Where God and Science Meet

How Brain and Evolutionary Studies Alter Our Understanding of Religion

VOLUME 1

Evolution, Genes, and the Religious Brain

Edited by Patrick McNamara

PRAEGER PERSPECTIVES

Psychology, Religion, and Spirituality

J. Harold Ellens, Series Editor

PRAEGER

Westport, Connecticut
London

Library of Congress Cataloging-in-Publication Data

Where God and science meet : how brain and evolutionary studies alter our understanding of religion / edited by Patrick McNamara.
p. cm. — (Psychology, religion, and spirituality, ISSN 1546–8070)
Includes index.
ISBN 0–275–98788–4 (set) — ISBN 0–275–98789–2 (v. 1) — ISBN 0–275–98790–6 (v. 2) — ISBN 0–275–98791–4 (v. 3)
1. Psychology, Religious. 2. Genetic psychology. 3. Evolutionary psychology. 4. Experience (Religion) 5. Neurology. I. McNamara, Patrick H.
BL53.W511 2006
200.1'9—dc22 2006021770

British Library Cataloguing in Publication Data is available.

Library of Congress Catalog Card Number: 2006021770
ISBN: 0–275–98788–4 (set)
0–275–98789–2 (vol. 1)
0–275–98790–6 (vol. 2)
0–275–98791–4 (vol. 3)
ISSN: 1546–8070

First published in 2006

Praeger Publishers, 88 Post Road West, Westport, CT 06881
An imprint of Greenwood Publishing Group, Inc.
www.praeger.com

Printed in the United States of America

The paper used in this book complies with the Permanent Paper Standard issued by the National Information Standards Organization (Z39.48–1984).

10 9 8 7 6 5 4 3 2 1

CONTENTS

VOLUME 1
EVOLUTION, GENES, AND THE RELIGIOUS BRAIN

Series Foreword by J. Harold Ellens vii

Acknowledgments xi

Preface by Patrick McNamara xiii

CHAPTER 1 The Evolutionary Psychology of Religion 1
Steven Pinker

CHAPTER 2 Sacred Emotions and Affective Neuroscience: Gratitude, Costly Signaling, and the Brain 11
Robert A. Emmons and Patrick McNamara

CHAPTER 3 Genetic and Environmental Influences on the Traditional Moral Values Triad—Authoritarianism, Conservatism, and Religiousness—as Assessed by Quantitative Behavior Genetic Methods 31
Laura B. Koenig and Thomas J. Bouchard Jr.

CHAPTER 4 Religious Behaviors, Badges, and Bans: Signaling Theory and the Evolution of Religion 61
Richard Sosis

CHAPTER 5 Nature's Medicine: Religiosity as an Adaptation for Health and Cooperation 87
Joseph Bulbulia

CHAPTER 6 The Cognitive Psychology of Belief in the Supernatural 123
Jesse M. Bering

CHAPTER 7 The Ritual Healing Theory: Therapeutic Suggestion and the Origin of Religion 135
James McClenon

CHAPTER 8 Religion Is Not an Adaptation 159
Lee A. Kirkpatrick

CHAPTER 9 The Cognitive and Evolutionary Roots of Religion 181
Scott Atran

CHAPTER 10 Amazing Grace: Religion and the Evolution of the Human Mind 209
Ilkka Pyysiäinen

CHAPTER 11 The Significance of the Evolution of Religious Belief and Behavior for Religious Studies and Theology 227
Wesley J. Wildman

Index 273

About the Editor and Contributors 285

About the Advisory Board 291

CHAPTER 11

The Significance of the Evolution of Religious Belief and Behavior for Religious Studies and Theology

Wesley J. Wildman

INTRODUCTION

The chapters in this volume report on traffic at the intersection of evolutionary theory and the *scientific study of religion*, by which I mean the interdisciplinary study of the cognitive, emotional, psychological, social, and communicative elements of religion using the methods of the natural and social sciences. (Note: I shall italicize key terms throughout this chapter at the place where each is defined to help readers formed in quite different intellectual contexts track what I mean.) The scientific study of religion has profound connections to the wider academic study of religion—that is, *religious studies*, pursued by *religionists*, to use a term that seems to be gaining currency. It is also deeply connected to scholarly reflection on religious beliefs and practices—that is, *theology*, pursued by *theologians*, who may belong to theistic and nontheistic religious traditions or may have religiously nonaffiliated or secular projects. If religionists are usually the outsiders who strive for neutrality in their study of religion, theologians tend to be the insiders, making a virtue of their existentially lively religious commitment to generate profound insights that outsiders cannot easily grasp or express. Of course, there are exceptions in both cases.

Cooperation between experts interested in religion from all specializations and perspectives should produce a deeper understanding of the evolution of religious beliefs and behaviors and thereby of the origins and functions of religion. I am one of a growing number of scientists, religionists, and theologians who acknowledge that as a worthy goal. Our motivations do

not always cohere. We probably all find religious phenomena intrinsically fascinating, and we can certainly all see that religion is often a crucial factor in geopolitics, economics, social change, and culture wars. We probably work in the hope that understanding will bring empathy and self-control, as it does so often in other facets of life. Some may go further and imagine that understanding religion may give us the power we need to eliminate it and to deliver its victims into humanistic enlightenment. Others might dream of a form of religion that can remain authentically spiritual while being fully aware of its evolutionary origins, social functions, psychological dynamics, and economic implications. Despite these discrepant motivations, cooperation seems feasible, and I think we can suspend our hidden or not-so-hidden social agendas for the sake of a quest for understanding.

Unfortunately, gaining an interdisciplinary understanding of religion is more difficult than it might seem. The scientific study of religion, religious studies, and theology are quite different discourses and sometimes shockingly disconnected. As one who bridges all three, I have concluded that they are not incommensurate, but they are very often so differently angled that fitting them together is challenging. This conceptual jigsaw is simplest when religionists and theologians allow the scientist to do his or her thing, as happens in this volume, and then see how that affects their projects. But many more complex interactions are possible.

Consider religious studies and the scientific study of religion. Religious studies as a field is deeply committed to registering the complexity and intricacy of religion in its phenomenological descriptions, historical reconstructions, and sociological models. It is profoundly interdisciplinary, much as political economy is. Because of its encompassing nature, religious studies have the ability to absorb and respond to scientific perspectives on religion without having to abandon its own fundamental methodological commitments. The scientific study of religion has a different set of commitments. Scientists work within methodological limitations that promote the simplification of endlessly complex religious phenomena to the few salient features that prove tractable for scientific investigation. Scientists can be interested in the whole complexity of religion and do well to know something about it for the sake of avoiding embarrassing caricatures. But their first commitment is to finding something they can chew on, so they must argue (or simply hope) that selecting certain limited strands from the interwoven fabric of religion does not invalidate their results.

This strikes religionists as appallingly reductionist. To them, the descriptions of religious phenomena that some scientists offer, without any trace of self-consciousness or hint of apology, are comically or, perhaps, dangerously oversimplified. Religionists feel certain that a high conceptual price is being paid for this reductionist strategy even when they do not immediately know how to advise the scientist who would gladly work with a more nuanced

interpretation of religion. At the very least, the price of casual reductionism is a social one. Most people in the large world cultures of the contemporary world listen to scientists no matter what they are saying. Their propagation of superficial understandings of religion can have potentially serious social and political consequences, from distorted understandings of religion and deep suspicion of science in the general religious public to the gradual loss of scientific prestige as reeducation painstakingly corrects careless scientific oversimplifications.

Nevertheless, science still achieves fascinating results in its study of religious beliefs and practices. Knowing that religious ideas take certain repeatable forms or that a tendency toward certain religious behaviors is heritable can be highly useful within the broader framework of religious studies. To make use of these benefits, religionists must get past their allergic reaction to the reductionist approach. Unfortunately, the field of religious studies has paid little attention to the scientific study of religion. That needs to change—and quickly. Scientists have been setting a challenging new agenda for religious studies over the past several decades, and it is time that more religionists engage it, if only to test it from their own perspectives.

The scientific study of religion affects theology, too. Theology typically ventures its own claims about the origins and functions of religion, perhaps through an intellectual interpretation of a founding narrative, through a doctrine that purportedly conveys a divinely revealed truth about the purpose of a religious ritual, or through a reflective interpretation of the astonishing experiences that can occur in meditation or corporate worship. Such theological claims typically concern only one part of a single religion, and few theologians ever attempt to coordinate such claims into a theoretical edifice that arches across religious traditions. In fact, most theologians generally seem uninterested in religion in the sense of the whole collection of phenomena that religious studies examines—not a good thing, in my view, but understandable given the way theologians often work on behalf of living religious communities. More important for our current concerns, theological claims frequently do not harmonize well with what the scientific study of religion has to say about the evolution of religious beliefs and behaviors and about the origins and functions of religion. Theologians have usually avoided this conflict problem, just as religionists have, by withdrawing into supportive communities with social identities strong enough to maintain local plausibility structures regardless of wider intellectual currents. From such local havens of acceptance and relevance, they need pay no social price for ignoring what scientists say about the evolutionary origins and functions of religion.

By contrast, there are intellectually compelling subtraditions within most theological traditions that seek to engage what other intellectuals have to say about matters of concern to theology. Such theologians—the ones likely to pick up a book of this sort—exert great effort to learn what religionists

and scientists have discovered about religion and seek to take account of those discoveries in their theological theories. Theological theories on some topics may operate conceptually independently of the scientific study of religion. But many theological theories have conceptual and logical traction with parts of the scientific study of religion; indeed, some scientists seem to presume this when they informally and sometimes publicly pronounce on the theological significance of the latest discovery pertinent to religion. Unfortunately, the discipline of theology is often identified with its most shrill and narrow-minded exponents, as much by cultural luminaries with an antireligious ax to grind as by conservative religious leaders. But the work of imaginative intellectuals seeking to integrate the scientific study of religion and religious studies into a specifically theological theory of religion persists quietly around the margins of religiously driven culture wars and in the interstices of the socially complex world of theological studies. Such theological theories seek to identify not only the origins and functions of religion but also the value of religious practices and the truth of religious claims, and they seek to do this coherently by uniting every relevant perspective into a consistent theory. This is why theology, in this very particular sense, is the most interdisciplinary of all intellectual ventures.

TWO LEVELS OF DIALOGUE

The dialogue between scientists, religionists, and theologians over the evolution of religious beliefs and behaviors unfolds—or can unfold—on two levels. First, at the level of conceptual content, there should be two-way traffic between scientific theories and the associated empirical research on the one hand and what religionists and theologians say about religious beliefs and practices on the other. Most obviously, religious studies and theology furnish basic data for the scientific study of religion. The most intellectually well-crafted statements about the beliefs of a religion are typically delivered by expert theologians, so scientists studying religion should ensure that they know about such statements rather than confining themselves to the knowledge base of popular religious self-understandings. Similarly, the most sophisticated descriptions of religious practices come from religionists specializing in ritual studies, so scientists ought to take account of them in deciding on the most salient aspects to study in detail. Doing this would have an immediate effect on the quality of scientific work. Scientists would be far more precise about what they are studying—not religious ritual but a particular religious practice and not a universal religious belief but an idea found in some parts of some religions and not others—and far more cautious about drawing obviously fallacious conclusions about religion as a whole from whatever part of religion they actually are studying.

In the other direction, religionists and theologians ought to have some response to emerging scientific theories of the origins of religion, to the dawning intelligibility of bizarre religious activities, and to theories of cognition that predict the recurrence of supernatural beliefs. Evolutionary psychology and cognitive neuroscience should influence theological claims about ultimate and proximate realities, salvation and liberation, the meaning and purpose of life, and how so many human beings come to believe in such things. How do theological assertions about sacred religious communities comport with the emerging evolutionary account of their origins? Can theologians continue to say everything they have formerly said about the theological meaning of church and synagogue, temple and sangha?

The second level of dialogue concerns method. On the one hand, the nature and function of theology demand evaluation in light of these results from the scientific study of religion. Is theology a socially embedded intellectual activity specializing in legitimating identity-nurturing deflective and projective responses to an uncertain natural environment? Is it a divinely given responsibility on behalf of a supernaturally established body of sacred revelation? Is it a religiously neutral form of philosophical inquiry? Can it be all of these at once? Scientific understandings of religion should impact the theologian's perception of what it means to assert and evaluate religious truth claims and to operate as the intellectual wing of a religious group and thus what it means to function as a theologian. Similarly, the scientific study of religion raises sharp questions for religionists about the adequacy of the generally humanistic, literary, and historical approaches to the study of religion. Does not the scientific study of religion show that these approaches need to be complemented—and possibly constrained—by the approaches of natural and social scientists?

On the other hand, the insights of religious studies and theology should chasten the scientific study of religion, inhibiting its tendency toward hasty and sometimes hostile reductionism in approaching religious phenomena. Religionists and theologians who accept an evolutionary theory of religion will inevitably assert that the evolution of human social tendencies and higher cognitive capacities provoked and promoted religious behavior. They will say that this particular product of the evolutionary process opened up a universe of religious depth that would have remained closed otherwise. They will picture the existential coloring and religious depth of reality gradually becoming a part of the environment of human life as human beings evolved the abilities to engage it. This viewpoint makes a virtue of the evolutionary account of the origins and functions of religious beliefs and behaviors. Religionists and theologians tend to agree on this much even if theologians then go further to speculate on the meaning of all this, whereas religionists typically remain content to analyze its functions and effects. The scientist studying evolution and religion may not be able to speak to the reality of

religious phenomena, but it is dangerous for that scientist simply to refuse to consider the role that religious realities may play in conditioning the evolutionary process itself.

This presents a serious methodological conundrum for the scientist. The scientist does not want to leave out factors relevant to an inquiry about the evolutionary origins of religious beliefs and behaviors, yet the scientific method appears unable to make use of the hypothesis of the reality of religious phenomena because scientific evidence appears incapable of settling such a question. Scientists may be tempted to rule out ~~the reality of~~ religious realities a priori rather than remaining neutral to them because they are intractable within the scientific framework of analysis. In that case, alert religionists and theologians, as well as other scientists, must be ready to call the wayward back to the straight-and-narrow path of scientific discipline. If science cannot settle metaphysical questions about the reality of religious objects positively, then neither can it settle such questions negatively. Scientists must *bracket* the questions—in the sense of suspending consideration of them—and also remain alert to the fact that such bracketing can limit the validity of their conclusions.

ORGANIZATION OF THIS CHAPTER

Evidently, the potential interactions among the scientific study of religion, religious studies, and theology are conceptually and methodologically complex, perhaps forbiddingly so. I have sketched these complexities with just enough detail to suggest how this volume fits into a wider intellectual venture, with a small but growing body of literature. In the remainder of this chapter, I shall comment at both the conceptual and the methodological level. I shall organize my thoughts into four major sections, reflecting the most important themes of the volume: CST, the evolutionary status of religion, the cognitive elements of religion, and the adaptive functions of religion. Sometimes I offer summary overviews or fill in background that is missing in the volume, thinking especially of what religionists and theologians might need to follow the scientific chapters. But my primary task is to say enough on each issue that I can briefly indicate its significance for religious studies and theology.

TERMINOLOGY AND BASIC CONCEPTS

Throughout this chapter, I take for granted the meaning of several key terms in evolutionary biology impinging on evolutionary psychology. Keeping these terms in mind is particularly important for religionists and theologians. Words such as "fitness" and "adaptiveness" may have misleading connotations in their worlds of thought, suggesting sound psychological adjustment,

empirically accurate interpretation of an environment, health-promoting lifestyles, or spiritually efficacious beliefs and practices. As important as these ideas are for understanding religion, they should not be conflated with the differential reproduction advantage associated with the concepts of fitness and adaptive function in evolutionary biology.

Fitness always refers to reproductive fitness, which means the ability of a biological entity (*organism*) to pass genetic information (*genes*) to future generations. This refers not to the number of offspring (which may be infertile or die before they reproduce, after all) but to the spread of genetic material in future generations. A simple (but not foolproof) test of fitness is whether one's offspring themselves are reproductively successful. Fitness is always relevant to an *environment*, within which a population has a *niche* where it is subject to particular *selection pressures* in the form of nutrition, disease, and predators. A key question in evolutionary biology is whether the environment relevant to fitness can include high-level social factors as well as low-level biological factors. Evolutionary psychology's core hypothesis is that social and psychological factors are relevant to evolutionary fitness.

A *trait* is a genetically based characteristic of an organism, such as eye color or a genetic propensity to cancer. I will use *characteristic* or *feature* to refer to aspects of an organism's behavior and function in general. The genetic basis of traits is an extremely complex matter because genes often influence more than one characteristic of an organism and traits usually depend on many interacting genes. Unresolved questions about the genetic basis of organism characteristics abound, particularly in the context of evolutionary psychology, where the concern is with emergent characteristics such as behaviors, emotions, and beliefs. Many behavioral characteristics can be cultivated independently of genetic makeup, so it is frequently unclear whether certain behavioral features of organisms are traits in the genetic sense at all. To say that a behavioral predisposition is a trait implies that the behavioral predisposition has a genetic basis that somehow persists through cultural and contextual factors and tends to express the associated behavior in widely varying circumstances. Twin studies and adoption studies can help to decide whether a behavior has a genetic component and thus whether the associated behavioral tendency is a trait. In human evolution, most key traits were developed in the very long Pleistocene environment of evolutionary adaptation, a hunter-gatherer lifestyle prior to settled agriculture to that I shall refer as the *ancestral environment.*

A *mutation* is a structural and molecular chemical change in genetic material. Many mutations are irrelevant to an organism's function, at least in the short term, though presumably many unexpected things can happen in gene evolution in the long term. The sorts of mutations we are interested in produce or affect traits. In evolutionary psychology, the focus is on mutations that affect cognitive and behavioral traits. An *adaptation* is

a mutation or a set of mutations that increases individual fitness. Genetic change is *adaptive for a population* when it produces traits that increase the population's average fitness.

Fitness is a relative term, expressing differential reproduction advantage of one organism relative to others of the same species in the same environment or average differential reproduction advantage of one population relative to a similar population at a different time or place or in a changed environment. There is no absolute measure of fitness. A *niche* is the ecological setting for a *species* of organisms and determines the part of the wider environment that is causally relevant to the species' fitness. A *niche resonance* is a self-reinforcing match between an adaptive trait and an environment that increases both the frequency of the trait in the population and the fitness of organisms possessing the trait. A niche resonance can link genetically distinct traits in such a way that the frequency of both traits increases in the population. This is especially important in sexual reproduction, where a male trait and a female trait can reinforce one another and increase in frequency within the population even though neither trait alone would increase fitness. Niche resonances can even occur between species, particularly in *communicative environments* that permit the sending and receiving of signals between predators and prey. Evolutionary psychology proposes that niche resonances might also sponsor *gene–culture coevolution*, a hypothetical relation between organisms and environment in which genetically linked cultural practices have a genetic influence.

Adaptive function refers to the biological or behavioral function of a genetic trait that causes it to be adaptive. A trait that decreases fitness has a *maladaptive function;* selection pressures may reduce the presence of such traits in the population. A genetic feature can be neither adaptive nor maladaptive if no selection pressure exists in a particular context to affect its presence in the population. The question of the context for assessing adaptive function and maladaptive function is a vexed one in evolutionary psychology. The *original selection context* is that in which a trait first becomes established in one or more organisms within the ancestral environment and then spreads widely through the species because of its adaptive function in that context. An established trait can also have effects other than the *primary adaptive function* for which it was selected. These effects, whether copresent already in the original selection context or appearing only much later as environmental conditions change and new traits are established, are called *side effects* or *by-products.* When by-product effects serve to increase fitness independently of the primary adaptive function, the underlying trait has a *secondary adaptive function.* As with primary adaptive function, there can be *secondary maladaptive functions* and secondary functions that are neither adaptive nor nonadaptive, or *nonfunctional by-products.*

Traits adaptive in one context can become maladaptive in a new context. By-products can be simultaneously adaptive, maladaptive, and nonfunctional

with respect to different selection mechanisms. There is great deal of dynamism here as varying sets of traits interact with diverse environments. Evolutionary psychology proposes that culturally conditioned behaviors can combine with genetic traits to have genetically relevant effects, as when health care policies and technologies create reproductive opportunities for those who would not have been able to reproduce in the ancestral environment. *Sexual selection*, the process of mate choice, is particularly important in giving genetic relevance to culturally conditioned aspects of organisms. *Communicative environments* vastly expand the range and likelihood of trait side effects. Some may be potentially maladaptive, as when communication allows human beings to wipe out malaria in some parts of the world, thereby reducing the presence of malaria resistant genes and exposing larger numbers of people to a future outbreak of deadly malaria under new environmental conditions. Most side effects are not directly exposed to selection pressures, as when human beings flip coins, cook waffles, and play cricket.

Different types of evolutionary theorists tend to focus on different contexts. Some focus on the original context for a trait's selection, some on the long-term persistence of traits through varied environments, and some on the current observable adaptive function of traits. This leads to quite different conceptual and terminological frameworks and sometimes to a great deal of confusion. Miscommunication can be mitigated by paying attention to the question of context for claims about the adaptiveness of traits. As it happens, diverse terminological frameworks are evident in the chapters of this volume, particularly around signaling theory and evolutionary by-products. When we come to those topics, therefore, I shall return to terminological and conceptual clarification in an attempt to promote mutual understanding.

COSTLY SIGNALING THEORY AND RELIGION

Most of the chapters in this volume accept the promise of costly signaling theory (CST) to offer an explanation of bizarre, seemingly fitness-reducing, and otherwise hard-to-explain behavioral characteristics, including certain religious phenomena. CST seems to apply only to some aspects of religion, and thus its usefulness as an explanation of religion's evolutionary origins is hard to assess with any confidence. Moreover, CST is controversial even in its native domain, as we shall see later in this chapter. Yet CST also suggests that costly religious behaviors can no longer serve as evidence that religion lacks an evolutionary origin. On the contrary, CST explains how such counterintuitive behaviors might actually increase fitness in communicative environments. Since there is no systematic accounting of the CST controversy in the current volume, a sketch of the main issues is in order here before turning to its application to religion.