

Religion Explained?

The Cognitive Science of Religion after
Twenty-Five Years

Edited by
Luther H. Martin and Donald Wiebe

Bloomsbury Academic
An imprint of Bloomsbury Publishing Plc

B L O O M S B U R Y
LONDON • OXFORD • NEW YORK • NEW DELHI • SYDNEY

Bloomsbury Academic

An imprint of Bloomsbury Publishing Plc

50 Bedford Square
London
WC1B 3DP
UK

1385 Broadway
New York
NY 10018
USA

www.bloomsbury.com

BLOOMSBURY and the Diana logo are trademarks of Bloomsbury Publishing Plc

First published 2017

© Luther H. Martin, Donald Wiebe and Contributors, 2017

Luther H. Martin and Donald Wiebe have asserted their right under the Copyright, Designs and Patents Act, 1988, to be identified as Authors of this work.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without prior permission in writing from the publishers.

No responsibility for loss caused to any individual or organization acting on or refraining from action as a result of the material in this publication can be accepted by Bloomsbury or the author.

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

ISBN: HB: 978-1-3500-3246-0

ePDF: 978-1-3500-3247-7

ePub: 978-1-3500-3248-4

Library of Congress Cataloging-in-Publication Data

Names: Martin, Luther H., 1937– editor.

Title: Religion explained? : the cognitive science of religion after twenty-five years / edited by Luther H. Martin and Donald Wiebe.

Description: New York : Bloomsbury Academic, 2017. |

Series: Scientific studies of religion: inquiry and explanation |

Includes bibliographical references and index.

Identifiers: LCCN 2017005668 | ISBN 9781350032460 (hb) |

ISBN 9781350032484 (epub)

Subjects: LCSH: Religion. | Cognitive science.

Classification: LCC BL51 .R34793 2017 | DDC 200.72–dc23

LC record available at <https://lccn.loc.gov/2017005668>

Cover image © Shutterstock

Series: Scientific Studies of Religion: Inquiry and Explanation

Typeset by Newgen Knowledge Works Pvt. Ltd., Chennai, India.

Printed and bound in Great Britain

Twenty-Five Years of CSR: A Personal Retrospective

Harvey Whitehouse

In the nineteenth and early twentieth centuries many great scholars speculated about the causes of religion: Sir Edward Tylor argued that religion originated in an attempt to make sense of puzzling observations and experiences; Sigmund Freud argued that religion resulted from repressed feelings of guilt; Emile Durkheim argued that religion was a symbolic expression of the social order; Karl Marx argued that religion emerged as a tool of class oppression. All these undoubtedly brilliant theorists, however, suffered from a common problem: all were seeking a *magic bullet explanation*, a single cause that could explain religion in its entirety.

When we think of religion as a single monolithic entity, a natural kind requiring a general definition and explanation, we are making a fundamental error. It is no more a natural kind than the big dipper as seen in the night sky from Earth is a natural kind. It is just an illusion resulting from taking a particular earthbound perspective. What we commonly think of as "religion" isn't really a single coherent phenomenon. It is actually a loose bundle of things, such as supernatural agent concepts, afterlife beliefs, creation myths, signs and portents, altered states of consciousness, rituals, and so on. Although people readily group these things together, they are founded on very different psychological systems and are sensitive to very different triggers. We need to break up religion into its various building blocks. Each of these fractionated elements should be the focus of discrete research programs.

Perhaps the single most important insight of the cognitive science of religion (hereafter CSR) is that religion is shaped and constrained by implicit, panhuman intuitions about the way the world works and these intuitions derive from many distinct psychological systems rather than just one. Fractionating religion is not an obvious way to proceed, however, because particular religions present the fractionated elements as inextricably bound together. That is, the cultural traditions that we call religions (not only the world religions but the many thousands of smaller cults and regional movements that are studied by religion scholars and anthropologists) tend to present notions of deities, ancestors, creation myths, sacred laws, and many other aspects of religious belief and practice as bound together into systems of interlocking elements. Nevertheless, these connections owe their existence to historically contingent cultural

beliefs and practices, rather than to anything written deep into human nature. CSR has provided compelling evidence that notions of supernatural agency are indeed undergirded by a variety of panhuman cognitive systems (e.g., Guthrie 1993; Boyer 2001; Barrett 2004a; Bering 2006; McKay and Whitehouse 2015), but these systems are quite distinct from the equally universal cognitive processes giving rise to creationist beliefs (e.g., Kelemen 1999b; Evans 2001) even though beliefs in supernatural agents and creationism are commonly assumed to be related. Particular religious traditions may postulate moralizing gods that are *also* creator beings, but the link between mind-body dualism and teleological reasoning about the natural world is culturally learned rather than intuitive and innate. Of course, the same point could be made conversely, that atheists not only repudiate god concepts but also tend to be extincivists and skeptical of magic even though the denial of deities does not necessarily imply that there is no afterlife or that spells could not possibly work.

This chapter seeks to demonstrate the merits of this general approach to religion by charting in semi-autobiographical fashion my recollections of CSR's early days and by summarizing our collaborative efforts over the past twenty-five years to understand the causes and consequences of just one fractionated element of religion: *ritual*.

A little more than twenty-five years ago

In the 1980s I was a fresh-faced student of anthropology at the London School of Economics and Cambridge. Along with Oxford, these institutions were generally credited with having created the discipline of social anthropology. Within this Golden Triangle, there was a strong tradition of cultural relativism and cognitive constructivism, handed down from venerated intellectual ancestors: Rivers, Malinowski, Radcliffe-Brown, and Evans-Pritchard, among others. Steeped in this relativistic tradition, many of my undergraduate teachers believed that cultural systems shaped our psychological development to such a degree that there was nothing at the core of human nature that wasn't culturally constituted—and if there was, it wasn't interesting. Later I would discover a very different view of human nature grounded in the experimental methods of the cognitive and evolutionary sciences. But the perspectives of the harder sciences were not usually taught to social anthropologists in those days, and my private skepticism regarding the dogma of relativism led me to seek some kind of proof of the psychic unity of humankind. I wanted to go somewhere as culturally remote and historically detached as possible from the society that had nurtured and raised me. I wanted to discover the limits of human nature by encountering them somehow "in the wild."

From my undergraduate readings in anthropology, I learned that the peoples of Papua New Guinea (PNG) had never known the blessings (or curses) of metallurgy, science, literacy, or state formation and, for thousands of years, had remained beyond the reach of more complex societies evolving in other parts of the world. This extraordinary isolation, until the arrival of Western colonists mostly in the twentieth century, made the case of PNG profoundly alluring. Many of the accounts of anthropologists in the region quoted informants who recalled a time when all artifacts were made

from materials gathered from the natural environment and fashioned using stone age technologies. Scattered settlements in the forest were often at war, capturing brides from their neighbors, killing and allegedly even eating people from enemy groups. At the time, it would have been (and probably still is) considered ethnocentric, or at least poor taste, to single out these rather striking facts and far more fashionable to fabricate more abstract (if spurious) idiosyncrasies of Melanesian cultures, such as their allegedly "fractal" conceptions of personhood (Wagner 1991). But what really interested me about PNG were the potential consequences of having been virtually untouched by the many waves of cultural evolution that had swept across the rest of the world for millennia.

For my doctoral research at Cambridge, I decided to travel to the island of New Britain in search of a remote cultural group known to the outside world mainly for three things. First, they were called the "Baining," which in the language of their coastal-dwelling neighbors meant something like "forest dweller" (with pejorative connotations of savagery). Second, many of the Baining rejected the teachings of Christian missionaries and instead followed a little known cargo cult. And third, one of Britain's finest social anthropologists, Gregory Bateson, had tried to study the Baining but had given up, claiming that their culture was impenetrable. These patchy and unreliable snippets of information lured me to the Baining and I ended up living with them for two years, studying their language and culture, and becoming adopted into the community.

I had been taught that a good way to establish rapport while struggling to learn an unwritten language was to acquire the skills valued locally, which in this case included gardening, foraging, fishing, and hunting. As my abilities to communicate improved, however, it became clear that what people really wanted to talk to me about were their religious beliefs and practices (Whitehouse 2005b). I soon learned that much of daily life was devoted to enticing the ancestors back from the dead, ushering in a sort of Paradise on earth. The Baining village in which I ended up living turned out to be just one of scores of villages scattered throughout the forest, together forming a movement known as the *Kivung* (which means a "meeting"). Kivung followers performed a vast array of rituals, mainly focused on three types of temples where food offerings to the ancestors were laid out and lengthy public speeches were made. One of the striking features of these practices was that they conformed quite rigidly to an established canon that was standardized across the movement, encompassing thousands of followers. This uniformity of belief had managed to cross several language barriers, binding together peoples with otherwise quite different histories and cultural systems. And yet, as Kivung members they all espoused the same elaborate ideology and performed the same repertoire of daily rituals. Given that most followers of the Kivung could not read or write, the maintenance of an elaborated orthodoxy seemed to depend on the frequent repetition of doctrines and narratives in public settings.

Although Kivung members had a strong sense of common identity, especially in opposition to their coastal neighbors and the various Christian missions, an even stronger sense of group cohesion was evident in the individual villages comprising the movement. In the village of Dadul where my research was based, I witnessed the formation of a breakaway sect that sought to be the first among all the Kivung villages

to be reunited with its ancestors and showered with wealth. The people of Dadul, consequently, established new rituals to welcome back the dead, involving massive feasts and the destruction of property. Men discarded their clothes in favor of loincloths and women removed their sarongs, baring their breasts in defiance of missionary teachings. A mass marriage was conducted and other grand ceremonies performed inciting strong emotions. Eventually the community built a large roundhouse capable of housing the entire village and they joined together in all-night vigils waiting for the returning ancestors. Some of the feelings aroused in participants were powerfully dysphoric. For example, a decision was taken to remain within the communal temple from dusk to dawn and not to venture outside to answer the call of nature. Due to overconsumption at feasts during the hours of daylight, some people inevitably needed to defecate in the temple and this also triggered vomiting, adding to the hellish atmosphere of the nocturnal vigils.

When the ancestors failed to show up and the community's resources had been depleted to a critical level, the specter of starvation loomed and the splinter group was disbanded. People then returned to daily life in the more routinized Kivung movement. A striking consequence of this splintering process was not disillusionment or despair, as one might have imagined but, on the contrary, renewed conviction and social solidarity—especially within the local community that had undergone these ordeals together. Perhaps even more surprisingly, I learned that such splintering events were not unique to the village I was living in—in fact, most Kivung villages underwent experiences like this every five to ten years and the overall effect seemed to be to amplify commitment to the group rather than to undermine it.

These experiences in PNG suggested to me that rituals tend to fall into two basic clusters. There are those (like the ones I witnessed in the local splinter group) that evince strong emotions. Other examples from this region included rites of initiation—often involving terrifying ordeals. I called these *imagistic* practices because they make a strong impression on people and leave a lasting image in their minds. Many *imagistic* rituals are rare or once-in-a-lifetime events. These may be distinguished from a second cluster of rituals that are decidedly more sedate or mild, such as those observed in church on Sundays or the mosque on Fridays. These much more frequently performed rituals are usually accompanied by highly elaborated religious teachings. I called these *doctrinal* practices.

Doctrinal and *imagistic* practices constitute divergent modes of religiosity. *Imagistic* practices are very effective at binding local networks of people into tightly knit, emotionally bonded communities. They seem to create a sense of family connection based, not on bonds of kinship and descent, but on the sharing of life-changing ritual experiences. *Doctrinal* practices, by contrast, tend to spread rapidly and become standardized across much larger populations. The frequent repetition of *doctrinal* rituals—from daily prayers to weekly Holy Days through to all the events that fill up religious calendars—serve to cement the social identity of potentially enormous social groups, like a tribe or a nation, but not with the same intensity as *imagistic* practices.

Following my two years of living with the Baining, I returned to Cambridge and buried myself in the library. Reading the cargo cult literature with fresh eyes, I began to realize that the two modes of religiosity I had observed in the Kivung were apparent

in other cults in the region, and perhaps more widely still. After writing up my field notes and submitting my thesis, I began to explore the applicability of this distinction between doctrinal and imagistic practices to other religious groups in Melanesia—and that is how I became involved in the establishment of CSR.

The early nineties

Twenty-five years ago I took up my first academic post as a research fellow at Trinity Hall, University of Cambridge. By that time my skepticism toward most forms of relativism and all forms of postmodernism had become difficult to hide. I had started reading books about cognitive science and evolutionary theory, and my growing interest particularly in experimental psychology was gently encouraged, at times gleefully, by several mentors, foremost among them, Ernest Gellner and Alfred Gell. But it was actually one of my peers, rather than any of the distinguished elders living in Cambridge at the time, who most inspired me to develop a cognitive approach to the study of culture: Pascal Boyer. At the time, he was, like me, a research fellow, but he came from a different and (to me) more exotic intellectual tradition under the tutelage of Dan Sperber in France. Boyer encouraged me to make frequent visits to Paris to visit his friends, especially Carlo Severi and Michael Houseman. And it was also through Boyer that I came to meet E. Thomas Lawson and Robert N. McCauley—as well as their students, including Justin Barrett and Brian Malley. I was amazed and delighted to find that we not only shared many frustrations about the way religion was typically being studied at the time but also had strikingly convergent ideas about how to improve the situation. As the frequency of our group meetings intensified, we began to describe ourselves smilingly as the architects of a “cognitivist conspiracy” bent on reforming the study of religion and setting it on a truly scientific footing. But more seriously, and even more remarkably, I discovered that Lawson and McCauley had been developing a theory of ritual that bore uncanny resemblances to my recently published ideas about doctrinal and imagistic modes (see McCauley 2001; McCauley and Lawson 2002; Whitehouse [1992] 2014, 1995, 2000). This coalescence of interests, among others, helped foment a wider interest in CSR.

Although the story from this point on could be told in many ways, involving many people and projects, it is hardly surprising that what I remember best about the burgeoning CSR field are the activities focused on the study of ritual, since that was my primary area of interest. We all knew that in order to make serious progress testing our theories of ritual would require the involvement of scholars of religion, classicists, historians, and archaeologists. I recall some gloomy conversations with my fellow conspirators about the improbability of sparking significant interest among experts in those fields. But then McCauley introduced me to Luther H. Martin.

Martin firmly believed that the study of religion was ripe for change and that it would be eminently possible to find scholars interested in CSR—especially its refreshingly precise conceptual frameworks, hypotheses, and methods of testing them. And he turned out to be right. Martin helped and inspired several of us to organize conferences to which we successfully invited many distinguished historians of religion studying

Mithraism, Gnosticism, and medieval and reformed varieties of Christianity—but also people who studied prehistoric rituals stretching back into our hunter-gatherer past (Whitehouse and Martin 2004a,b, 2005; Whitehouse and Laidlaw, 2004; Whitehouse and McCauley 2005a,b; Pachis and Martin 2009). Through these discussions many of us became convinced that there was something universal and ancient about the patterns of ritual behavior we were interested in.

Ritual and causal opacity

The first thing to note about rituals is that they are everywhere. All human societies have them and as far as we can tell they always have. Like the broader category of “religion,” ritual can be fractionated into a number of different aspects including things like synchronous movement, symbolic qualities, concerns about contamination, and associated concerns about threshold and entrance, exactness and symmetry, separating and boundary marking, and so on (Boyer and Liénard 2006). Some rituals are such ingrained habits that we scarcely notice them. People often associate rituals with religion, but rituals are a pervasive feature of all aspects of our lives, not just contexts of worship. Even atheists perform a vast array of rituals everyday—by following conventions for greeting each other, handling food, deciding what to wear and how to style their hair, and so on.

One of the most interesting features of ritual from an anthropological perspective is its “causal opacity” (Whitehouse 2011a, b). That is, rituals don’t have a rational causal structure—it’s simply a matter of following a convention, observing the proper or the “done” thing. When we think of ordinary instrumental behavior, we assume it has a knowable causal structure. For example, when we observe the behavior of an angler, we naturally infer that the rod, reel, line, hook, and bait are all arranged so as to assist in the extraction of fish from the water. This even goes for elements we don’t fully understand—like the cogs and other mechanisms in the reel, which we assume are there somehow to facilitate the process of casting out or reeling in. By contrast, when we observe a bottle of champagne being swung on a rope so that it shatters against the hull of a ship, we don’t interpret this action in purely instrumental terms. It would be absurd to imagine that the bottle is going to help push the ship down the slide into the water. If it assists in the process, it’s assumed that it won’t be in terms of ordinary physical causation. For many, sacrificing a bottle of bubbly is just a traditional entailment of launching a ship. If it’s also thought to do something useful (e.g., bring good luck in some unknown way), such outcomes are never adequately explainable in physical-causal terms.

The reason for homing in on causal opacity is that it picks out a very special feature of our evolved psychology. Humans are the only primates that engage in extensive imitation of causally opaque behavior. Chimps couldn’t care less about table manners; they don’t clasp their hands in prayer or do the goosetstep. It’s true that chimps and other primates sometimes learn things from each other but they only pick up skills that are technically useful—skills that you can see actually work. Since cultural rituals don’t have any causal structure, most sensible animals wouldn’t bother copying them.

But what those other animals don't realize is that rituals contain a powerful secret: by slavishly conforming to arbitrary social conventions, human groups are binding themselves together into cooperative units—and thanks to our rituals we are able to cooperate in ways that none of the other higher mammals have managed to accomplish.

One of the many little clues suggesting that ritualistic behavior is written into our evolved biological makeup is the fact that it emerges very early in human development. Even infants seem to be fascinated by causally opaque behavior and will try to copy it (Gergely et al. 1995). Indeed, the willingness to copy arbitrary conventions is essential to acquiring language—you have to accept that certain funny utterances refer to stable features of the world around us, not because there's a causal relationship between the sound and the thing it refers to but simply because that's the accepted convention.

Our tendency to copy causally opaque behavior is sometimes called “overimitation.” Psychologists have known for some time that if you show children an unnecessarily complicated way of retrieving an object from a box, they will copy not only the causally necessary behavior but also imitate the pointless elements. In fact, even if you tell them to avoid reproducing any “silly” actions that don't really help with getting the object out of the box, they still copy them (Lyons et al. 2007). Apparently they can't help themselves. For some time psychologists have been thinking that overimitation evolved to help children acquire complex technical skills before they could actually understand how they work. But around 2010 I teamed up with developmental psychologist Cristine Legare at the University of Texas to explore a very different interpretation. Perhaps the function of overimitation, we reasoned, is to transmit arbitrary group conventions—rituals in other words. And perhaps what motivates this behavior is the desire to belong, rather than to learn anything technically useful.

To test this idea, we designed a study in which young children (4–6 year olds) were shown a novel action sequence using objects they had never encountered before (Legare et al. 2015). The children were split into two groups, receiving slightly different treatments. In one condition the modeled action sequence ended with all the objects back where they started. We called this the “ritual” condition because it made no sense to interpret the actions as having a causal structure leading to an outcome. In the other condition, all the objects were handled in exactly the same way as in the first treatment but with one crucial difference—the last object ended up not where it began, but in a box. We called this the “instrumental” condition because even though it was undoubtedly an odd way of putting an object into a box, there was at least some kind of causal structure buried in the action sequence leading to an end goal. Children in each of these two groups were then given the objects to handle themselves. Even though no instruction was given to copy what they had seen, all children imitated the modeled behavior to some extent. Crucially, however, children copied more faithfully and were less prone to inventing novel behaviors of their own, in the ritual condition.

Humans seem to interpret behavior in two very different ways—either as instrumental (aimed at manipulating the causal structure of the world to achieve an end goal) or as ritualistic (aimed at sharing a set of conventions distinctive to their group). One of my PhD students, Rachel Watson-Jones, helped us replicate the findings of our original experiments while also extending the paradigm. What we found is that if you prime the children with an ostracism threat, then levels of imitation associated

with the ritual condition go even higher (Watson-Jones et al. 2014; Watson-Jones et al. 2016). The ritual stance seems to be all about trying to belong, to affiliate with an in-group. When you are insecure about your status as a group member, you become even more anxious to conform to group conventions—basically, you overimitate even more. In some of our recent studies, we have used verbal framings to activate the ritual stance—we told children that the model “always does it that way,” suggesting that this is a conventional preference rather than an instrumentally motivated action. We have found that even this mild encouragement to adopt the ritual stance gets children copying opaque behavior more faithfully (Herrmann et al. 2013).

Ritual as social glue

Collective rituals play a crucial role in binding groups together. Based on my fieldwork in PNG back in the 1980s and subsequent investigations of more than 100 detailed case studies, it appeared that rituals tended to fall into two basic clusters or “modes of religiosity,” previously described (Whitehouse 1995, 2000, 2004). Imagistic and doctrinal rituals entail quite different types and intensities of group cohesion. Imagistic rituals are very effective at binding small groups of people into tightly knit, emotionally bonded groups. It’s almost as if they create new family units, connected not by shared genes but by their shared experiences in sacred rituals. Doctrinal rituals work differently. They are generally standardized over much larger groups of people than imagistic rituals because they are often linked to rigid belief systems that can be exported intact to new people. The frequent repetition of doctrinal rituals cements the social identity of potentially enormous social groups, such as nations or world religions.

Imagistic rituals build groups by creating a sense of family connection among participants. They do this by making us feel like we share something basic and essential about our innermost personal identities. Every one of us has a personal self—a set of traits that make us who we are. A lot of these key features come from our past experiences, events that have shaped our lives—our personal autobiography. The most self-shaping experiences can be quite negative ones—ordeals that we’ve overcome, making us stronger or wiser. Bad experiences tend to be remembered better than good ones, prompting more intense reflection afterward (Whitehouse, Richert, and Stewart 2005; Russell et al. 2016). For nearly two decades we had linked these kinds of experiences to the imagistic mode and the remarkably intense social cohesion it produces. But we lacked a precise conceptualization of this type of cohesion or a way of measuring it. That’s when I discovered the work of William B. Swann and his colleagues on “identity fusion” (Swann et al. 2012).

Identity fusion may be concisely described as a visceral sense of oneness with the group (Swann et al. 2009) whereby one’s social identity becomes an essential aspect of one’s personal self. Strongly fused persons report intense family-like connections to other group members, high levels of personal agency, and feelings of invulnerability in their group. They also exhibit strong prosocial tendencies, for example, a willingness to make personal sacrifices to aid in-group victims of attacks (Buhrmester et al. 2015). Perhaps the exceptionally intense form of social cohesion we had been observing in

imagistic traditions was captured by the identity fusion construct. Perhaps when self-shaping experiences are felt to be shared with other people—when we feel like they've been through what we've been through—the boundary between the core personal self and the social self becomes more porous, leading to fusion.

Psychologists have shown that wherever you go in the world people are highly fused with their families, even if with no other group (Swann et al. 2014). It makes some evolutionary sense that sharing tough experiences should serve as a way of fusing kin groups—after all, in ancestral conditions, the people with whom you shared life's struggles would typically have been your kin. But what may be happening, at least with some rituals, is that they hijack this fusion mechanism (Whitehouse and Lanman 2014). Painful or frightening initiation rituals, for example, serve as life-changing experiences that we never forget—and because they are also causally opaque, we reflect deeply on their meaning and significance. Initiations shape our autobiographical selves but they also make us feel that we share these experiences with others who have gone through the same rituals. This bonding mechanism has been used for thousands of years in small-scale societies, especially ones that needed to bind together young men so that they'd stand by each other on the battlefield or when engaging in other high-risk pursuits like hunting large and dangerous animals (Whitehouse and Hodder 2010).

By contrast, doctrinal rituals are all about creating social identities that are separate from our personal identities. Imagine that the most important rituals for your group are conducted on a daily or weekly basis—like calls to prayer or Sunday services. What this means is that your knowledge about the group's beliefs and practices is stored in your semantic memory—it's part of your general knowledge of the world. You couldn't remember every single call to prayer or Sunday service as a distinct experience; instead you have a set of prototypes in your head telling you how those things should be done. And those prototypes are essentially depersonalizing—they specify who does what in terms of roles and functions rather than actual people. (The priest does this and then the congregant does that—but not Fred does this and Wilma does that.) And so we enter the world of large-group thinking and identification with groups (Whitehouse and Lanman 2014).

Quantifying ritual

Although much had been learned about modes of religiosity by poring over case study material, an obvious problem with such an approach was that of selection bias. To avoid the charge of cherry-picking case studies that fitted the theory, we needed to come up with a more objective way of testing our hypotheses. About ten years ago one of my postdoctoral researchers, Quentin Atkinson, spearheaded the construction of a database of 645 rituals taken from seventy-four cultures around the world (Atkinson and Whitehouse 2010). For each of the rituals in our database, we coded for approximately 100 variables—allowing us to test the principal predictions of the modes theory statistically, and without any danger of cherry-picking convenient examples. This not only confirmed some of our core predictions; we also discovered something else that turned out to be important *archaeologically*—namely that as rituals become more

frequent and less dysphoric, agricultural intensity increases. This pointed to the possibility that the transition from foraging to farming in the early Neolithic may have been linked to the rise of the doctrinal mode.

In an effort to find out whether a basic shift from imagistic to doctrinal dynamics did indeed feature in the rise of agriculture and the evolution of social complexity, Atkinson and I began working with archaeologists Ian Hodder and Amy Bogaard to construct an archaeological database covering a large chunk of Western Asia from the end of the Paleolithic to the beginning of the Bronze Age. What seems to be happening with the invention of farming is a gradual transition from imagistic to doctrinal patterns of ritual and group formation (Whitehouse and Hodder 2010; Whitehouse et al. 2013). But we could never have known this without a huge amount of labor to reorganize the archaeological evidence in a way that could be analyzed statistically. The archaeological record is great for looking at patterns over very deep time, but the available evidence from prehistory is incredibly patchy. So we've also been building databases on the *recorded* past.

Soon after we began building our archaeological datasets, I met Peter Turchin at a cultural evolution conference. Not only did he share my excitement about the idea of building longitudinal databases to study the origins of social complexity but also he had the statistical and modeling expertise I lacked. Together we applied for funding to hire historian Pieter Francois to help us create SESHAT: Global History Database (Turchin et al. 2012, 2015; Currie et al. 2015). Over the past five years SESHAT has been growing at an astonishing rate and earlier this year passed our first major milestone of 100,000 data points. SESHAT is now enabling us to quantify various aspects of ritual behavior and relate these to the evolution of social complexity. Our database will eventually be global in reach and go back in time as far as possible for each region coded. The basic idea is to assemble what we know about human history in the same way that GenBank has enabled the biosciences to organize and store our knowledge about gene sequences. So in the end, we'll have a vast storehouse of information about the evolution of social complexity that can be searched using statistical tools.

In an effort to understand how people become fused with the group, we have also been running experiments in our Oxford lab, building on early studies in which we attempted to manipulate fear in artificial rituals (Whitehouse, Richert, and Stewart. 2005). Obviously, ethics boards tightly circumscribe what we can do to induce pain and fear in our human subject pools. So now we're also increasingly taking our lab measures out into the field (Whitehouse 2012b). For example, we are going to places where people naturally go through extremely dysphoric experiences together—in regions as far apart as Japan (where some rural communities subject their young people to ritual ordeals by ice and fire) and Mauritius (where thousands of Hindus, as in other regions of the world, pierce their skin with hooks, often attached to chains used to drag heavy objects behind them, and parade for hours in the searing heat). More recently still we have been studying the agonies of defeat on the football pitch. We have found that the worst performing football teams in the UK Premier League have a more tightly bonded support base than the more successful teams and that this bonding seems to be an outcome of shared dysphoria in highly ritualized settings, involving a host of causally opaque identity markers and conventional behaviors. In all these studies we

measure not only fusion with the group but also people's willingness to fight and die for group causes and to harm members of opposing groups in various ways. So at the same time as we're learning about the psychology of group bonding, we're also gaining new insights into the drivers of intergroup conflict.

From fusion to fanaticism

When people are highly fused, they will seemingly stop at nothing to protect their fellow group members from external threats. For some years, Bill Swann and I have merged our research teams (comprising lead researchers Michael Buhrmester, Oliver Curry, Jonathan Jong, Jonathan Lanman, Ryan McKay, Brian McQuinn, Miriam Matthews, and Valerie van Mulukom) to investigate the imagistic pathway to fusion and its consequences for extreme progroup action (Whitehouse and Lanman 2014). Our core hypothesis is that painful or frightening ordeals are especially memorable and personally transformative, all the more so if such experiences are causally opaque (Whitehouse [1996] 2014). When people reflect deeply on shared experiences of this kind, they shape not only the personal self but also the group, rendering the boundary between them more porous and producing identity fusion (Jong et al. 2015). Thus when the group is threatened, it feels like a personal attack. If so, maybe when jihadi fighters and other religious extremists blow themselves up in suicide attacks, it is not so much an act of unprovoked aggression against innocent civilians but an act of defense against an out-group threat.

To investigate these psychological processes in more depth, one of my doctoral students, Brian McQuinn, set off for Libya in the middle of the 2011 revolution to study the role of imagistic practices and other forms of shared suffering in the formation and cohesion of revolutionary brigades. Many thousands of volunteers were gunned down by Gaddafi's forces and yet the survivors battled on. Once established in the field, McQuinn managed to spirit me into Libya and together we surveyed 179 surviving members of four battalions (Whitehouse et al. 2014). Our goal was to measure fusion with various groups: family, members of one's battalion, all fighters in the revolution, and those who supported the revolution but didn't participate in it. Roughly half the sample comprised frontline fighters and the other half were providers of logistical support within the battalion (e.g., they drove or repaired ambulances). Our results showed that the overwhelming majority of revolutionaries were fused with their families, with their battalions, and with the members of other battalions. Only a very small proportion (less than 1%) of all revolutionaries was fused with supporters of the revolution who didn't take up arms. In other words, simply being on the same side ideologically (sharing the same beliefs and goals) didn't predict fusion. What really seemed to matter was having gone through the intense fear and pain of warfare by virtue of being in a revolutionary battalion.

Our study went further, however. We asked all participants in the survey to say which group they would choose as their primary fusion target if they could only choose one of them. In other words, we used a forced choice question—they had to say which group they were the most fused with. And here we found a striking difference between our two samples. Nearly half of frontline fighters chose their battalions over their families as the primary fusion target. By contrast, only 28 percent of those who

provided logistical support chose battalion over family. One possible interpretation of this finding is that frontline fighters were more fused with each other because they had undergone more intense, self-shaping experiences together.

The insurgents we spoke to in Libya were willing to lay down their lives for each other without a moment's hesitation. It seems that when people fuse with each other and with a cause, they become emboldened by a sense of invincibility. If that process involves religious beliefs, then it may seem to the casual observer as if extreme *doctrinal* commitment is motivating extreme behavior—when actually the “deeper” underlying mechanism is one of fusion via *imagistic* pathways.

Summing up

Over the past twenty-five years, CSR has sought to disambiguate various patterns of thinking and behavior loosely associated with the label “religion” in order to establish more suitable objects for scientific study. CSR has gone on to establish a set of theoretical foundations and methodological procedures for explaining the fractionated elements of religion in ways that have led to cumulative advancement rather than merely a succession of fashionable interpretive frameworks. In the process, CSR has established new and potentially durable bridges between the study of religion and other fields of scientific research spanning the cognitive, behavioral, and biological sciences.

CSR represents a radical departure from the idea that religion is something unique and monolithic—a “natural kind” worthy of study in its own right. Scientists interested in explaining religion nowadays mostly focus on bite-size features of religion rather than religion as a whole. In this chapter, we have considered ritual as an example of this approach. We have observed some strikingly recurrent patterns of ritual behavior across all areas of human life and throughout the ages: from ancient cults to medieval churches, from revolutionary brigades to modern armies, and from martial arts groups to football fans.

Ritual is popularly misconstrued as an exotic, even quirky topic—a facet of human nature that, along with beliefs in supernatural agents and magical spells, is little more than a curious fossil of prescientific culture. Nothing could be further from the truth. Humans are as ritualistic today as they have ever been. Even the most secular political systems ever devised, for instance those under the sway of historical materialism and its vision of a communist utopia, were as devoted to ritual as any in human history. In part, this is because rituals play a vital role in bonding groups and pitting them against each other. Understanding how these processes operate isn't simply a scholastic exercise. It is vital to fostering more cohesive and successful societies—and also, perhaps even more urgently, managing the destructive and seemingly intractable conflicts that drive us into wars, riots, and revolutions.

Acknowledgments

This is a revised and extended version of a paper first presented at the Engelsberg Seminar on Religion, hosted by the Ax:son Johnson Foundation (Whitehouse

[2015], *Explaining Religion and Ritual*. In K. Almqvist and A. Linklater (Eds.) *Religion: Perspectives from the Engelsberg Seminar 2014* [261–70]. Stockholm: Axel and Margaret Ax:son Johnson Foundation). In reflecting back on my work over the past quarter century, I would like to acknowledge my intellectual debt to the many doctoral students and postdocs I have worked with during that period. Although there are too many to list, I would like to mention in particular those supported by our EXREL and ESRC projects: Quentin Atkinson, Nicolas Baumard, Michael Buhrmester, Emma Cohen, Oliver Curry, Pieter Francois, Michael Gantley, Patricia Herrmann, Gordon Ingram, Ben Johannes, Jonathan Jong, Christopher Kavanagh, Florian Keissling, Justin Lane, Jonathan Lanman, Ryan McKay, Brian McQuinn, Miriam Matthews, Camilla Mazzucato, Daniel Mullins, Valerie van Mulukom, Adrian Murzac, Martha Newson, Veronika Rybanska, Yvan Russell, Tara Tasuji, Rachel Watson-Jones, Claire White, Dimitris Xygalatas. Much of the work summarized in this chapter was supported by a Large Grant from the UK's Economic and Social Research Council (REF RES-060-25-0085) entitled "Ritual, Community, and Conflict" and a STREP grant from the European Commission's Sixth Framework Programme (project no.043225) entitled "Explaining Religion."