

# Introduction: New Frontiers in the Cognitive Science of Religion

ROBERT N. MCCAULEY\* and HARVEY WHITEHOUSE\*\*

The papers in this issue arose from a conference on the Psychological and Cognitive Foundations of Religiosity that took place at Emory University (Atlanta, Georgia) in August, 2003.<sup>1</sup> This conference brought together scholars from ten nations and six disciplines (psychology, anthropology, religious studies, biology, philosophy, and cognitive science) to explore new developments at the interface of the cognitive sciences and religion. All four of these papers examine the promise of comparatively new theoretical proposals and empirical findings within the cognitive sciences for making sense of various sorts of religious phenomena. Although the theories in these papers were developed independently of the literature in the cognitive science of religion that has emerged over the past couple of decades, each notes suggestive connections with that body of work.

Cognitive scientists of religion have advanced assorted theories about an array of different religious phenomena. Still, all champion the promise of the methods and findings of the cognitive sciences for enhancing our understanding of those phenomena and maintain that religious thought and action turn overwhelmingly on harnessing perfectly ordinary forms of cognition available to all normally equipped human beings. The earliest works in this field looked to theoretical strategies from the various cognitive sciences, including linguistics (Lawson and McCauley 1990), evolutionary

---

\*Emory University.

\*\*Queen's University Belfast.

<sup>1</sup>This conference was made possible by generous funding from the Emory University Subvention Fund, the John Templeton Foundation, the British Academy, the Emory Cognition Project, the Emory Department of Philosophy, and the Emory Center for Humanistic Inquiry for which we are profoundly grateful. This was the third of three conferences initiated through the Modes of Religiosity Project, funded by a British Academy Networks Grant.

psychology (Boyer 1992, 1994), and cognitive psychology (Guthrie 1980; Whitehouse 1992, 1995), in order to formulate new theories about a wide range of religious materials, including religious ritual, religious representations, and modes of religiosity. Works exploring the consequences of those theories and advancing additional cognitive theories about these and other religious phenomena soon followed. Examples of the former include experimental work in psychology (Barrett, Richert and Driesenga 2001; Bering and Bjorklund [in press]) and anthropology (Malley and Barrett 2003) as well as attempts to test these theories cross-culturally (Abbink 1995; Whitehouse and Laidlaw 2004) and historically (Vial 2004; Whitehouse and Martin 2004). Such work has generated new proposals about the nature of ritual transmission (Barth 2002; Bloch 2004), sacred texts (Pyysiäinen 1999, 2004; Malley 2004), the connections between religion and morality (Hinde 1999; Boyer 2001), and the character of religious belief and theology (Barrett 2004; Slone 2004).

Early work in the cognitive science of religion aimed to redress an imbalance in religious studies – an imbalance that favored the particular over the general and the interpretive over the explanatory (e.g., Lawson and McCauley 1993). Whether this outpouring of new research in the cognitive science of religion is sufficient to right that imbalance will turn, finally, on the level of its impact in the coming decade or two on the mainstream academic study of religion – which is to be contrasted with explicitly religious and theological scholarship. (An important problem here that, in effect, constitutes further evidence of that imbalance is the difficulty in distinguishing an academic study of religion wedded solely to the *interpretation of particular* texts, traditions, and (behavioral) turns from explicitly religious and theological enterprises) (Sperber 1975). Even if disciplinary inertia and the cost of acquiring new intellectual tools that the new cognitive science of religion requires discourage conventional students of comparative religion from exploiting this rapidly growing body of theory and findings, the new field has clearly taken on a life of its own and seems set to thrive, since, among other reasons, it receives growing support from the cognitive sciences themselves.

*That* is because, coincidentally, the cognitive science of religion has also served to redress an imbalance within the cognitive sciences. That imbalance concerns the *objects* of study in the cognitive sciences rather

than their methods. Although a good deal of research concerns everyday cognitive processes such as perception, memory, and reasoning, cognitive scientists have, understandably, confined many of their more esoteric inquiries to domains that readily lend themselves to investigation and experimentation (for reasons of scale, availability, tractability, etc.). Largely for that reason the cognitive science of science has been a flourishing enterprise. (See Keil and Wilson 2000 and Carruthers, Stich and Seigal 2002.) But, as with so many contemporary intellectuals, cognitive scientists, until quite recently, have mostly found topics like religion to be an embarrassment. At one level this is no surprise. No topic – not even sex, death, taxes, or terrorism – can elicit any more quirky, unpredictable responses from intellectuals than religion. On this front, cognitive scientists have largely flown with the flock. That they do so, though, at another level invites puzzlement. The cognitive processing that upholds science is of interest to cognitive scientists, at least in part, because it has proven reasonable and largely explicable. But on some fronts the cognitive processes involved in science are also comparatively unusual. Some of the cognitive tasks that doing good science requires are ones that humans usually find extremely difficult to do. By contrast, the cognitive processing that sustains at least some recurrent features of religion seems *less obviously explicable* (since it is much less obviously rational) yet far more *widespread*. Cognitive science has had a great deal to say about the generally rational, largely tractable, easily isolable, but comparatively uncommon forms of cognition associated with science, but, with a few welcome exceptions, next to nothing to say (until recently) about the apparently unreasonable, sprawling, but ubiquitous forms of cognition associated with religion.

The papers in this issue are illustrations, simultaneously, of how recent theoretical proposals and empirical findings within the cognitive sciences can make sense of prominent dimensions of religious thought and action and of how attention to the varieties of religious thought and action can enrich theorizing about cognition. To the extent that mainstream theorizing within the cognitive sciences has over the past four decades taken its principal cues from an analogy between the architecture and operations of the human mind and the architectures and operations of digital computers and, therefore, from accounts of computation and from artificial intelligence, it has generally focused on the manipulation

of abstract symbols on the basis of their syntactic forms according to clearly formulated rules. This orientation has tended to insulate such cognitive theorizing from neural, evolutionary, emotional, and bodily considerations (McCauley 1998). So, correspondingly, to the extent that the following papers attend to embodiment (Barsalou et al.), to the emotional coloring of cognition (Thagard), to the evolutionary foundations of religious representations (Bering and Johnson), and to findings in the neurosciences (Livingston), they stand at four of the most prominent and most exciting frontiers of contemporary cognitive theorizing.

It should probably come as no surprise that looking at (religious) materials that most cognitive scientists have ignored should prove a treasure trove of illustrations for new conceptions of cognitive processing of the sort that Barsalou (1999) has advocated. In this issue, Barsalou, Barbey, Simmons, and Santos argue that much (if not all) conceptual knowledge is intimately connected with the character of human embodiment. The representation of knowledge – whether tacit, or mundane, or abstract and explicit – *typically* involves the *unconscious simulation* of associated experiences within the corresponding *modes* of human embodiment (visual, tactile, auditory, kinesthetic, etc.). Although *amodal* theories of knowledge assume that perceptual inputs in specific modes are transduced into manipulable symbols (and thereby basically disconnected from embodied experience), Barsalou et al. point out that a wide range of research in cognitive psychology, social psychology, and the neurosciences has generated little empirical support for that assumption and, to the contrary, has produced a wealth of evidence for models that look to modality specific simulations of embodied experience.

Such modality specific approaches to cognition may help to explain certain aspects of *religious* thinking and experience that have hitherto received little or no attention within the cognitive sciences. The cognitive science of religion has already generated a wealth of persuasive theories about the cognitive representation of religious rituals (McCauley and Lawson 2002) and about both the origins of counter-intuitive concepts (Boyer 2001), particularly those concerning agents (Guthrie 1993), and their motivating force (Barrett 2004; Whitehouse 2004). But it has left largely un-discussed many features of religious experience, including some phenomenologically salient features of religious emotion and imagination

connected with people's attested encounters with counter-intuitive agents. Modal theories of cognition may help to fill this gap, by showing how blended simulations facilitate meaningful experiences of objects and situations not encountered through normal perceptual channels. Barsalou et al. draw particular attention to the prevalence of *imagery* in religious art and text that serves to elicit *novel combinations* of modal knowledge, thereby rendering people's relations with gods, angels, and other supernatural agents more palpably akin to social interactions based on direct experience.

These accounts could, of course, be deployed in a discussion of art appreciation as well as of religious experience (although arguably the dividing line between religious and secular art might be regarded as a relatively modern artifice). But there are also some respects in which modal approaches target aspects of religious experience that are probably not prevalent in other domains of culture. For instance, Barsalou et al. observe that religions (notwithstanding doctrinal differences) distinctively emphasize embodied knowledge by virtue of postulating *incorporeal* entities. Conceptualizing disembodied ('spiritual') existence presupposes cognitive simulations of the bodily states that are to be transcended or superseded. More strikingly still, religious *rituals* regulate bodily states and movements in ways that directly influence the formation of conceptual knowledge. By mirroring symbolic processes in embodied experiences and by prescribing situations and bodily movements involved in the experience of elevated emotion, special attitudes, and significant social cues, rituals also activate religiously sanctioned propositional knowledge more powerfully and directly than would be possible through the media of speech, text, or visual representation alone. Thus, not only does the repeated enactment of rituals contribute to enduring memory for the procedures themselves but to the emotional impact, conceptual salience, and thus motivational force of the concepts they are explicitly intended to evoke (McCauley and Lawson 2002 and Whitehouse 1992 and 2004). Further, Barsalou et al. observe that the regulation of ritual environments (the designation of specified settings for the performance of ritual acts) adds to these mnemonic and motivational effects, based on principles of routine simulation of largely invariable modality-specific states (see also Livingston, this issue).

Intimate connections between religious concepts and emotion are explored from a somewhat different angle in Thagard's contribution to

this collection. Thagard (1992) has long explored how human beings seek (explanatory) coherence in their systems of belief, but in more recent applications of this project (e.g., Thagard 2000), he has focused particularly on the pivotal role that humans' emotional lives play in these assessments. Obtaining coherence in thought and action is not merely a question of minimizing logical tensions among beliefs but of arriving at a system of intellectual commitments that achieves an *emotional coherence* as well.

Like Barsalou et al., Thagard begins his contribution to this issue by emphasizing the growing evidence from psychology and neuroscience that conceptual knowledge does not consist of formal, emotionally disconnected, symbolic operations of the sort that might be suggested by comparisons between computers and minds. Again like Barsalou et al., Thagard presents evidence that embodied expressions of emotional states help to elicit the emotions they signify. Thagard's principal concern, however, is to show that acquiring religious commitments is heavily influenced by the emotional payoffs these commitments can deliver. Although many of the fundamental presuppositions of religious traditions would carry little conviction in an emotionless computational system, Thagard argues that the addition of positive and negative valences to the connections between theistic and atheistic ideas respectively may contribute decisively to the persuasiveness of religious over non-religious systems of thought by establishing an emotionally appealing coherence to their cardinal propositions. The processes by which this occurs are, as Thagard explains, socially situated. People do not acquire their religious ideas out of the ether but through social interaction, and most prominently via complex patterns of inter-generational transmission of knowledge. Most of the resulting knowledge is based upon verbal testimony rather than direct observation. A great portion of what we learn from more experienced persons, stereotypically our parents or other senior kin, is taken on trust to be reliable rather than being subjected to independent empirical testing. Nowhere is this more obviously the case than in the transmission of concepts relating to supernatural agents whose presence is not directly manifest to the senses. The transmission of theistic testimony, Thagard argues, is heavily colored by emotional properties invested in that testimony, that invite mimicry and empathy via behaviour programs deeply rooted in the normal functioning of the brain.

Thagard's argument neatly complements a growing body of research in the cognitive science of religion that is concerned with the transmission of doctrinal concepts. For instance, according to the theory of the 'doctrinal mode of religiosity' (Whitehouse 1995, 2000, 2004), verbal testimony rather than personal experience is the dominant modality of transmission for authoritative religious knowledge. While much has been made both about the effects of frequent repetition of this kind of testimony (in suppressing potentially subversive or heretical innovation and in increasing people's susceptibility to orthodox versions) and especially about its *logical coherence*,<sup>2</sup> little so far has been written on the role of *emotional coherence* and contagion in such processes. Nevertheless, Thagard might also agree that there are some forms of religious transmission that privilege direct experience over testimony. As already noted, Barsalou et al. discuss the opportunities for creative elaboration of blended simulations of experience afforded by religious imagery, whether visual, textual, verbal, or enacted. And, of a piece with this, the theory of the 'imagistic mode of religiosity' (ibid.) proposes that low-frequency rituals involving exceptionally high levels of emotional arousal give rise to processes of 'spontaneous exegetical reflection', ultimately delivering systems of belief that may be impracticable to transmit in language (e.g., as oral testimony) and that probably also exhibit types and levels of engagement and commitment that are qualitatively different from knowledge acquired by word of mouth. (Whitehouse 2004) For many years, anthropologists have struggled to describe these contrasting aspects of religious experience in terms that bear more than a passing connection to Thagard's notion of 'emotional coherence' (e.g., Barth 1975). Thagard's theoretical treatment of these matters brings to such discussions levels of clarity, scope, and empirical accountability that are particularly welcome.

Livingston is intrigued by different neurological and psychological characteristics of internally-generated versus testimony-based religiosity. All contributors to this collection, including Thagard, fully appreciate that personal experience and testimony are *aspects* of religiosity, often operating in tandem, rather than stark alternatives. Livingston surveys a broad range

---

<sup>2</sup>The issue of logical coherence in the doctrinal mode has been subjected to some recent debate, however, between Atran (2002: 156-7) and Whitehouse (2004: 135, fn6).

of neuroscientific evidence that may shed light on the *relationships* between experience and testimony.

Livingston's starting point is the substantial literature, of more than thirty years' standing, linking seizure disorders to varieties of personal religious revelation. Such research has shown not only a clear connection between major pathologies, such as epilepsy, and the experience of intense epiphanic religious episodes, but has also shown that much more commonplace 'microseizures' (some significant portion of which might be induced by ritual activities, such as drumming) are associated with elevated levels of unusual religious experience (visions, visitations, revelations, etc.). Livingston also examines evidence from neuroimaging studies about brain states connected with meditation and prayer. He argues that there may be connections between the kinds of religious experience delivered by various kinds of pathological or ritually-induced brain states and the *specific contents* of religious doctrine. As Livingston goes on to observe, however, individuals' religious beliefs may be formed out of complex *combinations* of verbally transmitted teachings (religious testimony) and exceptional personal experiences resulting from temporarily altered brain states.

Livingston holds that a variety of variables will likely influence the relative importance of experience as opposed to testimony in religious transmission. For instance, there are marked differences in individual susceptibility to seizure disorders, suggesting that only a minority of people in any population would be capable of experiencing religious revelations as a result of such disorders. Of that minority, fewer still might be primed, through prior experience with religious doctrine, to interpret their experiences in standard doctrinal terms. This leads Livingston to consider also what mechanisms might explain the willingness of those who lack personal experience of epiphanic episodes to accept as legitimate the testimony of those who claim to have witnessed supernatural interventions (and often to have gained privileged insight into their meanings). Livingston explores possible implications of this argument for Whitehouse's distinction between testimony-based doctrinal transmission and more experientially-driven revelation in the imagistic mode of religiosity, and also for McCauley and Lawson's 'ritual form hypothesis.' These proposals open up a number of avenues for further empirical research, as well as theoretical debate.



Parallel to this discussion of the neural and cognitive processes involved in religious experience and doctrinal transmission are a series of debates about the possible evolutionary foundations of these processes. Near one end of the resulting spectrum of opinion, Thagard argues that most available theories of religion that have arisen on the basis of evolutionary considerations are unconvincing. Thagard would probably find that most cognitive scientists of religion agree with him in rejecting the possibility that religion arose as a solution to particular adaptive problems in hominid evolution. Thagard sees no convincing evidence of cognitive architecture specialized for the acquisition of religious behavior. Nor has it been shown that religious commitment would have conferred reproductive advantages in the conditions in which our ancestors evolved. But this is not to say that evolutionary psychology has no role to play in explaining religion. Another possibility, as Thagard notes,<sup>3</sup> is that religion is an ‘accidental by-product’ of specialized cognitive mechanisms that have quite unrelated adaptive functions (i.e., that religion is a ‘spandrel’). Just as it might be argued that the human predilection for music, for instance, is in part an accidental by-product of a heightened sensitivity to tonal variation that evolved in concert with the development of language (see Sperber 1996), so it is possible that the uniquely human susceptibility to religious thinking is in part an accidental by-product of other uniquely human cognitive adaptations. This last possibility (and there are others) has tended to enjoy a markedly warmer reception in the cognitive science of religion than the notion that religion is an evolved adaptation. In their contribution to this collection, however, Bering and Johnson venture that cognitive systems which encourage the emergence of beliefs in all-knowing deities might have arisen, after all, under natural selection.

According to Bering and Johnson, demonstrating that beliefs in the power of deities to enforce moral norms enhanced the inclusive fitness of individuals would justify a search for cognitive specializations that would facilitate the spread of such beliefs. At the core of their argument is the claim that although antisocial behavior may enhance reproductive success in animals that lack a means of discriminating between actions and intentions, this changes with the emergence of human intuitive psychology.

---

<sup>3</sup>Thagard is no more sympathetic to this possibility than he is to the assertion that religion is an adaptation for which we have a directly evolved capacity.

Evil intentions may be disguised by overtly prosocial behaviors. Mate choice must then be influenced not only by good acts but by *well-intentioned* acts. Given the imperfection of human mind-reading abilities, Bering and Johnson suggest, good reputations must be secured by some other means and one way of separating the wheat from the chaff is to postulate a system for divine retribution meted out by an agent who has access to our most private thoughts. Beliefs in the efficacy of supernatural sanctions for moral transgressions are widely documented in the ethnographic record, and there are grounds for the argument that people the world over intuitively regard misfortune as a sign of moral failing. If so, Bering and Johnson reason, people should be motivated to avoid misfortune not only to spare themselves the miseries it delivers directly but also to protect their reputations (crucial, they argue, for reproductive success). Moreover, they garner some evidence of a pan-human urge to seek, even at immense cost, satisfactory punishment and expiation from a supernatural source, so that their moral standing might be restored. For such an urge to make sense, of course, the gods would need to be attributed knowledge of people's transgressions, even if they were able to hide them successfully from their fellows. But what cognitive mechanisms would be needed to deliver such behavior and how might we demonstrate their developmental and operational characteristics?

According to Bering and Johnson, the crucial mechanisms required for the reputation-saving mechanisms of religion to become established are supplied by 'second order theory of mind.' Theory of mind (or ToM) mechanisms provide humans with the ability, indeed the nagging obligation, to generate inferences about intentional states that drive the behavior of people around them. First order ToM mechanisms deliver intuitions about the possible intentions of other actors, and they begin to emerge early in development. By around age four to five, children realize that people's behaviors are driven by intentions that may or may not be based on accurate information and that it is therefore possible to manipulate their behavior through duplicity and deception. Second order ToM mechanisms appear a little later, around age six or seven, allowing us to speculate not only on the intentional states of Jim and Mary but on the speculative inferences that they in turn might be making with regard to the states of mind accompanying our own behavior. Second

order ToM abilities enable us to construe behavior as communicatively driven (Jim does x because he knows that Mary is likely to interpret x in a certain way) and it is this decisive development, according to Bering and Johnson, that leads us to attribute communicative meaning to random misfortunes, in particular suspecting such occurrences to be the handiwork of offended and punitive deities. The relatively late appearance of this cognitive capacity would be consistent with the hypothesis that it is a relatively recent adaptation in evolutionary time, as of course (on the archaeological evidence) is the perceived need to propitiate and placate supernatural agents.

The hypotheses advanced by Bering and Johnson, and by the other contributors to this collection, are potentially testable via a combination of experimental, naturalistic, and (cross-culturally) comparative methods. Whereas much of the initial impetus for the cognitive science of religion came from anthropologists and comparative religionists, we have witnessed a growing level of interest from leading experimental psychologists and neuroscientists, to which this collection bears witness. It is only through further collaboration between students of religion and the experimentally-based sciences of human biology, cognition, and behavior that we can meet the emergent challenges of empirical research that lie before us. For the purposes of undertaking cross-disciplinary research of this kind, it obviously helps to have dedicated centers for research offering release from discipline-based constraints and commitments, and providing intellectual and infrastructural support for theoretical and methodological innovation. One such centre, the Institute for Cognition and Culture, will be established at Queen's University Belfast in the fall of 2004.<sup>4</sup> Work will be carried on in teams, led by visiting experts from around the world and through the establishment of many new doctoral research projects. The Institute welcomes hearing from scholars and scientists, as well as from prospective graduate students, interested in contributing to this enterprise.

#### REFERENCES

ABBINK, J.

- 1995 "Ritual and Environment: The *Mosit* Ceremony of the Ethiopian Me'en People." *Journal of Religion in Africa* 25, 163-190.

---

<sup>4</sup>For further details, go to: <http://www.qub.ac.uk/sa/WhitehouseICC.htm>

- ATRAN, S.  
2002 *In Gods We Trust*. New York: Oxford University Press.
- BARRETT, J.L.  
2004 *Why Would Anyone Believe in God?* Walnut Creek, CA: Alta Mira Press.
- BARRETT, J.L., R.A. RICHERT AND A. DRIESENKA  
2001 "God's Beliefs versus Mom's: The Development of Natural and Non-Natural Agent Concepts." *Child Development* 72, pp. 50-65.
- BARSALOU, L.  
1999 "Perceptual Symbol Systems." *Behavioral and Brain Sciences* 22, 577-660.
- BARTH, F.  
1975 *Ritual and Knowledge among the Baktaman of New Guinea*. New Haven: Yale University Press.  
2002 "Review of *Arguments and Icons*." *Journal of Ritual Studies* 16, 14-17.
- BERING, J.M. AND D.F. BJORKLUND  
in press 2004/2005? "The Natural Emergence of Reasoning about the 'Afterlife' as a Developmental Regularity." *Developmental Psychology*.
- BLOCH, M.  
2004 "Ritual and Deference" in H. Whitehouse and J. Laidlaw (eds.) *Ritual and Memory: Toward a Comparative Anthropology of Religion*. Walnut Creek, CA: Alta Mira Press.
- BOYER, P.  
1992 "Explaining Religious Ideas: outline of a cognitive approach." *Numen* 39, 27-57.  
1994 *The Naturalness of Religious Ideas*. Berkeley: University of California Press.
- CARRUTHERS, P., S. STICH AND M. SIEGAL (EDS).  
2002 *The Cognitive Basis of Science*. Cambridge: Cambridge University Press.
- GUTHRIE, S.  
1980 "A Cognitive Theory of Religion." *Current Anthropology* 21, 2: 181-203.  
1993 *Faces in the Clouds: A New Theory of Religion*. Oxford: Oxford University Press.
- HINDE, R.  
1999 *Why Gods Persist*. New York: Routledge.
- KEIL, F. AND R. WILSON (EDS.)  
2000 *Explanation and Cognition*. Cambridge: MIT Press.
- LAWSON, E.T. AND R.N. MCCAULEY  
1990 *Rethinking Religion: Connecting Cognition and Culture*. Cambridge: Cambridge University Press.  
1993 "Crisis of Conscience, Riddle of Identity: Making Space for a Cognitive Approach to Religious Phenomena." *Journal of the American Academy of Religion* 61, 201-223.
- MALLEY, B.  
2004 *How the Bible Works*. Walnut Creek, CA: Alta Mira.
- MALLEY, B. AND J. BARRETT  
2003 "Can Ritual Form Be Predicted From Religious Belief? A Test of the Lawson-McCauley Hypotheses." *Journal of Ritual Studies* 17, 1-14.

MCCAULEY, R.N. AND E.T. LAWSON

2002 *Bringing Ritual to Mind: Psychological Foundations of Cultural Forms*. Cambridge: Cambridge University Press.

MCCAULEY, R.N.

1998 "Levels of Explanation and Cognitive Architectures." *Blackwell Companion to Cognitive Science*. W. Bechtel and G. Graham (eds.). Oxford: Blackwell Publishers, 611-624.

PYYSIÄINEN, I.

1999 "Holy Book – A Treasury of the Incomprehensible: The Invention of Writing and Religious Cognition." *Numen* 46, 269-290.

2004 *Magic, Miracles, and Religion: A Scientist's Perspective*. Walnut Creek, CA: Alta Mira Press.

SLONE, J.

2004 *Theological Incorrectness: Why Religious People Believe What They Shouldn't*. New York: Oxford University Press.

SPERBER, D.

1975 *Rethinking Symbolism*. A. Morton (Trans.). Cambridge: Cambridge University Press.

1996 *Explaining Culture: A Naturalistic Approach*. Oxford: Blackwell Publishers.

THAGARD, P.

1992 *Conceptual Revolutions*. Princeton: Princeton University Press.

2000 *Coherence in Thought and Action*. Cambridge: MIT Press.

VIAL, T.

2004 *Liturgy Wars: Ritual Theory and Protestant Reform in Nineteenth-Century Zurich*. London: Routledge.

WHITEHOUSE, H.

1992 "Memorable Religions: transmission, codification, and change in divergent Melanesian contexts." *Man* (N.S.) 27, 777-797.

1995 *Inside the Cult: Religious Innovation and Transmission in Papua New Guinea*. Oxford: Oxford University Press.

2000 *Arguments and Icons: Divergent Modes of Religiosity*. Oxford: Oxford University Press.

2004 *Modes of Religiosity: A Cognitive Theory of Religious Transmission*. Walnut Creek, CA: Alta Mira Press.

WHITEHOUSE, H. AND J. LAIDLAW (EDS.)

2004 *Ritual and Memory: Toward a Comparative Anthropology of Religion*. Walnut Creek, CA: Alta Mira Press.

WHITEHOUSE, H. AND L. MARTIN (EDS.)

2004 *Theorizing Religions Past: Knowledge, History, and Cognition*. Walnut Creek, CA: Alta Mira Press.