**Faith & Science Integration Paper**

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**The Peculiar and the Scientific Approach**

An observation is peculiar when it appears different or out-of-place. The peculiar fails to conform to existing trends, expectations, or theoretical explanations. Often, peculiar observations are caused simply by human error, but within the peculiar lies the promise of the discovery of new phenomena and new scientific theories.

However, scientists disdain the peculiar, in the sense that as scientific understanding advances those observations which were once peculiar become no longer so. Scientific models are improved, extended or replaced in order to make the peculiar, ordinary; the surprising, expected; the anomalous, a consequence of a broader system of regularity. For example, Kepler’s Laws of Planetary Motion became a corollary to Newton’s theory of gravity.

In the last few decades, modern science has been producing peculiar observations about humans and our place in the universe. The ever-strengthening theme: *we are part of a peculiar abundance of advanced life, living on a peculiar planet, in a peculiar universe.* The scientific establishment is continuing to insist that these peculiarities are similar in kind to earlier ones, i.e., further discoveries and understanding will make these peculiarities seem reasonable or ordinary. I believe this is unlikely, after close examination of the types of observations at issue.

Cosmologists have led the way, openly embracing the anthropic principle that the universe has characteristics ideal for human existence. Physicist Martin Rees describes the multiple parameters of our universe, apparently fine-tuned to produce a suitable Big Bang.[[i]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn1) For example, stars are powered primarily by the formation of helium nuclei. When protons and neutrons are combined to form a helium nucleus, 0.7% of the original mass is converted into energy. If this energy release were instead 0.6%, no helium would be formed, stars would not exist, and the entire universe would be composed of only the element hydrogen. If this number were instead 0.8%, helium formation would occur too easily, and there would be none of the element hydrogen remaining anywhere in the universe today.

Physicist Roger Penrose emphasizes that the Second Law of Thermodynamics is reversed as one goes backward in time. As one looks backward in time, one sees ever increasing order (and decreasing probability) all the way back to the Big Bang. Penrose estimates the odds of our highly ordered Big Bang arising by chance at 1 in 1010123.[[ii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn2) Stephen Hawking adds, “In fact, if one considers the possible constants and laws that could have emerged, the odds against a universe that has produced life like ours are immense.”[[iii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn3)

The last chapter of Rees’s book is titled “Coincidence, Providence - or Multiverse?” To call the type of cosmic fine-tuning discussed above “coincidence” does not provide insight and does not appeal to the scientific mind which demands explanation. In this context, to appeal to coincidence is simply to deny the existence of explanation. The crux of the matter is whether or not Providence can or should be invoked. The admission of Providential explanations is also not appealing to the modern scientific mind, because though it offers explanation, it fails to limit itself to material causes. (Of course personally, a scientist who admits Providence also must hazard the associated risks, that the implicated God might care or make demands.) In order to avoid theological implications of the observed cosmic fine-tuning, Rees advocates a multiverse cosmology. Rees holds that there are an infinite number of universes, each one having different cosmic parameters. We necessarily happen to find ourselves living in one with parameters conducive to our existence. If they were not conducive, we could not observe them.

It is worth remembering that the Big Bang theory was initially opposed by scientists offended by its non-material implications – that something outside our observable universe was its cause. Physical chemist Walter Nernst once asserted that to deny the infinite duration of time “would betray the very foundations of science.”[[iv]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn4) Astronomer Arthur Eddington stated, “Philosophically, the notion of a beginning to the present order is repugnant to me. I should like to find a genuine loophole.”[[v]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn5) Similar philosophical convictions led Einstein to add erroneously to his theory of general relativity, which he later called his worst scientific mistake.[[vi]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn6) However, due to overwhelming evidence in favor of a hot, dense origin of the universe, the Big Bang theory is now almost universally accepted by astronomers and cosmologists. It is generally accepted by scientists that the initial Big Bang event itself is beyond scientific explanation, but science is capable of modeling everything that occurred thereafter. (This claim is related to the observation of C.S. Lewis that miraculously created bread digests in the stomach as ordinary bread does.)

If the peculiar observations of modern science were limited solely to the original Big Bang event, there would be little controversy. Although the mysterious origin of the universe casts a dim shadow, the scientific establishment continues to assert that all events *since* the Big Bang are explainable in material, scientific terms. All of the characteristics of planet Earth are explainable in terms of the original creation. Perhaps, but Earth is peculiar. Atheist astronomer Carl Sagan preached that Earth was an ordinary planet near an ordinary star in an ordinary galaxy. Conversely, Christian astrophysicist Hugh Ross has collected dozens of characteristics necessary for life on Earth.[[vii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn7) Ross estimates that it is improbable for *any* planet in the universe to have all these characteristics. Ross’s view of the Earth is gaining in popularity relative to Sagan’s. Consider the description of the Earth offered by astrobiologists Peter Ward and Donald Brownlee in their book *Rare Earth*.

Our planet coalesced out of the debris from previous cosmic events at a position within a galaxy highly appropriate for the eventual evolution of animal life, around a star also highly appropriate – a star rich in metal, a star found in a safe region of a spiral galaxy,…not in the center of the galaxy, not in a metal-poor galaxy, not in a globular cluster, not near an active gamma ray source, not in a multiple-star system, not even in a binary, or near a pulsar, or near stars too small, too large or soon to go supernova. We became a planet where global temperatures have allowed liquid water to exist for more than 4 billion years – and for that, our planet had to have a nearly circular orbit at a distance from a star itself emitting a nearly constant energy output for a long period of time. [[viii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn8)

Still more characteristics required for life include the motion of tectonic plates and the presence of a relatively large moon. Ward and Brownlee conclude, “Our global inferiority complex may be unwarranted.”

As for the universe as a whole, the peculiar characteristics of the Earth may be put down to coincidence, Providence, or to the existence of a very large number of planets among which even an improbable Earth-like planet is expected. However, science is continuing to discover ways in which Earth is peculiar. If Hugh Ross’s probability argument should ever become widely accepted by secular scientists, then the number of existing planets will be recognized as too small to make an Earth-like planet probable. Materialists would once again be forced back to the original multiverse cosmology and argue that in an infinite number of universes, a planet Earth would appear.

Arguments about apparent design, chance, and the role of Providence have received the greatest attention in the field of biology. These arguments are mentioned here in an attempt to put them in the larger context of peculiarity discussed in this essay. Philip Johnson’s *Darwin on Trial* demanded an affirmative defense of Darwinian evolution’s capability to generate all of the complexity of life. Johnson argued that the sufficiency of Darwinian evolution should not be stipulated solely on the lack of a better materialistic theory.[[ix]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn9) Michael Behe’s *Darwin’s Black Box* argued that the simplest biochemical tasks, such as the production of adenine, require so many unique chemicals intricately working together, that a gradual evolution of the existing biochemical mechanisms is not reasonable.[[x]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn10) William Dembski’s *Intelligent Design* argues from the perspective of information theory that biological systems are the products of an intelligent agent and not of law and chance. For example, if we were to receive a radio signal encoding the prime numbers, we would interpret the signal as the product of an intelligent agent, since there is no non-intelligent way to produce a list of prime numbers.[[xi]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn11) Scientists such as Francis Crick, daunted by biochemical complexity, have advocated panspermia, the belief that Earth was seeded with organisms by aliens. Advocates of design and panspermia may, therefore, borrow many of the same supporting arguments.

It is certainly possible that increased understanding of the most primitive organisms, such as those that live in hydrothermal vents, will lead to an understanding of the mechanism of life’s origin.[[xii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn12) Just as likely, however, is that the peculiar complexity of biological systems will take its place with the peculiar characteristics of the universe, the galaxy, the solar system, the Earth, and deny material, causal explanation. It may be argued that alien life may be very different from us, even non-carbon based. Physicist turned Anglican priest, John Polkinghorne responds “Those who make such a claim are drawing a very large intellectual blank check on a totally unknown bank account. Consciousness seems to demand very great physical complexity to sustain it (the human brain is the most complicated physical system we have encountered). It is far from persuasive that there are many alternative routes to the generation of such complexity.”[[xiii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn13)

Materialists may eventually admit an inability to explain via material, causal relationships a great many things. They will then be forced to rest on the multiverse worldview – that in an infinite number of universes, one of them was “just right”. While Christianity does not exclude the possibility of other universes, the multiverse worldview is full of scientific and philosophical problems. First, cosmologist Steven Barr argues that any set of physical laws that would spawn a large number of universes with different parameters, including ours, would require a fundamental physical theory that was even more ordered and more delicate than the laws which govern our universe alone.[[xiv]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn14) The multiverse is not scientific. It is not empirical, since it is not an immediate conclusion from observations - but only philosophical assumptions against peculiarity. It is not testable, referring to no repeatable experiments that could be done and making no verifiable predictions. It can hardly be considered even a material explanation, since the other universes are not accessible to us for examination – but only to our imaginations.

The natural conclusion is that the peculiar is the work of an intelligent agent and that God has created. Astronomer Fred Hoyle wrote, “A common sense interpretation of the facts suggests that a super intellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature.”[[xv]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn15)

The Problem of Materialism has always included the inability to describe scientifically categories of human experience such as love, beauty and emotion. But the modern scientist’s problem is greater: what to do with the ubiquitous peculiarity described here? Is science required to explain it? If so, what are the acceptable boundaries for allowable explanations, e.g., may other universes be invoked? May non-materialist explanations be admitted? If non-materialist explanations are admitted, what is the role of the scientist in identifying or supporting them?

Science columnist John Derbyshire recently blogged the following,

The work-a-day business of scientists is to investigate the natural world, and come up with naturalistic explanations for observed phenomena… Even if, in some hypothetical long haul, it turned out that there actually \*is\* no naturalistic explanation for the observed phenomenon, that scientist [who invoked design] would still have been behaving in a way that scientists ought not behave.”[[xvi]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn16)

This popular view places upon the scientist a *duty to deceive*. Whether or not a naturalistic explanation currently exists, or is even remotely plausible, it is the role of the scientist to advocate the best available naturalistic explanation. Considering the enormous influence that science and scientific institutions have on our culture, it is ludicrous to assume that everyone will recognize that scientists are just playing the science game, i.e., giving the best naturalistic explanation that they can. No, even scientists who recognize their own limitations and think it their duty to play by the rule of naturalism will be interpreted as telling the truth about the way things really are.

The theories of Rees and Crick demonstrate conclusively that no scientific theory could logically necessitate the admission of a Creator God. The human mind is far too creative (and deceptive) to be forced to such a conclusion. Christians must recognize that while discovering the design in nature will help us to better appreciate God’s greatness, it lacks sufficient force to convert unbelievers. At most, nature can suggest the presence of a creator. While God has made His eternal power and divine nature known, He has also allowed their thinking to become futile.

Nonetheless, a Christian scientist can joyfully ponder quarks and tides, exulting in the knowledge of our peculiar place in our peculiar universe while singing,

*Summer and winter and springtime and harvest,*

*Sun, moon and stars in their courses above*

*Join with all nature in manifold witness*

*To thy great faithfulness, mercy and love.*

*Great is Thy faithfulness!*

*Great is Thy faithfulness!*

*Morning by morning new mercies I see.*

*All I have needed they hand hath provided;*

*Great is Thy faithfulness, Lord, unto me.*[*[xvii]*](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_edn17)

[[i]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref1) Martin Rees, *Just Six Numbers*, Basic Books, Great Britain, 2000.

[[ii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref2) Roger Penrose, *The Large, the Small and the Human Mind*, Cambridge University Press, 1997.

[[iii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref3) John Boslough, *Stephen Hawking’s Universe*, New York, 1985.

[[iv]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref4) Walter Nernst, 1938 as told in *The Relevance of Science* by C. F. von Weizsacker, 1964.

[[v]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref5) Arthur Eddington in *Nature*, Vol. 127, p. 450, 1931.

[[vi]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref6) Henry F. Schaefer III, *Science and Christianity: Conflict or Coherence?*, ApollosTrust, Georgia, 2004, p. 46.

[[vii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref7) Hugh Ross, *The Creator and the Cosmos*, NavPress, 1995.

[[viii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref8) Peter D. Ward and Donald Brownlee, *Rare Earth*, Copernicus Books, New York, p. 282, 2000.

[[ix]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref9) Phillip E. Johnson, *Darwin on Trial*, InverVarsity Press, 1991.

[[x]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref10) Michael J. Behe, *Darwin’s Black Box*, The Free Press, 1996.

[[xi]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref11) William A. Dembski, *Intelligent Design*, InterVarsity Press 1999.

[[xii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref12) *Rare Earth*, p. 77.

[[xiii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref13) John Polkinghorne as quoted in *Science and Christianity: Conflict or Coherence?* p. 68.

[[xiv]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref14) Steven Barr, lecture at University of St. Thomas, 2005.

[[xv]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref15) Fred Hoyle as quoted by P. Davies in *The Accidental Universe*. Cambridge Univ Press. London, 1982.

[[xvi]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref16) John Derbyshire, The Corner, National Review Online, August 15, 2005.

[[xvii]](https://bethelnet.bethel.edu/cas-faculty/development/Topics/faithlearning/King/edit/kupu_content#_ednref17) Thomas O. Chrisholm, “Great is Thy faithfulness”, Hope Publishing Company, Illinois, 1923.