

Science, Belief and Society

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Editors' Introduction: Science, Belief and the Sociological Tradition

Stephen H. Jones, Tom Kaden and Rebecca Catto

Science, belief and sociology

Summarizing the sociological study of science and religion a little over ten years ago, John H. Evans and Michael S. Evans (2008: 88) wrote:

Although we know of no study of the comparative coherence of sociological research areas, we suspect that the field of religion and science is one of the muddiest in all of sociology. The conceptual source of this muddiness lies in the long-running academic assumption that religion and science always conflict and that they conflict over competing truth claims about the world. It is therefore hard for sociologists to analyze the relationship dispassionately because sociology itself was born as a scientific alternative to religion.

While, as we will see shortly, there have been notable developments since this was written, Evans and Evans's point still stands. Sociological exploration of questions to do with science and religion (or as we prefer to phrase it, science and belief) is extremely limited and scattered across largely isolated sub-disciplines. Beyond the US (where most research has focused), it would be hard to even describe it as a 'field of study', so limited and disjointed has research been to date. This is surprising in many ways because science and religion has been an abiding subject of public debate for many decades in many parts of the world, and there are numerous ways in which it intersects with sociologists' concerns. Religious voices play a prominent role in many conflicts over science, from stem cell research to, most famously, evolution. There has also been a trend toward religious groups – from Evangelicals (Toumey, 1994) to Muslim revivalists (Unsworth, 2019: this volume), to Hindu nationalists (Thomas, 2019: this volume) – justifying their beliefs by making a claim on science (Stuckrad, 2014). At the same time, science has been deeply entangled in debates about secularization; many non-religious people see science as central to their identity (Lee, 2019: this volume), while humanist and secularist organizations have regularly characterized themselves as 'fighting in the name of science' (Kind, 2019: this volume). Yet this subject has been on the margins of sociology for many years.

It is hard to understand why this is without, as Evans and Evans say, taking into account the influence of what historians refer to as the 'conflict thesis'. This idea emerged in the nineteenth century, a period of profound upheaval during which the very idea of the modern

'scientist' emerged¹ in part due to efforts to establish a sphere of practice for empirical researchers that was independent of clerical authority (Turner, 1978). It is – as Fern Elsdon-Baker and Will Mason-Wilkes explain in their chapter in this volume – an idea most often associated with the work of the American authors John William Draper (2015 [1874]) and Andrew Dickson White (2009 [1896]), but one of the most significant representatives of the conflict thesis is Auguste Comte, the French author who originally coined the term 'sociology'. Comte's (1853) Law of Three Stages, posited that societies move from a theological to a metaphysical to a 'positive' stage in which explanations are based on observation, experiment, and comparison. Sociology was conceptualized as part of this slow process of replacement, serving, in Comte's (1858) terms, as a 'Positive Religion' and simultaneously as the 'queen of the sciences'.

Since the 1980s, the notion of 'science' and 'religion' having always existed in a state of conflict has been repeatedly debunked by historians (Brooke, 1991; Harrison, 2015; Lightman, 2001; Numbers, 2010). Within sociology, too, Comte is viewed as a 'museum piece' (Elias, 1984: 33). While his term 'sociology' lives on, his argument that 'positive' knowledge can replace religion is universally dismissed. Even so, the conflict thesis has proved remarkably resilient in the West (Numbers and Hardin, forthcoming; Lee, 2019: this volume). One can perhaps draw an analogy with another term Comte popularized, 'positivism'. This philosophy – which is rooted in the idea that the procedures of natural science can provide a comprehensive understanding of human actions – has been challenged repeatedly, to the point where, in Anthony Giddens's (1974: ix) words, '[t]he word "positivist" [...] has become more of a derogatory epithet than a useful descriptive concept' (see also Gülke, 2019: this volume). Yet despite this, positivism's underlying idea that societies can be comprehended via scientific procedures still has appeal, meaning that sociology, as George Steinmetz (2005: 3) puts it, 'continue[s] to experience a positivistic haunting'. In the same way, few sociologists openly advocate the conflict thesis; it is rare now to find sociological studies that – to take one case Evans and Evans (2008: 93) discuss – scientifically test the efficacy of prayer. Yet it is hard for sociologists to jettison the underlying idea that science is something they *do*, while religion is something they (or some of them, at least) *study*. That being the case, taking on the subject of science and religion together seems to require awkward intellectual contortions.

The purpose of this collection: Boundary crossing

The purpose of this collection is to help consolidate and internationalize the field of science and belief. It aims to bring together the different areas of sociology that touch, albeit lightly, on the subject of science and belief, and to broaden the horizons of the field so that it encompasses a wider range of geographical contexts. These two tasks are subtly interconnected, and require some explanation.

¹ The term 'scientist' was coined – by William Whewell – in 1833 and only widely adopted toward the end of the century (Harrison, 2006: 86).

As we mentioned earlier, since Evans and Evans's article was published there has been a small flourishing of research on science and religion, but this has been largely limited to the US. This work has developed our understanding considerably, and we draw on it here while including two contrasting accounts of science and religion in that country (by Jonathan Hill and David Long). Specifically, US-based sociological research has helped to challenge various conflict thesis-related assumptions about what people believe about scientific theories, and evolution in particular. The conflict narrative generally presumes that *knowledge* is paramount: conflicts between science and religion occur because they are competing philosophical systems whose followers cannot coexist (Kaden et al, 2017). In the last twenty years sociological studies of science and religion focused on the US have, however, moved beyond creationist movements (Barker, 1979; Toumey, 1994) to ask questions such as: Are the people who reject evolution actually familiar with creationists' formal arguments (Hill, 2014a; Kaden et al, 2019: this volume)? Does increased knowledge of the science of evolution lead to greater acceptance of it (Baker, 2013; Evans, 2011)? Do religious people think holding correct belief about evolution is important (Hill, 2014a), and is it central to religious identity and community (Guhin, 2016)? Is its rejection best predicted by religious commitment, social networks (Hill, 2014b) or the moral positions that a person holds (Evans, 2011; Noy and O'Brien, 2016)?

Alongside this, a body of research has been published that has intervened in a longstanding argument about why scientists in the US are typically less religious than the wider population. Early studies, influenced by the conflict model, contended that this was because of scientists' increased familiarity with scientific knowledge (Leuba, 2013 [1912], 1934; Larson and Witham, 1998). Elaine Howard Ecklund and colleagues (see, inter alia, Ecklund et al, 2011; Ecklund and Scheitle, 2007, 2017) have, however, questioned this supposition in a variety of ways, asking questions like: Are there alternative explanations for this pattern – such as hostility toward religious people in the sciences (Ecklund, 2010), or the dynamics of professional identity (Ecklund et al, 2008)?² Even though scientists tend to be non-religious, do they actually support the conflict thesis (Ecklund and Park, 2009), and those who publicly affirm it (Johnson et al, 2016)? When they do, is this influenced by their scientific work or factors such as the home they were raised in?

We will leave it to other chapters in this collection (notably Jonathan Hill's) to unpack some of these questions further. Suffice to say for now, though, that as a whole this body of research has stridently moved away from the conflict thesis, busting popular myths about religious people's beliefs (see in particular Ecklund and Scheitle, 2018) and about the coherence and social significance of those beliefs. In this work, identity and moral positioning emerge as arguably more important than knowledge. In morally contested areas of science (and importantly, *only* morally contested areas of science: Allum et al, 2014; Evans, 2011; Shein et al, 2014), knowledge of scientific theories has an uneven relationship,

² This work also includes analysis of how secularization of scientists varies across academic discipline, which has been the subject of long-running debate (see Lehman and Shriver, 1968; Thalheimer, 1973; Stark et al, 1996; Ecklund and Scheitle, 2007).

at best, with acceptance of them. What people profess to accept and reject is often chiefly a function of who they see themselves to be, and whom they mix with, rather than what they understand – and this can be said for scientists (Ecklund et al, 2008) as well as for fundamentalists (Evans, 2018; Hill, 2014b). This argument is most developed in John H. Evans's (2018) recent work, in which he argues epistemological conflict in the US is best seen as a byproduct of a deeper moral conflict. This, in turn, has opened up paths to investigate other, related issues. If only certain (conservative Protestant) groups see evolution as important to who they are (Guhin, 2016), and if even these groups have but a passing awareness of technical arguments about evolution versus creation, then what forces shape public contests between professional creationists and anti-creationists (Evans, 2016; Kaden, 2019)? How do public debates and communal loyalties play out in the everyday settings of American life, especially in that most politically contested of spheres, the classroom (Long, 2011, 2019: this volume)?

Through this work, a fuller understanding of science and religion's place in American society has emerged, building on and challenging the simple surveys gauging evolution acceptance that previously dominated empirical research into science and religion in the US (see Hill 2019: this volume), and that still – with a few notable exceptions (Ecklund et al, 2016; Chan 2018) – tend to dominate the research conducted in other parts of the world (see Carlisle et al, 2019: this volume). In such surveys, people are typically asked to choose from a limited set of evolution belief options, often derived from the formal positions of professional creationist and anti-creationist organizations. Such polling is certainly of value in raising questions, but it tells us little about the wider contexts and meanings ascribed to science and belief. Details of whether, what and why people think about questions of science and belief, and how these perceptions are influenced by moral and cultural conflict, are passed over. Worse still, such polls can often imply that publics have a fixed position on evolution that is directly shaped by professional groups – when, in reality, people's views are more fluid, creative and frequently incoherent and uninformed.

This is something we delineate in Part I of this book, which explores the strengths and weaknesses of methods previously used in the study of science and belief and makes proposals to guide future research. After Fern Elsdon-Baker and Will Mason-Willkes place the sociological discipline in its wider intellectual context in Chapter 1, Jonathan Hill, in Chapter 2, offers a review and critique of US-based survey research on science and religion, pointing to ways surveys have led to a distorted picture of Americans' beliefs (exemplified by the misleadingly simplistic but common media claim that close to half of Americans 'believe in creationism': see Barooah, 2012). Then, in Chapter 3, we look at whether people see meaning in, or identify with, the labels in terms of which debates about science and religion are conducted ('creationism', 'intelligent design', 'New Atheism', etc.). Part I ends with Lydia Reid highlighting the insights that emerge from reflecting on the process and challenges of gathering data related to science and belief. Across the remaining sections of this book the other chapters continue in this vein, profiling research that adopts similar approaches to

recent research in the US, but in other contexts – including studies focused on Canada, the UK, India, Sweden, Germany, and elsewhere.

Crossing disciplines

Shifting the geographical context, however, means being forced to look in a slightly different way. With creationist movements being relatively strong in the US, the focus in US-based research has predominantly been on religious people, especially Christian individuals and organizations who reject, or seek to compete with, mainstream scientific institutions. This is not a flaw of individual authors; indeed, there are very good reasons for research in the US to focus on these populations. This concentration of research has, however, engendered some unhappy side-effects. It has contributed to creationism in the US being taken as a template for understanding science and religion in other, very different, contexts (see Kaden et al, 2019: this volume). It has also led to a failure to challenge a specific conflict thesis-related stereotype. Many chapters in this book deal with Western European states: places where non-religion is increasingly dominant, rejection of evolution is more limited (Eldson-Baker et al, 2017; Unsworth and Voas, 2017) and organized creationism is not influential. In a social scientific scene dominated by arguments for and against the conflict model, these societies are of little interest: the debate, after all, is over *religion's* impact upon science. But this, we believe, is intellectually flawed, for it implies an unmediated (and typically positive) link between *non-religious* worldviews and science.

This goes some way to explaining our preference for using the phrase 'science and belief' rather than the more common 'science and religion'. There is, we suggest, value in studying how moral positioning, cultural norms and legal structures shape interactions between science and non-religious ultimate beliefs, just as there is in the case of religious beliefs. While, of course, this can be done in the US – Ecklund's research with scientists being a good example – turning the focus to Western Europe offers opportunities to examine social contexts where non-religion is more socially dominant and where atheism is not subject to high levels of suspicion (Cox et al, 2015). Moving away from a specific focus on religious people also invites a more in-depth encounter with other areas of sociology than the sociology of religion, where most research in this area is located: specifically, the sociology of science and the (relatively recently emerged) sociology of non-religion. In keeping with this, Part II, Part III and Part IV respectively are rooted in the sociology of science, the sociology of non-religion and the sociology of religion. Of course, there is considerable overlap between these and several of the contributions would fit elsewhere in the book. What we have sought to do, however, is look at what each field brings to this subject and to show readers how these presently isolated fields can speak to one another, as well as how studying science and belief might enrich them.

Each domain has struggled to engage with the subject of science and belief in the past and remains curiously inattentive to the subject. Although there are varied reasons for this, in each case the problem owes something to the way the conflict model is in some sense

woven into the fabric of sociology, and the conceptual ‘muddiness’ this engenders. In the following sections we outline in turn the origins and status of the sociologies of science, non-religion, and religion, giving details of the chapters in the relevant sections and explaining how they remedy the neglect of science and belief.

The sociology of science

The history and development of the sociology of science (here used in its broadest sense to encompass the related fields, science and society and science and technology studies, or STS) is too complicated to do justice to here, and is dealt with in greater depth in this collection by Silke Gülke in Chapter 5. Broadly conceived, it is concerned with what Gülke terms the ‘social embeddedness’ of science, which covers a variety of themes. To follow a metaphor used by one of the field’s best known figures, Thomas F. Gieryn (1999: ix), it can mean looking ‘upstream’ at the social practices and norms involved in generating certified scientific knowledge (Latour and Woolgar, 1986). It can also mean looking further ‘downstream’ at what Gieryn (1983, 1999) calls the ‘boundary work’ that is done in society by various social actors to define and defend the boundaries of what counts as legitimate science – as well as (to extend the metaphor) at the rocks, eddies and gullies of inclusion and exclusion, affecting flow and direction. Finally, it can mean looking toward the ‘river mouth’ at public perceptions of science or specific scientific theories. Research in this area typically falls under the heading of the public understanding of science (or PUS), and, for various historical and institutional reasons (Bauer et al, 2007), is distinct both in its approach and in its underlying normative concerns.

Looking at the development of the sociology of science over time is instructive. Aside from a few notable examples (discussed by Gülke), the early sociology of science tended not to concentrate on the practice of scientific knowledge-making, instead looking at the social function and structure of scientific institutions (Merton, 1979). Increasingly in the late twentieth century, however, the sociology of science turned its attention to how knowledge was generated by scientists and adopted a relativistic approach in which both ‘true’ and ‘false’ knowledge was viewed as constructed through social processes shaped by human interests (Brown, 1984; Knorr-Cetina, 1981). In its own way, this struck a blow to the conflict model in sociology by ‘levelling’ different types of knowledge and applying the same methods to ‘scientific’ and ‘superstitious’ ideas. Indeed, some of the pre-eminent figures in the sociology of science have sought to uncover ‘myths’ associated with scientific rationality and the interests these served (Latour, 1993, 2011).

As Gülke argues, however, although the sociology of science today involves treatment of gender, race and class in scientific knowledge production and dissemination, rarely is religion the subject of empirical analysis. This is despite the fact that – as Renny Thomas vividly illustrates in his analysis of data collected with Indian scientists in Chapter 6 – religion can be involved in the process of scientific knowledge-making, just as it can influence research agendas in many countries. This is a less accurate description of PUS: a growing

body of sophisticated work is emerging that pays attention to people's beliefs (Allum et al, 2014; Clément, 2015; Elsdon-Baker, 2015; McCain and Kampourakis, 2018; Roos, 2014). In PUS, however, the prevailing concern is encouraging publics to engage with and accept science as valid, rather than showing how it is constructed through social processes. This means, as Jessica Carlisle, Salman Hameed and Fern Elsdon-Baker argue in their overview of research into Muslims' perceptions in Chapter 8, engagement with questions of ultimate belief typically focus on religious people's opposition to science, with rather clumsy assumptions still made about these people's 'deficit' in scientific knowledge. Moreover, as Fern Elsdon-Baker and Will Mason-Wilkes explain in Chapter 1, there remains a degree of tension between the desire to treat science work critically and PUS's normative aim of promoting better understanding of and engagement with science. Whatever changes the discipline has been through, vital questions remain.

The sociology of non-religion

The sociology of non-religion offers one of the clearest illustrations of how the conflict model has influenced sociology. In contrast to the other two spheres of enquiry discussed here – which can be traced to the early twentieth century and before in the case of the sociology of religion – non-religion, secularity and unbelief were not subjects of sociological enquiry until the very late 1960s (see Bullivant and Lee, 2012). Only really in the last twenty-five years has non-religion and secularity studies emerged as a distinct field of research. This, as Stephen Bullivant and Lois Lee (2012: 20–21) observe, can only really be explained with reference to anti-religious sentiments:

Many of the social sciences' early pioneers – Comte, Marx, Durkheim, Freud – themselves avowedly non-religious, were fascinated by religion as the great *explicandum*: how can so many people believe in something so absurd? But in trying to answer this question, and thereby establishing the social-scientific study of religion, they arguably failed to recognize that their own *lack* of belief might itself be amenable to similar research.

While religion has figured in sociology as an exotic and unexplainable thing or an artefact leftover from premodern times, about to disappear, non-religion has appeared to many sociologists as 'natural' and therefore in need of no explanation. Fortunately, this is a view that has fewer and fewer advocates, but the field of non-religious studies is still very much in its infancy³ and it has struggled for wider recognition. Despite the fact that 'nones' now count as the world's third largest belief group (Pew Research Centre, 2015), we have a limited vocabulary to describe varieties of unbelief (Lee, 2015). While the field has touched upon the claims non-religious people make upon and about science (Catto and Eccles, 2013), this work has been given virtually no recognition beyond it: the field's influence on the public understanding of science, for example, is negligible.

³ The Nonreligion and Secularity Research Network was established only in 2008. See <https://nsrn.net/>.

In this book, therefore, we include three contributions that explore how non-religious groups and individuals draw upon, and seek to shape the public meanings of, science. In Chapter 9 Lois Lee questions the commonly presumed affinity between non-religion and science, arguing that while one can build a case for this, to be valid it needs to be grounded in the history of non-religion rather than claims about non-religion being inherently more 'rational'. In Chapter 10 Susanne Kind profiles the Swedish Humanist Association's self-described 'crusade' for science and how the legal structures within which it operates have engendered a split between those who seek to win formal recognition as a community of belief and those who see such steps as reducing science to merely a 'belief among others'. Finally in this section, Stephen LeDrew, in Chapter 10, discusses the place of science in contemporary atheist movements, examining in particular the 'boundary work' undertaken by New Atheists whose aim is the legitimation of evolutionary psychology and neuroscience at the expense of the 'relativistic' domain of the social sciences.

The sociology of religion

Religion, of course, has been a central concern for sociologists since the emergence of the discipline in the nineteenth century, with the three so-called 'Founding Fathers' of the discipline – Marx, Durkheim and Weber – all including theses on the nature and future of religion as part of their theories of social change. Today, however, the sociology of religion is in a curious position: although a flourishing sub-field, it is in many ways marginal to sociology (Catto, 2015) and suffers from what Jeff Guhin (2014) calls an 'export problem', with its theories and concepts failing to make an impact on the wider discipline. The reason for this is, at least in part, the process of secularization. The sociology of religion in the US and Europe has been historically focused on Christianity, and churches in particular (Cadge et al, 2011; Smilde and May, 2015). As the influence of Christianity has waned, in Europe especially, so the field has seemed of less import. This is compounded by the fact that academic researchers are, as we have already seen, themselves typically non-religious, so it has become an area easy to neglect.

Debates over secularization *theory*, furthermore, have dominated the field. Secularization theory has been central to the sociology of religion in the US as well as Europe (Blasi, 2014; Gorski and Altinordu, 2008; Voas, 2009), with scholars seeking to defend it or develop a competing model, most famously theories of the 'religious market' (Stark, 1999; Stark and Bainbridge, 1985; Stark and Iannaccone, 1994). More recent theories of secularization (Berger, 1967; Martin, 1978) have tended to eschew, in Bruce's (2002: 26) words, 'a zero-sum view of knowledge' where 'scientific knowledge and rational thought gradually [conquer] territory from superstition', preferring instead to focus on the social functions of religion and how modernization disrupts these (see also LeDrew, 2019: this volume). Even so, both secularization theory *and* the competing market model have tended to define religion narrowly and substantively, focusing on the social significance of belief in the 'supernatural' (compare Bruce, 2002: 2; Stark and Iannaccone, 1994: 232). This way of defining religion functions to concentrate attention on the vitality (or not) of conventional religious institutions

in given social contexts, and not on understanding interactions between different domains of knowledge, practice or discourse. Within these approaches, science remains the practice and religion the object of study, which helps to relegate analysis of science and religion to the margins of the (marginal) sub-discipline.

In recent decades, however, new approaches have flourished in the sociology of religion that are less interested in documenting the level of religious faith and more interested in mapping, in a theoretically informed way, the changing social formation of belief. This work, which has emerged in tandem with non-religion studies, has sought to show, in Pollack and Pickel's (2007: 604) words, how 'individuals are increasingly freeing themselves from institutional guidelines in their religious ideas and behaviours'. It has turned the spotlight on subjective and everyday lived religion (Ammerman, 2007; Dessing et al, 2013), as well as on the emergence of syncretistic forms of spirituality (Heelas and Woodhead, 2005) and other varieties of 'believing without belonging' (Davie, 1994). These shifts have suggested a variety of ways in which science and religion could be incorporated, in a more theoretically informed way, into the sociology of religion. Such approaches suggest that there is potential value in analysing science and religion as facets of lived identity, for example, and in asking questions about whether people's perceptions of science are becoming syncretic and individualized (Jones and Kaden, forthcoming). What remains curious, however, is that while these developments in the field have made it more fertile for the sociological study of science and religion, few scholars are, so to speak, working the plough. The theoretical barriers have begun to come down, but, outside of the US, sustained attempts to examine these objects of study together remain rare.⁴

This collection includes various contributions that seek to rectify this, from Renny Thomas's analysis of the intersections of class, status and belief in Chapter 6 to our own research highlighting the individualized and creative way people engage with evolution belief labels in Chapter 3. In Part III, though, we intentionally focus on populations at the heart of debates about science and religion that nevertheless have been sorely neglected in social scientific analysis. In Chapter 11 David E. Long examines religious 'moderates' in the US, with the focus falling on how those who are religious and nevertheless profess not to have difficulty accepting evolution navigate contexts where conservative Evangelicalism is culturally dominant. Then, in the book's final chapter, Amy Unsworth examines the views of British Muslims, concentrating in particular on the influential but neglected 'reformist Islamist' trend.

Conclusion

Looking back across these three sub-disciplines, one can make out a common transition and set of problems. On the one hand, each has been through a process of change in the late twentieth and early twenty-first centuries, with the different sub-disciplines realigning themselves to take on subjects not traditionally seen as important or valid subjects of inquiry.

⁴ Until 2018, for example, the topic of science and religion was virtually untouched in perhaps the most innovative UK-based sociology of religion journal, *Journal of Contemporary Religion*.

In each case, this transition has opened up some space for science and belief to be examined more systematically as a subject in its own right. On the other hand, however, the nascent status of the field of the sociology of non-religion, the isolation of the sociology of science and the sociology of religion from each other (and the broader discipline), benign neglect of religion and other factors have meant that this systematic analysis has been somewhat limited. What we hope readers will see across this volume are the many ways in which these fields of inquiry can inform each other. Stephen LeDrew's and Susanne Kind's chapters in Part II, for example, are located squarely within the sociology of humanism and atheism, but both describe instructive cases of 'boundary work' that could inform the sociology of science. By the same token, Silke Gülke's chapter's analysis of 'unavailable' knowledge in her ethnography of scientists contains insights that could inform the sociology of non-religious and religious belief alike. It is in these possibilities for disciplinary cross-fertilization and international expansion (which still has much further to go beyond this book) that we see a 'clearer' future for the field emerging.

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