

New hypothesis or old idea in a new guise?

Intelligent

The term 'intelligent design' is a relatively new one. In the public mind it is associated with a particular religious view of the world and because of this it is often lumped together with what is loosely called 'creationism'. In this brief article, I intend to examine the claims of intelligent design, but it will be impossible to do so without mentioning religion and because of that, I need to make my own position clear.

Photo: NASA

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design theory

I have been both a Christian and a biologist for many years. I do not keep these two facets of my personhood in separate boxes — to do so would be intellectually dishonest. Science does not disprove or eliminate religion; religious answers to questions do not make scientific answers redundant. Good science and thoughtful religion have nothing to fear from each other, and probably much to learn. A similar thought was expressed in a recent article in *Le Monde*¹ in which a group of French, American and Canadian scientists suggested that a failure of scientists to engage with metaphysical and spiritual reflection had allowed the ‘young-earth-creationist’ and intelligent design movements to receive so much prominence. Over all the years that I have been involved with biology, I have never had any serious problem in accepting evolution and I am in total disagreement with those who say that acceptance of evolutionary theory or of science in general leads automatically to atheism. That idea comes from a misunderstanding of what science can and cannot tell us. Neither do I regard the Bible as a scientific text and indeed, can point out many instances where Biblical writing does not coincide with modern scientific understanding. One example is that one of the ‘great lights’ in the sky, the Moon, is not a light at all but instead reflects light from the Sun (it is a mirror, not a light!). Another is our knowledge that the Earth, spherical not flat, revolves around the Sun. Interestingly, ‘creationists’ are happy to accept our current understanding of these things, stating that the Genesis picture of the earth, the moon and the sun is how they saw things then — an account consistent with the level of understanding of the time. And that is surely an acceptable way in which to interpret the other facets of the creation story.

We now turn specifically to intelligent design theory. Before discussing this, two points must be made. First, the term ‘design’ has been widely used in science without any connotation of intelligent design. It generally refers to the relationships between properties and form in non-biological systems, between properties, form and function in biological systems and to the parallels between Nature and human design. *The International Journal of Design and Nature* typifies this approach, as does the series of books, *Nature and Design*, of which I am co-editor. Indeed, in that series we are at pains to point out that the term ‘design’ does not in this context have any religious connotation. Thus we state: “Our ambition is to explore fully the richness of the ‘design of the buttercup’ and the comparison of the designs of nature and engineering. ... We shall avoid all issues like ‘despite there being “evidence of design” we do not believe ...’ on the one hand, or ‘because there is “evidence of design”, we therefore believe ...’ on the other”².

Secondly, amongst Christian and Jewish biologists who are entirely happy with the paradigm of evolution, there is variation in ideas about how closely God has steered and continues to steer evolutionary processes. For some, there is a sense in which the whole history of the universe, the earth and the biosphere may be defined as intelligent (i.e. divine) design^{3,4}. However, this is not the same as intelligent design (ID) theory, which holds that some biological structures exhibit specific evidence for design. This view is based on the concept of ‘irreducible complexity’ clearly explained in Behe’s book *Darwin’s Black Box: Biochemical Challenge to Evolution*⁵. The key argument is that some biological structures could not have arisen by gradual evolutionary change, because they are only any use to the organism in their present form. Thus Dembski⁶ states “As a theory of biological origins and development, intelligent design’s central claim is that only intelligent causes adequately explain the complex, information-rich structures of biology...” . Examples of such structures quoted by proponents of intelligent design usually include the bacterial flagellum and the mammalian immune and blood-clotting mechanisms. Concerning the bacterial flagellum, Behe⁷ writes: “Dozens of different kinds of protein are necessary for a working flagellum. In the absence of almost any of them the flagellum does not work or cannot even be built by the cell”. There must, it is said, therefore have been the intervention of an intelligent designer in order for such structures to come into being. Of course, the converse of this is that many biological structures are not ‘irreducibly complex’ and presumably do not show evidence of intelligent design. Some of our readers will recognize that a similar approach has been used for many years by opponents of evolutionary theory. The human eye and the human knee have been amongst the structures cited, but their use in this context has not stood up to scrutiny.

So, what is new? Mainly, it is the idea, expressed especially by Behe⁵ and Dembski⁶, that intelligent design is a science, the science that involves the search for intelligence in the way that the world and especially the biological world functions. To quote Dembski⁶: “To say intelligent causes are empirically detectable is to say there exist well-defined methods that, based on observable features of the world, can reliably distinguish intelligent causes from undirected natural causes”. Exactly what those methods are or how such a science should be conducted is not at all clear, at least to the author of this article. Framed in this way, the term evolution does not enter the debate at all. Nevertheless, what is being implied here is that ‘natural causes’ are not adequate for the origin of particular structures and the proponents of intelligent design theory certainly intend it to be a challenge to neo-Darwinian evolution⁵. Is intelligent design then a religious theory? Some of its proponents say not. However, the religious implications are clear: signs



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of intelligent design point to an intelligent designer, namely God (see Dembski⁸). For this reason, intelligent design theory has been seized on by a wider constituency of religious opponents of evolution. Some of these link ID theory with a 'young-earth' creationist viewpoint and the two are often conflated in the media even though ID theorists do not necessarily hold the young-earth-creationist position. Further, to be fair to Dembski⁶, he points out that "it is logically possible that the world is full of signs of intelligence but was not created", although he himself clearly embraces the religious implications.

To me and many of my colleagues, ID is a strange theory whether or not expressed in religious terms. First, as a scientific theory, despite the words of its proponents, there seem to be no established methods for testing it. It is difficult to see how the methods of science can be used, or indeed whether there

should be attempts to use them, in this way. That is not to say that science excludes belief in God: there are many scientists who have a deep religious belief. It is simply that the methods of science do not deal directly with the realm of religion; science is concerned with the way the universe works, the natural laws and their outworkings at levels from sub-atomic to cosmic. Secondly, ID theory reminds one of 'the God of the gaps', the idea that God was responsible for those phenomena for which there was no scientific explanation or that 'natural causes' are adequate to bring into being most things but that some features need a special intervention.

The trouble with gaps of that nature is that they shrink and disappear as the extent of scientific knowledge grows. As the gaps disappear, so does the God of the gaps. This is a far cry from the Christian and Jewish understanding of a creator God. But more

than that, the examples cited in support of ID theory do not stand up to scrutiny. In particular, there is a failure to understand that genes, proteins and some higher-order structures may have more than one function or that a protein or other component may be 'taken over' to fulfil a new function.

Another Christian biologist, Kenneth Miller⁹, in response to Behe's contention⁷ that the bacterial flagellum is irreducibly complex writes as follows: "the ... contention that each and every piece of a machine, mechanical or biochemical, must be assembled in its final form before anything useful can emerge is just plain wrong. Evolution produces complex biochemical machines by copying, modifying, and combining proteins previously used for other functions ... A small group of proteins from the flagellum does work without the rest of the machine: it's used by many bacteria as a device for injecting poisons into other cells. Although the function performed by this small part when working alone is different, it nonetheless can be favored by natural selection. The key proteins that clot blood fit this pattern, too. They're actually modified versions of proteins used in the digestive system. The elegant work of Russell Doolittle has shown how evolution duplicated, retargeted, and modified these proteins to produce the vertebrate blood-clotting system".

Many more examples, including the mammalian immune system¹⁰, could be given, but the point is made: ID theory does not stand up to scrutiny and cannot be taken either as a serious competitor to the evolutionary paradigm or a legitimate means of introducing God into the discussion. ■

References

1. Arsac, J. et al. (2006) Pour une science sans a priori. *Le Monde*, 26 February 2006
2. Bryant, J.A., Collins, M.W. and Atherton, M.A. (eds) (2006) *Design and Information in Biology*. WIT Press, Southampton
3. Falk, D. (2004) *Coming to Peace with Science: Bridging the Worlds between Faith and Biology*. InterVarsity Press, Downers Grove, IL
4. Alexander, D. and White, R.S. (2004) *Beyond Belief*. Lion Publishing, Oxford
5. Behe, M.J. (1996) *Darwin's Black Box: Biochemical Challenge to Evolution*. Simon and Schuster, New York
6. Dembski, W.A. (2006) *The Briefing*, **337**, 14–15
7. Behe, M.J. (2002) *Natural History*, April 2002
8. Dembski, W.A. (2002) *Intelligent Design: The Bridge Between Science and Theology*, InterVarsity Press, Downes Grove, IL, U.S.A.
9. Miller, K.R. (2002) *Natural History*, April 2002
10. Litman, G.W., Cannon, J.P. and Dishaw, L.J. (2005) *Nat. Rev. Immunol.* **5**, 866–879



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