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**Adaptation, Variation, or Extinction:  
How Can There be Theology after Darwin?**

Let me name the truth about this session right at the outset: many people at the Darwin Festival, and probably some in the audience here today, assume that its title, "Doing Theology in Darwinian Context," is an outright contradiction in terms. I believe that widely held assumption is false.

To find biology and theology mutually exclusive is not an obvious fact of nature; it is an historical artifact. Thus it behooves us to take a moment to reconstruct how such a strong prejudice (or meme, if you will) should have gained such ascendancy, and why it is worth correcting.

I call it an historical artifact because there was a time when doing theology "in Darwinian Context" was widely embraced. As John Hedley Brooke will show on Wednesday morning, much of the discussion during Darwin's lifetime (and immediately thereafter) falls in this category. For the Catholic and Anglican Modernists, theology was thought from the ground up in Darwinian context. Liberal Christian theologies in the 20<sup>th</sup> century, like the Reform movement in Judaism, went even further, embracing a fully naturalized account of the natural world and linking theological language ever more closely to human moral, ethical, political, and aesthetic concerns. This long tradition in theology includes the Neo-Kantian, existentialist, and hermeneutical movements, among others. For apophatic theologians such as the Harvard theologian Gordon Kaufman, it is axiomatic that science sets the parameters for all God-talk. Not only liberal Christian thinkers have taken the Darwinian context seriously, however; even many more traditional theologians affirm Darwinian evolution as the clear framework for their religious reflection.

Then how did the cultural prejudice arise that theology and post-Darwinian biology are incompatible? This alleged relationship of absolute exclusion is not the product of careful reasoning, scholarly examination of the Christian tradition, or indeed even a superficial reading of the history of theology since Darwin. It is instead the invention of fundamentalist religious believers on the one side and, I fear, of a few fundamentalist interpreters of the science on the other. In fact, in these last few years the game of mutual blame and name-calling between these two combatants has grown so strident (“He did it first!” “No, mummy, *she* did it first!”) that one despairs the two sides will ever calm down enough to engage again in reasonable discussion of the issues.

I fear that the leadership has come from conservative Christians, relatively few of them British, and most of them American. Most of the products marketed by this movement, such as Creation Science, have had little cultural impact; but one, known as “intelligent design” has been immensely harmful. It has seriously handicapped constructive work in theology as well as the public reception of Darwin and post-Darwinian evolutionary theory. (Unfortunately, ID is now giving rise to spin-offs in the Islamic world and even within traditionalist Hindu thought in India.)

I fault these fundamentalist Christians with four egregious errors. All four are of relatively recent origin; none of the four is essential to Christian belief (or, we should note, to Jewish observance):

First, the error that the Bible, if it’s to be religiously useful or authoritative at all for Christians, must be inerrant (i.e., utterly without error) on all topics it touches, including all matters of science and history;

Second, the erroneous claim that *any* specific phenomena which have arisen in evolutionary history — be it flaggella, human eyes, or hemoglobin cells — can or do provide empirical proof that life is the product of “intelligent design” or that a God exists.

Third, the error of believing that humans must be unique, *in the sense* that they could not be products of the same natural history that has produced all other living organisms on this planet; and

Fourth, the error of affirming that God is an omnipotent being who directly acts as a supernatural cause within the network of natural causes, miraculously bringing about an outcome that would not have occurred without such divine intervention.

Some of these tenets may have become popular beliefs enjoying strong support within this or that religious community. But they are errors nonetheless. *They are not essential to Christian belief or practice* — which is a good thing, since theologies of this type are not compatible with contemporary biological science.

One of the low points of the recent attacks on theology is the claim that any serious believer must hold one, two, three, or even all four of these untenable beliefs in order to count as Christian. To argue that way is to commit a particularly vicious version of the Straw Man fallacy. You may be a strong opponent of theology or theistic belief in any form. I urge you, then, to bring your best objections to the table so that we can debate them fully and fairly. But I beg you not to ascribe to my colleagues and me positions that we do not hold — indeed, positions that we vehemently deny and that most of the Christian tradition has eschewed for centuries. To destroy a straw man rather than to debate our real position is neither reasonable or productive. Cultural and philosophical questions of this magnitude deserve better.

I've clearly delineated the four errors of the Christian fundamentalists. But sadly, the myth of the incompatibility of theology and biology has in recent years been fueled by a *second* kind of fundamentalism, this one found more frequently among certain interpreters of science. The incompatibility claims made by this group stem directly from two different erroneous assumptions: first, that there are no meaningful human questions that science cannot answer; and second, that, when non-scientific questions *do*

arise, no particular expertise or study other than a good science education is needed to pronounce upon them. To call these “errors” is simply to affirm that, after Darwin, humans continue to encounter “big questions” — philosophical questions, if you will — that are still worthy of our reasoned attention, even though they cannot now be settled by science and (in some cases) will never be.

The tragedy, in short, is the death of the big questions. Actually, that’s not quite the right way to put it. Deep reflection on the meaning of human existence continues to occur, even or especially among those most deeply committed to science. Humans just can’t elude those lofty questions about mind, value, beauty, meaning, or God which rise like mountains above (and often *out of*) our best empirical inquiries. Indeed, the questions actually become *more* complex, *more* pressing and interesting, as our scientific knowledge and technological prowess increases. (This is particularly true of bioethical debates and questions about the nature of the human person.) More accurately, then, the tragedy arises when the questions are dismissed, or simplistically answered, without any sense of their depth, complexity, or urgency.

Perhaps you find it surprising that I would come to theology in Darwinian context by first focusing on those deep, enduring questions which contribute to our *humanum*, that which makes us distinctively human. Perhaps you expected that a theologian would rail instead against the publications of Richard Dawkins and his followers, complaining of how offensive their negative comments about God are. Perhaps you hoped to watch me grow apoplectic about Dawkinsian sentences such as (just to quote one example): “The God of the Old Testament is arguably the most unpleasant character in all fiction: jealous and proud of it; a petty, unjust, unforgiving control-freak; a vindictive, bloodthirsty ethnic cleanser; a misogynistic, homophobic, racist, infanticidal, genocidal, filicidal, pestilential, megalomaniacal, sadomasochistic, capriciously malevolent bully” (*The God Delusion*, 31).

But, to be honest, I find such hostile comments about God rather *less* offensive. Doesn’t Dawkins have an equal right to advance his theological beliefs? After all, every

man considers himself an expert on God, whether pro or con. So I am less disturbed by Dawkins' tin ear for all things theological. (After all, he writes so beautifully.)

By contrast, his dismissive attitude toward the big questions in general, and for the various university disciplines that contribute to understanding them more fully, is a bit harder to forgive. No biologist would publish her thoughts on biophysics or neurology without first consulting with the relevant physicists or neurologists. And yet a variety of university disciplines cast light on the difficult interpretive questions that lie at the boundaries of the sciences: philosophy of physics and philosophy of biology, history of science and cultural anthropology, psychology and cultural studies.

"Big Questions" are by their very nature multi-disciplinary; and multi-disciplinary work is only serious when real expertise from across the relevant disciplines is represented. Consider the study of the human person. There is no natural science that is not relevant (in some way) to understanding the human person. But we need a far greater database to understand our own existence, a database that includes the history of culture, the belles artes, philosophy, and yes, religion as well. It's the impoverishment of Dawkins' treatment that I find objectionable, not his conclusions. Remember the days when people read classics and studied the history of ideas alongside physics? Remember Subramanyan Chandrasekhar, two-time winner of the Nobel Prizes, who every year reread Shakespeare's collected works in their entirety?

### **On to Theology**

What then of theology? I suggest that there is an intuitive and defensible position that stands intact in the age of Darwin, despite fundamentalist resistance on both sides. I summarize its foundations in four stages:

First, in defense of the distinctiveness of scientific knowledge. Indisputably, the natural sciences are not perfect; they do not produce indubitable truths. Their always-preliminary status notwithstanding, scientific research and testing are among the

highest manifestations of controlled human inquiry; they represent deliberative rationality at its best. The results of inquiry in the humanities are inevitably less rigorous than the results of the empirical sciences.

Second, this fact does not obviate the need for humanistic, philosophical, and (I would add) theological inquiry. The central question is: when and how does a scientific topic undergo that subtle metamorphosis into philosophical reflection? Evidentially, this transition is the Achilles' heel for many scientists, even great ones, judging by their popular books and off-hand comments at conferences. Non-scientists, by contrast, are well able to discern when an eminent scientist has wandered onto speculative terrain and begun to make pronouncements outside his actual area of expertise.

The inability to recognize and defend one's own philosophical assumptions is one of the two great shortcomings in contemporary discussions of biology and faith. The second great shortcoming is this: when the discussion partners *do* recognize conceptual and philosophical issues that cannot currently be resolved by scientific means (because they presently, and perhaps permanently, exceed the boundaries of what science can determine), they then frequently fail to recognize the existence of communities of experts who have extensive critical knowledge of these topics. The standards of rational discourse require us to invite these experts to the table, learn from their distinctions and arguments, and defend our own philosophical views more rigorously as a result.

Third, it is doubtlessly true that "the heart has its reasons that Reason knows not of." Man bereft of his faculty of intuition is a poor beast indeed. (I use the gender-specific language advisedly.) *Religious* intuitions, feelings, and sentiments, together with the convictions and actions that they engender, are among the strongest and most valued of the phyla of intuitions known to humanity — and this notwithstanding the terrible damage that is sometimes done in their name. When it comes to acting ethically, for example in response to the environmental crisis, our intuitions remain

indispensable.

Fourth and finally, there is a vast distance between one's core religious convictions (or anti-religious convictions) in their raw form and the fully dressed, fully elaborated forms they take when they become philosophical arguments or theological positions. Just as some scientists slide too comfortably from fundamental science to arm-chair philosophy, so also religious authors sometimes think that they can transfer the beautiful simplicity of their faith onto the complex topics treated in their academic discourses. Many popular books written on the topic of science and religion unfortunately fall into this category. My call is for a bit more epistemic humility — on both sides.

### **Big Questions in Biology and Theology**

It is not difficult to list the “big questions” in the biology-theology discussion over the 150 years since Darwin published *On the Origin of Species*. Consider just these seven:

- Is there directionality to evolution? If so, is it a sort of directionality that we should speak of as progress and, if so, why?
- Is this directionality (if it exists) purposive? That is, is it a sort of progress that is analogous to cases of intelligent agents bringing about changes in the empirical world?
- Obviously evolution produces emergent structures, functions, and behaviors. Can these emergent properties be fully (sufficiently) explained in terms of laws, properties, and dynamics occurring at lower levels of organization and at earlier stages in cosmic history? To what extent do explanations given *at the level of the emergent properties and dynamics themselves* constitute an irreducible part of the scientific results?

- Among the corollaries of the recent debates on emergent complexity is the (still unsolved) question: what is the relationship of biology to physics?<sup>1</sup> This question continues to be unresolved, and more turns on it than is often realized.
- Biologists often complain that physicists overestimate the power of their discipline to answer the deepest and most interesting biological questions. Is it possible that we are similarly guilty of overestimating the significance of *our* results for explaining distinctively human behaviors, cognitions, symbols, and ideas? What is the role of the human sciences (psychology, sociology, and cultural anthropology) as special sciences; do they supplement the biological sciences in understanding human thought and behavior? If they do, as I think, how, why, and under what rules does this work?
- In addition to the obvious similarities of *Homo sapiens* to other animals, what are the distinctive features of our species? How are those features to be understood philosophically? Which features, if any, are qualitatively different from the other species? How did such qualitative differences arise, and what is their significance? In particular, what are the contributions of evolutionary psychology and what are the inherent limitations that it faces?
- Both ethical and religious beliefs have played an important role in cultural evolution and thus, given co-evolution, have had biological effects, sometimes positive and sometimes negative. Can human ethical and religious convictions be *fully* explained within the framework of evolutionary biology? If not, why not? What are the limits of biological explanation to which this result points? What, exactly, is it that does the limiting here?

What gradually becomes obvious is that these are meta-biological questions. I suggest that they are natural next questions for humans to formulate when one has understood the biological results. It is on this basis (and only so), I think, that one can understand what theological reflection entails.

## Why Shouldn't Theology Change as Well?

Okay, let's assume for the moment that "big questions" still arise in Darwinian context. The big questions after Darwin (or A.D. for short) are different than the big questions before Darwin. Today in formulating them we begin with a different set of core concepts: natural selection, adaptation, population genetics and genetic drift, molecular and systems biology, transcription, structures and functions, fitness landscapes, macroevolution, phylogenetics, evolutionary psychology and neurobiology, mathematical game theory, evolutionary developmental biology, ecology, and biodiversity.<sup>2</sup> Beliefs that were standard in previous centuries are no longer credible — that we're guided by a *res cogitans*, for example, whereas all other animals are (as Descartes thought) "mere machines," or the belief that species must be timeless and constitute a "plenum" or "great chain of being" (Leibniz).

If the *philosophical* context for the big questions has changed so much, wouldn't one expect that the *theological* context would change as well? Wouldn't one then be suspicious if in Christian theology it seemed to be "business as usual," and nothing had changed? Of course, one can find groups of believers for whom nothing *has* changed in the last 150 years. Overall, however, the historical record shows that, as Darwin's ideas gained in influence, new ways of conceiving God, humanity, and the God-world also began to be done. (I also think one should do a different kind of theology in a post-Holocaust context, but that's a topic for another day.) Like all other fields of human knowledge, theology had to have the humility to learn from Darwin. As Charles Kingsley, a naturalist and Anglican priest, wrote to Darwin,

I have gradually learnt to see that it is just as noble a conception of Deity, to believe that He created primal forms capable of self-development into all forms needful *pro tempore* and *pro loco*, as to believe that He required a fresh act of intervention to supply the *lacunas* which he himself had made. I question whether the former be not the loftier thought.<sup>3</sup>

This “loftier” theology must be a theology without literalism, without anthropomorphism, without omnipotence, without a God who becomes a natural causes alongside other natural causes. It must not offer a God who sets aside natural laws, but a God who works *with* these regularities.

So let me say quite plainly how I think theology should be done *differently* in Darwinian context. Some of these eight points are controversial, so here I emphatically do *not* speak for the other speakers on this panel. After Darwin, I suggest,

- theologians assume that all objects in the natural world are composed of the same basic constituents that all things in this universe are composed of.
- We assume that humans, like other animals, are natural objects with a natural history, not exceptions to the evolutionary process.
- We therefore expect many behavioral traits to be biologically explained — not just when and how we desire to eat and have sex, but complex traits such as (quoting the biologist Jeffrey Schloss) “our intense need to give and receive parental and social care; our wide-ranging emotions and the ability to recognize them facially; our shared cognitive biases, phobias, and desires; and [finally] our capacities to form lifelong social attachments and aversions, to fall in love, and to envision not just the future but also other minds...”<sup>4</sup>
- We can no longer dichotomize between the realms of biology and culture, between brain and mind, between the individual and societal levels. Culture is leashed to biology, sometimes by a short leash and sometimes by a remarkably long one.
- Theologians who study the natural world should be naturalists, at least in the ways for which Darwin became famous: collecting data, formulating theories and

models to explain the data, and looking for *natural* causes of *natural* phenomena.

- Even many abstract and lofty thoughts and aspirations will serve biological functions, and their emergence will have a bio-cultural history. But there is no reason to assume they are therefore false or have no referent. Mathematics too has a natural history, but the *validity* of a mathematical proof is not determined by biological facts. Human speculation has not died after Darwin, though it is more empirically constrained than before.

- If there is a God, God must be conceived as the source of the physical, chemical, and biological dynamics that exist in this universe. If someone's notion of God does not allow for evolutionary history as it has actually unfolded, that person's notion of God is mistaken.

- Every theology requires a theodicy, an account of how the God who is being affirmed is compatible with the suffering in the world. Whatever theodicy one offers must be adequate (for example) to the extinction of over 99% of all the species that ever existed, the slowness and randomness of the process, the costs of natural selection, and (what might appear to be) the sheer wastefulness of it all.

This really *is* a different context for theology. You may dismiss such changes as minor, you may resist them as *too* far-reaching, or you may doubt that any actual theology will be able to meet the standards I've just summarized. But one must admit that a theology that attempts to meet these standards is a theology done in Darwinian context.

### **Kenosis**

I close with a concrete example of theology in a Darwinian context. Kenotic theology comes from the Greek term *kenosis*, meaning "self-emptying." It grows out of what may be the earliest Christian hymn quoted in the New Testament (in Phil. 2), which

describes the self-limitation of God in Christ. At the same time, it's likely that the kenosis idea would not have taken on the broad systematic role that it has played in recent Christian theology if it were not for the Darwinian context. Theologians after Darwin realized that a number of traditional claims about God would no longer work, that they would now have to look deeper to reconceive God's relationship with the world. This is one of the results. (By the way, there can be no question of *proving* this notion based on biological research. The claim is merely that this way of speaking is *compatible* with scientific results.)

Kenotic theology *begins* with a Darwinian picture of the natural world. It then asks speculatively: What if there *is* no other way to produce embodied natural agents than by biological and cultural evolution — this same evolution that has made us in fact social animals, self-aware, formed in the cauldron of the struggle for survival and hence tending by nature to competition, yet capable of moral behaviors that extend beyond self-interest and reciprocity to surprising levels of altruism? Indeed, if Darwinian natural selection is as fundamental a natural law in the universe as we think it is, it does make sense to assume that there is no other way to produce bio-cultural agents like ourselves.

In that case, if God wished for a world of social, moral, reasoning creatures who would manifest these capacities, God would have to allow natural evolution to take its course. If God had unlimited powers at the beginning, then God would have to voluntarily forsake or withdraw from exercising these powers in order that other free agents could arise naturally. That means that, from creating the universe some 13.7 billion years ago until today, God would have to exercise a continual limitation of the divine power in order to allow natural organisms who were genuine agents. For a human being to reveal the nature of this God, he or she would have to show the same self-emptying in relation to God and to other persons, imitating the one "Who, being in the form of God, did not count equality with God something to be grasped, but emptied himself, taking on the form of a servant, being born in the likeness of man" (Phil. 2: 5-8, NIV) The call to the followers of this Christ is then to manifest the same sort of

universal altruism — of accepting costs without corresponding benefits — in their behavior toward other persons. And the community of such persons would be the community not of those who exercise social power and “lord it over the Gentiles,” but a community of altruism, assisting precisely those who are not in the position to reciprocate.

## Conclusion

You may or may not think that this narrative is true. Here I’ve sought to show only that this theological narrative allows for the same kinds of regularity and agency that we actually observe in the natural history of this planet. It responds to biology after Darwin by returning anew to the central notion of Christianity, the revelation of God in Christ. It makes radical use of the oldest Christian hymn, gradually expanding the notion of self-emptying so that it covers everything from creation through anthropology to christology, ethics, and the religious life. At best, it is a theology that is more deeply Christian *in that* it is more deeply adapted to the Darwinian context.

I have offered no definite proofs. Perhaps that too reflects the demands of kenosis. Big questions are inherently controversial; we expect men and women of good faith to diverge, sometimes radically, in their responses. Today I’ve insisted only that wrestling with these big questions belongs to our *humanum*, it belongs to what it *is* to be a human being — not in abstraction from, or denial of, the best of our biological knowledge, but precisely in that context. Indeed, would one not expect that a large-brained mammal like ourselves would be troubled with open-ended questions and thoughts of immortality, that we would be made restless by a “sense sublime / Of something far more deeply interfused, / Whose dwelling is the light of setting suns, / And the round ocean and the living air, / And the blue sky, and in the mind of man...”<sup>5</sup>

Biology today cannot tell us whether or not such troubling thoughts are true. But neither will it ever be able to dismiss them as meaningless or false. What result could be more natural?

## Endnotes

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1. See Stuart Kauffman and Philip Clayton, "On Emergence, Agency, and Organization," *Philosophy and Biology* 21 (2006): 501-21.
2. David Hull and Michael Ruse, eds., *The Cambridge Companion to the Philosophy of Biology* (Cambridge: Cambridge Univ. Press, 2007).
3. Quoted from Robert Wright's contribution to "Does Evolution Explain Human Nature?", a series of debates about the philosophical and religious implications of evolutionary theory that appeared in numerous newspapers across the U.S. during the Spring of 2009.
4. Quoted from Jeffrey Schloss in the same series.
5. William Wordsworth, "Tinturn Abbey."