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Prayer and Scientists

In the Fall 2008 *ITEST Bulletin*, I closed by saying “I greatly appreciate, much more than mere words can acknowledge, your prayers for the continuing success of ITEST.” Prayers for continuing success are an important part of the lives of each of us.

Scientists tend to be rather private about praying, because the prevailing view is that scientists are supposed to seek *natural* causes or explanations for everything. It is definitely not fashionable to introduce the idea of God actually intervening in the world -- that opposes the scientific dictum to seek a natural explanation instead. The easiest way to avoid criticism from hostile non-believers in the sciences is to simply keep prayer totally private. For the same reason, scientists are pressured to confine their religious viewpoint to Sundays, never bringing it up at all in the workplace.

Fortunately, God doesn't look at things so narrowly. God likes to do favors for us, as long as He doesn't get caught. An obvious eye-popping miracle would be garish; but subtle little miracles (that allow alternate explanations) are God's everyday way of dealing with people.

Recently I drove home 40 miles in a harrowing snow/wind/ice storm – praying all the way. I had two paths to choose from: one that stayed at lesser altitudes, in the lee of a mountain but on narrow little-used roads; another that went over a ridge-top, but on frequently-plowed roads. Upon arriving safely home, my prayer switched from supplication to thanksgiving. Now, did God move a few electrons around inside my brain to get me to take the safer route? You can't really tell, can you? The skeptic can still supply a totally natural explanation.

Another key point: God is not constrained by the human experience of time. He is present to *all* time. Omnipresence doesn't just mean God is everywhere; He is also *everywhen*. This is a concept we humans haven't grasped. But it makes it possible for God to answer prayers without “getting caught.”

In *Isaiah* (65:24) we read “Before they call, I will answer.” Are you praying today that a sick child will get well? About 3 generations ago, God allowed mankind to discover penicillin. It's weird to think of praying for a cure in arrears. Nowadays it's simply good medical practice to give antibiotics to a sick child. That's not supposed to “count” as God's answer to prayer. But it really should.

Most of us expect to enjoy good health for 50 or more years. But if you look around long enough, perhaps in a retirement community, you'll meet someone who lost a little brother or sister to pneumonia in the 1930s. Those surviving siblings never take good health for granted.

For some, having a hi-tech education makes it more difficult to pray, because the notion of a “natural” explanation is lurking in the background. However, that same hi-tech education makes it easier for a person of faith to see God's hand at work in many elegant ways. Asking God to use nature to do something clever, or thanking Him when He does so, are two entirely valid forms of prayer that can brighten the life of a scientist.

Thomas P. Sheahen, PhD
ITEST

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Announcements

1. Note that there is a change in the date of the ITEST fall conference, *Environmental Stewardship in the Judeo-Christian Traditions*. After we had chosen the September dates published in the Fall Bulletin, we realized that the weekend fell on Rosh Hashanah, the Jewish New Year. Since we had planned to have a Rabbi address us during the weekend, we had to alter our plans. Fortunately, we were able to change the dates to **October 23-25, 2009**, Friday evening to Noon on Sunday, at Our Lady of the Snows Conference Center, Belleville, Illinois. Check our web site at www.faithscience.org under News and Events for more detailed information. We encourage early registration since we anticipate a positive response not only from ITEST members but from those engaged in their churches and communities in environmental programs and projects. The topic chosen by the Board of Directors is a timely and important one. We are planning to have essayists representing the Jewish, Catholic and Protestant traditions deliver papers from their particular perspectives. We urge you to register early for we have a limited number of rooms at the conference center. A \$25.00 non-refundable deposit remitted to ITEST before September 1 will reserve your room. We accept MasterCard and Visa only.

2. Our newest web site: www.creationlens.org is now on line with free downloadable faith/science lessons for K—4. If you haven't accessed it yet, you will be in for a treat. We urge you to recommend this site to those in any level of elementary education/teaching or research since the program, *Exploring the World, Discovering God (EWDG)*, is unique in its approach to teaching faith and science as interfacing disciplines. The number of hits and downloads thus far has been outstanding. Evelyn Tucker, our project manager, has contacted principals in (arch) dioceses nationwide via e-mail or FAX alerting the schools to the availability of the lessons and requesting feedback. We are submitting grant requests to foundations, but we would appreciate donations or suggestions for funding from our members. Father Brungs said on more than one occasion that this project might be his "swan song"; and indeed it was. Nonetheless, since it was close to his heart and mind, the completion of this next phase of the project: grade 5 – 8 – will ensure a solid grounding for our youngest Christians in two vital disciplines: faith/religion and science/technology.

3. Check the ITEST web site www.faithscience.org (Media, bulletins) for Volumes 38 and 39 of the ITEST bulletin. If, for some reason, you do not have copies of those 8 issues, you may simply click on the web site to retrieve them as PDFs.

4. We have extra copies of the new ITEST brochure. Just drop us a line if you would like us to mail them to you. I usually carry them with me and drop them off at doctors' offices, Church vestibules, bulletins boards at schools, universities and so on. It is an easy and inexpensive way to advertise.

5. We thank all of you who have donated to ITEST through a "widows' mite" or a larger contribution. We send an IRS form to donors who contribute \$200.00 or more for tax records.

6. News from Sister Mary Jane Paoella, ASCJ, ITEST member and her class: High school students from Sacred Heart Academy in Hamden, Connecticut presented their research at the United Mitochondrial Disease Foundation's Annual Conference in June, 2008. Their DNA sequence results are the school's 9th entry in GenBank. Congratulations to our young scientists who are making a significant contribution to the advancement of science.

7. News from Sister Marcianna Kappes, CST and the ITEST student chapter at St Gregory's University in Shawnee, Oklahoma. ITEST provided scholarships for two students from the Ivory Coast studying at St Gregory's and two faculty members to attend the ITEST conference last September on *Faith/Science/Culture: Converging or Diverging Realities: a 40 year Perspective*. After a grueling 14 hour trip they arrived at the conference center tired but ready to engage in the weekend discussions. ITEST welcomes the input of our young members since they often offer a perspective on issues of science and faith that is shaped by their unique experience. After the conference Sister Marcianna, the faculty advisor for the ITEST student chapter provides an opportunity for St Gregory's community to share in the material presented at the conference by inviting the academic community to participate in the discussion at an ITEST student chapter meeting held later on. .

In Memoriam

We also recommend to your prayers those who have died in the Lord this year.

Dr. Peter E. Hodgson, Professor of Physics at Corpus Christi College in Yarnton, Oxford, England.

Mrs. Elizabeth Langley-McDonough wife of the late ITEST Board member, Norman "Mac" McDonough

Thomas J. Davin, Esquire, who died in 2007.

We also ask your prayers for ITEST members who are ill. May they feel the restoring hand of the Lord.



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Evolutionary Naturalism and the Future of Theology

By John F. Haught
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(Delivered at the ITEST Conference, September, 2008)

On February 12 of next year (2009) it will have been two hundred years since the birth of Charles Darwin, and one hundred and fifty years since the publication of *The Origin of Species*. During the forty years since ITEST's founding Darwin's name has become more important than ever, and the influence of his ideas seems destined to increase. Not surprisingly, over the last century and a half Darwin's theory of evolution has also had a dramatic impact on theology. Among all the many facets of the science/religion conversation that have taken place in the Christian world during ITEST's brief existence I doubt that any have drawn more attention, especially recently, than those having to do with the implications of evolution for religious faith and theology. During these last forty years many prominent evolutionary biologists and Darwinian philosophers, if I

may call them that, have drawn on gene-centered accounts of evolutionary variation and selection in order to convince people that Darwin's science has in effect delivered the final death-blow to religion in general and theism in particular. Most recently, of course, Darwin has been called upon to provide the intellectual foundation of the "new atheism" associated with the names of Richard, Dawkins, Daniel Dennett, Sam Harris and Christopher Hitchens.¹

The emergence and still growing intellectual appeal of this "evolutionary naturalism" is, in my view, the most significant provocation to theology to have arisen from scientifically educated critics during the lifetime of ITEST. It has become a great temptation for scientists, philosophers and an increasing number of scholars in the humanities to look to Down House for the ultimate explanation of living phenomena, including our own intellectual, ethical and religious characteristics. A typical example is a recent article in the *Journal of the American Academy of Religion* by a religious scholar who finds in the writings of Richard Dawkins and Daniel Dennett a fully satisfying scientific explanation of religion.² Another is an essay in the *New York Review of Books* in which the literary scholar Frederick Crews simply takes for granted that evolutionary materialism is as deep as thought can go in its search for explanations of life, mind, ethics and religion.³ Yet another instance of such attempts to link Darwin to the humanities is the recent book *Darwin Loves You* by the noted Princeton professor George Levine. This literary scholar tries to save Darwin's thought from materialist reductionism, but he still assumes uncritically that contemporary evolutionary biology goes best with atheism.⁴ I could list countless similar claims.

The "modern synthesis" of Darwin's ideas with the post-Darwinian science of genetics, an alliance sometimes called "Neo-Darwinism," has been celebrated as one of the most fruitful and illuminating explanatory schemes in the history of science. Although it will always be subject to revisions, its intellectual appeal grows stronger almost daily, and it seems destined to prosper for decades and perhaps even centuries to come. However, whenever evolutionary biology is conflated with materialist metaphysics and then elevated to the status of a worldview, and whenever its defenders then claim that this amalgam can provide

John F. Haught Brief Biography

John F. Haught (PhD Catholic University, 1970), is Senior Fellow, Science & Religion, Woodstock Theological Center, Georgetown University. He was formerly Chair and Professor in the Department of Theology at Georgetown University (1970-2005). His area of specialization is systematic theology, with a particular interest in issues pertaining to science, cosmology, evolution, ecology, and religion. He is the author of many books, among them: *God and the New Atheism: A Critical Response to Dawkins, Harris, and Hitchens* (Louisville: Westminster/John Knox Press, 2008); *Christianity and Science: Toward a Theology of Nature* (Maryknoll: Orbis Press, 2007).

Haught has also authored numerous articles and reviews. He lectures internationally on many issues related to science and religion. In 2002 he was the winner of the Owen Garrigan Award in Science and Religion, in 2004 the Sophia Award for Theological Excellence, and in 2008 a "Friend of Darwin Award" from the National Center for Science Education. He testified for the plaintiffs in the Harrisburg, PA "Intelligent Design trial" (Kitzmiller et al. vs. Dover Board of Education). He and his wife Evelyn have two sons and live in Falls Church, Va.

(A complete list of Haught's books are listed after his essay on the top of page 11)

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the ultimate explanation of everything living, it becomes self-subversive, and it logically negates any claim to be intellectually coherent.

Evolutionary naturalism, as I shall refer to this hybrid of biology and materialist metaphysics, shows itself to be internally self-contradictory especially when it professes to give an ultimate explanation of human cognition. I find it remarkable that few if any of its advocates seem to have noticed this underlying incoherence. Part of the task of theology after Darwin, therefore, is to demonstrate that evolutionary naturalism is an incoherent worldview. With the help of Bernard Lonergan, I shall outline a strategy with which theology in the years ahead might do so. I shall point to what strikes me as an internal self-contradiction at the very heart of evolutionary naturalism's attempts to provide an ultimate metaphysical explanation of human cognition, and by implication morality and religion as well, in purely Darwinian terms.

How Much Can Biology Explain?⁵

Charles Darwin's famous advocate, Thomas H. Huxley (1825-1895) coined the expression "scientific naturalism" to emphasize the fact that science must proceed without ever invoking supernatural explanations.⁶ These days, however, the same expression is generally taken to mean that nature is all there is and that science alone can make sense of it. Scientific naturalism, as I use the term here, is the belief that "this world," the realm of beings in principle available to scientific understanding, is literally all there is. Scientific naturalism holds that outside of nature, which includes humans and their cultural creations, there is nothing. Nature, therefore, is self-originating. There is no God, no "soul," no cosmic purpose, and hence no reasonable prospect of conscious human survival beyond death.

Evolutionary naturalism, which is my topic here, is a subspecies of scientific naturalism. It claims that the emergence of life and mind in evolution was the product of blind, deterministic natural "laws" (especially natural selection) combined with a great many accidents and an enormous amount of time. All the various features of living beings, including human thought, morality, and religious aspiration can be explained ultimately in evolutionary, specifically Darwinian, terms.

Richard Dawkins and the recently deceased paleontologist Stephen Jay Gould, though fierce rivals with each other, both exemplify what I mean by evolutionary naturalism.⁷ Dawkins argues that genetic accidents and natural selection, in the context of an unfathomable depth of time, can account adequately for all the various kinds of

life, as well as the behavioral tendencies of all organisms, including those of human persons. Not only our mental powers, but also our ethical and religious instincts have an ultimately evolutionary explanation. There is no need, therefore, to invoke the idea of God in accounting for any living phenomena, no matter how impressive the latter may seem to be. The Darwinian recipe is sufficient. Accidents plus natural selection plus lots of time—this mix is enough to explain organic variety and propensities all by itself. Dawkins's evolutionary naturalism is captured nicely in the words of a materialist neurosurgeon Perowne in Ian McEwan's recent novel *Saturday*. Referring to evolution, he asks:

What better creation myth? An unimaginable sweep of time, numberless generations spawning by infinitesimal steps complex living beauty out of inert matter, driven on by the blind furies of random mutation, natural selection and environmental change, with the tragedy of forms continually dying, and lately the wonder of minds emerging and with them morality, love, art, cities—and the unprecedented bonus of this story happening to be demonstrably true.⁸

Prior to Darwin, Dawkins allows, it may have been forgivable to invoke religious creation myths and theologies to account for such outcomes as life, adaptive complexity, mind, ethical aspiration and religious longing. But after Darwin intelligent people no longer have any excuse to invoke theological explanations in order to get to the bottom of these seemingly remarkable evolutionary inventions. Darwin's ideas, brought up to date by the more recent science of genetics, can provide a purely physical account of everything in the biosphere. The universe, Dawkins adds, is governed not by divine providence but by pitiless indifference.⁹

Dawkins insists that one cannot be a serious evolutionist without also being a materialist (and of course that means an atheist), and he has much company today. His Darwinian antagonist, Stephen Jay Gould, tries to soften the evolutionary blow, but essentially agrees with Dawkins:

...the stumbling block to [the acceptance of Darwin's theory] does not lie in any scientific difficulty, but rather in the philosophical content of Darwin's message—in its challenge to a set of entrenched Western attitudes that we are not yet ready to abandon. First, Darwin argues that evolution has no purpose. Individuals struggle to increase the representation of their genes in future generations, and that is all. . . . Second, Darwin

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maintained that evolution has no direction; it does not lead inevitably to higher things. Organisms become better adapted to their local environments, and that is all. The “degeneracy” of a parasite is as perfect as the gait of a gazelle. Third, Darwin applied a consistent philosophy of materialism to his interpretation of nature. Matter is the ground of all existence; mind, spirit and God as well, are just words that express the wondrous results of neuronal complexity.¹⁰

I believe that a majority of evolutionists today agree with Dawkins and Gould. They generally assume that a materialist or physicalist reading of evolution is essential and that therefore Darwin’s science is irreconcilable with belief in God. Michael R. Rose, Michael Ruse, William Provine, E. O. Wilson, and Philip Kitcher, to name only a few, simply take it for granted that Darwinian biology makes complete sense only in a materialist setting.¹¹ Michael Ruse, a highly respected contemporary philosopher of science, claims that Darwinism is the “apotheosis of a materialistic theory.”¹²

Understandably, then, this explicitly materialist philosophical spin leads many in our religious communities to be even more wary of Darwin’s name than they might otherwise be. Evolutionary science is frightening enough all by itself for many theists, but when it becomes tightly wound around a core of philosophical materialism it presents itself, at times even to highly educated theists, as irredeemably repugnant. The contemporary conflation of evolution with philosophical materialism only adds to the reasons creationists¹³ and advocates of Intelligent Design (ID) give for rejecting evolutionary ideas *in toto*.¹⁴

ID proponents, for example, insist that purely material forces cannot conceivably account for the intricate engineering in cells and organisms. They insist that it is essential for biologists themselves, and not just theologians, to invoke non-natural causes to account for the staggering complexity of living organisms and sub-cellular mechanisms. Science itself, ID defenders propose, needs to redefine itself in

It is clear to me that the notion of “intelligent design” is essentially theological, and that it deserves the criticism of good scientists.

order to include non-natural explanations since secular science is woefully inadequate.¹⁵ It is clear to me that the notion of “intelligent design” is essentially theological,

and that it deserves the criticism of good scientists. But if it is inappropriate to fuse science with theology, it is no less questionable to alloy Darwinian ideas with atheistic materialism.

...evolutionary naturalism is logically self-contradictory.

Is Evolutionary Naturalism Reasonable?

The main point I want to make here, however, is that evolutionary naturalism is logically self-contradictory. It defies the most basic standards of human rationality. My claim, in the most general terms, is this: Whenever evolutionary naturalists profess to be giving an *ultimate* explanation of the human mind in evolutionary terms they logically sabotage the truth-status of such a claim. I shall develop this critique by adapting elements of the theory of knowledge set forth by the Jesuit philosopher and theologian Bernard Lonergan.

According to most Darwinians, the process that produced living design is even more witless than the most unresponsive of its outcomes. Evolution, they insist, bears not a trace of intentionality, even though it has lately produced intention-driven human subjects. As philosopher Owen Flanagan puts it, intelligence is not necessary to produce intelligence. “Evolution demonstrates how intelligence arose from totally insensate origins.”¹⁶ Countless similar claims are made today by scholars who embrace sociobiology or its offshoot known as evolutionary psychology.¹⁷

In order to display the incoherence of such exclusively evolutionary accounts of intelligence, let me assume, for the sake of discussion, that *you* the reader are an evolutionary naturalist, and allow me to speak directly to you. I shall invite you to decide for yourself whether your (hypothetical) evolutionary naturalism is compatible with the instinctive trust that you need to place in your cognitional activity in order to make the simplest of truth-claims. I shall commence this experiment by asking you to become explicitly aware of what your mind is doing at this very moment.

As you have been reading this essay, have you noticed that your mind has been following an invariant sequence of cognitional acts? You have first *attended* to and experienced the words and sentences I have written. Secondly, you have tried to *understand* what I am saying

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by seeking some meaning or intelligibility in it. Thirdly, if you have understood anything I have said so far, you are probably asking whether my understanding is correct, or at least whether your own understanding of my ideas is accurate. In either case you have spontaneously subjected your understanding and mine to reflection and critical questioning. And your spirit of criticism may have led you to the *judgment* that I am wrong, or perhaps right.¹⁸ Finally, since you are capable not only of insight and critical reflection but also of acting in the world, you are called upon at times to decide what course of action to follow. So *decision* is a fourth cognitional act. Decision is essential to what we call morality and ethics, and a good question for you to ask might be whether evolutionary naturalism can provide an adequate account of your moral life.¹⁹ However, in what follows, for the sake of simplicity, I shall focus mostly on the first three cognitional acts.

Maybe you have never noticed it before, but your mind *cannot help* executing the three distinct but complementary acts, namely, experience, understanding, and judgment. This is because there are three corresponding imperatives welling up from the depths of your conscious life. These imperatives, along with their associated cognitional acts are as follows:

- (1) Be attentive! ---> experience
- (2) Be intelligent! ---> understanding
- (3) Be critical! ---> judgment

A fourth set (which I shall not consider here) is:

- (4) Be responsible! ---> decision

Deeper yet than these imperatives and cognitional acts lies what Lonergan calls the pure, unrestricted desire to know. We may call this complex of desire, imperatives and cognitional acts *critical intelligence*.²⁰

The imperatives to be attentive, intelligent and critical give rise to science and all other rational pursuits. Science, for example, begins with *experience*, propelled by the imperative to be open or attentive. This is the empirical imperative. It turns the mind toward data within which good scientists will seek ever deeper understanding. When scientists attain an insight into, or an *understanding* of the data, they express it in propositions known as hypotheses and theories. But genuine scientists will not stop here, since they know that not every bright or beautiful thought they have necessarily corresponds to reality. So a third imperative—be reflective and critical!—prods scientists to consider whether their hypotheses or theories are accurate. Honest and mature scientists are more than willing to subject their understanding to verification (or falsification). Only after allowing their ideas to undergo a rigorous process of

criticism, at times including evaluation by other scientists and submission of material to peer-reviewed journals, will they be in a position to render a (tentative) *judgment* as to whether their scientific propositions are approximately true.

The same three-fold cognitional pattern of experience, understanding and judgment is also playing itself out in your mind right now as you are reading this page. Perhaps you have never attended to your mental operations in this immediate way before. You may never have turned your attention to the fact that your mind is continually prodded by hidden imperatives. Yet, even if you have never adverted to them in the past, you may observe that you cannot escape them now. You may at times have failed to heed the imperatives to be attentive, intelligent and critical, but their presence has been operative even when their gentle urging has been suppressed. If you are now doubting what I've just said, is it not because you are being attentive, intelligent and critical—in response to your own mind's imperatives?

What you are doing now is practicing what Lonergan calls "generalized empirical method." You are looking not only at the objectifiable world out there, but also at the cognitional activity taking place "in here," in your own exploratory subjectivity. You have now observed that no matter how many doubts and uncertainties you have about everything else, you cannot suppress or deny the three-fold cognitional structure of your own critical intelligence without employing it even in the act of doing so.

Trust

The next point I want to make, then, is that you cannot help *trusting* in the imperatives of your mind. Apart from having made a tacit act of faith in your own critical intelligence you would not have bothered to follow me up to this point. You would not have asked what I am talking about, or whether I may be writing nonsense. Your whole cognitional performance leans on a deeply personal *confidence* in your own intelligence and critical capacities. Unless you had already placed some degree of trust in your cognitional ability you would hardly have bothered to raise questions for understanding and reflection at all. I suppose that evolutionary naturalists, after attending to what I'm saying in this essay, might attempt to refute the claims I am making. But any such refutation could occur only if my critics trusted their own minds' imperatives to be attentive, intelligent and critical.

However, the question is: how does one justify this trust? Assuming that you too espouse evolutionary naturalism, can your worldview adequately ground the cognitional confidence that underlies your own judgment that I am

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right or wrong? If you accept the belief system known as evolutionary naturalism, have you ever asked whether it coheres logically with the invariant structure of your own cognitional life?

Let me put my question another way: Is the essentially mindless, impersonal and purposeless universe of evolutionary naturalism rich and resourceful enough to house your own critical intelligence without suffocating it to death? I shall try to convince you that it is not, and that truthfulness compels you to conclude that your evolutionary naturalism is an unreasonable creed. Your formal understanding of the world—your worldview, if you will—must not be such as to contradict the way in which your mind *actually* functions when it is seeking understanding and knowledge of the world. Most of all, your worldview must not have the effect of subverting the confidence that underlies the thought processes that gave rise to your view of reality.

Shouldn't your evolutionary naturalism lead you to distrust your mental activity? Charles Darwin, perhaps ironically, raised essentially the same question:

...with me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind, if there are any convictions in such a mind? Letter to W. Graham, July 3rd, 1881, *The Life and Letters of Charles Darwin* edited by Francis Darwin (New York: Basic Books, 1959), p. 285.²¹

To claim, along with evolutionary naturalists, that natural selection is the ultimate explanation of your mind's insatiable *longing* for truth or of its spontaneous *trust* in its capacity to find truth, is, I argue, self-contradictory. As regards the mind's attraction to truth, the philosopher Richard Rorty, no friend of theology, has wisely remarked: "The idea that one species of organism is, unlike all the others, oriented not just toward its own increased prosperity [that is, toward "fitness"] but toward Truth, is as un-Darwinian as the idea that every human being has a built-in moral compass—a conscience that swings free of both social history and individual luck."²²

Neither Rorty nor Darwin, however, seems to have grasped the gravity of his suspicions. Both the scientist and the philosopher claim to be lovers of truth, and clearly they spontaneously trust their minds as they make the claims I have just quoted. Moreover, they would both agree that their cherished minds did not float in from some supernatural realm but are fully embedded in the evolutionary process

from which they have blossomed. However, if that is so, then any natural world that can give birth to such treasurable instruments must be considerably richer and more interesting than the essentially mindless picture of nature provided by evolutionary materialism.²³

Again, can a purely Darwinian account ground the critical intelligence and cognitional trust needed to understand and know the universe?

Again, can a purely Darwinian account ground the critical intelligence and cognitional trust needed to understand and know the universe? More strongly stated, doesn't a serious acceptance of evolutionary naturalism logically sabotage the trust that underlies the evolutionary naturalist's attempts to understand and know the world?

Implications

Only a view of reality that can ground the confidence needed to energize your desire to know is consistent with your mind's imperatives to be reflective, critical, or truthful. *Truth*, from Lonergan's perspective, can be understood as the objective or goal of the pure desire to know. Accordingly, the fundamental criterion of truth is fidelity to this desire to know, or obedience to the imperatives of the mind. Consequently, to pass the test of reasonableness any acceptable belief system or worldview must be congruent with and supportive of the desire to know and the imperatives of the mind. If a specific set of beliefs fails to support the interests of your desire to know, or if it logically undermines your trust in the cognitional imperatives that lead you toward open-minded and critical exploration of reality, then it is inconsistent with the fundamental criterion of truth, namely, fidelity to the desire to know.

My claim is that evolutionary naturalism is logically subversive of your critical intelligence.

My claim is that evolutionary naturalism is logically subversive of your critical intelligence. Embracing it as your foundational understanding of life and mind is to be unfaithful to your desire to know. It is to violate the fundamental criterion of truth.

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What one believes to be ultimate reality must not function in such a way as to contravene the restless longing for truth that we have just identified as the desire to know. Hence, one might also examine religious beliefs, and not just evolutionary naturalism, in order to discern whether and how these too may be serving interests other than the pure desire to know. After all, religion has often been indicted for being an illusory product of the desire for pleasure (Freud), or the need for consolation (Marx), or the expression of a need for revenge (Nietzsche).²⁴ Indeed the severest critics of religion have rightly argued in effect that if belief in God is inconsistent with the desire to know, then it must be abandoned. I fully agree. Seldom, however, have devotees of evolutionary naturalism subjected their own belief-complex to the same rigorous authentication.

In real life, as each of us knows, the desire to know must continually compete with opposing tendencies. To put a Tillichian spin on Lonergan, one may say that the desire to know is *essentially* pure and detached, but *existentially* the desire to know is always entangled with other longings. We have to struggle throughout our lives to decouple the innate intentionality of the desire to know from other impulses that can be quite satisfied with illusions. As the Danish philosopher Søren Kierkegaard puts it, “it is far from being the case that men in general regard relationship to the truth as the highest good, and it is far from being the case that they, Socratically, regard being under a delusion as the greatest misfortune.”²⁵ Nonetheless, it is possible, as you can tell from the exercise which I am asking you to engage in here, to distinguish your desire to know from other longings that have no interest in truth.

A Richer Empiricism

Nothing that I have written is intended to discourage evolutionary and other scientific accounts of mind. In terms of natural history it is clear that our critical intelligence emerged from a universe that was formerly lifeless and mindless. But in order to account for the trust each of us places in our critical intelligence it is not enough to assert that the ultimate ground of our desire to know is a lifeless and mindless causal past. If the ultimate cause of mind is mindlessness, we would still need to look for reasons sufficient to explain why we should trust our minds here and now, as Darwin and Rorty both imply. Fully justifying the obvious acts of faith that we place in our critical intelligence requires that we situate human cognitional life, and along with it the whole universe, in a more spacious environment than the one laid out by evolutionary naturalism. I believe it will be essential to call upon theology to accomplish this expansion.

Evolutionary naturalists, of course, will not consent to my proposal. They will not give up their belief that the fundamental causes of intelligence are themselves completely unintelligent. This means, however, that they are compelled to explain our capacity for critical intelligence ultimately and solely in terms of processes and events that lack both intelligence and subjectivity. But, one must ask, how can such accounts avoid giving the appearance of sorcery? Can a series of blind and unintelligent causes, no matter how temporally prolonged and gradual in cumulative effect, ever provide a sufficient reason for putting the kind of confidence in their own intellectual functioning as naturalists such as Dawkins, Dennett and Flanagan in fact do when they fall back on such an account. They tell us a story about how unconscious physical stuff and mindless evolutionary algorithms working during almost endless time finally produced their own critical intelligence. But where in that story itself do they find a basis for trusting their cognitional life in the uncritical way they do? Calling mind a fluke of nature, as some evolutionists do, will hardly suffice to support such a valuation either. As long as they ground their own critical intelligence *ultimately* either in blind natural selection or in a series of accidents, or both, what reason do they provide as to why they should ever trust their minds or why we should pay any attention to them? What is there in a fundamentally unconscious universe, or in the cultures that this unconscious foundation brought into being, that could have gifted them with their exceptionally high degree of cognitional confidence?

***I have yet to find a satisfying
answer, at least from
evolutionary naturalists.***

A Proposal

I have yet to find a satisfying answer, at least from evolutionary naturalists. Instead I find in their works an implicit appeal to what seems like magic. The evolutionary naturalist’s account of mind is one in which the lustrous gold of critical intelligence is said to “emerge” gradually from the dross of pure mindlessness. Calling upon the idea of deep time to “explain” this emergence hardly dispels the aura of miracle that a consistent naturalism is supposed to disavow by definition. Once again, in saying this I am not denying the power and importance of evolutionary explanations, but only the coherence of evolutionary naturalism. In no way do I seek to discredit the scientific search to fill in details of the story that led historically to critical intelligence. But telling this story does not by itself

Continues on page 9

provide a justification of our cognitional trust.

My proposal then is that, given the evolutionary character of your mind's emergence, your longing for truth and your cognitional trust can be explained and justified adequately if you also understand your critical intelligence and the universe out of which it has emerged to be everlastingly enfolded by the Infinite Being, Meaning, Truth and Goodness that theistic faiths call God. I have developed this point at much greater length in my book *Is Nature Enough: Meaning and Truth in the Age of Science*, so I will provide only a brief summary here.²⁶

Ultimately the mind's imperative to be open or attentive is awakened to a state of (potentially) limitless wonder by the infinite horizon of Being-Itself in which all particular beings participate. *Ultimately* the mind's imperative to seek understanding of that to which it has attended, is aroused by the limitless Meaning (Logos) that gives intelligibility to the world and thus makes human inquiry possible at all. *Ultimately* the mind's imperative to be critical is stirred to life by the Infinite Truth that makes minds ever restless for deeper communion with *what is*. And *ultimately* the imperative to be responsible (Lonergan's fourth imperative, which for simplicity's sake I have left out until now), is lured into the state of moral aspiration by the Infinite Goodness in which all finite beings participate. Only the existence of such an open and infinite transcendental environment can explain ultimately why we are critically intelligent beings and why we are justified in trusting our minds.

Of course, one can always deny verbally that there is anything "more" involved in critical intelligence than its material constituents. The evolutionary naturalist will insist that minds, like everything else in life, are *really* just simplicity masquerading in the guise of complexity, as scientist Peter Atkins claims.²⁷ However, any such declaration is self-contradictory and self-subverting since it implies logically that the complex mind that makes such a claim is itself *really* nothing more than the mindless stuff from which it arose. And if the ultimate roots of Atkins's own mind are nothing more than mindless states of physical stuff, one can only ask exactly how he came to possess, and how he can now justify, the unquestioned *trust* he has in his own cognitive powers. Given his supremely self-confident explanation of all evolutionary outcomes as "simplicity masquerading as complexity," why should we pay any attention to any product of his mind? No doubt, it is useful to lay out the long trail of physical and biological events that led up to the existence of Atkins's mind. But simply tracing them narratively all the way back into the dumb silence of the early universe, or following them all the way down to the elemental levels of material reality out of

which his mind emerged, will—at least by itself—lead only further and further into the domain of disjointed material units, another word for which is incoherence (which Atkins calls "simplicity"). There is nothing in this primal cosmic condition consisting of a scattered multiplicity of monads that could justify the enormous degree of cognitional competence that Atkins tacitly attributes to his own mind here and now.

The mind's quest for intelligibility cannot be satisfied by arriving, through scientific analysis or an imaginative journey into the physical past alone, at the diffused elementality out of which living complexity and minds

***In other words it is only by
looking from the past toward the
future that the world begins to
become intelligible.***

arose stepwise. The universe becomes intelligible to us only as we look *from* the incoherent monads of the cosmic past *toward* the anticipated horizon of being, meaning, truth and goodness that has already grasped hold of our minds (and hearts). The world becomes intelligible to the mind only as it attends *from* the elemental and simple *toward* the complex and coherent.²⁸ In other words it is only by looking from the past toward the future that the world begins to become intelligible.²⁹

A *sufficient* ground for trusting your mind's imperatives, therefore, cannot be found exclusively by scientifically exposing its material make-up or its evolutionary past. Although natural processes have been essential to the emergence of mind, they cannot alone account for the mind's critical power or its instinctive trust in this power. The evolutionary story of how the mind came into the history of nature may be interesting and informative. But such an account cannot alone explain how critical intelligence came to be interested in truth (even when it is often non-adaptive to follow this interest) or why it has such *trust* in its own capacity to discover and affirm what is true.

However, if your critical intelligence—and along with it the whole universe—is somehow *already* in the grasp of Infinite Being, Meaning, Truth and Goodness, then the reality of such an Ultimate Habitat can easily explain why you are being invited, and not forced, to follow the imperatives to be attentive, intelligent, critical and responsible. And if you are already in the grasp of this divine milieu you have every reason, even after Darwin, to trust your mind's imperatives.

Continues on page 10

(Endnotes)

- 1 See my recent book *God and the New Atheism: A Critical response to Dawkins, Harris and Hitchens*, London and Louisville: Westminster, John Knox Press, 2008.
- 2 Edward Slingerland, "Who's Afraid of Reductionism? The Study of Religion in the Age of Cognitive Science," *Journal of the American Academy of Religion*, Vol. 76, No. 2 (June 2008), 375-411.
- 3 Frederick Crews, "Saving Us from Darwin." *New York Review of Books*, Part I: October 4; Part II: October 18) 2001.
- 4 George Levine, *Darwin Loves You: Natural Selection and the Re-enchantment of the World* (Princeton: Princeton University Press, 2006).
- 5 What follows is developed at much greater length in my book *Is Nature Enough?: Meaning and Truth in the Age of Science* (Cambridge: Cambridge University Press, 2006).
- 6 Ronald Numbers, "Science without God: Natural Laws and Christian Belief," *When Science and Christianity Meet*, edited by David C. Lindberg and Ronald Numbers (Chicago: University of Chicago Press, 2003), p. 266.
- 7 Richard Dawkins, *The Blind Watchmaker* (New York: W.W. Norton & Co., 1986); *River Out of Eden and Climbing Mount Improbable*; Stephen Jay Gould, *Ever Since Darwin* (New York: W.W. Norton, 1977), pp. 12-13.
- 8 Ian McEwan, *Saturday* (Toronto: Alfred A. Knopf, 2005), 56. I owe this reference to Edward Slingerland, "Who's Afraid of Reductionism?", 404.
- 9 Richard Dawkins, *The Blind Watchmaker*, p. 6; *River Out of Eden* (New York: Basic Books, 1995), 133.
- 10 Stephen Jay Gould, *Ever Since Darwin* (New York: W.W. Norton, 1977), pp. 12-13.
- 11 A good example is Michael R. Rose, *Darwin's Spectre: Evolutionary Biology in the Modern World* (Princeton: Princeton University Press, 1998). In addition to Dawkins, Dennett and Rose, see also Michael Ruse, *Can a Darwinian be a Christian* (Cambridge: Cambridge University Press, 2000); E. O. Wilson, *Consilience: The Unity of Knowledge* (New York: Vintage Books, 1999); William Provine, "Evolution and the Foundation of Ethics," in Steven L. Goldman, ed., *Science, Technology and Social Progress* (Bethlehem, Pa.: Lehigh University Press, 1989); and Philip Kitcher, *Living With Darwin: Evolution, Design, and the Future of Faith* (New York: Oxford University Press, 2007).
- 12 Ruse, *Can a Darwinian be a Christian*, 77.
- 13 For example, Duane Gish, *Evolution: The Challenge of the Fossil Record* (El Cajon: Creation-Life Publishers, 1985).
- 14 Michael J. Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: The Free Press, 1996). William Dembski, *Intelligent Design: The Bridge Between Science and Theology* (Downers Grove, Illinois: InterVarsity Press, 1999). Phillip E. Johnson, *Darwin on Trial* (Downers Grove, Illinois: InterVarsity Press, 1991). James Porter Moreland, editor, *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer* (Downers Grove, Illinois: InterVarsity Press, 1994). Jonathan Wells, *Icons of Evolution: Science or Myth?* (Washington, DC: Regnery, 2000). For a critique of ID see Robert T. Pennock, *Tower of Babel: The Evidence Against the New Creationism* (Cambridge, Mass: MIT Press, 1999).
- 15 William A. Dembski, *The Design Inference: Eliminating Chance Through Small Probabilities* (New York: Cambridge University Press, 1998).
- 16 Owen Flanagan, *The Problem of the Soul: Two Visions of Mind and How to Reconcile Them* (New York: Basic Books, 2002), 11.
- 17 Daniel C. Dennett, *Consciousness Explained* (New York: Little, Brown, 1991); *Darwin's Dangerous Idea: Evolution and the Meaning of Life* (New York: Simon & Schuster, 1995); Richard Dawkins, *The Blind Watchmaker* (New York: W. W. Norton & Co. 1986); Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature* (New York: Penguin Books, 2002).
- 18 See Bernard Lonergan, S. J., "Cognitional Structure," *Collection*, edited by F. E. Crowe, S. J. (New York: Herder and Herder, 1967), pp. 221-39.
- 19 For extended development see my book *Is Nature Enough?*, 141-66.
- 20 Here I am taking some linguistic liberties in adapting Lonergan's cognitional theory to my argument.
- 21 Letter to W. Graham, July 3rd, 1881, *The Life and Letters of Charles Darwin* edited by Francis Darwin (New York: Basic Books, 1959), p. 285.
- 22 Richard Rorty, "Untruth and Consequences," *The New Republic*, July 31, 1995, pp. 32-36. Cited by Alvin Plantinga: <http://idwww.ucsb.edu/fscf/library/plantinga/dennett.html>
- 23 See my book *Is Nature Enough?: Meaning and Truth in the Age of Science* (Cambridge: Cambridge University Press, 2006).
- 24 Sigmund Freud, *The Future of an Illusion*, translated and edited by James Strachey (New York: Norton, 1989); Friedrich Nietzsche, *The Birth of Tragedy and The Genealogy of Morals*, translated by Francis Golffing (New York: Anchor Books, 1990); Karl Marx, *Early Writings*, translated and edited by T. B. Bottomore (New York, McGraw-Hill, 1964); Viktor Frankl, *Man's Search for Meaning* (New York: Pocket Books, 1959); Peter Berger, *The Sacred Canopy* (Garden City, New York: Anchor Books, 1990); Michael Shermer, *How We Believe: The Search for God in an Age of Science* (New York: W. H. Freeman, 2000)
- 25 Søren Kierkegaard, *The Sickness Unto Death*, translated by Walter Lowrie (Garden City, New York: Doubleday Anchor Books, 1954), pp. 154-55.
- 26 See note # 5.
- 27 P. W. Atkins, *The 2nd Law: Energy, Chaos, and Form* (New York: Scientific American Books, 1994), p. 200.
- 28 See Michael Polanyi, *The Tacit Dimension* (Garden City, New York: Doubleday Anchor Books. 1967).
- 29 A point that Teilhard de Chardin makes throughout his works, especially *The Human Phenomenon*, trans. by Sarah Appleton-Weber (Portland, Oregon: Sussex Academic Press, 1999).

John F. Haught's Books

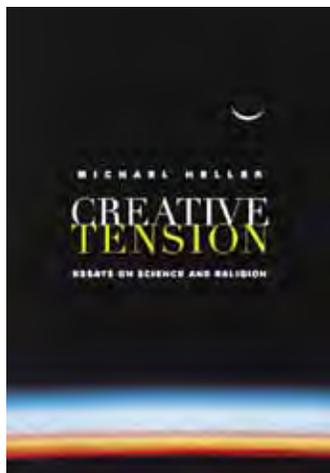
- ◆ *Is Nature Enough? Meaning and Truth in the Age of Science* (Cambridge: Cambridge University Press, 2006).
- ◆ *Purpose, Evolution and the Meaning of Life* (Ontario: Pandora Press, 2004).
- ◆ *Deeper Than Darwin: the Prospects for Religion in the Age of Evolution* (Boulder, Colo: Westview Press, 2003), translated into Korean. (*Choice Outstanding Academic Title*, 2003).
- ◆ *Responses to 101 Questions on God and Evolution* (New York: Paulist Press, 2001), translated into Polish and Korean.
- ◆ *God After Darwin: A Theology of Evolution* (Boulder, Colo: Westview Press, 2000; Second Edition 2007), trans. into Italian, Portuguese, Indonesian, Korean and Slovak.
- ◆ *Science and Religion: From Conflict to Conversation* (New York: Paulist Press, 1995)) trans. into Romanian, Korean, Persian, Urdu and Indonesian.
- ◆ *The Promise of Nature: Ecology and Cosmic Purpose* (New York: Paulist Press, 1993; 2nd ed., Eugene, Ore.: Wipf and Stock Publishers, 2004).
- ◆ *Mystery and Promise: A Theology of Revelation* (Collegeville: Liturgical Press, 1993; translated into Portuguese).
- ◆ *What Is Religion?* (New York: Paulist Press, 1990).
- ◆ *The Revelation of God in History* (Wilmington: Michael Glazier Press, 1988).
- ◆ *What Is God?* (New York: Paulist Press, 1986) trans. into Spanish and Portuguese.
- ◆ *The Cosmic Adventure: Science, Religion and the Quest for Purpose* (New York: Paulist Press, 1984).
- ◆ *Nature and Purpose* (Lanham, Md.: University Press of America, 1980).
- ◆ *Religion and Self-Acceptance* (New York: Paulist Press, 1976) -- winner of College Theology Society book award.
- ◆ *Science and Religion in Quest of Cosmic Purpose* (Washington, DC: Georgetown University Press, 2000) Editor.

Book Review of Creative Tension

by Michael Heller

Reviewed by Thomas P. Sheahen

M. Heller, *Creative Tension: essays on science and religion*, Templeton Foundation Press: 2003; ISBN 1-932031-34-0



If physics and math are complicated, then shouldn't we expect talking about God to be even more so? That's the message of Michael Heller's "*Creative Tension*," a fine if difficult series of essays on reconciling science and religion. There are many remarkable conclusions here, among which are: 1) in referring to the works of Karl Barth and Paul Tillich, Heller implies that they are mistaken in their particular view of time; 2) Rationality must go beyond the scientific method, because it is ultimately self-referencing; 3) religious faith is an extension of faith in reason.

Michael Heller, a Catholic priest from Poland, uses very careful reasoning to explain how the divergence between science and religion came about, and seeks ways to rise above the perceived conflicts. His goal is to lead the reader upward to a higher level of thinking, to step beyond ideas (such as that time is absolute) that have been taken for granted in the past. Heller's professional work (relating General Relativity with Quantum Mechanics), provides an analogue of how he would bridge the gap between science and theology.

The first few essays deal with methodological issues. Citing examples from books

by scientists who disparage the notion of God (notably Hawking's *Brief History of Time*), Heller points out "... the inadequate character of everyday language for interpreting the mathematical structures of physical theories." He wants theology to remain *neutral* relative to the physical theory: "... [do] not take into consideration any particular cosmological model or theory, but turn instead to the most fundamental assumptions presupposed by every scientific endeavor." Heller goes on to sketch the development of modern cosmology, and suggests a way for theologians to approach it. Everybody has to have *some* image of the world, so it might as well be a scientifically accurate one.

Part Two is a series of four "historical" essays, which stand alone and need not be read sequentially. First, Heller explains how the advances in scientific understanding, beginning with Copernicus, led away from the medieval worldview to a different view of the relationship between God, the world, and man; and this created a distance, or "strangeness" between religion and science. It became easy to regard science as the displacer of God, and therefore the enemy of religion.

Next, he introduces a very basic notion that recurs later in the book: we assume that science is always rational, but putting faith in reason is actually a choice one makes – usually without noticing it. Heller traces the history of advancing scientific thought from the Greeks to the present, and shows how scientific method gradually diverged from the framework of the Church. The present-day separation between the two is unsatisfactory, because it "cuts through

the interior of the human person." The way out of this will come by re-emphasizing values and rationality.

Many of us wonder what Teilhard de Chardin might have to say if he had lived to the present, considering all the advances in modern science of the latter 20th century. Heller carries Teilhard's way of thinking forward, and incorporates our newer understanding of nonlinear thermodynamics, chaos, etc. Because of these developments, the growth of complexity in evolving systems no longer requires some of the hypotheses that Teilhard introduced decades ago.

The last essay in this group introduces us to Georges Lemaitre, the Belgian priest who first calculated what we now call the "Big Bang" in the 1920s. Years later, Lemaitre argued successfully *against* having the Pope endorse his own theory, because as a scientist Lemaitre understood that every theory can always be improved. The tone that Lemaitre set for relations between religion and science has continued to the present day.

Part Three carries the title "The Works of Creation;" these three chapters enter territory unfamiliar to most readers.

Chapter 9 "Cosmological Singularity and the Creation of the Universe" contains several brilliant new ideas, but reading it is challenging. In this chapter, Heller sketches the general features of a theory rooted in *noncommutative geometry*, a field unfamiliar to nearly all likely readers of this text. Among physicists, it is recognized that General Relativity and Quantum Mechanics are incompatible in certain respects, and the field of *quantum gravity* exists to tackle these difficulties. Heller has contributed to that field with several papers in theoretical physics journals. In this chapter he strives to summarize these contributions for the lay reader without using any equations. However, there isn't room to go into detail.

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Dr. Thomas Sheahen attended M.I.T. and received BS (1962) and PhD (1966) degrees in physics. He is a registered Professional Engineer in Maryland. His professional career in research includes time with AT&T Bell Labs, the National Bureau of Standards, U.S. Department of Energy, Argonne National Lab, and most recently National Renewable Energy Lab; he has worked in the private sector as well, and has his own independent consulting firm. His work has been primarily in energy sciences, especially about ways to use energy efficiently. Dr. Sheahen is the author of the textbook *Introduction to High Temperature Superconductivity*. He has also taught physics at both the college level and in high school. With Fr. Ernie Spittler, SJ, he co-taught "Issues in Religion and Science" at John Carroll University in 1999. Sheahen currently serves as Vice-Director of ITEST.

...by reaching to the very forefront of scientific theory, Heller retrieves explanations of questions that have baffled others for centuries.

Nevertheless, we get the gist: by reaching to the very forefront of scientific theory, Heller retrieves explanations of questions that have baffled others for centuries. Certain theological difficulties surrounding the notion of creation can be resolved using this approach¹.

The next chapter's main theme is that certain concepts can no longer retain their usual meanings, but must be generalized to a higher level of meaning. Otherwise progress will be stymied.

Heller has made several very innovative contributions to the effort to unify quantum mechanics with general relativity, and strives to explain these here. Those conversant with quantum mechanics know that when the scale of physical dimensions gets down to the very small “Planck level” of 10^{-33} cm or 10^{-43} seconds, even space and time no longer exist as independent entities; they become equivalent. The major point that Heller has been making to physicists is that here is the place where general relativity and quantum mechanics can possibly be unified. But it will take *non-commutative geometries* to do so.

Since most readers have never even heard the term *non-commutative geometry*, the math and physics sails overhead,

***...if the realm of physics and math
can be this complicated, then
shouldn't we expect talking about
God to be even more so?***

although plenty of citations to physics journals are provided for the curious reader. One simple slogan works: if the realm of physics and math can be this complicated, then shouldn't we expect talking about God to be even more so?

The philosophical and theological implications of Heller's ideas are very serious indeed: Speaking about dynamics, Heller writes “This falsifies the claim of some philosophers and theologians that in the absence of time one is of necessity confronted with a purely inactive, static situation.” Heller is referring to the works of Karl Barth and Paul Tillich, implying that they are mistaken in their particular view of time. The question of causality is discussed carefully, in the light of modern science and Heller's new understanding of time; and he reminds us that St. Thomas Aquinas stated that the universe could exist from eternity but still be created by God. Heller closes this very difficult chapter with a generally-accepted theme: “The main lesson we should learn from science in this respect is that we must always be open to broader and broader horizons.”

Chapter 11 is easier reading than 9 or 10. Heller addresses the remarkable fact that the universe makes sense at all. Beginning with the Einstein quotation “the eternal mystery of the world is its comprehensibility” and going to the contemporary physicists' question “why is there anything at all?”, Heller considers how mathematical theory relates to reality. He introduces the term *algorithmic compressibility* to denote the fact that mathematics accounts for so much. This chapter includes a short but very clear description of the essentials of the *inflationary universe* theory.

What are the implications of this for the polarization between design and chance? Heller points out the “God of the gaps” problem, and states that while many gaps are only incomplete scientific theory, there are some very genuine gaps that science cannot address: *ontological* (Why is there something rather than nothing?), *epistemological* (Why is the world comprehensible?), and *axiological* (Why is there meaning and value?). He concludes by saying that the comprehensibility of the world is definitely a serious theological question.

The book's fourth and final part goes beyond physics to tackle questions about meaning and values. Heller boldly proposes that “What we need is something radically new a far-reaching revolution comparable to changing from linear physics to nonlinear physics.”

***Since every form of science contains
some elements of faith, says Heller,
religion and science have
something in common.***

Since *every* form of science contains some elements of faith, says Heller, religion and science have something in common. Rationality must go beyond the scientific method, because it is ultimately self-referencing, and hence subject to the principle that it cannot verify or falsify itself from within – an application of Godel's theorem.

The question of “where do the laws of physics come from?” brings Heller to an important discussion of the idea that the universe we live in just happened from chaos, generally termed the *many universes* argument. Many scientists invoke *Occam's Razor* and immediately brush aside this line of thought as irrelevant, but Heller takes it seriously and argues against it with respect. He points out that those theories (reliant upon total randomness) forget that probability itself contains certain very rational properties, which cannot be explained by such theories. It is necessary to make a “moral choice” between rationality and irrationality. The first value judgment is to place faith in reason; next is faith in logic, and only then can rational thinking (including science) begin. Chapter 13 closes by saying that religious faith is an extension of faith in reason.

Chapter 14 wraps everything together and presents the entire motivation for wanting to read the rest of the book. Perhaps it should have been chapter 1. There really are profound questions in theology that lie at the very basis of the scientific method, which is exactly why it is so worthwhile to study science in depth.

Most of us know that quantum mechanics contradicts standard intuition: “Is not our common sense put upside down?” Heller builds on that: “I think the greatest discovery of modern physics is that our common sense is limited to the narrow domain of our everyday experience. Beyond this domain a region extends to which our senses have no access.” He goes on to present a very clear synopsis of a central principle of physics, the *principle of least action*, and notes that the dethronement of *time* from an absolute position was a key contribution of advancing theory in physics. Neither of these is accessible by the senses.

After reviewing the progress of science over two centuries, Heller focuses on the outer boundary of what is known, and stresses that there are always unanswered questions,

“Only a very shortsighted scientist can be unaware of the fact that he is surrounded by mysteries.”

some of them unanswerable within science. “Only a very shortsighted scientist can be unaware of the fact that he is surrounded by mysteries.” Heller poses the question: “Do not such mysteries point toward the Mystery (with the capital M)?”

Heller stresses the value of posing questions, and then presents a list of questions that reach to the very foundations of human knowledge and thought processes; these questions were arrived at through the door of science.

Who should read this book? An adult discussion-group or college seminar that meets once a week will find its style and format very helpful. Missing some chapters does not leave the reader hopelessly behind, as a more “sequential” book might. The difficult chapters about advanced physics (9 and 10) can be skipped without harm, but those having a strong physics background will find them original and informative.

People are often bewildered by what they hear about science driving out religion, but *Creative Tension* shows that it’s not so. Michael Heller’s optimistic outlook on the relationship between science and religion is the book’s strongest asset. Science *can* contribute positively to theology; and one of its crucial lessons, as Heller says, “is that we must always be open to broader and broader horizons.”

(Endnotes)

- 1 Heller warns “One could do theology or natural theology without any contact with scientific theories or models, and in fact many theologians and philosophers prefer this way of pursuing their disciplines. . . . If the image of the world is not taken (critically) from the sciences, it will certainly infiltrate theological or philosophical speculations from various intellectually suspect sources of human imagination.”

The Editors chose to print the following reflection of Dr. Blaschke’s for a number of reasons. Although foster parenting, raising children and child abuse are not topics or issues we would ordinarily present at an ITEST workshop or conference, this reflection by a man of science with a busy practice in medicine, and with his wife, Ruth, reveals the heart of a dedicated married couple with six children of their own who witnessed a need and responded to it wholeheartedly.

Valentina

(A Reflection)

In 1969 my wife and I became foster parents for the Oklahoma Department of Human Service (DHS). Our three older children were in college or on their own and the three younger were in high school. A story in our local paper about the number of abused, neglected or abandoned children in our state and the pressing need for more foster parents caught my wife’s eye. Possibly the nearness of an empty nest in our lives motivated her interest. In fact, however, ever since our earliest dates my dear wife manifested special concern for children in need.

Ruth made the usual inquiries, was interviewed by several and made plans to become involved in foster care. I was in agreement with the plan but not enthusiastic. In my view six children were enough responsibility. The social worker that interviewed me sensed my moderation and indicated that it would not be acceptable if I were not committed. Ruth’s unhappy face appeared in my mind and hastily I agreed to be fully involved.

For the next twenty-seven years a parade of injured, neglected, abused, and sometimes sexually abused children came to our home. Every race, color and ethnic group were in the parade. Many stayed a few weeks. One little boy stayed six years. One brother and sister came for two separate stays. DHS records indicate that 184 children were in our care for varying periods in those twenty-seven years.

The events, circumstances and stories of these children could break your heart. People ask us if we experienced a sense of loss when the children were either returned to their parent(s) or adopted. Of course we did but all the social workers emphasized to us the necessity to hide our tears and wax enthusiastically about how great an event was happening to an anxious child.

Perhaps in narrating the story of Valentina I can convey a portrait of the problems that necessitate foster care, the impact on the child, and the tug on our hearts when they left. Val came to us at about eighteen months of age. The worker did not give us any details other than Val was a bed wetter and had been punished by her mother to such a degree that the neighbors complained to DHS. The plan was to arrange counseling for the mother and after some period of time Val would be returned to her mother.

Val was an adorable baby girl. Dark curly hair and a cupid face that always reminded me of the advertisements for Campbell's soup which showed twin girls like Val. She learned to talk, play, laugh, and eat everything normal for a child of that age. She did have trouble learning bladder control but she would always say, "Sorry". We had other children at the time, a small Sioux Indian boy, and another girl about four years of age. I have a photo of them on our bed, dressed in colorful sleepers; they are incredibly beautiful as they look at the camera. Incomprehensible to most folk is the idea that these lovely creations of God's purpose could be deliberately injured.

After a year or so the day came for Val to go home. My wife had made a cute blue velvet dress for her. We had a cake, balloons and two of our own children to the farewell party. I took pictures and even now I marvel what a sweet child she had become for us.

Eight months later the social worker brought Val to my office as an emergency. As I examined her I was first shocked, then outraged at the painful damage that Val had sustained for wetting her pants. She had three cigarette burns on the palm of her right hand, two on the left. On the sole of the left foot two circular burn scars from a cigarette. She had bruises on her buttocks, arms and legs. A cut on her forehead. Several denuded areas on her scalp where her hair had been pulled out. She whimpered and cringed when I first began to examine her, but her smile, when she recognized me, energized me. Foster parents were not supposed to become involved in the legal processes of the

children but I wrote a detailed medical report to the presiding judge of the Juvenile Court. He told me later at a social event that my letter made clear the extent of her injuries, but it was also clear that I had taken it personally.

Val came back to us and stayed about a year. She finally learned bladder control and was as always a lovable, enjoyable and intelligent little girl that needed loving and caring parents on a permanent basis. Val's mother's rights were terminated and Val was adopted. We had another farewell party and I came home from my office to attend the party and see her off. Ruth and I had a few private tears. We never heard about Val again. That was thirty-five years ago. Ruth and I occasionally wonder what happened in her life. Does she have children of her own? Is she good to them? Hopefully she will not remember the pain when the cigarettes burned her hands.

Biography - John A. Blaschke, MD

A native of Nebraska, John A. Blaschke, MD, physician/Rheumatologist and Emeritus Clinical Professor at the University of Oklahoma College of Medicine, received his B.S. from the University of Oklahoma. After serving in the Navy during World War II, Dr. Blaschke graduated from the University of Oklahoma College of Medicine and interned at Letterman General Hospital in San Francisco. He served also as Senior Rheumatologist at the McBride Clinic/Bone and Joint Hospital in Oklahoma City. Among other medical activities, Dr. Blaschke volunteered for the Oklahoma Chapter of the Arthritis Foundation and served as President of the Chapter. In 1987 Dr. Blaschke delivered a paper at the ITEST workshop, "Suffering: The Meaning and Management of Pain." His paper focused on the meaning and management of severe arthritic pain.

He and his wife, Ruth have raised six children, and now can boast of eight grandchildren and eight great-grandchildren. The practice of medicine runs in the family since Dr. Blaschke's oldest son, Jon, is a Rheumatologist in Oklahoma City and Jon's son Jon, Jr. is a senior resident in medicine at the University of New Mexico in Albuquerque.

***"In science we have been reading
only the notes to a poem;
in Christianity we
find the poem itself."***

— From Miracles by C.S. Lewis

Science and “Inherit the Wind”

by Tom Sheahen

Recently I attended a local-theatre production of *Inherit the Wind*, the stage play about the Scopes Monkey Trial of 1925.

In real life, John Scopes was charged with violating a Tennessee state law against teaching evolution. The famous Williams Jennings Bryan prosecuted the case and Clarence Darrow was the defense attorney. Darrow tried hard to put the law itself on trial, but the judge ruled that scientific evidence was beside the point, which was whether the statute had been violated. The jury found Scopes guilty and he was fined \$100. Upon appeal, a higher Tennessee court voided the conviction on a technicality and that ended the incident.

Darrow was disappointed because he hoped to go to the US Supreme Court and have the law declared void. Meanwhile, exhausted by the heat of a Tennessee summer without A/C, Bryan died a few days later.

Real life contained some other features, too: the town leaders in Dayton TN wanted to boost their tourist trade, so they contrived with the ACLU in New York to have this matter go to trial in Dayton TN. Scopes may not actually have taught the subject at all, but he volunteered to be the defendant. There was much hoopla, nearly a circus atmosphere, and the town fathers got more than they bargained for. To this day, the town of Dayton TN is notorious for that one event.

The historical background is important too. Darwin’s first book, *The Origin of Species*, was published in 1859, and his second, *The Descent of Man*, in 1870. Although there were objections at once from religious leaders, by around 1900 the controversy had died down, with most people generally figuring “Well, if God is clever enough to use evolution as his way of creating, who am I to object?” At the turn of the 20th century, the topic was **not** a source of antipathy between religion and science.

But as America moved to center stage on the world scene, things began to change. Most people didn’t know what the word *anarchist* meant until President McKinley was killed by one. The wave of immigrants brought unfamiliar new customs. People saw their familiar way of life being challenged all around them; they became suspicious of “modern” ideas and the new philosophies of the time.

William Jennings Bryan, the “prairie populist” from Nebraska, was an excellent orator who rode the crest of this tide of bewilderment to three Presidential nominations. If, in 1908, his political opponent had sneered at Americans who “cling to their guns and religion,” Bryan would have reached for his rifle and said “You’re darn right we do!”

When World War I happened, the carnage and horror was so appalling that a large number of people, especially in America, adopted a viewpoint that rejected “modernity,” as well as all the technological advances of modern society. The Holy Scripture was the only reliable anchor to hold onto, and since it had been available in English for 400 years, a *literal* reading of the English translation became customary. Because what the modern world brought was so awful, by around 1920 people all over America had decided that “old time religion” was “good enough for me.” There was a huge conflict developing between the values of urban America and those of rural America.

Darwin’s theory of evolution was blamed for the encroaching degradation of mankind, and one quickly-adopted solution was to forbid evolution from being taught in schools. (Remember, this was the same framework of thought that amended the constitution to banish liquor.) The intellectuals from the eastern big cities took up the battle promptly, and before long the ideal test case was contrived – what today is infamously known as the “Scopes Monkey Trial.”

The play *Inherit the Wind*, written in the early 1950s, was actually intended as an attack upon McCarthyism, but was constructed around the Scopes trial as a vehicle for presenting the struggle between intellectual freedom and obstinate bigotry. The authors, wishing to sell tickets to an audience of New York theatre-goers, took plenty of liberties with the historical facts. Here is part of how Google describes the play:

“William Jennings Bryan, Matthew Harrison Brady in the play, is portrayed as an almost comical fanatic.... The townspeople of fictional Hillsboro are far more frenzied, mean-spirited, and ignorant than were the real denizens of Dayton.”

The central point of the play is made very well: it is wrong to restrict intellectual freedom, and futile to try. Knowledge is going to grow beyond any boundary that a law can set up.

Regrettably, one of the typical buzzwords of the age was to denounce “Godless science,” and Bryan’s character did that often enough. The play is true to the historical reality that there was a *perception* that science opposes religion. The reality of thousands of years of faith and science being complementary parts of the pursuit of knowledge was totally forgotten. To this day, the Scopes trial is celebrated in elitist intellectual circles as a significant step toward science vanquishing religion. It has long been forgotten that the whole thing was a contrived publicity stunt to boost tourism.

Over a century, the phrase “godless science” has become a cliché that enhances the smugness of some scientists, but drives religious-minded people away. Such flight need not happen. At the beginning level, science is exact and seems absolute; even through college courses there is no wiggle room or matters of opinion. But when you get out to the perimeter of any science, and try to peer over the horizon into what professors can no longer hand you, then a new process begins: elements of faith and reason have to march along together.

In physics, for example, the field of *string theory* is based on a faith in the elegance and beauty of mathematical representations. If you ask where that faith came from, it seems to be something “written on the human heart” – that is, a peculiar characteristic of the human mind. If you then ask “why?” science has no answer and falls silent.

Which is exactly as it should be: in the quest for knowledge, there comes a point where science falls silent. Every science – physics, medicine, whatever – reaches such a point. The human thirst for knowledge exceeds the domain of science alone.

“Godless science” is a term describing that portion of science that quits too soon, confusing “substantial knowledge” with “total knowledge.” Real science is a partner with faith, humbly seeking to understand a little more of God’s reality.