Blinder Than You Think: A Response to Neil Broom's *How Blind is the Watchmaker?*

John Wilks is Director of Open Learning at London School of Theology

By asking us *How Blind is the Watchmaker?*,[1] and by answering it with the assertion that a watchmaker could never be blind, Neil Broom raises a direct challenge to Richard Dawkins's proposal on the subject,[2] which originates ultimately, of course, with William Paley.[3] In taking on Dawkins, Broom raises the stakes in the evolution/creation debate; unfortunately, he appears to have overbid his hand. Whilst Dawkins hardly needs anyone to come to his defence, a robust evaluation of Broom's proposal is essential.

There are four basic problems with Broom's book, each of which will be considered in turn:

(1) that he focuses on the gaps left in contemporary science and declares that only God's intervention could have bridged them;
(2) that his arguments against neo-Darwinism are unconvincing;
(3) that he misrepresents Dawkins and so is left fighting shadows;
(4) that the image of scientists he creates is unbalanced and misleading.

1 Leicester: Inter-Varsity Press (2001).
2 Dawkins, R., *The Blind Watchmaker* (London: Penguin, 1986)
3 Paley, W., *Natural Theology*, (1802) opening pages, as cited by Dawkins, *Watchmaker*, 4–5.

God of the gaps

The first issue is that Broom advocates a 'God of the gaps'. Not that he ever uses the phrase, but this old idea is, nevertheless, the correct one to use to describe his interpretation. In its old incarnation, the basic idea was that science has not yet discovered all of the answers, and the gaps are the areas where God was miraculously active. What is new is that Broom targets his discussion primarily at the molecular or cellular level of biology, rather than at the visible macro level. In other words, he is more interested in what happens in the cells of a leaf to capture sunlight and convert it into food and energy,[4] rather than the intricacies of an organ such as the eye. The latter is not absent, but the focus is consistently on the former.

This gives the unfortunate impression that he hopes to convince theologians better of the accuracy of his analysis by talking about areas of science about which they are less likely to be familiar. Trusting that this would in fact be an unfair criticism, the general point about the scientific gaps still remains: since scientists are continually making inroads into the traditional areas for which a 'God of the gaps' was evoked, new areas of scientific difficulty must be identified and discussed. To the contrary, however, I would suggest that this argument should not have been resurrected.

Broom indicates, for example, that science cannot identify how evolution might have made the leap from basic chemicals in the primeval soup to self-replicating DNA and proteins.[5] It is important to recognize that this is a correct statement of current scientific knowledge. Certainly it has been proved that basic amino acids (the building blocks of proteins) can be generated from the constituent gases of the so-called primeval atmosphere – methane, ammonia, hydrogen and water – when lightning-like electrical charges are passed through them. However, nucleic acids – the chemicals needed for DNA – are another matter, since they are *not* possible of generation by this method, as Broom correctly emphasizes. Though Dawkins claims they have,[6] this is only under conditions that most

4 Broom, *Blind*, 35–39
5 Broom, *Blind*, 72–83
6 Dawkins, R., *The Selfish Gene* (Oxford: Oxford University Press, 1989 second edition), 14

scientists are not convinced represent the primeval conditions.[7] There is currently a gap in scientific knowledge for which no scenarios or experiments have been provided.

A similar example is provided in his discussion of the way that proteins are replicated in the living cell.[8] The cell's method of generating the instructions for protein manufacture is dependent on proteins themselves (and the process for DNA replication likewise). So a circular argument develops, where specialized, fully functioning proteins must exist for *any* functioning proteins to be generated. Furthermore, these instructions are encoded in the DNA, and to create that you need other highly specialized proteins. Science currently has no workable schemes for how the whole integrated package might have developed.[9]

The result, then, is that there are significant, identifiable gaps in the process; gaps, furthermore, that yawn with the magnitude of the Grand Canyon in terms of progressing from one point to another. The theory of how more complex creatures developed from the first single-cell organisms is pretty well complete, if still largely theoretical; the connection from free amino acids to the single cell is much more hazy. Broom's point is that this gap is/was unbridgeable, and that it was only the helping hand of God that could have got us from one side to the other (though I am sure his preferred scenario is special creation, not guided evolution).

This is simply saying that there is a gap, and God must be the one who filled it in. Perhaps that is his intention. However, it seems to be very dangerous to promote the God of gaps as your explanation. If science were to present explanations and experimental evidence for this – explanations that might not be above question in the eyes of Broom, but beyond reasonable doubt for the majority of pro-evolutionists – then the classic situation where God's non-existence is proved by squeezing him out of the gaps will once more result.

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7 See Pappelis, A., 'Prebiotic Chemistry' at http://www.mccoy.lib.siu.edu/projects/bio315/_section2.htm and Evard, R. and Schrodetzki, D., 'Chemical Evolution' at http://www.grisda.org/_origins/03009.htm

8 Broom, *Blind*, 91–104

9 That is not to say that there are no proposals. One would be the so-called 'RNA World', which proposes a replication scheme that has its focus on RNA rather than DNA. For details and evaluation see Klyce, B., 'The RNA World' at http://www.panspermia.org/maworld.htm#whatsnew, and Gibson, L.J., 'Did Life Begin in a "RNA World"?" at http://www.grisda.org/origins/20045.htm. Another would be the clay crystals proposal, discussed by Dawkins, *Watchmaker*, 150–57.

Trying to express that in a more positive sense, the point is that the 'God of the gaps' solution appears to be long discredited. Perhaps all that has been discredited is simply the fact that previously we had the wrong gaps, and Broom has now identified the correct gaps for which we only have God as a possible solution. To the atheistic scientist however, the response is even more simply expressed by saying that they are still working on those gaps and it is only a matter of time before they develop experimental results of a naturalistic explanation.

Though Broom regards such an attitude as misplaced arrogance, it may not be unreasonable. Given that most of you are probably reading this within reach of a computer that has more RAM space than the storage capacity of your first computer's hard disc (and I pass over the period when there was no such thing as a hard disc and everything was stored on floppies), and that there is still no sign that computer ability and specifications will ever plateau, such confidence might not be arrogance, but just a recognition of how things are. The scientific age has hardly begun and its pace of development continues to increase. The idea that a 'God of the gaps' should be invoked for any current gaps is not a credible argument to be raising at the start of the third millennium.

In summary, the idea that gaps in scientific knowledge indicate that evolution is discredited is insufficient. Not only will it be totally discredited if (?when) the gap is filled in, but it fails to be scientific in its methodology. To be credible, it must be backed up by reference to theoretical discussion and actual experimentation that aims to demonstrate the impossibility of ever bridging the gap by unguided means. No matter how amazing and intricate the system might seem at the moment, even discussion of the minutiae of protein manufacture and interaction will not suffice to prove special creation.

Ineffective Arguments

The second major problem with Broom's presentation is that he does not actually raise any effective arguments against neo-Darwinism. Though he initiates a discussion about both the content and the method of Dawkins's scientific evidence, he is convincing on neither count. In the main, this is because he appears to misunderstand Dawkins, and at time even argues the evidence in such a way that it supports Dawkins's case, not his own!

A suitable example of Broom's interaction with the scientific content of Dawkins's work would be the discussion of the development of the eye.[10] He focuses on Dawkins's claim that a 5% eye is better than no eye at all.[11] Dawkins's intention is to demonstrate that an eye does not have to have *perfect* vision, however that is to be defined, for it to be of use to its owner. Indeed, anyone with severe myopia can appreciate the point from their own experience: without their glasses the myopic person might not be able to discern the fine details of their spouse's expression when they enter the room, but they know full well that they have done so. Likewise, ever improving vision makes it easier for the predator to stalk the prey, and for the prey to avoid the predator. Dawkins's point, then, is that no matter how poor the level of vision, any sense of vision will be a bonus, and better vision, a greater bonus.

There are places where Broom makes some sensible observations on this point (in this instance by shifting the discussion to the question of flight).[12] To get a picture of what a 5% eye might look like, we can compare the Wright brother's first biplane to a contemporary plane. Broom is correct, though, to insist that it was also a 100% fully functioning plane! If it had lacked any essential aspect of the aerodynamics then it could not have flown.

Despite this, Broom needs to concede (or realize) that he is actually building Dawkins's case for him. Moving to the field of flight in nature, Dawkins argues that the first creature with just that bit extra area of skin flap to enable it to glide from one tree to another will have survived the jump. It was a 5% wing when compared to an eagle, 100% from the point of view of the animal that survived the jump. Dawkins would agree with all the evidence that Broom assembles. He would even agree that the Wright brothers' biplane was 100% plane in the sense that it flew, but still declare that the conclusion Broom draws is completely the wrong one, since it comes about as a misunderstanding of the point Dawkins is making.

10 Broom, *Blind*, 152–58.

11 Dawkins, *Watchmaker*, 81. For the full version, see Dawkins *Watchmaker*, 77–109, further developed in Dawkins, R., *Climbing Mount Improbable* (London: Penguin, 1997) 126–79.

12 See Dawkins, *Improbable*, 97–125.

On the subject of method, Broom argues that Dawkins has created a reductionist argument by an anthropomorphization of the gene.[13] Here Broom is on much more secure ground than has been identified previously. Dawkins gives the impression, ironically, that it is the gene that has a conscious sense of intentionality and self preservation that powers evolution. Ultimately Dawkins seems to have chosen his imagery in order to communicate better to his non-specialist audience, but he may well have gone too far on that level.

The question that needs to be asked, though, is if this anthropomorphization has somehow undermined or altered the science that lies behind it. On this point, I am not so sure that Dawkins is in error. The science itself is not affected in the slightest by the way Dawkins discusses it. Broom's main point here is that Dawkins is somehow shifting interpretation of the science in favour of evolution by this reductionism, that he is subjectively predisposed to see evolution where it does not exist. This is a point to which we will turn in more detail later. For the moment, it suffices to insist that scientists are rarely blind to the evidence in front of them.

At this point it may be necessary simply to part company with Broom. One of the most amazing things about the theory of evolution is that it has been around for so long and has barely been altered by the major scientific discoveries of a century and a half. Genetics was unknown at the time Darwin published: its discovery provided explanations of how inheritance worked; how it maintained characteristics across the generations; and how chemical alterations in the code result in alterations in the biochemistry of the offspring. It would be foolish to rule out the possibility of a revolution in thinking comparable to the shift from Newtonian to Einsteinian physics. At the same time, it is probably much more intellectually consistent to accept with Ward, 'a theory of evolution as one of the major insights of modern scientific understanding', one that 'enriches traditional religious belief in God considerably'.[14]

The real complaint against Dawkins may be unspoken, however, which is that he undermines faith by presenting evolution is a consistently godless universe. This is the true reductionism to which Broom objects, though he is nowhere near as clear on this as Keith Ward (for example).[15]

13 Broom, *Blind*, 147–51

14 Ward, K., *God, Chance and Necessity* (Oxford: Oneworld, 1996), 13

15 Ward, *God*, passim.

I would suggest that what we need to do is to focus our efforts on a more effective response to the questions Dawkins raises, rather than object that he poses them.

In summary, Broom has no effective arguments against neo-Darwinianism. Incredulously, he actually uses the classic explanation of evolution as a supposed proof that it does not occur. Though Dawkins is indeed guilty of excessive anthropomorphisation of the gene, this is not a significant argument against his work, which is ultimately popular in tone and intent. We must be much more willing to trust that most readers will recognize that this is metaphor and imagery, not a description of reality.

Misrepresenting Dawkins

Beyond these ineffective arguments against neo-Darwinism is the third problem, that Broom not only misunderstands Dawkins, but misrepresents him.

The most obvious misrepresentation comes in the idea of intentionality in evolution. Broom continually asserts that the evolutionists are covering up the fact that there must have been assisted, directed development. He particularly challenges Dawkins on this by declaring that the image of Climbing Mount Improbable is an unacknowledged admission of this.[16]

> [Dawkins's] metaphor of climbing the mountain is loaded with intentionality. No climber ever reached the summit of a high and difficult mountain without a powerful sense of wanting to get there. The very fact that Dawkins admits to aiming for the summit, or in his own words "only accepting mutations that improve optical performance," is surely the most blatant admission that his version of neo-Darwinism is, despite claims to the contrary, profoundly goal-centered and purposeful.[17]

When I first read Broom's work I had not at that time read Dawkins's *Mount Improbable*, and was surprised by this 'admission'. My knowledge of other parts of Dawkins's output suggested that this would *not* actually be his intention, but something that Broom has read into Dawkins. This proved to be the case.

16 See Dawkins, *Climbing*, 64

17 Broom, *Blind*, 167

It cannot be stressed enough that Dawkins does *not* make the admission attributed to him, neither explicitly nor implicitly. To the contrary, Dawkins is very clear on the purpose of the metaphor. Broom's claim is a classic example of misreading a metaphor and drawing conclusions from the parts of the image that are an essential part of that image, but not the part that forms the metaphor. The significant point of Dawkins's metaphor is that there is more than one way of climbing a mountain. His fictitious mountain has a sheer craggy side – virtually bereft of any sort of handhold, let alone ledges, to help the climber – whilst the other side is a gentle slope suitable for a Sunday afternoon stroll. The point Dawkins wants to make is that such a mountain can be climbed in one of two ways, and evolution did it by the gentle slope. The idea that the fully functioning mammalian eye (or avian for that matter) might have sprung from nothing is as absurd as climbing a sheer cliff in a few steps; Dawkins's argument is that it developed by a very long string of small developments.

In reality, no such mountain exists at all (and I do not mean in the physical, geographical sense), which is why there is no possibility of intentionality needed to climb it. Broom is trying to say that it is only by first identifying the mountain that one can hope to climb it. If quizzed on the matter, Dawkins would probably say that it is only in the sense of a trace of the path left behind by evolving organisms that we can see a mountain, a progression upwards. Evolution does not sense the mountain's presence and set about climbing it; the metaphor of a mountain has been introduced to discuss the idea of climbing one in different ways. The creature (or the gene) does not have any sense of its target at all. A random mutation improves the individual creature's ability to relate to its environment, and so be more likely to survive to reproductive age, to pass that mutation on to its offspring. As these variations accumulate, the nature of the organ shifts and something that can barely be recognized as the development of the starting point emerges. In retrospect, we can say that a mountain has been climbed; in anticipation, *no such mountain can be seen*. There is no sense of intentionality in this.

So Broom is utterly mistaken to claim that this is an admission that neo-Darwinism is goal orientated; it is an admission that at the very least he has misunderstood the metaphor. In effect it has become a misrepresentation of Dawkins's work, and so misleads the reader.

A very similar misrepresentation is presented by another of his

examples,[18] though it may be a case of completely misunderstanding the argument rather than an actual misrepresentation. Whichever it is, the result is that Broom uses the standard evolutionists' argument of how evolution works as a proof that it could not occur.

Without quoting at length, the basic idea in his example is that if most of us, untrained in car maintenance, were to decide to 'tinker with the carburettor or the ignition system of our car', then it is almost certain that we will actually *decrease* the performance of our car, not increase it. Bizarrely, though, whilst he views this as an argument in favour of the presence of a guiding hand in evolution/creation, it is exactly the argument put forward by the evolutionists to demonstrate the *lack* of a guiding hand. To adapt Dawkins's image, this is a case of 'the blind mechanic'! How incompetent was the mechanic? Utterly, Dawkins responds. It matters not that a hundred, a thousand or even a million of us may adversely affect our car's performance if just one in ten million actually increases it by random tinkering. The one in ten million now driving around like James Bond is exactly what the evolutionists argue happened. This car is better fitted to perform, and with *this* secondary sexual characteristic the male driver will certainly attract all the girls! The other ten million minus one are nowhere, on that Broom and Dawkins agree. That Broom cannot see that his argument is exactly the evolutionists' argument is deeply concerning.

Note, though, that this is not a case of the evolutionists getting it wrong and Broom bringing clarity to their misperceptions. Broom acknowledges that 'there is a small probability that your tinkering does improve the running of the engine'.[19] He claims that you need to make a 'personal judgment as to whether the engine begins to run more roughly or smoothly'. No you do not; or at least, you do not need to be a car mechanic to tell that the car runs (more) smoothly, since it proves itself without the need for expert evaluation. It makes the journey in less time, and with less petrol consumption; there does not need to be much value judgement here. Reapplying this image to biology, the genetics means that all cars created thereafter will copy the settings of the improved car, the millions of failed settings will be unsuccessful in propagating their own kind, and a new population of Aston Martins will rule the world.

In summary, Broom has misrepresented Dawkins, at least on the

[18] Broom, *Blind*, 163–64

[19] Broom, *Blind*, 163–64

imagery of climbing Mount Improbable. It is not an admission of intentionality. In addition to this, he seems unaware that one of his main arguments against evolution is actually the very explanation used by the evolutionists to describe evolution. If he is aware of this, then he should have made it much clearer; as it stands, it misleads the reader since it misrepresents the case for evolution.

Inappropriate parallels

Fourthly, the way Broom portrays the mindset of scientists is both unconvincing and misrepresentative. His argument on this point is far from easy to follow, but its essence is to say that since an intelligent mind is needed to form a scientific experiment, so an intelligent mind must lie behind the world that is being experimented on. Scientists should acknowledge the presence of the creative mind behind the universe. In other words, he sets up a parallel between the scientist as creator of experiments and God as creator of the world to experiment on. It is only because of the Christian tradition that science would have come, so readily, to the conclusion that the world is worth experimenting on, since there was an intelligent mind at the root of the world and its scientific systems, as Christianity has always taught.

The importance of this question for Broom is demonstrated by the prominence he gives it in the book. As far as he is concerned, scientists are being perverse by not acknowledging that only a creator God could be the explanation for the ordered universe. However, whether we agree with these scientists or not, most see no need for such an admission since they do not have a vacuum in the place where a statement of meaningfulness resides. To the contrary, they have an explanation: the meaningfulness of the scientific universe lies in such things as the properties of the atom and of electro-magnetic forces. The way atoms react with one another is largely explicable in terms of their electrons. Once combined into molecules, their properties remain explicable in these terms. There are no sudden anomalies in the patterns, but an overall coherence codified through the Periodic Table of elements.

Broom demands the acknowledgement that only a Creator might have set this up. By disagreeing with this, however, the atheistic scientist is, not being inconsistent. The problem is, therefore, not a lack of belief in a non-scientific base but the belief that the scientific basis is its own coherent

explanation. Yet even this is not perverse, for there is no real need to bring God into the equation when trying to understand science.[20]

Moving from this initial objection, Broom asserts that scientists forget that science is conducted in a subjective situation, not an objective one. They are subjectively predisposed to see the results that they want, and to influence their experiments to obtain them. Yet to accuse scientists of failing to remember this is a little like accusing theologians of failing to remember that all talk about God comprises metaphor and imagery. We theologians are well aware that this is the case, but would treat the idea that we have to consider it every alternate sentence as somewhat absurd. Does the lack of a statement from a theologian acknowledging the metaphorical nature of talk about God prove that he or she is unaware of it? We would dismiss out of hand any such criticism of our own work on these grounds as absurd and irrelevant. So for the scientist, the problem is not that they fail to remember the element of subjectivity but that they do not feel the need to keep it pressed up to their eyeballs all the time they work, any more than theologians keep big cards on their desks with the word 'all talk about God is metaphor' written on them. Every now and again it becomes a key issue, but it rarely needs to take centre stage.

Broom, unfortunately, never presents evidence from specific scholars with an explanation of why they fall into the mistake he claims. So, for example, scientists in general are said to be unaware of their own role within the experiment. In the absence, however, of any examples or references we can neither agree with this statement nor challenge it. Whilst the authority of Polyani is used as the basis for the accusation, the proof that this is actually true of specific scientists is not provided.

So why does Broom raise the point? It is probably because he wants to imply that scientists see evolution where it does not really exist, because they are subjectively predisposed so to do. However, this seems to be a totally unjustified charge to raise.

In searching the Internet, something that became very apparent is that the scientists who advocate evolution can be far more devastating in their criticism of theories than Broom ever implies they could be capable of. The discussion over the so-called 'RNA world' (see footnote 9) is one that clearly emphasizes the weaknesses of the theory. There are advocates and there are detractors; the discussion proceeds on theoretical grounds and

20 Ward, *God*, 103

on the results of experiments alike. The point for us is not the potential of this theory to be the proven method whereby evolution developed from inorganic to organic stage, but as proof that scientists are far from biased in their acceptance of any theory that proves evolution and 'disproves' creation. Scientists do not simply jump on any theory, no matter how flimsy, that is proposed. Broom is grossly unfair to scientists in suggesting that their subjectivity blinds them to the results and implications.

Of course, this raises the question of Broom's own subjectivity (and mine, whilst we are on the subject). Many non-Christian scientists reading Broom's book may be forgiven for accusing him of having his own non-scientifically predetermined subjectivity firmly in place. They would suggest that no matter what evidence might be presented in support of evolution he has already decided what he believes. Certainly every theologian needs to ask themselves how many hominid skeletons will have to be discovered before he or she might have to concede that the so called 'missing link' has now been filled in. It profits the argument nothing to charge others with subjectivity and not acknowledge your own.

This is not to say that there is no merit in this argument. It is indeed all too easy for scientists to fail to recognize the degree of involvement they have with their experiment. It is also all too easy, however, to over emphasize the degree of the subjective in science. Broom implies that Dawkins would be the prime example of a scientist who would believe in evolution no matter how much evidence to the contrary were presented; Dawkins is undoubtedly very confident of the validity and veracity of his subject, but can still acknowledge that on some matters 'we may never know for certain'.[21]

In summary, the parallel Broom raises between the creative scientific mind and the creative activity of God is not convincing. Scientists are not lacking an appreciation of the big issue within science, but only those with a faith see the basis for including a deity within it. This is not perverse but consistent; Christians simply disagree with it. Broom declares that scientists are not mindful of the influence of their subjectivity in their experimentation, whilst not providing a single concrete example. To the contrary, his own subjectivity seems very much to the fore.

21 Dawkins, R., *River Out of Eden*, (London: Widenfeld & Nicolson, 1995), 151

Conclusion

Neil Broom's qualifications lie in science, thereby giving the impression that he should know what he is writing about. However, what is apparent is that he has not employed a scientific style in his interaction with Dawkins. He has both misunderstood and misrepresented Dawkins, and by peppering the book with a series of his own cartoons introduces a mocking undercurrent to the ideas of neo-Darwinians. His arguments fail to convince, either as a challenge to the science or as an affirmation of faith. He is also somewhat outdated on the current scientific thinking; concerning matters on which he implies or states that nothing could possibly happen, scientists are in fact developing new schemes and ideas and implementing experiments to (dis)prove their validity. Furthermore, to make not the slightest mention of Stephen Jay Gould and his distinctive brand of neo-Darwinism is incredible. This is a very disappointing book.

Given my obvious scepticism about the value of Broom's contribution though, I want to close by stressing that the theory of evolution faces some momentous challenges to its validity and credibility, many of them recognized by its proponents.

The whole biochemical system, with the interrelationship between proteins and DNA, is so incredibly complex that it does strain credibility that it arose through a series of random chemical interactions. Even Dawkins writes that 'you can scarcely imagine it arising by luck, without some other self-replicating system as a forerunner'.[22] The need for a code to develop that would be written in DNA – or its forerunner – is only one of many hurdles that have to be cleared before scientists can claim to have a coherent case for the random development of life from inorganic matter. In addition, the reason for the complete absence of dextro-rotary forms in living matter must be explained.

Yet at the same time, the proponents of special creation must reckon with the wastefulness and lack of meaning in so much of the human genome. Not only do we share 99% of our DNA with the chimpanzee, but vast swathes of it are virtually junk. I doubt that a neat, ordered genome could have been claimed as proof of special creation, but it would undoubtedly have helped. The genome is too much like the data on a computer hard disc that has been in use for a few years: areas of

22 Dawkins, R., *River*, 151

important information shredded up into a myriad of locations, with debris left over from old files and stuff that looks like sheer gobble-de-gook. The genome looks exactly as if it has grown over a long period of time, like barnacles encrusting the hull of a ship, or with old information never cleared out. Maybe the only response to this is the claim that (at best) life developed by guided evolution. Whatever, the discussion needs to proceed by discussion of the science itself, not of a popular presentation of it.

A valid criticism of Dawkins is that he has only a popular, reductionist picture of faith in mind whenever he attacks religious belief. It does not add credibility to the response, though, if only a reductionist picture of the scientific evidence is discussed.