. . . .Disasters are heaped on mankind as a mark of our sinfulness. In a curious way, such explanations act as palliatives. They permit an intimate connection with nature that seems preferable to the brutal acceptance of an indifferent earth meting out random destruction upon its inhabitants, like a boot crushing an ant's nest. If classical religions were wont to attribute disasters to the wrath of the gods, even in this scientific age the old explanations still have their attractions. And who might not sneakily still wish to believe that a saint could intercede on our behalf?

Krauthammer, C. (2005) Phony Theory, False Conflict 'Intelligent Design' Foolishly Pits Evolution Against Faith, *Washington Post*, p. A23, November 18. Let's be clear. Intelligent design may be interesting as theology, but as science it is a fraud. It is a self-enclosed, tautological "theory" whose only holding is that when there are gaps in some area of scientific knowledge -- in this case, evolution -- they are to be filled by God.

NATURAL THEOLOGY

St. Thomas Aquinas (13th Century) in *Summa Theologica*:

- Five proofs for God
- 5th proof found in the governance of nature.
- "Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God."
- "Since nature works for a determinate end under the direction of a higher agent, whatever is done by nature needs to be traced back to God, as its first cause."

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In the watch which we are examining, are seen contrivance, design; an end, a purpose; means for the end, adaptation to the purpose. And the question, which irresistibly presses upon our thoughts, is, whence this contrivance and design. The thing required is the intending mind, the adapting hand, the intelligence by which that hand was directed." (p. 16)

The marks of design are too strong to be got over. Design must have a designer. That designer must have been a person. The person is God. (p. 473) (Paley, W. (1802), *Natural Theology: or, Evidences of the Existence and Attributes of the Deity, Collected from the Appearances of Nature*. in Gould, 2002, p. 264)

DARWIN'S WORLD

Mayr, Ernst (1991). *One Long Argument*. Cambridge: Harvard University

Basic Beliefs of Darwin's Time

1. A belief in a constant world. Except for minor perturbations (floods, volcanism, mountain building) the world had not changed materially since the world had been created rather recently.
2. A belief in a created world. Species and other taxa were believed to be unchanging, and therefore the existing diversity of the living world could only be due to an act of creation.
3. A belief in a world designed by a wise and benign creator. The adaptation of organisms to their physical and living environment was perfect because it had been designed by an omnipotent Creator.
4. A belief The general paucity of endemic species on islands, contrasted with comparable areas of continents; why should God put fewer species on islands?

5. The frequent displacement of endemic island biotas by continental species introduced by human transport. If God created special species for islands, why should species designed for continents so over prove superior in competition?
6. Taxonomic disparity of endemic species within groups records ease of access, not created fit to oceanic environments: "Thus in the Galapagos Islands nearly every land bird was unique, but only two out of eleven marine birds, are peculiar; & it is obvious that marine birds could arrive at these islands more easily than land" birds."
7. Biotas of oceanic islands often lack the characteristics groups of similar habitats on continents. On these islands, endemic members of other groups often assume the ecological roles almost always occupied by more appropriate or more competitive taxa in the richer fauna of continents—for example, reptiles on the Galapagos, or wingless birds on New Zealand, acting as surrogates for mammals.
8. In endemic island species, features operating as adaptations in related species on continents often lose their utility when their island residences do not feature the same environment.
9. Peculiar morphological consequences often ensue when creatures seize places usually inhabited by other forms that could not reach an island. Many plants, herbaceous in habit on continents, become arboraceous on islands otherwise devoid of trees.
10. Suitable organisms frequently fail to gain access to islands. Why do so many oceanic islands lack frogs, toads, & newts that seem so admirably adapted for such environments? "But why, on the theory of creation, they should not have been created there, it would be very difficult to explain."
11. Correlation of biota with distance. Darwin could find no report of terrestrial mammals on islands more than 300 miles from a continent. ". . .why, it may be asked, has the supposed creative force produced bats & no other mammals on remote islands?"
12. Correlation with ease of access. Creatures often manage to cross shallow water barriers between a continent & island, but fail to negotiate deep-water gaps of the same distance.
13. Taxonomic affinity of island endemics—perhaps the most obvious point of all: why are the closest relatives of island endemics nearly always found on the nearest continent or on other adjacent islands?
14. in the unique position of man in the creation. The world was anthropocentric in the eyes of the Christian religion as well as in the view of the foremost philosophers. Man had a soul, something animals did not have. There was no possible transition from animal to man. (38-39

THE IMPACT OF DARWIN'S EXPERIENCES DURING THE VOYAGE OF THE BEAGLE

Gould. S. J. (2002). *The Structure of Evolutionary Theory* Cambridge, MA: Belnap Press of Harvard University Press.

The following are the thoughts and questions Darwin developed as a result of his visits to various oceanic islands during the voyage of the Beagle (material in quotes directly from Darwin):

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- Evolution is the consequence of the interactions of
- the potential of a species to increase its numbers,
 - the genetic variability of offspring due to the mutation and recombination of genes,
 - a finite supply of the resources required for life, and
 - the ensuing selection by the environment of those offspring better able to survive and leave offspring.
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Huxley in an 1860 review asserted that opinions about the *Origin of Species* varied widely but

...pietists whether lay or ecclesiastic, decry it with the mild railing which sounds so charitable; bigots denounce it with ignorant invective; old ladies of both sexes consider it a decidedly dangerous book, and even savants, who have no better mud to throw, quote antiquated writers to show that its author is no better than an ape himself.

Huxley, H.H.: 1886, *Lay Sermons, Addresses, and Reviews*, D. Appleton and Company, New York, p. 255..

Evolution and Natural Selection

Natural selection asks two questions: Does the new protein or promoter work better, worse, or the same as the old one? And, how important is this difference to the organism?

Mutations change the quality of genes. Natural selection changes the frequencies of these genes. And the ongoing, underlying fact is that the process is totally dependent on context. Evolution is contingent on the environmental circumstances in which it is occurring. (p. 66-67)

Evolution produces *cumulative* change. New structures, new protein molecules, do not leap into existence fully formed. Rather, they appear as slightly modified versions of previously existing proteins that were less efficient, or served a different function, or served the same function under different conditions. Different parts of old systems get connected up in new ways; old proteins are modified to make new ones. Increasing complexity entails selection of selections of selections. (pp 70-71)

Goodenough, Ursula (1998). *The Sacred Depths of Nature*. New York: Oxford University Press.

Richard Dawkins: The world becomes full of organisms that have what it takes to become ancestors.Each generation is a filter, a sieve: good genes tend to fall through the sieve into the next generation; bad genes tend to end up in bodies that die young or without reproducing.....Bad genes may make it through the sieve for a time. After a thousand successive generations, the genes that have made it through are likely to be the good ones.

Harp, Daniel. (2005) The science of novelty and complexity in life forms, <http://www.harvardmagazine.com/online/110512.html>

As an evolutionary geneticist, I am assuredly impressed with the ability of organisms to undergo evolutionary change and occasionally to stumble upon an innovation that is so useful it is retained in the lineage for millions of years afterward. But I find it equally impressive that there are obvious improvements that evolution seems incapable of bringing about. Darwin stressed the limitations in his comment that “natural selection will not produce absolute perfection, nor do we always meet, as far as we can judge, with this high standard under nature.” The vertebrate eye, wonderful as it is, is far from perfect — as most readers wearing glasses will agree. More seriously, I find it paradoxical that a minimum of 15 percent, and perhaps as many as 50 percent, of fertilized eggs in humans, many of which have major chromosomal abnormalities, undergo spontaneous abortion. A reproductive system whose failure rate would be regarded by any respectable engineer as catastrophic hardly seems the work of intelligent design, unless the Intelligent Designer has a very high tolerance for abortion.

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But the argument from design, many scientists say, is circular. Charles Stevenson, a planetary scientist at Caltech, said that it was no surprise that the Earth appears suited to our needs. **"That's what Darwinian evolution tells us should happen. We are adapted to our world,"**

Overby, D. (2005) Hunting for life in specks of cosmic specks of dust, *New York Times*, July 18.

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When it comes to DNA, a human is closer related to a chimp than a mouse is to a rat. 3 billion base pairs in the human genome. 1.23% that are different in the chimp genome.

Lemonick, M. & Dorfman (2006) What makes us different? *Time* 168(15) 44-53, October 8

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More genes appear multiple times in our DNA than in chimp DNA. By one count, humans have extra copies of 177 full & partial genes. Each of these genes is a candidate for having altered expression patterns.

MGC8902 gene (function unknown)

Humans	49 copies
Chimps	10 copies
Macaques	4 copies

These extra copies are material with which evolution can play, perhaps dedicating the activity of one copy of a gene to a subset of cells, for example.

Pennisi, E. (2006) Mining the Molecules That Made **Our Mind**, *Science* 313(5795)1908-1911, 9/29/06

Nature of Science

Questions

Questions of faith:

Does God exist?

Questions of opinion:

Who is the greatest basketball player of all time?

Questions of debate:

Should stem cell research be funded with federal funds?

Empirical questions:

How did HIV virus spread from chimpanzees to humans?

Largely settled by evidence.

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Argument: Evolution is just a theory and we should not teach it as fact

A theory is a well-substantiated explanation of some aspect of the natural world that can incorporate facts, laws, inferences, and tested hypotheses whereas a fact is an observation that has been repeatedly confirmed (National Academy Press, *Teaching about Evolution and the Nature of Science, 1998*) Thus, a scientific theory is not just a hunch or guess.

The most important scientific explanations are called “theories,” and these theories continue to change as new observations and discoveries are made. Based on research, testing, and observation, the theory of evolution is the best scientific explanation we have for how life on earth has and continues to change.

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Yankelovich, D. (2005). Ferment & Change: Higher Education in 2015, *The Chronicle of Higher Education*, November 25.

The public believes that science does not have, and cannot have, all the answers, and that other ways of knowing are also legitimate and important. Scientists acknowledge that they do not have all the answers and that the success of science is due, at least in part, to its selectivity. Science concerns itself with aspects of reality that can be measured and are knowable through its methods. Prudently, it refrains — or at least, should refrain — from judging the truth of religious or spiritual beliefs. It has little to say about what makes life meaningful.

In other words, science gains its power from its self-imposed limitations. Scientific progress deals with subjects that lend themselves to quantification, experimentation, and verification. That leaves out vast domains of knowledge and truth. Colleges have long recognized that there are ways of knowing other than science; humanities departments institutionalize that conviction. In recent years, however, the success of specialized knowledge has come partly at the expense of the humanities, and nonscientific ways of knowing have lost status and credibility.

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If we are to protect dignity by protecting people's responsibility for their own personal values, then we must build our compulsory education and our collective endorsements of truth around the distinction between faith and reason. We need a defensible conception of science not only for the intensely practical reason that we must prepare our children and youth to advance knowledge and to compete in the world's economy but also in order to protect the personal responsibility of our citizens each for his own religious faith. We need an account of science, in our public philosophy of government, that does not make its authority depend on commitment to any set of religious or ethical values. So Senator Frist made a serious mistake when he said that describing intelligent design only as a scientific alternative to evolution doesn't "force any particular theory on anyone." In fact it damages young students, practically and politically, by using the state's authority to force on them a false and disabling view of what science is.

Almost all religious conservatives accept that the methods of empirical science are in general well designed for the discovery of truth and that their children must be taught the reliability of those methods if they are to be prepared for their lives. They would not countenance requiring or permitting teachers to teach, even as an alternate theory, what science has established as unquestionably and beyond challenge false: that the sun orbits the earth or

that radioactivity is harmless, for example. The biblical account of the creation of the universe and of human beings is just as silly if it is treated not as a myth but as a scientific explanation. Some religious people find that for them faith trumps science in these and the other few remaining areas in which faith challenges science. They deny the truth of Darwinian theory in the self-conscious exercise of their personal responsibility to fix the role of faith in their lives. That is their right: it would be a terrible violation of liberty to try to coerce them out of that conviction. But they must not try to impose that faith on others, including children, most of whom attend public schools.

Dworkin, R. (2006). Three questions for America, *The New York Review of Books*, 53 (14). 9/21/-6
<http://www.nybooks.com/articles/19271>

Science and Religion

"Science and religion are two windows that people look through, trying to understand the big universe outside, trying to understand why we are here. The two windows give different views, but both look out at the same universe. Both views are one-sided, neither is complete. Both leave out essential features of the real world. And both are worthy of respect. " — Freeman Dyson, On Receipt of 2000 Templeton Prize

Science can purify religion from error & superstition; religion can purify science from idolatry & false absolutes.
---Pope John Paul II

Religion will not regain its old power until it can face change in the same spirit as does science. ---
Alfred North Whitehead

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See a very comprehensive archive of C. Darwin's work at <http://www.darwin-online.org.uk>
Use the search mechanism for more information on natural theology and Darwin's work.