

Ritual, Community, and Conflict: Reflections on the science of the social and its practical implications

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The Ritual Animal summarizes the results of over three decades of research on the role of rituals in creating cohesion and cooperation within communities and driving conflicts between them. The process has involved various theoretical, methodological, and practical challenges and advances, discussed in this book review forum from a variety of novel angles. Contributors span a broad range of disciplines, including cognitive and evolutionary anthropology (Atran, Burdett, Lanman, Stanford), history (Larson, Martin), philosophy (McCauley), religious studies (Wood) and computer science (Lane). The range of topics covered by the reviews is similarly broad, addressing many of the core questions raised by the book, relating to the nature of ritual, the theory of divergent modes, and the role of ritual in cultural evolution. The reviews also engage with the book's vision for a new science of the social and its potential role in tackling practical problems facing humanity today. The reviewers are generous in their appraisals of the book but also present constructive criticisms and suggestions for improvements. My response is structured around five main headings, as summarised in the following table for ease of reference. In order to provide sufficient background information for readers unfamiliar with the contents of *The Ritual Animal*, I have prefaced each section with a one-paragraph summary of key points from the book to which the reviews discussed in that section are addressed.

The ritual stance	Ritual modes	Ritual and evolution	The science of the social	Harnessing the ritual animal
Jennifer Larson	Luther H. Martin	Connor Wood	Jonathan Lanman	Emily Burdett
Mark Stanford	Connor Wood	Luther H. Martin	Robert N. McCauley	Justin Lane
	Justin Lane	Scott Atran	Scott Atran	Scott Atran

The ritual stance

In *The Ritual Animal* I argue that adopting a 'ritual stance' leads us to copy the behaviour of others as a way of affiliating with them, in contrast with the 'instrumental stance' which is oriented to acquiring technically useful skills. I suggested that when engaging in social learning, participants flit back and forth flexibly between these two stances in much the same way as the lenses in bifocal spectacles allow us to adjust our focus on the world when gazing at objects close up or further away (Whitehouse, 2011, 2012, 2021). We refer to this as the 'bifocal stance theory' of ritual (Jagiello, Heyes, & Whitehouse, 2022). The notion of a 'ritual stance' is broadly compatible with anthropological theories of ritual that emphasize rules without meaning (Stahl 1990; Humphrey and Laidlaw 1994) emphasizing conformism

(Bloch, 1974) and with approaches in developmental psychology emphasizing the role of imitation in ritualistic convention-learning (e.g., Legare & Nielsen, 2020; Nielsen et al., 2014). However, it contrasts with perspectives on 'overimitation' which emphasize only its instrumental motivations – e.g., as a copy-all-correct-later strategy for the learning of technical skills (Lyons et al., 2007). Efforts to disambiguate the motivations and social cues prompting ritual and instrumental stances respectively suggest that we copy more faithfully and innovate less when adopting a ritual rather than an instrumental stance (Legare et al., 2015) and that ritualistic imitation is affiliative, apparently being used as a re-inclusion behaviour when ostracism threat is primed (Watson-Jones et al., 2014; Watson-Jones et al., 2015).

Jennifer Larson makes the important point that ritual – at least as the term is commonly used in English – is associated with other interesting features, not adequately captured by the contrast between ritual and instrumental stances. One example, discussed in *The Ritual Animal*, is the repetition of stereotyped behaviours associated with hazard precaution – including concerns with cleaning and straightening, symmetry and exactness, and threshold and entrance (Boyer & Liénard, 2006). Although these aspects of ritual become exaggerated in the symptoms of OCD patients, it has been argued that they are abundantly apparent also in many rituals cross-culturally (Dulaney & Fiske, 1994). Larson points out that there are likely also other mechanisms involved in shaping the behaviours we describe as 'rituals' – such as representativeness heuristics and essentialist reasoning associated with rituals involving homeopathic or sympathetic magic (Gilovic and Savitsky, 2002). Larson also notes that at least some aspects of the body language used in rituals, such as kneeling and bowing, are not arbitrary but incorporate intuitively supine postures. I would argue that such behaviours may be attributable to a distinct psychological mechanism – for example, associated with violence inhibition (Nichols, 2007) – just as OCD-like behaviours may be rooted in a hazard precaution mechanism.

Larson's observations support the view, emphasized in the book, that ritual is not a monolithic phenomenon but a rather a loose term covering a variety of different features of human psychology and their behavioural manifestations. These should be fractionated with care (McKay & Whitehouse, 2015). Although *The Ritual Animal* acknowledges many (albeit not all) dimensions of ritual discussed by scholars and scientists in the past, the reason I focused heavily on the ritual stance was that it helps to shed light on the cohesive power of rituals, particularly due its meaning-generating affordances, in keeping with the primary theoretical concerns of the book. The hazard precaution theory explains a dimension of ritualised behaviour that is probably best understood as a by-product of psychological systems that evolved to protect individuals from contaminants rather than as an adaptive mechanism for group bonding and cooperation and was therefore a lesser focus of attention in the book. If supine gestures directed towards supernatural agents and forces are indeed rooted in a violence inhibition mechanism, then their recurrence cross-culturally may be explained by their capacity to express power asymmetries between gods and mortals. Whereas the ritual stance is a pervasive feature of social learning and cooperation in all human societies, supine gestures towards supernatural agents are presumably only present in hierarchical societies, perhaps contributing to the legitimation of social inequalities. At any rate, these are testable hypotheses worth pursuing in future research.

Mark Stanford argues in a similar vein that the term 'ritual stance' is not broad enough to suit the range of phenomena it is intended to capture. He prefers the phrase 'normative stance' which would arguably serve better to capture a variety of social conventions (e.g., clothing, dining etiquette). However, this is another symptom of the poor fit between everyday terminological usage and the psychological processes and mechanisms we are seeking to dissect. If we plump for 'normative stance' it may capture less easily those ceremonial events that we ordinarily think of as archetypal rituals: e.g., funerals and weddings, ceremonies of state, religious liturgies, or graduations. Whatever our terminological habits and preferences, however, what matters is that we characterize precisely which phenomena are the focus of theoretical interest. In the case of the ritual stance, the focus is on behaviours we regard as irremediably opaque. The moment it becomes clear that a causally transparent account may exist, such behaviours would cease to be regarded as rituals.

Terminological matters aside, Stanford appears to accept the fundamental claims of the bifocal stance theory but argues that this raises questions about the nature of magical procedures. For example, should these be described as 'rituals' if practitioners believe they are purely instrumental? From the perspective of the theoretical framework adopted in my book, the answer to this is clear: if the performer believes the procedures can be rendered causally transparent (even in principle) then the behaviour in question is neither magical nor ritualized but, on the contrary, is purely instrumental. The qualification in parenthesis is important, however. The causal structure of an action sequence may be assumed to be resolvable in principle but not in practice – this is often true of complex technical actions in the absence of suitable expertise as well as magical ones. However, it matters whether we think that somebody somewhere could render the action sequence causally transparent. Only when we rule out that possibility do we adopt the ritual stance. As Stanford points out, if that is the case then we require some way of establishing which stance people are adopting when they engage in a culturally prescribed behaviour. I agree and this was one of the main objectives of the many experiments described in the book, using a variety of social cues – from goal demotion techniques to verbal framings suggesting conventionality – to trigger the ritual stance and measure the effects of this on copying fidelity.

These points bear also on Stanford's questions about the relationship between ritual and art. In particular, he asks why rituals invite imitation and yet art does not. According to bifocal stance theory, this is because different social cues are in play, as Stanford acknowledges. However, he seems to endorse the view advanced by Umbres (2022) that children observe rituals only because they are instructed to do so by figures of authority. Here we part company because children adopt both ritual and instrumental stances when overimitating causally opaque behaviour *in the absence of explicit instructions to do so*, as numerous studies have shown. The evidence suggests that the ritual stance is sensitive to a wide range of social cues. These include the omission of salient end goals (e.g., Legare et al., 2015) as well as verbal cues suggesting that a behaviour is always done a certain way (e.g., Rybanska et al., 2017) and also the presence of multiple versus individual actors or evidence of behavioural coordination and synchrony (Herrmann et al., 2013). It is plausible that many other social cues influence the adoption of ritual versus instrumental stances as described in *The Ritual Animal* – including indicators of authority, competence, experience, seniority, and confidence on the part of models. Some of these cues are clearly deployed in the arts. This

likely impacts imitation of high-end fashion among elites but also performative artistic genres among lower status groups (e.g., head banging at a thrash metal concert) where there is a similarly strong inducement to imitate. However, it seems that many art forms – for example in modern Western societies – have evolved in ways that explicitly discourage or forbid copying requiring appreciators to inhibit the urge to tap their feet or sing along or otherwise imitate the artist at work. Instead, the sophisticated appreciator of art is invited to engage in a more cerebral process of exegetical reflection. This tendency is not uniquely Western, however. As Stanford notes, similar norms would seem to apply to certain forms of Burmese spirit possession, for example, which likewise proscribe audience participation. The question whether forms of art and ritual alike suppress the natural urge to imitate is an open empirical question. The above discussions provide excellent examples of the way new directions for future research can be collaboratively generated in this area – one of the main aims of the book.

Ritual modes

The Ritual Animal describes more than three decades of research indicating that rarely performed, emotionally intense ‘imagistic’ rituals produce highly cohesive but small-scale groups bonded through shared episodic memories of transformative life events. By contrast, routinized ‘doctrinal’ rituals give rise to large-scale ‘imagined communities’ based on the sharing of socially learned beliefs and practices that spread widely and become sedimented in semantic memory through repetition. This is the theory of ‘modes of religiosity’ – first articulated in a trilogy of books (Whitehouse 1995, 2000, 2004) and which has since been more fully fleshed out in a host of collaborative empirical studies (for additional overviews see also Whitehouse & Lanman, 2014; Whitehouse, 2018). Efforts to test the modes theory have used a wide variety of methods ranging from ethnographic case studies (e.g., Whitehouse and Laidlaw, 2004 and 2007), surveys and controlled experiments (e.g., Whitehouse et al., 2017) through to mathematical modelling (e.g., Whitehouse et al, 2012) and quantitative analysis of large datasets (e.g., Atkinson & Whitehouse, 2011; Kapitány et al., 2020). One of the main aims of *The Ritual Animal* was to bring together much of the evidence on this topic in one place.

In his review, Luther H. Martin describes how the modes theory has contributed to his extensive research on Graeco-Roman religions over the decades, helping to generate novel insights into the imagistic character of Mithraism and the doctrinal character of official Roman state religion (e.g., Martin and Pachis, 2009). Martin’s critique of scholarly literature exaggerating the homogeneity of Mithraism and underestimating that of Roman state religion not only demonstrates the relevance of modes theory for historiography, but also the potential for historians to develop and improve the theory in various ways (Whitehouse & Martin, 2005). This critique is further enriched by Martin’s extended discussion of the work of William H. McNeill (1995) showing how historical studies of ritual behaviour can provide insights into the dynamics proposed by the modes theory in novel and illuminating ways.

Connor Wood points out, however, that more work is needed to fully situate the modes theory in relation to other theoretical frameworks proposed by social scientists in the past. He observes, for example, that although Turner's contrast between 'structure' and 'communitas' is similar in some respects to the contrast between doctrinal and imagistic modes described in *The Ritual Animal*, there are also important differences. Wood makes the point that by attending to points of contrast, it may be possible to generate novel and potentially testable hypotheses that might otherwise be overlooked. I agree and hope that such a synthesizing approach will be taken up by others.

An inspiring example of how this can be done is illustrated by Scott Atran's erudite and panoramic review, in which he considers how the modes theory may shed light on the evolution of the world religions that have shaped the doctrinal and imagistic worlds we inhabit in today. Further concrete examples of how the modes theory could be extended and developed in future are suggested in the review by Justin E. Lane, who points out that several strands of his own research, some of which were explicitly designed to test and build upon the modes theory, might have been fruitfully discussed at greater length in *The Ritual Animal* (e.g., Lane 2015, 2019, 2021). I did positively summarise and cite some of this research in the book but clearly there is room for deeper engagement. In particular, Lane's suggestion that fusion with 'conceptual' as well as 'relational' ties and could help to account for some forms of imagistic experience and their impacts on extreme pro-group action, is intriguing and requires closer consideration and empirical investigation. Again, these are excellent examples of how the book sought to generate debates that could lead to new lines of enquiry.

Ritual and evolution

The Ritual Animal proposes that collective rituals contributed to the evolution of socio-political complexity. I argue that a change in ritual life during the Neolithic played a major role in driving the initial rise of more complex societies, in the form of a gradual shift from the rare emotionally intense rituals of locally distinctive ancestor cults (focused on hunting and feasting) towards more routinized rituals associated with domestic groups and the appearance of much larger-scale identity markers (Whitehouse & Hodder, 2010; Whitehouse et al., 2014). Based on research utilizing data from 49 archaeological sites spanning the Epipaleolithic to the end of the Pottery Neolithic (Gantley, Bogaard, & Whitehouse, 2018), I propose that the appearance and spread of agriculture was accompanied by a shift from imagistic to doctrinal modes of religiosity, contributing to the appearance of the first large-scale cultural identities. I point out that the earliest state formations were often characterized by extreme forms of inequality, involving the deification of rulers, mass slavery and human sacrifice (Whitehouse et al., 2019). However, as multi-ethnic empires competed with other groups for land and resources while *also* facing the risk of internal discord and rebellion from within, only those societies capable of maintaining strong forms of social cohesion tended to flourish. I argue in *The Ritual Animal* that the rise and spread of so-called 'Axial Age' religions – Judaism, Buddhism,

Confucianism, Greek philosophy, and Zoroastrianism (Mullins et al., 2018) – played an important part in that process.

Many of the reviewers in this forum argue that this evolutionary approach to understanding the role of ritual in human societies is one of the main strengths of *The Ritual Animal*. Jonathan A. Lanman points out that issues of development, mechanism, function, and history (Tinbergen's four key questions that any comprehensive evolutionary framework must include) benefit from being considered together in a holistic approach as modelled in *The Ritual Animal*. Wood agrees, arguing the multilevel landscapes framework adopted in the book – which combines epigenetic, developmental, cognitive, and historical dimensions of ritual and society – generates original and surprising insights and hypotheses. Martin, however, is more sceptical about the idea that culture evolves, arguing that the analogy with biological evolution is unwarranted or at least questionable.

Martin points out that natural selection is non-agentic whereas cultural innovations are spread intentionally. By eliding this difference and instead emphasizing the similarities between biological and cultural evolution, he argues that I fall into the trap of 'biologizing' culture (something I criticise others for doing). There appear to be two misunderstandings here, however. First, although I argued against the tendency of some scholars to treat cultural traditions as natural kinds based on shared essences, my concern was with the borrowing of intuitions from domains to which they were unsuited. It was not intended as an argument against the idea of cultural groups as units of selection in an evolutionary framework. Cultural evolution theory does not derive from applying intuitive biology to the domain of the social but, on the contrary, entails the application of (somewhat counterintuitive) principles from the biological sciences to build an evolutionary science of the social.

Second, the extent to which cultural group selection is influenced by intentions is an open empirical question. In the case of the modes theory, for example, it is not clear whether imagistic and doctrinal practices occur because they are deliberately designed to address distinct collective action problems or because they emerge and spread via cultural selection acting on randomly occurring variation in collective rituals. The patterns of distribution of ritual forms are quite well established (Atkinson and Whitehouse, 2011; Kapitány et al., 2020) but the extent to which these are deliberately intended is an open empirical question. However, the theory of cultural group selection does not stand or fall on the resolution of such matters. Seven mechanisms are thought to contribute to the establishment of a cultural inheritance system in humans. These mechanisms are: high-fidelity copying; conformism bias; identity markers; coordination payoffs; policing; one-to-many transmission; institutional complexity (Richerson et al., 2016). Human ritual behaviour arguably contributes to all these seven requirements, but 'lack of intentionality' is not among them (Whitehouse, In Press).

The science of the social

One of the main aims of *The Ritual Animal* is to describe some key features of a new 'science of the social' based on transdisciplinary collaboration rooted in the methods and findings of the natural sciences but engaging also the conceptual and empirical richness of humanities disciplines. I argue that some of the barriers to progress in the social sciences stem from our lack of a well-developed intuitive ontology of the social – and especially the limitations of our psychological equipment for reasoning about complex social formations. Consequently, much social theory has become mired in intuitive physics, biology, and psychology that at turns have led scholars to reify, essentialise, or mentalise cultural groups. A promising solution to these problems is to develop a more collaborative, problem-centred approach to the science of the social grounded in an all-encompassing evolutionary framework capable of connecting the social, behavioural, and biological sciences more deeply with the humanities disciplines. As one example of this, I describe efforts to create *Seshat: Global History Databank* designed to assemble much of the information generated by humanities scholars (e.g., historians, classicists, ethnographers, and archaeologists) in a format that can be analysed statistically by data scientists to test evolutionary models and theories (Turchin et al., 2020). By focusing on specific theories and testing the hypotheses they generate, the silos dividing various branches of the humanities and sciences can be profitably bridged.

In his panoptic and authoritative review, Lanman points out that such a transdisciplinary enterprise would need to be motivating for a great diversity of scholars and scientists and this may not be easy to accomplish if the kinds of questions posed by humanities researchers are systematically different from those of scientists. For example, when ethnographers or historians are studying a given ritual tradition, they generally do so by interrogating its richly complex connections with a unique and complex cultural context. This focus of interest appears to be fundamentally different from that of the scientist whose goal is to distil certain features of ritual traditions in ways that allow them to be compared across many contexts. Lanman argues that these two ways of studying ritual involve different approaches to causality – the one focused on multi-stranded causal chains in a uniquely complex field setting or historical period and the other focused on just a few reliably recurrent variables that allow the same causal pathways to be detected across many diverse contexts. As Lanman observes, applying the latter approach to policy problems on the ground can result in a 'one-size-fits-all' strategy that is insensitive to the complexity of local conditions. Such an approach is unlikely to appeal to humanities scholars whose work is devoted precisely to unravelling that complexity.

Another perspective on these challenges is presented by Robert N. McCauley, who argues that the greatest problem facing the transdisciplinary integration is not merely that humanities scholars tolerate lower levels of reductionism in causal explanation than their scientific counterparts but that many such scholars repudiate *all* forms of reductionism. Instead, they cleave to a position of interpretive exclusivism which maintains that the only way to understand culture is to document and interpret labyrinths of meaning at the expense of scientific explanation (McCauley & Lawson, 1996). Championing this approach, anthropologist Clifford Geertz advocated 'thick description' as the most effective

interpretive strategy (1973). McCauley, by contrast, argues that a comparative science of culture requires ‘thin’ descriptions – that is, the ability to identify features of culture that are not exclusively local and particular. The ability to do so is basic not only to scientific study of culture but to the scientific study of many aspects of the world around us more generally. In addition to these points, Atran adds yet another set of potential impediments to problem-centred transdisciplinary collaboration. He points out that many of the disciplinary silos that obstruct not only collaborative research but even basic communication of ideas across academic fields, are rooted in vested interests and entrenched habits (including rituals).

The various perspectives of Lanman, McCauley, and Atran are potentially reconcilable, however, if we adopt the approach advocated in *The Ritual Animal*. One way to illustrate this is to focus on a concrete example: the *Seshat* project. For over a decade, my colleagues and I have been working collaboratively with humanities scholars, evolutionary theorists, and data scientists to build the *Seshat* Global History Databank, allowing us to code features of past societies in ways that can be analysed statistically. Our overarching goal is to establish which features drove the rise of social complexity in world history: was it agriculture, warfare, religion, class conflict, or something else – or some combination of features? Our ability to answer this question depends on the quality of the data contained in *Seshat*. And that in turn depends on the standards of historiography and archaeology which are set by the disciplinary silos in which each are embedded.

Atran points out that “battering down the disciplinary barriers and intellectual silos impeding a science of the social” is likely to prove very difficult. However, this is not the approach I advocate in the book. Destroying existing academic silos (even if that were possible) would be problematic because they provide the necessary data on which our analyses of history and prehistory are based. In the case of historians, their methods of archival research have been honed over many generations through specialization in the management and interpretation of very particular kinds of textual materials. Likewise, in archaeology many kinds of highly specialised expertise have had to be developed to provide the level of insight we now have into human prehistory. Such expertise would not have been achievable without the development of distinct scholarly silos.

Consequently, the aim should not be to eliminate the dividing lines between various specialised fields but to ensure that bridges between them can be traversed, as Atran’s pioneering transdisciplinary research amply demonstrates (e.g., Atran, 2011). To return to the *Seshat* example, in order to establish whether religion helped to drive the rise of social complexity required researchers on the project to develop a method of measuring potentially relevant features of religion in ways that would be directly comparable across widely differing world regions and historical periods (e.g., Turchin et al. 2022b; Whitehouse et al., 2022). But because research on, say, precolonial West African history takes place in a different silo from research in Mexico or big island Hawaii we had to establish a bridging mechanism that would allow us to compare like with like across the world regions in our database. This meant coding for a large number of features of religious belief in exactly the same way across hundreds of past societies as well as gathering data on changing levels of social complexity during the histories of each of those societies.

The *Seshat* team continues to work collaboratively with scores of historians to accomplish this – a process that involves drawing on silo-specific knowledge while also converting it into a form that allows comparison across widely differing cultural systems. Silos are a necessary feature of the scientific process – not something to batter down but something we need to preserve and build upon by establishing a network of interconnected bridges, using shared constructs that allow us to engage in comparative analysis. This aspiration chimes strongly with McCauley’s arguments in defence of thin description and it also goes some way to addressing Lanman’s concerns about a one-size-fits-all approach. Championing the value of thin description (in this case the features of religion that are not unique to particular cultures but can be compared across them) does not mean rejecting thick description. In this example from the *Seshat* project, thin descriptions had to be distilled from a corpus of thick descriptions to enable us to carry out comparative analysis. And this is also the spirit in which *The Ritual Animal* champions the idea of field stations, devoted to the gathering of data utilizing qualitative methods, surveys, and psychological experiments, in ways that allow valid comparison and theory building cross-culturally. Interpretive exclusivism would make such enterprises impossible.

Harnessing the ritual animal

Following the approach adopted in *The Ritual Animal*, it seems fitting to end this response to reviews with the pressing question of what a more inclusive approach to anthropology might mean for the future of humanity and of the planet. In the book, I argue that the imagistic pathway to fusion plays a crucial role in intergroup violence affecting the world today. This is illustrated by studies with military groups – ranging from members of conventional armies to non-state armed groups such as revolutionary insurgents (Whitehouse et al., 2014) – but also with civilian groups such as football fans (Newson et al., 2013) or indigenous warrior groups and their initiation rituals (Buhrmester, Zeitlyn, & Whitehouse, 2020). In all these cases, emotionally intense rituals have been linked to identity fusion – and fusion has in turn been linked to extreme forms of pro-group action (Swann et al., 2014). Those actions become violent when the group itself is thought to be under threat. I refer to this as the fusion-plus-threat model of intergroup hostility (Whitehouse, 2018). And I explain how we can use the research on this topic to build a ‘volatility index’ – a way of identifying at-risk populations and individuals before they engage in violence. I emphasize that this kind of intervention needs to be developed consensually with grassroots support from the communities it is developed in. The book also describes a series of ways in which (instead of *defusing* violent groups) the aim might be to *harness* fusion generated by collective rituals to bring about peaceful prosocial outcomes. For example, research on the rituals of football fans has provided considerable data on the imagistic pathway to fusion and its potential to be used to tackle crime and reduce rates of recidivism among ex-offenders (Newson & Whitehouse, 2020; Whitehouse & Fitzgerald, 2020). Another example relates the harnessing of fusion in *religious* communities to act on environmental issues. All the world religions endorse the idea that humanity should take care of God’s creation or take responsibility for stewardship of the earth – in fact, this seems to be a point of common agreement across most large-scale

religions and many indigenous and traditional ones as well. So, there is considerable potential to channel extended fusion in these sorts of groups and also to harness universal moral principles underlying cooperation (Curry et al., 2019). *The Ritual Animal* explores various ways in which this could be achieved.

Atran is sympathetic to these aspirations. However, he is more pessimistic than I am about the future of humanity while also adopting a more positive view of the past – in line with Steven Pinker’s *Better Angels* argument (that human societies have been gradually becoming fairer and more peaceful). My own view is roughly the other way around – that the world has been getting progressively worse but that the future could be much better. My pessimistic view of the past is based largely on the evidence from *Seshat*. Analysis of the main drivers of social complexity in world history leads to some disturbing conclusions. Apart from agriculture, the biggest predictor of the scale and stability of cooperation in human civilizations historically is not a commitment to ethical beliefs, prosocial philosophies, or socially functional institutions – it is, unfortunately, the invention or adoption of *military technologies* (Turchin et al., 2022b). However, this pattern is unsustainable. Human killing machines have now become so destructive that they cannot continue to drive the formation of ever more complex societies – they can only result in their obliteration.

Nevertheless, if we can develop the kind of science of the social that I describe in *The Ritual Animal* then we can start to pinpoint more precisely which forms of cooperation are needed at which levels of organization in order to build *not only* more peaceful and prosperous societies but ones that are also fairer and more consensual. The book sets out various reasons why this is achievable in theory, but I admit it will not be easy and certainly not inevitable in practice. At the core of the challenge is the need to match the right kinds and intensities of social cohesion to the right kinds of collective action problems.

Emily Burdett thoughtfully considers some of the practical challenges involved in using the theories and findings set out in the book to create practical interventions. She focuses in particular on some of my suggestions for de-fusing violent extremists. One idea considered in the book was that since the sharing of episodic memories for life-changing ordeals lies at the root of both fusion and perceptions of threat, motivating willingness to fight and die for the group, de-fusion might be accomplished by exposing would-be terrorists to the diversity of people’s personal experiences. For example, I suggest that carefully managed group discussions in which ‘at risk’ individuals discussed their memories for group-defining events could reveal many differences of experience, undermining the conviction of shared-ness on which fusion feeds. But as Burdett points out, getting people to open up in this way may not be easy and even if this could be achieved, it is not clear that it would have the predicted effects on levels of fusion. She observes that similar challenges would need to be overcome before attempting interventions at the population level, for example by seeking to reframe shared experiences in volatile regions using popular media. I agree with Burdett that further research on the effects of de-fusion methods is required before attempting to apply these techniques in real world settings, but I remain optimistic about the potential to develop effective interventions of this kind.

Ritual may also play a role in building more peaceful and prosperous societies. The book provides many examples but there are undoubtedly more I did not consider and which I hope others will recognize and take up, building (where possible) on the foundations that I and others have tried to lay. This is really the spirit in which I wrote the book – not to claim that I have all the answers but rather to describe how I think answers can be arrived at. In fact, despite all the sweeping claims that I (and others) might want to make about the potential for a more thoroughly scientific anthropology to contribute to a better future for humanity at large, the aspirations of *The Ritual Animal* were modest. As I put it: “The main goal of this book is to present a theory that *could* be wrong and thus is falsifiable in the face of new evidence.” My commitment to a new science of the social is not a commitment to a tribal alignment – as in a view of science as opposed to the humanities or religion or some other categorical identity. It is more humbly a commitment to an evolving methodology on which all of us can draw, if we wish – and to which all of us can contribute constructively, critically, but, above all, cumulatively. I am very grateful to the reviewers in this forum for helping to show how this can be done.

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