Reviews


The cognitive study of religion is a relatively new endeavor, and an interesting and promising one. There have been a number of significant contributors in recent years, including Stewart Guthrie, Robert McCauley, Thomas Lawson, Justin Barrett, Francisco Varela and Justin Barrett (included in this volume), and Daniel Sperber, Pascal Boyer and Eugene d’Aquili (not included here). I like to think that The Psychology of Religious Knowing (Watts and Williams 1988) was an early precursor. This book pulls together some of the promising strands in the field, gives an overview of where things are, and advances the discussion. There is growing interest in work on the interface of culture and cognition, and work on religion is a key part of that.

There are three main groups of chapters, on belief acquisition and the spread of religious representation (Benson Saler, Ilkka Pyysiäinen, Guthrie), questioning the representation of religious ritual action (McCauley, Lawson, Barrett), and embodied models of cognition (Matti Kamppinen, Varela, Patrick McNamara). There is a degree of arbitrariness about these groupings. For example, it seems to me that in the second group, McCauley’s chapter is the only one that is really about ritual action; the other two could have gone equally well in the group on representations. In the third group, McNamara’s neuropsychological chapter is concerned with embodiment in a very different way from the Husserlian chapters of Kamppinen and Varela.

Editor Jensine AndreSEN contributes opening and closing chapters herself, providing a very helpful overview of the field. In both chapters she takes Lakoff and Johnson’s Philosophy in the Flesh (1999) as her starting point. Her first chapter notes their proposal that wherever hitherto we have had the philosophy of $x$, we should now have the cognitive science of $x$. Her final chapter begins by picking up their view that we need to forge new empirical methodologies for this emerging discipline. Both of her chapters raise basic issues about the cognitive science project as applied to the study of religion.

There is a clearly a sense in which both philosophy (especially epistemology) and the empirical sciences are concerned with knowledge. However, they are answering different kinds of questions: epistemology is concerned with what we can know and whether what we think we know really counts as knowledge, and cognitive science is concerned with how we know and what processes lead to knowledge. There can be a very fruitful dialogue between the approaches to these

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sets of questions. However, one is evaluative and the other descriptive, and they cannot simply be merged. There is a helpful discussion of these issues in Saler's chapter, in which he contrasts his own views with those of Pascal Boyer. I share Saler's view that there is a continuing place for the epistemic approach and that it complements the cognitive approach.

Andresen's point about new empirical methodologies is also important, though I am not confident that we know how to develop these. With a few exceptions, notably Lawson and Barrett, there is a worrying lack of empirical data in many of the chapters here. It is all too easy to generate stories about how cognition functions that float above the empirical data. Whether the cognitive science of religion really takes off will depend on whether it can generate satisfactory ways of relating theory to data.

It is unlikely that we will develop radically new forms of data, though even here there are some possibilities, such as applying to religion the kind of techniques for the investigation of cognition developed in experimental psychology. What is more likely is that we will develop new methodologies that integrate data from various different sources. A key challenge for this new field is to develop rigorous, integrative methodologies of this kind. Not all of the chapters are even pointing in that direction. The present book does more to show the need for new integrative methodologies than to make progress with developing them.

Another important set of issues emerges most clearly in Pyysiäinen's thoughtful and important chapter. The cognitive-science approach to religion has so far taken a detached and skeptical approach to religion—it has been a "hermeneutic of suspicion"—though it is not inevitable that it should do so. The assumption that religion is a prescientific oddity that requires explanation lurks beneath the surface of several contributions and does not receive much critical examination. There can be a fruitful interface between the kind of outsider's approach to religion represented here and the kind of insider's approach to religious cognition that takes theology seriously (see Watts 2002).

There is a tendency in the cognitive study of religion, as Pyysiäinen also points out, to take a rather limited view of it, often looking just at beliefs or just at ritual but not at the whole picture. From that point of view, the noticeably broad subtitle of this book is very encouraging. I welcomed Pyysiäinen's rehabilitation of religious experience in this context and believe that the analogy with emotion that he explores is fruitful and will repay further attention. The cognitive approach to psychology, broadly conceived, can give an account of emotional or religious experience; it need not confine itself to what is narrowly cognitive.

A key question that comes up in several places is whether there is anything unique about religious cognition. Whether religion is characterized by counter-intuitiveness (as Sperber has argued) or by anthropomorphism (as Guthrie argues here), such cognitive features can probably be found in nonreligious contexts, indicating that religion is cognitively not sui generis. The view held by many authors in this book is that it is unlikely that religion draws on unique cognitive processes but rather deploys and integrates cognitive capacities that have other applications and evolved in other contexts. I suggest that it is part of the value of looking at different facets of religion together (not just ritual or just beliefs) that religion is distinctive not in its components but in the way in which it brings
different facets, such as beliefs, ritual, experience, and morality) into a single constellation. The components may not be unique, but the constellation may be.

We also need a good way of distinguishing between different aspects of religion. Two potentially useful ones that surface at a number of points in this book are Harvey Whitehouse’s distinction between doctrinal and imagistic modes of religiousness and d’Aquili’s distinction between causal and holistic operators. Elsewhere, I have suggested the value for the study of religion of the distinction between propositional and implicational cognitive subsystems (Watts 2002). Exactly how best to conceptualize the different facets of religion seems to me a key matter and one that I would like to have seen debated more explicitly here than it is.

McCauley and Lawson, well-established figures in the field, both contribute relatively substantial chapters that advance the discussion. McCauley defends a ritual-form hypothesis, which claims that it is the form of the ritual, and participants’ understanding of it, that determines when stimulation and excitement occur. He contrasts this with a ritual-frequency hypothesis that links high levels of emotion to infrequent occurrence. Lawson examines religious assumptions about agency in relation to a proposed “action representation system.” His chapter and the following one in which Barrett reflects on his important research on religious thinking in children are the main ones to show that there can be a fruitful interaction between data and theory in the cognitive study of religion.

The Kamppinen and Varela chapters seem to me largely concerned with clarifying the nature of the contribution that the phenomenological approach might be able to make and, in that sense, rather preliminary. My doubts about them are not so much doubts about their assumptions, which seem plausible and helpful, as about how much this approach will actually deliver to clarifying the nature of religious cognition. Varela’s advocacy of an approach in which lived experience, embodiment, and formal generative passages all influence one another is attractive, but more work needs to be done on its application to the study of religion, though Varela’s recent work on mindfulness is intriguing. One can only watch to see what emerges.

Brain processes do not feature largely in this book, though they are surely one of the key sources of data for the cognitive study of religion. McNamara makes a good case for the importance of the frontal lobes in religion, which is a welcome change from the usual suggestion, exaggerated in my view, that religious experience is linked to temporal-lobe epilepsy. However, McNamara’s chapter stands on its own here in taking brain processes seriously. I believe that the cognitive study of religion is going to have to take more seriously the challenge of making links to both cultural process and brain processes. Varela sets out how one might go about that.

This book emerged from a conference at the University of Vermont (in June 1998), and like all conference books it is somewhat uneven. Some chapters largely recapitulate what has been published elsewhere; others take things further. It is also selective in what it presents, though it gives a good sampling of the field. However, it is currently the best book I know to give an overview of the cognitive study of religion, a field that I believe will become increasingly important. In a new field like this, such a stock-taking book can be helpful in consolidating progress and in pointing the way ahead; it constitutes a manifesto for the cognitive study of religion.

Michael H. Barnes is Professor of Religious Studies and Alumni Chair in Humanities at the University of Dayton. In his book he traces the histories of both scientific and religious styles of thought as coevolutionary and actually complementary. Barnes writes that he began to think about this book on long-term cultural cognitive development about twenty years ago and presented papers on that theme on different occasions. Even in times of postmodern relativism when mainly individual cultures were investigated he still stuck to the idea of finding similarities in the cognitive styles among otherwise different cultures—not only the scientific and the religious culture but also the different world-cultures. Thus, his intention is to shape "our awareness of what is common to the human family, what we share in spite of our many differences, what kinds of development might be available to human societies everywhere, if those forms of development seem more advantageous than not" (Preface, vi).

He relies heavily on the work of James Fowler on individual faith development, the work of Jean Piaget on cognitive development, and Robert Bellah's investigation on religious evolution. For simplicity, Barnes speaks of only four forms of religious thought: primitive, archaic, classical, and modern (p. 16). To his mind, these concepts, though the first two are on individual and the last is on cultural development, match fairly well with each other, and his intention is to demonstrate the plausibility of a parallel between individual and cultural development, the general thesis of his book. Both developments, the cognitive as well as the "long uphill struggle of culture, however winding and strange the paths" (p. 10), are described by Barnes as processes with common attitudes. He apologizes for "relying on numerous secondary sources which . . . creates the risk of unwittingly accepting biased or distorted interpretations"—what he tried to "compensate . . . by sampling many relevant primary sources" (p. v). And he hopes that his thesis will be treated as an "interesting hypothesis worth exploring" (p. vi)—and, indeed, it is such.

The first chapter, Culture and Cognition, describes the general thesis of the book about cultural evolution in detail as background for the analysis of major criticisms relevant to the thesis in Chapter 2, Addressing the Critics, and as framework for the historical chapters 3–10 that follow and in which Barnes elaborates.
his thesis in detail: Cognitive Styles in Primitive Culture; Archaic Thought, Preliterate and Literate; The Axial Age and the Classical Style of Thought; Philosophy, Religion, and Science in Western Antiquity; The Decline and Recovery of Classical Rationality in the West; Early Modern Models of Reality in Science and Religion; The Method of Modern Empirical Science; and Religious Responses to Modern Science. In this survey he discusses such themes as the impact of literacy on human modes of thought, the development of formalized logic and philosophical reflections, the emergence of rational science, the rise of formal theologies, and the growth of modern empirical sciences and theological responses to them.

The general thesis has two major aspects: “The first is that cultural development has often included the development of new and more complex styles of thinking and expression that affect religion, science, and other locales of thought. The second is that some of these developments echo the pattern of individual cognitive development as described by Jean Piaget” (p. 17). Thus the chapters in this book show that religious thought, along with science, has developed roughly through four major styles, highly suggestive of Piagetian stages ranging from pre-operational to concrete operational to early and late formal operational.

In the realization of this agenda, Barnes throughout the book gives balanced attention both to writings supporting his point of view and to criticisms of his approach—e.g., Chapter 2 on Addressing the Critics is concerned with the foundations of his approach and three main criticisms, their description, and Barnes’s well-reasoned response to them: “Criticism of theories of cultural evolution, criticism of Piaget’s ideas, and criticism of Piagetian theories of cultural evolution” (p. 34). Even more striking is Barnes’s awareness that his interpretation of the “facts” he is presenting is of course value-laden: “The pattern of cultural development identified here would not be so evident were there not a prior theory, that of Piaget, to guide the empirical search. A theory influences the selection and interpretation of evidence, and may distort the resulting conclusions. Caution is appropriate” (p. 18; cf. p. 10). With this self-reflection in mind he nevertheless offers a rather simple explanation for the pattern of cultural development, namely, “easier forms of thought precede more difficult forms of thought in both individual and cultural development,” and he “attempt[s] to marshal a great deal of evidence for the existence of the pattern of development” (p. 18) throughout his investigation.

Barnes seems not to prefer one style of thought to another but places a high value on all of the major styles that he investigates through history, ranging from magical to mythical to logical to critical-symbolic: “Each contributes much to life. In my opinion, the society that has all of them available is the society that is best off” (p. 52). This assessment may depend upon the insight that there exist different cognitive styles in our contemporary society, with a main emphasis on the concrete operational style of thought (p. 31). And it may also depend upon the conviction that people who employ the method of science well—the empirical-critical cognitive style of thought—are not more intelligent than other people but do so because their cultures have provided them with better tools and trainings that “determine which cognitive skills a given group of people will have available. . . . The people of even the most primitive society share in the same general
human intelligence” (p. 33). Barnes's book is highly balanced and well reasoned in exploring different styles of thought.

In delineating the successive stages of the coevolution of religious and scientific thought, from the preliterate culture of antiquity up to the present day, he takes into account not only the Western tradition—although this is his main focus from Chapter 6 forward, because “in European-centered culture, science eventually developed a late formal operational style of thought” (p. 113)—but also other religious and philosophical traditions and cultures. Thereby he very carefully addresses a criticism that had surfaced when he presented earlier papers on that theme, namely, that of cultural colonialism or “Western hegemonic discourse” (p. 7). This is not what he is striving for, but rather he aims at a smoother mutual interaction among cultures, which share a common humanness “through greater understanding of similarities and differences in cognitive style” (p. 7). This is directed primarily toward different cultures of the world, in different times and regions of the world, but with mutual exchange of ideas. It may also be addressed toward the two cultures of science and religion and their mutual coevolution, which Barnes is so eager to describe—most clearly in Chapter 9, where he investigates the method of modern empirical science, and Chapter 10, where he reviews the status of religious thought today, as a result of developments in science and its cognitive style, and where he sums up the relationship of religious and scientific thought in former chapters (pp. 200–201).

Though his understanding of science is not a positivistic one, his distinction between the method of science and its application (e.g., p. 179)—which also leads him to say that the method of science is “limited to evaluating truth-claims about how things are in the universe” (p. 13; cf. p. 178), whereas “only philosophy or theology or wisdom can determine what use to make of the method of science” (p. 14)—can be criticized from a perspective that does not separate science and values from each other. But this critique does not hit his approach from within, because Barnes's approach toward science is highly coherent (pp. 180–87).

With respect to religion, he is aware that interpreting religion in a late formal operational style of thought, which is in the style of postliberalism or correlational theology, “will feel like a loss to many religious people” (p. 230). Rather, both in religion and science, “most of the people in any large population will live their lives mainly by concrete operational thought with perhaps some extra guidance from formal operational thought” (p. 230). To them and with respect to threats like pain, sickness, handicaps, loss, loneliness, and death, scientifically rational skepticism is no answer. Nevertheless, it seems necessary to him that religious believers “acknowledge the power of that method [of science] to discriminate well between truth-claims that work reliably and universally and those that do not” (pp. 231–32). Only in doing so can religion “promote standards of truthfulness”—a very difficult task for religious philosophers and theologians “dealing not only with the truth-claims of their traditions but also with many other aspects and functions, individual and communal, moral and emotional and symbolic” (p. 231).

Barnes's Stages of Thought, with its enormous scholarly depth, is worth reading and is a challenge to different kinds of readers. It may encourage dialogues between historians of science and of religion, anthropologists, sociologists, and psy-
It may stimulate religious people, students, ministers, and theologians to think anew and in a very creative way about the relationship between science and religion on the basis of complementary styles of thought throughout history up to now and about their own mental attitude and its self-reflection. It also is a convincing approach toward identifying the direction in which a reformulation of the world's religious and philosophical traditions should take place to stay credible in a scientific age. In this respect he is in line with and even goes beyond the agenda that the late Ralph Wendell Burhoe, founder of Zygon, had developed in his articles, some of which are collected in Toward a Scientific Theology (1981). Barnes also reaches out, maybe unintentionally, toward a future age that might be called postscientific because of a new and mutually supporting, friendly interaction of science and religion. One has to be cautious, however, with notions like scientific or postscientific age or modernity and postmodernity; the French sociologist Bruno Latour (1991) convincingly calls into question whether we have been modern at all. Barnes’s book could be reread again on this basis—but that is an agenda for a dialogue mentioned above that exceeds the limits of this review.

REFERENCES

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Both the strength and the weakness of intelligent-design theory as an intellectual movement come from the rhetorical technique of negative argumentation from ignorance. The strength of such rhetoric comes from exposing the ignorance of one's opponents. The weakness comes from one's failure to offer any positive explanation of one's own. This creates a situation in which the winner of the debate is whichever side can put the other on the defensive. Proponents of intelligent design appear to win when they ask their Darwinian opponents to explain the exact pathways by which natural selection formed the living mechanisms that show apparent design. The Darwinians appear to win when they ask the proponents of intelligent design to explain the exact pathways by which the intelligent designer created those same living mechanisms. This rhetorical situation is clear in Signs of Intelligence, a collection of papers by some of the leading advocates of intelligent-design theory.
The fundamental idea behind the intelligent-design position is old—at least as old as Book 10 of Plato’s Laws: the complex, functional order of the cosmos shows an intentional design by an intelligent agent that cannot be explained through the unintelligent causes of random contingency and natural necessity. Identifying this intelligent designer as God has made this one of the most popular arguments for theism and against atheism. But then, Charles Darwin’s theory of evolution by natural selection has seemed to explain how the apparent design in the living world could have arisen by purely natural mechanisms without any supernatural intervention. In response, proponents of intelligent-design reasoning argue that the evidence for design cannot be explained away by Darwinian science unless one dogmatically assumes a naturalistic view of the world that refuses to even consider the possibility of supernatural causes.

The modern intelligent-design movement originated with William Jennings Bryan when he began the Christian fundamentalist attack on Darwinism that led to the dramatic trial of John T. Scopes in 1925 in Dayton, Tennessee. The recent revival of Bryan’s movement began in 1991 with the publication of lawyer Phillip Johnson’s Darwin on Trial. The movement gained momentum in 1996 with the publication of biologist Michael Behe’s Darwin’s Black Box. Most recently, William Dembski, a mathematician and a philosopher, has developed the formal logic of intelligent-design reasoning.

Signs of Intelligence includes chapters by Johnson, Behe, and Dembski that summarize their main ideas. Of the fifteen chapters in this book, thirteen were originally published as articles in a special intelligent-design issue of Touchstone magazine (July/August 1999). For the book, there is a new article by Bruce Gordon and a new introduction by Dembski. To my mind, this is the clearest and most concise survey of the arguments for intelligent design. Having used the book as a text in an undergraduate college course, I can say that college students find it stimulating.

Bryan developed the four arguments that constitute the rhetoric of intelligent design. His intellectual argument was that the Darwinian theory of evolution was not truly scientific because it was based not on empirical evidence but on the dogmatic commitment to a materialistic naturalism. His religious argument was that Darwinism promoted atheism. His moral argument was that the atheistic materialism of Darwinism was morally corrupting. His political argument was that teaching Darwinism in the public schools was undemocratic because it violated the wishes of the majority of parents. These same four arguments are restated in this book.

The intellectual argument is a negative argument about the failure of Darwinian scientists to explain exactly how the apparent design in the universe could arise without an intelligent designer. According to Behe, for example, Darwinians cannot explain those biomolecular mechanisms that show “irreducible complexity,” which means that “a number of separate, interacting components are ordered in such a way as to accomplish a function beyond the individual components” (p. 99). But Behe does not explain exactly how the intelligent designer creates such “irreducibly complex” systems. Similarly, Jonathan Wells argues that the “developmental program” by which embryos become mature animals cannot be explained in a Darwinian manner as controlled purely by a “genetic program”
But then he offers no positive explanation for how the intelligent designer created this “developmental program.” The purely negative character of intelligent-design reasoning is most evident in Dembski’s “explanatory filter.” He assumes that there are only three kinds of explanatory causes—natural necessity, chance, and design. When we eliminate necessity and chance as likely causes, we are left with design as the only explanation. Dembski thus defines design as the negation of regularity and chance, and consequently design has no positive content.

Another problem with Dembski’s “explanatory filter” is that whether we eliminate necessity and chance depends on our existing knowledge, which is always limited. Moreover, deciding whether a pattern is suitable for inferring design or not is a matter of “intuition,” and this “intuition” is left as a mystery (p. 180). According to Dembski, “the point of the intelligent design research program is to extend design from the realm of human artifacts to the natural sciences” (p. 23). Because such reasoning arises from “our ordinary experience of design,” there is no need for “recourse to the supernatural” (pp. 8, 19). But then he contradicts himself by appealing to the supernatural, because he recognizes that “intelligent design gets controversial when one takes its methods for detecting design in human contexts and shifts them to the natural sciences where no embodied, reified, or evolved intelligence could have been present” (p. 17).

Dembski’s preference for “detecting design in human contexts” explains another peculiar feature of his “explanatory filter.” Some of the authors in this book, including Walter Bradley, argue that evidence for intelligent design is found in the mathematical regularities of nature. But Dembski would say that if we can explain something as a product of natural regularities, we cannot attribute this to design. This strange conclusion makes sense if Dembski is identifying design with human design, because human designers are finite designers who cannot create laws of nature. It is then hard to understand, however, how Dembski’s “detecting design in human contexts” can apply to design by an infinite and omnipotent intelligence. Occasionally, he speaks of “restricting design to structuring the laws of nature” (p. 22), but such a notion of design as manifest in natural necessity contradicts his “explanatory filter.” This points to a fundamental equivocation in intelligent-design reasoning—shifting between humanly intelligent design and divinely intelligent design in a manner that confuses the distinction between finite intelligence and infinite intelligence.

Bryan’s religious argument for intelligent design is evident in Nancy Pearcey’s warning that Darwinism promotes atheism (pp. 44–45). Similarly, John Mark Reynolds claims that “the church has not prospered where Darwinism has flourished” (p. 86). By combating Darwinism, intelligent-design reasoning, according to Jay Wesley Richards, becomes “a valuable resource for Christian apologetics” (p. 51). In taking such a position, however, proponents of intelligent design assume that God was unable or unwilling to execute that design through the laws of nature studied by Darwinian biologists. Christians such as Howard Van Till have argued that the Bible presents the divine designer as having fully gifted creation from the beginning with all of the formational powers necessary for evolving into the world we see today. The authors in Signs of Intelligence refuse to take seriously any such conception of theistic naturalism. Reynolds does at least acknowledge this possibility, but he dismisses it without much consideration.
Bryan's moral argument is stated by Johnson when he warns that Darwinism denies "the view that God is a valid source of moral standards" (p. 34). Similarly, Pearcey insists that morality requires belief in God's revelation, which is subverted by Darwinian biology. John West explains that intelligent design theory is necessary as "a defense of traditional morality" (p. 67). And Patrick Henry Reardon repeats Bryan's charge that Darwinism promotes the nihilism of Nietzsche's "will to power" (p. 76).

This moral argument ignores Darwin's claim that morality could be explained as founded on a "moral sense" rooted in human biological nature. Far from being nihilistic, such a conception of the natural moral sense resembles the traditional idea of morality as expressing a "natural law" of the natural human inclinations. Thomas Aquinas and others have even spoken of the natural moral law as "that which nature has taught all animals."

Bryan's political argument arises throughout this book when the authors present the intelligent-design movement as a cultural battle for the minds of school children. Pearcey is explicit about this in speaking about "selling design to the public" by persuading religious parents that intelligent-design arguments are the only effective weapons against having their children indoctrinated with Darwinian atheism (p. 46). As was the case with Bryan's debate with Clarence Darrow at the Scopes trial, the political center of this controversy is the science curriculum of the public schools.

Although I am not completely persuaded by the intelligent-design position, I am persuaded that the arguments in this book are intellectually provocative in a way that could be instructive even for high school biology students. If students were to read this book along with some writings defending Darwinian science, this could stimulate lively classroom discussion about the intellectual, religious, moral, and political implications of modern science. Such discussion is essential if our children are to be democratic citizens in a society where some of the greatest public issues turn on the cultural consequences of science.

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