God and the World of Signs: Semiotics and Theology

with Andrew Robinson and Christopher Southgate, "Introduction to Part 2"; Andrew Robinson and Christopher Southgate, "Semiotics as a Metaphysical Framework for Christian Theology"; F. LeRon Shults, "Transforming Theological Symbols"; Andrew Robinson and Christopher Southgate, "Broken Symbols? Response to F. LeRon Shults"; Jeremy T. Law, "Toward a Theology of Boundary"; Philip Clayton, "Critical Afterword"

CRITICAL AFTERWORD

by Philip Clayton

Abstract. This Afterword looks back over both parts of the discussion of "God and the World of Signs"—"Semiotics and the Emergence of Life" in the previous issue of *Zygon* and "Semiotics and Theology" in this issue. Three central questions in this extended debate are identified: What is the nature of biological organisms and biological evolution? What is the relationship between the natural world and the Triune God of the Christian theological tradition? What should be the goals of Science/Religion Studies? I summarize the answers that Christopher Southgate and Andrew Robinson have given in their program and the challenges raised by their critics. Their strengths and weaknesses are assessed. In the conclusion I ask readers to imagine that this particular research program were to be taken as a model program in science-and-religion research (with some tweaking) and then consider the features of the program that could function as standards for scholars working in other areas of the dialogue.

Keywords: biosemiotics; emergence of life; evolutionary theory; incarnation; Charles Sanders Peirce; philosophy of language; Andrew Robinson; science/religion research programs; semiotics; Christopher Southgate; symbols of ultimacy; trinitarian theologies

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It is fair to say that the field of Science/Religion Studies is not enjoying the greatest imaginable popularity at the present time. In the 1990s there was a sparkle of newness to such integrative work. The field was buoyed by an influx of new talent and high-level support, and no effective opposition had yet been organized. One would not say the same things in the year 2010. The general public remains profoundly interested in the questions, but contributions by religious thinkers are now more often seen as special pleading for their own religious cause. The opposition is more vocal, and more vicious, than before; it has succeeded in casting doubts not only on constructive endeavors but also on virtually every mediating proposal that has been offered. The most influential works in Science/Religion Studies today are not the visionary studies of the previous generation but the empirical accounts of religious belief being produced by evolutionary biologists and neurologists. The more successful they are at pointing out the various functions of religious belief, the more strongly they create the impression that the beliefs in question are probably false.

In the midst of such a period, there is something refreshing about the program laid out in this issue of *Zygon* and the previous one. Christopher Southgate and Andrew Robinson propose a bold program of integration. It concerns fundamental issues in science, such as the origin of life, the relationship of biology and physics, and the minimal qualities required for a living organism. It raises fascinating philosophical questions: What is meaning? purpose? intentionality? Finally, it is as systematically ambitious as the great systematic theologies of the past, resonating with the spirit of an Augustine or a Thomas Aquinas. Southgate and Robinson seek nothing less than a single conceptual framework that will encompass the biosphere, human culture, the God-world relation, and even the inner being of God. Philosophers in the great traditions, East and West, will be pleased; systematic religious thinkers will discern one of their own; and even skeptics may be intrigued, even if in the end they can only shake their heads at the sheer chutzpah of it all.

So, what is at stake? The project raises three sharply different kinds of questions: What is the nature of biological organisms and biological evolution? What is the relationship between the natural world and the Triune God of the Christian theological tradition? And what should be the goals of Science/Religion Studies? Let us examine each in turn.

Semiotics and Biology

The collection of articles in the June 2010 issue of *Zygon* offers a rich introduction to the field of biosemiotics. Southgate and Robinson summarize the key features of this school in theoretical biology and offer a significant new proposal of their own. Jesper Hoffmeyer, dean among semioticians, describes its core theoretical commitments. Bruce Weber, a

leading theoretical biologist and origins-of-life researcher, evaluates Terrence Deacon's "autocell" model as a concrete theoretical proposal in biosemiotics. Robert Ulanowicz provides a brilliant critique of reductionist approaches in biology and defends "process ecology" as a broader framework within which to locate the field. The final essay, a conversation between Robinson/Southgate and Deacon, presents and debates the eight "Saka Theses," which represent one of the most important efforts to date to unify the various schools within biosemiotics.

If you are looking for a way to defend human (ontological) uniqueness or, say, the existence of an immaterial soul, biosemiotics is not for you. Its core thrust is to link human modes of being in the world more deeply with the functions and purposes of other organisms. Although it grants analogies forward and backward across evolutionary history, it does not make human experience—self-consciousness, language, reason—normative for interpreting the process. Indeed, in their dialogue piece with Deacon, Southgate and Robinson endorse the goal of leading biosemiotic theorist T. L. Short (2007, for example) of "providing a naturalistic and irreducible account of purpose" (Robinson and Southgate 2010, 411) and express their "concern to give a naturalized account of human intentionality" (p. 416). In this sense biosemiotics stands as far from the "intelligent design" movement as it could possibly stand, for it seeks to understand the emergence of purpose in the biosphere in natural, local, and scientific terms.

Why is biosemiotics controversial? Basically, because many people do not believe the claims summarized in the last paragraph. The major critics (none of whom, by the way, is represented in the present collection) argue that talk of "interpreters" at the level of cells blatantly reads human conceptions of meaning and purpose onto simple organisms, where (they claim) they play no empirical role whatsoever. Science is fundamentally a bottom-up endeavor in which complicated systems are explained in terms of more simple laws and entities. Thus, the critics conclude, biosemiotics represents an antiscientific and even dangerous project, projecting the human preoccupation with meaning downward onto cells and simple organisms. Worse, when theists such as Southgate and Robinson speak of the purposes of organisms, their motivations can only be theological and apologetic. In critics' eyes, they confirm one's worst suspicions about the biosemiotics project—that human purposes are being projected onto all living things in order to create an opening for theology. Now believers can say that a world permeated by purpose is more likely to be the result of an intentional Creator, and a biology based on Charles Sanders Peirce's "Thirdness" even supports the Christian Trinity! (One can almost hear the nontheist advocates of biosemiotics, such as Deacon and Hoffmeyer, groaning at the irony: Doesn't the present project appear to confirm the very charge of having a theological agenda that we have worked so hard to dispel?)

One cannot deny the obvious: Southgate and Robinson are Christian theists, and in these two issues of *Zygon* they have indeed woven their defense of biosemiotics into their theological program such that the two are meant to be mutually enhancing. In a scientific climate in which the merest hint of theism is enough to cast doubt on a position or school, this link means that biosemiotics will take some rhetorical hits. Even hanging out with theologians is enough these days to deeply sully one's reputation. Although I cannot soften the expected rhetorical blows, I do think that Southgate and Robinson have kept their scientific reasons and their theological reasons sufficiently distinct, thereby protecting the purity of the science in the ways that are necessary. For now, anyway, let us take them at their word and evaluate the biosemiotics position not as crypto-theology but on its own merits.

I suggest that the section of articles on "Semiotics and the Emergence of Life" in the June issue, together with the background research and publications on which it stands, succeeds at showing that the exclusion of all teleological language from biology is untenable. Doing biology—fully explaining biological structures and functions—requires one to speak of the evolutionary purposes for which a given cellular function has been selected. Emergent complexity produces different sorts of dynamical systems; science must model distinct dynamics with distinct types of equations; and teleodynamics is one of those distinct types. In the dynamics of living systems that evolve under selection pressures, "some entity is being taken as a sign of some other entity or condition" (Southgate and Robinson 2010, 351). Thus "interpretation may be considered a necessary, though not a sufficient, condition for life" (p. 353).

Science works only when we can reconstruct causal interactions in complex systems using well-understood, testable, purely natural phenomena. The more complex the phenomena that we can explain in this way, and the greater the diversity of phenomena that are unified within a single conceptual framework, the greater the scientific success. The biosemiotics program meets these criteria. Its goal of "naturalizing" purpose, that is, of explaining organismic purposes in purely biological terms, should be seen not as an enemy but as a means for making potentially significant progress in biology. According to this program, living systems are "semiotic" because in them particulars are interpreted not only in terms of other particulars but also in terms of more general organismic functions or purposes. For example, the heart is selected for because of its (general) ability to pump blood. If semiosis as a theoretical framework can assist us in unifying vastly disparate phenomena in the biosphere and help to explain observed evolutionary dynamics, as I believe, it represents a major step forward in our understanding of the biosphere.

Of course, even sympathetically inclined readers will note areas of disagreement and difficulty. The contributions range from "semiotics lite"

(Weber, Ulanowicz), through Deacon's somewhat more robust advocacy of semiotic analyses, to Southgate/Robinson and Hoffmeyer, who place semiotics at the very center of biology. Other differences arise. Both the Southgate/Robinson proposal and the Deacon proposal (2003; 2006) find semiotic relationships at earlier stages of the emergence of life than do Stuart Kauffman and Clayton (2006). All five of these authors do share some important ground. All would agree with Weber, for example, that interpretation is "a distinct property that emerged early in the process of the emergence of life, along with agency and *telos*" (Weber 2010, 365). Yet no unambiguous resolution of their differences is provided in these pages. Indeed, discussions between the authors at various conferences indicate that each research group is still convinced that its particular approach is the most fruitful. The net result of the divergences among biosemioticians may be to further blur the line between living and nonliving systems—as is happening more generally in origins-of-life research today.

This lack of a clear consensus opens the door to other kinds of objections. Imagine a critic who claims that semiosis or "Thirdness" is too unclear a criterion. However, she is willing to concede that cases of interpreting particulars in terms of generals (in the biological case, more general structures and functions) *can* be identified. But, the critic continues, these kinds of cases occur not only at the origins of life but also well before. One may think of work cycles in thermodynamics, collective emergent properties in solid state physics (Laughlin 2005), or even the role of quantum fields in the equations of quantum field theory. Of course, each of the five authors just listed will respond that his concept of semiotics is far more specific than this and hence capable of distinguishing itself from prebiotic examples drawn from chemistry or physics. But as long as the various schools of biosemiotics are as deeply divided as they are (and paging through a few issues of the journal *Biosemiotics* reveals that deep disagreements are not limited to the authors in the present collection), the field of biosemiotics remains vulnerable to reductionist criticisms of this kind.

In the end, I do not side with these critics. The arguments for the irreducibility of biological dynamics are strong enough (Clayton 2004; 2009) to sustain the case against a merely mechanistic construal of biology. The chief challenge to the biosemiotics program does not come from the fear that biology as a whole will someday become a branch of chemistry. The bigger threat comes from the fact that there is a rapidly growing group of subdisciplines within biology, each of which claims that a complete view of biology requires more than mechanistic explanations. Which of these various approaches—the new epigenetic theories, systems biology, evolutionary developmental biology ("evo devo"), convergence theories, symbiogenesis, neo-Lamarckian accounts of the inheritance of acquired characteristics, coevolutionary accounts—will win this new battle for the survival of the fittest?

Clearly, it is too soon to say. Revisionist proposals in biology today range from *What Darwin Got Wrong* (Fodor and Piattelli-Palmarini 2010) to *Back to Darwin: A Richer Account of Evolution* (Cobb 2008), and virtually everything in between. But one *can* say what biosemiotics will have to do, and what it will have to avoid, if it is to establish itself in anything like the way that the authors in this series are hoping:

- The biosemiotics framework will have to produce better biological explanations than its rivals do. If it fails to give rise to a progressive research program within the biological sciences (Lakatos 1978), its existence will be short-lived. By contrast, if it suggests new types of experiments and unifies data in ways that move science forward, it will win adherents.
- Authors will have to avoid highly technical insider jargon. Readers of the previous pages will have winced on multiple occasions as they stumbled over one neologism after another. If readers of *Zygon* have a low tolerance for highly technical philosophical disputes, you can imagine that empirical scientists will be even more resistant to them. It will be crucial to see whether the biosemiotics discussion becomes an abstract metaphysical debate, a scholastic area of specialization, or whether (like the Ulanowicz essay) it uses easy-to-grasp concepts that really help one to more fully grasp the empirical data. (I have similar concerns about process philosophy and theology, which I likewise believe has much to offer.)
- Broad agreement will have to emerge concerning the distinction between semiotic and nonsemiotic natural systems. If experts disagree, with the result that biologists in general get the impression that semiotics is "in the eye of the beholder," the program cannot succeed. Here the work of Southgate and Robinson to tie together the work of other theorists in these pages is especially helpful. Still, until the various theorists can show that their diverse approaches are complementary rather than contradictory, the remaining significant differences are matters of concern.
- Somewhat more controversially, I argue that the biosemiotics program cannot succeed *as a program in biology* unless there is an even closer connection between semiotic systems and real biotic systems: self-reproducing, unicellular organisms and the more complex organisms that followed them. The more that prebiotic systems such as Deacon's autocell turn out to be fully semiotic, the less attractive biosemiotics becomes as an analysis of the distinct characteristics of living organisms and biological systems.
- Eventually, one will want to see what happens when the basic biosemiotics program is extended, step by step, all the way up to human

experience, or what Hoffmeyer elsewhere has called the emergence of "me-ness" (2008, xvi, for example). Up to this point, accounts of emergent complexity remain descriptive; they are not yet sufficiently explanatory. Will "semiotic emergence" (Hoffmeyer 2010, 369) be able to succeed where other accounts have so far failed?

Semiotics and Theology

One wonders whether Southgate and Robinson applied semiotics to biology first, and only later to theology, or whether it was the other way around. Still, the mere fact that one must wonder about the order of discovery conveys what is intriguing about the project. Half the time in science-religion discussions one has the clear sense that the authors have a theological (or other religious) position they want to defend and *then* go hunting for convenient concepts in the sciences that support their preexisting theological conclusions. Roughly the other half of authors already believe that all religious truth claims are stupid; their hunt is to find as many scientific conclusions as possible that undercut theology and religious belief. (The exceptions to this pattern are noteworthy, and valuable, *because* they are relatively rare.)

Southgate and Robinson avoid crusades on both sides. Their goal, they say in their introduction to this section, is a new "metaphysic of meaning" (Robinson and Southgate 2010a, 686). Presumably this phrase contrasts with the metaphysic of physicalism on the one side, which would rule out talk of God or other religious realities, and with a purely propositional theology on the other side, from which all meaning would be derived. Having outlined Peirce's metaphysic of meaning, the authors use it to derive distinctive positions on Trinity, incarnation, anthropology, discipleship, and mysticism—the major headings in their main essay. Their thesis is clear: "we understand God to be the fundamental ground of the possibility of all such meaning-making and truth-seeking and the ultimate goal of the universe's emerging capacity for interpreting signs" (2010b, 691).

The surprise is not that trinitarian theologians would turn to Peirce as an ally—what could be more natural than to use the philosopher of Thirdness to help conceive the Triune God?—but that so few theologians have made this move. For those who are skeptical about grasping the divine with the categories of Greek substance metaphysics, as I am, the turn to Peirce is both refreshing and fruitful. Of course, those who know the intricacies of trinitarian debates will be looking for potential pitfalls, and they will certainly find some. For example, instead of getting to Thirdness and *then* introducing all three persons of the Trinity, the authors associate the Father with Peirce's Firstness and the Son with Secondness. But doesn't this amount to a new form of subordinationism, this time, however (nicely corresponding to the present *Zeitgeist*), one in which Origin and Word are stages on the way to Spirit as genuine Thirdness?

More controversial, and to my mind more intriguing, is what happens when the incarnation is rethought in Peircean terms. The Christ-event becomes not a replica or a singular occurrence but a *quality*. The rather complex discussion of incarnation as "qualisign" ("a sign-vehicle that is a sign by virtue of a quality that it instantiates" [2010b, 699]) will not be everyone's cup of tea. But, for insiders to the intricacies of incarnational theologies, the proposal beautifully splits the difference between classical theories of the incarnation of the preexistent Logos and the adoptionist and moral exemplar theories of the last several decades.

The inclusion of the article by LeRon Shults, who draws heavily on the Peircean Confucian scholar Robert Neville, is a far more explosive combination than one may at first realize; think nitro and glycerin. And one would have expected that an article titled "Toward a Theology of Boundary" would have been explosive as well, or at least deconstructive; but as far as I can tell, Jeremy Law's essay functions mainly to endorse traditional trinitarian thought. His major contribution is to argue that "classical theism . . . turns out to be insufficiently trinitarian" (2010, 741). Of course, it's good news to read that robust trinitarian theology is compatible with evolution and with semiotics. Shults, by contrast, comes out swinging: "Peirce's pragmatism may have a much more radical effect on the transformation of Christian symbols than we have yet recognized" (2010, 727)—by which he clearly means: than Southgate and Robinson have yet recognized.

These two Peircean theologies, one quickly sees, represent two sharply different approaches to theology in the late modern period. Shults enters the ring on behalf of Neville and Wesley Wildman, poststructuralist theologians such as Catherine Keller and Roland Faber, and indeed all those who affirm that all our symbols "break" on the Infinite. Southgate and Robinson stand closer to Robert Russell, John Polkinghorne, and other constructive theologians in the science-and-theology debate. One sentence in particular brings home the conflict:

> In Neville's adaptation of his pragmatic semiotic metaphysics, *truth has to do with the carryover of value* from the object to the interpreter in some respect, not (as for Aristotle) the carryover of the *form* of the object into the mind of the interpreter. *Given this understanding of truth, only "broken" religious symbols can be true. Interpreting a finite religious symbol as representing the infinite in an unbroken sense is idolatrous*. . . . (Shults 2010, 721–22; emphases added.)

On Shults's view, "Symbols are finite signs taken by finite interpreters to refer to finite objects in some finite respect" (p. 721). One cannot help but note that the qualisign notion, which Southgate and Robinson so emphasize, might easily be reinterpreted in this direction. If it were, the incarnation would convey the *value* of the infinite divine ground but not information about the threefold God and the hypostatic union in Jesus Christ. Presumably Southgate and Robinson would strongly resist such a shift.

Formulated in its starkest terms, the debate between these three authors is about what theology should be in the twenty-first century. "Who wins?" readers will want to know. On the one hand, the present exchange comes out as a stalemate. We see this in Robinson and Southgate's response (2010c): Although they claim to be close to Shults's position, the two articles do not actually converge. Southgate and Robinson seem to argue God as ground → God as transcendental condition → Peirce → the symbols of Trinity and Incarnation are true—exactly the sorts of inferences that Shults is challenging. On the other hand, there are ways to split the difference. One can grant the place of pluralism, of context, and of pragmatic concerns without throwing up one's hands and declaring that all religious statements are equal . . . and therefore equally pointless. Multiple mediating proposals have been made (for example, Griffin 2005; Clayton 2000, esp. ch. 1). To me, anyway, the unresolved debate in the present issue of *Zygon* points in exactly such a direction.

Interestingly, it is another side of Peirce, one largely ignored here, that offers the missing piece. At one point Peirce ([1877] 1992–98) defines truth as that on which all the relevant experts in a given field would converge, given sufficient time. Of course, there can be no convergence, no rational progress, unless we formulate the best accounts we can give and submit them to criticism by others. Hence, metaphysical reflection and arguments remain important. And yet knowing that the final convergence lies in the future, and perhaps the very distant future, fosters a humility that is lacking in the accounts of some theologians.

Conclusions

In this Afterword I have attempted to find something for everyone to worry about. And readers will certainly add their own worries to my list. I am certain to receive e-mails, for example, that cite a third danger that should be added to the two with which I opened the previous section: the danger that the authors here are forcing both religion *and* science into the straitjacket of a single philosophical framework, that of Peirce's semiotics.

Still, I have found it an impressive exchange. The contributions are well written and sometimes gutsy. Experts in the field challenge Southgate and Robinson on whether they have really gotten the science right. And the two authors stand up well to the probing; they relish scientific details, examples and counterexamples. They also know their philosophy, at least their Peirce, and they have some interesting and perhaps even important things to say about theology.

In closing, let me step back from these particular exchanges and ask a broader question. To the extent that the Southgate-Robinson program can function as a model program in science-and-religion research (admittedly, with some tweakings here and there), what is it that the program offers as a model for other work in the science-and-religion field?

Five qualities come to mind. First, their program starts with natural scientific details. Even in work in social science or cognitive science, it is still crucial to say whether you accept or reject the primacy of strictly biological explanations—or, for that matter, the explanations of microphysics. The authors take a position on this core debate and defend it well. Second, their program specifies what is different about living systems. If it is correct, it will have some real implications for how one interprets contemporary biology, and even for how scientists construct explanations in evolutionary biology. Readers often fail to realize that robust work in science-religion discussions is also about the interpretation of the relevant scientific fields and hence can be relevant to scientists and philosophers of science. (This is the core insight of Robert Russell's well-known "creative mutual interaction" thesis.)

Third, their program specifies what is distinct about the human construction of meaning. At the same time, it does justice to the clear continuities between humans and the other great apes and (if it is right) to the entire history of evolution. Fourth, their program speaks to the origin of religious beliefs and behaviors in the natural world. Fifth, it does not require readers to conclude that most or all beliefs held by religious persons are false or absurd. Now, clearly, there are important positions in our field that presuppose that traditional religious beliefs are mistaken and should either be eliminated (the new atheists) or radically reinterpreted (religious naturalists). But *if* one is trying to show that some specific religious beliefs are still credible in a scientific age, or that they are even supported by science, it certainly is a virtue to be able to provide a plausible account of both science and the religious beliefs that is consistent with the truth of the beliefs in question. This Southgate and Robinson have done. The field of science and religion could learn from their example.

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