

The Day Without Yesterday

Is Intelligent Design Really Like Big Bang Theory?

J O H N F A R R E L L

MICHAEL BEHE, AUTHOR OF ONE OF THE leading Intelligent Design (ID) books, *Darwin's Black Box*, appeared as an expert witness for the Dover, PA School Board in the case, *Kitzmiller et al. v. Dover Area School District*. Behe offered no specific test or experiment to positively validate or invalidate Intelligent Design. Instead, according to the *New York Times*, Behe equated ID with the Big Bang theory:

Under sharp cross-examination by a lawyer for parents who have sued the school district, he said he was untroubled by the broadness of his definition of science and likened intelligent design to the Big Bang theory of the origins of the universe because both initially faced rejection from scientists who objected for religious and philosophical reasons.¹

Behe's was cross-examined by Eric Rothschild, an attorney for the ACLU representing the families suing the Dover School Board. On first reading, Behe's references to the Big Bang sound like tropes from a medieval liturgy being chanted by rote:

Q: Now, none of these scientists that you referred to advocate for intelligent design in those articles or books, do they?

A: No, they don't.

Q: Or in any other forum, correct?

A: That is correct.

Q: In fact, many of them are vocal opponents of intelligent design?

A: Yes, indeed, just like, say, John Maddox is an opponent of the Big Bang theory and, for example, Walter Nernst was an opponent of the Big Bang theory and a vocal proponent of the infinity of the universe; yes, that's correct.²

It turned out however, that Behe's association of ID with the Big Bang theory was a well-thought out rhetorical ploy designed to avoid discussing any specifics of Intelligent Design. As the questioning continued, Behe repeatedly equated ID with Big Bang cosmology (emphasis added):

Q: It does not identify who the designer is, correct?

A: That's correct. Let me just clarify that. I'm talking about the scientific argument for intelligent design based on physical data and logic, yes.

Q: You believe it's God, but it's not part of your scientific argument?

A: That's correct.

Q: It does not describe how the design occurred.

A: I'm sorry?

Q: Intelligent design does not describe *how* the design occurred.

A: That's correct, just like the Big Bang theory does not describe *what* caused the Big Bang.³

Note the subtle shift in Behe's position. He admits that Intelligent Design as a scientific theory has no explanation for *how* the process happened. He then implies that this is also the case with the Big Bang theory. He knows he can't say that, of course. Instead of saying *how*, he says the theory cannot describe *what* caused the Big Bang. He's gone from a "how" (process) which ID fails to identify, to a "what" (cause) which Big Bang theory likewise can not identify.

But the comparison is false, and Behe knows it. Otherwise he would have insisted that, just as ID does not describe how design occurred, the Big Bang does not describe how the universe evolved.

But the Big Bang theory *does* describe how the universe evolved in considerable detail. In fact, the main point of the theory is to explain how the universe evolved from a high-energy origin (through a period of inflation) and how the stars, galaxies, and clusters of galaxies formed. Indeed, for most scientists involved in the elaborate building of the theory from the 1930s through today, *what* caused the Big Bang has been of much less interest than *how* it has turned out. This is science straight up.

Behe's analogy has no merit. There were specifically scientific reasons for the initial development of the Big Bang theory back in the late 1920s and early 1930s that can be referenced and read today. In brief, Georges Lemaître, the Belgian priest, physicist, and protégé of Sir Arthur Stanley Eddington, convinced Albert Einstein and his contemporaries in 1930 (with some generous horn blowing by Eddington), that the universe had to be expanding. He did this by showing that Einstein's 'static' model, a temporally infinite, 4-dimensional model of the universe and Dutch astronomer Willem De Sitter's

essentially flat, empty model of the universe were essentially two bookends of a larger, truly dynamic model of the cosmos.

Lemaître basically rediscovered the 1922 work of Russian mathematician Alexander Friedmann, who was the first to show how Einstein's equations could be used to describe time-dependent models of the cosmos.

But Friedmann (who died young in 1925) was a mathematician and never drew any connection between his models and astronomical observations.

Lemaître did. In a landmark 1927 paper, "A Homogeneous Universe of Constant Mass and Increasing Radius Accounting for the Radial Velocity of Extragalactic Nebulae," he not only argued for an expanding universe, Lemaître derived Hubble's Law two years ahead of Hubble. And making use of as much of Hubble's data as he had at the time, he even worked out an expansion rate that was not far from the rate Hubble derived in his historic 1929 paper.

Lemaître's work was ignored (like Friedmann's) for over two years until an embarrassed Eddington dug it out of his pile of papers in early 1930 when Hubble's results were finally convincing even skeptics like Einstein that the universe could no longer be considered static. Hubble himself was extremely cautious—almost timid—in his suggestion that his results could be interpreted as lending support to an expanding relativistic model. During his life he never came out and openly embraced the Big Bang theory, just as he never actually used the word galaxy, although his own work established the fact that extra-galactic nebulae were separate "island universes," a point of no little controversy in 1925. This is puzzling and disappointing considering the key role he played in the history of cosmology.

Shortly after this, in 1931, Lemaître realized that an initial static Einstein state, as the front end of his dynamic model, could not be sustained indefinitely into the past. The laws of physics couldn't support it. The expansion therefore had to wind back to some temporal, spatial origin, a point he liked to call the "Day Without Yesterday." It's

important to note that Lemaître, a diocesan cleric, never uttered the word "creation" in reference to his work.

Unlike proponents of Intelligent Design, he was too well trained in philosophy to make the error of confusing his science with philosophy. He envisaged an initial cold, super-dense cosmic sphere, and called it *L'Atom Primitif*. From the disintegration of this sphere, he argued, the universe evolved. He even suggested that high-energy cosmic rays might be the leftover ashes and smoke of the cosmic disintegration process. George Gamow, Ralph Alpher and Robert

Herman later revised and developed Lemaître's theory in the late 1940s into the modern hot radiation-based model that is more familiar to us today.

While Michael Behe may be right to suggest this cosmic origin theory indeed bothered Eddington and others because of its philosophical implications (that the universe began with a bang), no one dismissed Lemaître's work the way Michael Behe's work has been dismissed by his own colleagues, because the physics and mathematics behind Lemaître's papers were so solid. And one can see by the number of papers by contemporaries throughout the following decades that his theory was taken seriously. Einstein himself recommended to Lemaître that he should investigate anisotropic relativistic models to see if a singularity could be avoided at the origin. Lemaître found that apparently it could not be. And in the 1960s Roger Penrose and Stephen



Hawking showed that any relativistic model of the cosmos has to have its origin in a singularity.

And that's just the theoretical side. In 1965 Penzias and Wilson discovered the cosmic microwave background radiation that Gamow's team, and later Dick and Peebles' team predicted.

Such scientific fecundity cannot be attributed in any way, shape, or form to the patchwork pseudo-philosophizing that goes by the name of Intelligent Design. Its own proponents admit that ID has not inspired a single experiment or paper in a mainstream peer-reviewed journal. Behe has acknowledged that he has no mechanism to describe how the intelligent design of biochemical systems can be explained, let alone tested.

In his testimony Behe also suggested that the definition of science itself should be broadened even to make room for subjects like astrology. This is puzzling. Michael Behe is not a fundamentalist Christian. About 1,600 years ago Saint Augustine discredited astrology in a remarkable critique that—in spite of its age—needs little updating. While he was a cleric and a man of faith, Augustine was also a man of reason, and he didn't like having his reason insulted. Indeed, in his *Commentary on the Book of Genesis*, he went so far as to warn his brethren that in general Christians should not hold dumb opinions about the natural world based solely on misreadings of the Bible, especially opinions that can be demonstrably falsified by reason, lest, in his words, the Faith be subject to ridicule and mockery.

Thanks to Intelligent Design, Christians of all denominations no doubt can see plenty of ridicule and mockery on late night talk shows and hundreds of blogs and websites. It is a pity, and no small irony that—almost 1,600 years after Augustine—Behe has not followed the advice of one of his own church's saints. ▼

References

1. As accessed here on November 10, 2005: <http://www.nytimes.com/2005/10/19/national/19evolution.html?ex=1131771600&en=bd8bcf699e0542be&ej=5070&adxnnl=0&adxnnlx=1129748662-6Ea8x3ASEvZSTikb/nv0mg&pagewanted=print>
2. From the transcript file at NCSEWeb: http://www2.ncseweb.org/kvd/trans/2005_1018_day11_pm.pdf. p.47. As accessed on November 10, 2005.
3. *Ibid*, p. 90

The quote used in the illustration is from: <http://www.asa3.org/ASA/topics/Bible-Science/PSCF3-88Young.html>