RELIGION AND SCIENCE AS FORMS OF LIFE

Religion and Science as Forms of Life

Anthropological Insights into Reason and Unreason



Edited by
Carles Salazar and Joan Bestard



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Science, Religion and Forms of Life

Carles Salazar



We come to an island and we find beliefs there, and certain beliefs we are inclined to call religious ... Entirely different connections would make them into religious beliefs, and there can easily be imagined transitions where we wouldn't know for our life whether to call them religious beliefs or scientific beliefs.

-Ludwig Wittgenstein, Lectures and Conversations on Aesthetics, Psychology and Religious Belief

Science and religion are modes of thought, ways of knowing or forms of life that have been pervasive in Western cultural formations for the last three to four centuries. As theories about the world and human life, they have often engendered conflicting viewpoints redolent of acrimonious social and cultural struggles. However, all theories and systems of truth are, simultaneously, the product of human endeavours, creations of the human mind in particular social and cultural contexts. The purpose of this book is to reflect upon the relationships, possible articulations and/or contradictions between religion and science as quintessentially human phenomena. Our goal is not to come up with another sociology, psychology or anthropology of religion and science, but to cross (question?) disciplinary boundaries in the analysis of an indisputably complex issue. Even though the majority of the contributors to this volume are anthropologists, we take a rather literalistic approach to the meaning of our discipline, which we define simply as the 'study of the human'. The common denominator of all the contributions consists, precisely, of seeing science and religion as human phenomena, as the products of socially and culturally situated, biologically evolved human minds. Thus, a first and the main boundary we wish to cross is that between naturalistic

and humanistic or social-scientific approaches. Admittedly, there is still a long way to go to achieve an integrated science of culture. However, dialogue between different viewpoints and disciplinary traditions is a necessary step towards that laudable (in our opinion) aim. Secondly, there are somewhat more mundane academic niches that we also wish to bring together, specifically those of anthropologists (with their different areas of specialization), sociologists, philosophers and religious scholars, theoretical workers and 'fieldworkers', all of whom have participated in this project.

Our hypothesis is that the study of the relationships between science and religion is about to enter a new phase, because those relationships are bound to change in our contemporary world, that of the so-called 'knowledge societies'. We believe that scientific knowledge has become increasingly relevant in the day-to-day life of many populations, beyond the institutional public spaces where it has traditionally developed. We wish to identify the possible tensions that this new development of scientific knowledge is likely to produce as regards religious beliefs, modes of thinking that have historically been hegemonic in both public spaces and individual consciousness. Thus, our purpose is to flesh out such reflection with theoretical and ethnographic research on different manifestations of scientific and religious cultures in the contemporary world. Our starting point is viewing science and religion as 'forms of life'. What exactly does that mean? Do we consider them fully commensurate systems of thought? Do we believe in science in the same way as we believe in religion?

The Anthropology of Belief

Here, I would like to make explicit some of the concepts that underlie the arguments put forward by the contributors to this volume. While I am sure that not all of them would agree with my particular interpretation of their theoretical toolkit, this is certainly a way of bringing their manifold arguments and approaches closer together. Let me start with the concepts of form of life and belief. A form of life is not a doctrine, not a theory of the world, but a form of engaging with the world (see Pina-Cabral, this volume), a form of 'dwelling' in that world (Ingold 2000). Let us suppose that science and religion can be seen from this perspective. To engage with the world, an organism does not need to have a theory, but it certainly needs to entertain some beliefs concerning that world (Salazar 2014). What, then, is a belief?

Belief is one of the most controversial concepts in the social sciences, especially in anthropology (Needham 1972; Ruel 1982; Good 1993; Kirsch 2004; Robbins 2007: 14–16; Lindquist and Coleman 2008; Carlisle and

Simon 2012; cf. Sperber 1996: 86–97; Saler 2001; Lanman 2008). Sometimes the alleged inappropriateness of the concept of belief is said to have its origins in the contrast with knowledge. 'We' (scientists, Westerners) have knowledge, 'they' (lay people, 'primitives') have beliefs (Good 1993: 14–24). This is just a matter of perspective. Whatever is knowledge to one person can be seen as belief by someone else. The attribution of knowledge does not entail the distinction between mental state and external reality. A person who knows that it is raining cannot be wrong, so there should be a perfect correspondence between their mental state and the external reality related thereto, otherwise the person does not really know what is going on. The attribution of belief, in contrast, is unthinkable without that distinction. A person who believes it is raining can be right or wrong. Thus, everything points to belief being, first and foremost, something that happens in people's minds, a mental state or representation, potentially different from events in the external world. Is this really the case though?

Are beliefs really mental states? Where do we store them? How do we elicit them? Can they be downloaded as if they were computer programs? Or are they just dispositions to behave in a certain way? In a celebrated essay, Rodney Needham argued that the state of believing in something has no external appearance: 'Where, then, do we get the notion of belief from? From the verb "believe" and its inflected forms, in everyday English usage. Statements of belief are the only evidence for the phenomenon; but the phenomenon itself appears to be no more than the custom of making such statements' (Needham 1972: 108; cf. Saler 2001). Beliefs are mental states attributed to an agent, but they should not be confused with thoughts. We can safely say that people sitting in a train believe it will take them to a particular destination. What is important, however, is that they do not have to be thinking about it for that attribution of belief to be true. So, where is that belief? It could be argued that it is, somehow, somewhere inside their minds, but what about their brains? Is the brain of someone who believes that the train will take them to a particular place in any way different from that of someone who does not entertain such a belief?

We like to think that we need brains to have beliefs, but, interestingly, this does not seem to be either a sufficient or necessary condition for the state of believing to occur. By itself, a brain does not believe in anything. As the philosopher Peter Hacker has argued, 'If someone believes something to be so, then he is either right or wrong; but his being in such-and-such neural state cannot be either right or wrong' (Hacker 2007: 252; see also Bennett and Hacker 2003: 431–45). Additionally, belief can perhaps be properly attributed to brainless entities, such as computers (Dennett 1989: 287–300). If brainless entities can have beliefs, belief originates not so much

in any inherent quality of the believing entity but in attribution. What we should therefore try to find out is what conditions make the attribution of belief plausible. Furthermore, if belief originates in attribution, the key component of belief is not brain activity but interaction. At some stage in the belief–attribution chain there certainly has to be a brain, or something that works like a brain. On that basis, we might also talk about interaction between brains, and perhaps some brainless entities, as the fundamental condition for belief attribution.

If interaction turns out to be a key component of the concept of belief, the analysis of belief must then be the analysis of a form of interaction rather than a set of propositions, which is what the analysis of a theory or a doctrine involves (see Coleman, Pina-Cabral, Sørensen, this volume). We can see how closely related the concepts of belief and form of life happen to be when we look at belief from this perspective. The interaction we are talking about is part of the way of engaging with the world which defines a particular form of life. This is a fundamental common denominator of the contributions to this volume. We can study interactions in all sorts of different ways, ethnographically or otherwise, but viewing beliefs as interactions places all such different approaches to the study of belief on a similar level, as if they were all aimed at answering the same or very similar questions. Let us now be a bit more specific as regards the concept of belief itself. What about religious beliefs? In what way do they differ from the general kind of belief we have just considered?

A common position in anthropology, echoed in Good's sceptical stance concerning the opposition between belief and knowledge, is to argue that there is no such thing as religious beliefs as a valid cross-cultural category because we cannot have a cross-cultural concept of religion. 'My argument is that there cannot be a universal definition of religion, not only because its constituent elements and relationships are historically specific, but because that definition is itself the historical product of discursive processes' (Asad 1993: 29). The alleged anthropological uselessness of the concept of religion is a laudable position (upheld by some contributors to this volume) that, interestingly, has been defended equally well on the basis of very theoretically distinct approaches (see Boyer 2010). However, if religion happens to be cross-culturally inapplicable due to its historical specificity, the same would apply to the majority of social-scientific concepts (Saler 2000: x).

A more pragmatic attitude would be to try to see how, despite the historical specificity of our concept of religion (or of any concept for that matter), certain of its arbitrarily chosen characteristics can be said to have, with all due qualifications, universal or nearly universal validity. Suppose that among those characteristics we decide to include belief in the existence of

supernatural agents with whom humans quite often (though not always) interact in various forms. Again, the universality of the natural/supernatural distinction has not gone unchallenged (Taylor 2007: 780–81, n.19). Admittedly, there are substantial cultural components in the definition of any supernatural (or natural) entity. This does not necessarily entail the impossibility of a cross-cultural concept of the supernatural, however. Let us try to spell this out.

It can be cogently argued that humans all over the world must entertain some notion of what ordinary reality looks like, that is, the reality humans encounter while going about their daily business of survival and reproduction. We can approach this somewhat fuzzy notion of ordinary reality as an instantiation of our intuitive ontologies (Boyer 1996) or as the genuine product of what Schutz skilfully described as our 'natural attitude' (Schutz 1945: 552-53). True, ordinary reality is likely to vary notably in different environments inhabited by humans. At a certain, very basic level though, those differences will tend to be minimal. All humans, whatever the environment they happen to live in, must draw very elementary distinctions between living and non-living things, between humans and non-humans, between kin and non-kin, friends and foes, dead and alive, prey and predator, past, present and future, and so on. There is no need to postulate any innate or 'hard-wired' predisposition to entertain such notions (cf. Boyer 2001: 112–13). Our natural attitude results from interaction between our poorly specified cognitive equipment and the sort of general environment humans have been living in for much of their evolutionary history.²

So, if there is such a thing as a natural attitude and an ordinary reality, we could define the sort of world that results from major violations of the main tenets of that natural reality, violations of our ontological intuitions, as constituting some form of 'extraordinary' or 'supernatural' reality. Familiar instances of such violations would be inanimate objects that behave as if they were human agents, beings who exist but are invisible, who are alive and do not die, who can simultaneously be in different places, and who wield all sorts of superhuman powers, such as knowing our deepest thoughts at all times, resurrecting the dead, and so forth. Let us set aside the matter of what kind of violations they are, bearing in mind that not just any violation would do to properly constitute that supernatural reality. Boyer (1994, 2001) and others have done substantial research on this issue, so there is no need to repeat it here. There is, however, a slightly different question I wish to raise. What does believing in that supernatural reality entail? What could the difference be, if there is any, between beliefs of this type – let us call them religious beliefs – and the rest of our beliefs, beliefs in our ordinary reality? Some would be tempted to argue that believing in such supernatural agents

is merely an illusion, for those beings do not really exist. Ordinary human minds produce illusions of this kind in the same way as a schizophrenic mind produces all sorts of hallucinatory sensations. The question is: Why? Why do normal human minds, which do not suffer from any apparent dysfunction, organic or otherwise, make us entertain such patently false beliefs?

Within the cognitive science of religion, there are two main paradigms that attempt to provide an answer to that question: adaptationism and nonadaptationism. Adaptationists propose that these illusionary beliefs, no matter how false they happen to be, fulfilled an adaptive role in ancestral environments, in such a way that those who held them managed to have more children than those who did not, and were thus able to pass on their belief-prone genes to subsequent generations more successfully than the others (see Blume, this volume). Non-adaptationists, in contrast, consider that religious beliefs are a mere by-product of the human mind, and did not fulfil any adaptive role in human evolutionary history. On that basis, the human mind would produce religious beliefs in the same way as a car engine makes noise, even though it has not been specifically designed for that purpose (see McCauley, this volume).³ Both perspectives certainly provide solid arguments to try to account for the existence of these somewhat strange illusions that we call religious beliefs. Our problem, however, is with the very concept of illusion. Are religious beliefs really 'illusory'? Note that it is not the metaphysical question of the actual existence of God or gods that we are raising now, but the more mundane (though no less important) issue of the nature of so-called mental illusions. Are we correct in equating religious beliefs with the hallucinations of a schizophrenic?

In his seminal work on the sociology of religion, Emile Durkheim made the following observation:

It is inadmissible that systems of ideas like religions, which have held so considerable a place in history, and to which, in all times, men have come to receive the energy which they must have to live, should be made up of a tissue of illusions ... How could a vain fantasy have been able to fashion the human consciousness so strongly and so durably? (Durkheim 1915: 68–69)

Durkheim was right to question the alleged illusory nature of religious beliefs, although perhaps for the wrong reasons (Salazar n.d.). Our minds can create all sorts of illusions – that is, false beliefs – which may very well persist either because they fulfil some kind of adaptive function – what McKay and Dennett call 'positive illusions' (McKay and Dennett 2009: 505–7) – or merely because they are not hopelessly maladaptive. Consider our commonsense notions of space and time as absolute values. Ever since Einstein, we

know that they are not absolute values, that the only such value is the speed of light. However, in the ordinary life of the majority of humans, including that of physicists, it would be utterly useless, and extremely cumbersome, to take Einstein's theory of relativity as our foundational belief concerning the nature of space and time. Our common-sense belief in the absolute values of space and time is thus a 'useful', probably adaptive illusion. Durkheim was mistaken, then, in thinking that mere illusions cannot fashion human consciousness strongly and durably. Is that also true in the case of religious beliefs though?

Science and Religion as Modes of Believing

Anthropologists should be well placed to deal with this question, since only a proper ethnography of belief can tell us exactly what religious belief, or any belief for that matter, is all about. Unfortunately, mainstream anthropology has historically tackled this subject matter from the wrong angle, so to speak. At one extreme, we have those who deny that there is such a thing as religious beliefs, because there is no such thing as religion as a cross-cultural phenomenon to begin with. We have already seen that, setting nominalistic controversies aside, this is a scientifically unproductive and misleading approach. At the other extreme, we have the apparently opposite perspective, which nonetheless ends up formulating a very similar argument. To put it bluntly, 'everything' is religion in so-called primitive societies, according to this view. The intellectual genealogy of this approach can be traced back to Lucien Lévy-Bruhl and his infamous theory of 'pre-logical' mentality (Lévy-Bruhl 1926). Savages' minds are so different from ours, argued Lévy-Bruhl, that they do not even think in logical terms as we do. Lévy-Bruhl was not even referring to complex logical reasoning, but to very elementary rules of Aristotelian logic, such as the principle of identity and that of non-contradiction, which savages supposedly did not follow, instead being submerged in a 'mystical' world wherein invisible and imperceptible forces were seen as the efficient cause of everything that happened (ibid.: 35–45). Although outstanding figures in the history of anthropology subsequently questioned, with very sound arguments, the existence of this pre-logical mentality (e.g. Evans-Pritchard 1934), and the majority of post-Malinowskian anthropologists (and eventually Lévy-Bruhl himself) rejected the crude evolutionist line of reasoning of framing the sequence from pre-logical to logical, the notion that religious or quasi-religious thinking is all-pervasive outside the secularized West, specifically among peasant and tribal peoples, has been prominent in modern anthropology. Whereas we draw a sharp distinction between

the religious and the non-religious, the immanent and the transcendent, the natural and the supernatural, they do not. For them (whoever 'they' happen to be), religion is practically everything and everywhere.⁴

Somewhat paradoxically perhaps, the alleged over-religiosity of the subjects of anthropological enquiry has prevented many anthropologists from exploring the real nature of religious beliefs with good ethnographic insight. Two points should be emphasized at this stage. Firstly, religious beliefs are different from ordinary beliefs. They are beliefs in an invisible, extraordinary reality that, by definition, is poles apart from the world as experienced in everyday life. Secondly, as Durkheim pointed out, religious beliefs cannot be seen as mere 'illusions', although not for the reasons he put forward. We know that illusory perceptions of reality are and have been quite common among ordinary subjects (that is, those who do not suffer from any mental disorder). However, religious beliefs the world over are not merely beliefs in the existence of something (see Inglis, this volume). Consider ordinary people's belief in the existence of black holes. They have not seen them, nor do they understand much of the evidence of their existence. They simply take statements concerning their existence at face value because of the prestige and authority our culture attributes to science. Suppose that scientists were one day to discover that there is no such thing as black holes. Black holes would turn out to be a sort of scientific illusion that had eventually been dispelled and, consequently, popular belief therein would be a senseless belief. That is clearly not the case with religious beliefs, however. Whatever else the concept of religion is supposed to include, religion is certainly not a way of discovering some form of 'truth' about reality (see Rossano 2010: 21–24). This does not mean that there is not an empirical component in the constitution of religious beliefs, as there would otherwise be no such thing as religious experience. Religious beliefs are a complex, culturally determined amalgam of different components, empirical and non-empirical, factive and normative (see Kwon, this volume).5

Let us now move on to the question of whether science can be an object of belief in the same way as or a similar way to religion. The first thing we should bear in mind is that comparing science and religion entails comparing totally asymmetrical cultural formations. Religion could be confidently defined as a human quasi-universal. All human societies have or have had some form of religion, even though not all humans can be said to have religious beliefs. Science, in contrast, is a historical oddity. According to McCauley, one of the contributors to this volume (see also McCauley 2011: 90), even with a liberal conception of science, we can only find continuous scientific activity in very limited cases, namely some ancient cultures, including the Chinese, the Babylonians, the Egyptians and the Mayans, the Ancient

Greeks, some segments of Muslim societies and the Chinese up to the Middle Ages, and the Europeans from the sixteenth century onwards. That is no more than a tiny fraction of human history, and an even tinier fraction of human societies. McCauley has cogently demonstrated that the reasons for the comparative scarcity of science in human history have to do with its exorbitant cognitive costs. It takes great effort to produce and assimilate scientific knowledge, both on the part of the societies wherein that knowledge thrives and on that of the individuals who wish to pursue a scientific career. It is true that science is effective, the most effective form of knowledge ever created by humans. However, it appears to be so costly in cognitive terms simply because natural selection did not provide humans with a brain attuned to the production and assimilation of scientific knowledge. Science is, above all, a form of accumulated knowledge. A single scientist is actually a contradiction in terms, since no matter how brilliant a particular scientist happens to be, they could never have existed without the help of innumerable other scientists (teachers, colleagues and so forth) who, in turn, find themselves in the same situation. Thus, there would have been no selective advantage for any of our ancestors had they been born with an unusually scientifically minded brain. So, we need a complex society with complex institutions, capable of producing enough wealth to buy a few individuals out of everyday productive tasks so that they can devote themselves to the disinterested study of the laws of nature or something along those lines, and with sophisticated means of transmitting and accumulating knowledge, such as literacy. This is not the kind of society humans have lived in for most of their evolutionary history.

None of these requirements apply for religion to exist. I am not suggesting that religion merely grows, almost 'spontaneously', in human minds, with minimal external input, in the same way as language or sexual desire does, for instance. As has been argued from different theoretical standpoints, religious and magical ideas need special cultural mechanisms, such as ritual (see Sørensen, this volume), to ensure their communicability and believability. I am simply saying that whatever (cultural) environment is needed for religion to exist and thrive (see Salazar 2010: 52–53), it is very different from that required for the production of scientific knowledge. Furthermore, note that we are referring to popular religion (which is nowadays normally defined as 'vernacular' or 'lived' religion), not the religion of religious specialists and theologians, which can be almost as cognitively and socially costly as science itself. This, the so-called 'theological incorrectness' of popular religious beliefs (Slone 2004) is an important point, one that several scholars who advocate a cognitive approach to the study of religion have emphasized, and it is worth repeating here. It is such theologically incorrect religious be-

liefs that provide the sharpest contrast to science. They are quasi-universal and probably as old as *Homo sapiens*, if not older. Whence the first abysmal difference between science and religion, which justifies the idea that comparing them entails comparing asymmetric cultural formations. Another such idea is specifically related to the question of 'belief'. What does 'believe in science' actually mean? Can we believe in science in the same way as we believe in God or gods? Again, we are not concerned with beliefs upheld by scientists themselves, which would be somehow equivalent to the beliefs of theologians, but with popular beliefs (see Jenkins, this volume). The interesting thing about popular scientific beliefs is not so much what ordinary people might think about a given scientific statement or discovery, but the relevance of those beliefs in such people's lives.

At first glance, religious and scientific beliefs share many characteristics (see Sansi-Roca, this volume). To start with, people tend to believe in scientific and religious propositions without fully understanding them. We simply take them to be true on the basis of trust, or what Sperber defined as the 'argument of authority' (Sperber 1985: 84). However, this apparent similarity, as real as it is, hides a far more important difference. Popular belief in science seems to be mainly concerned with some form of 'truth', in the purely Aristotelian sense of correspondence between a statement and the state of affairs to which it refers. Consider, for instance, beliefs in a particular kind of scientific knowledge, such as modern genetics, and the relevance those beliefs have for the constitution of kinship relations (Finkler 2000; Konrad 2003; Carsten 2004; Pálsson 2007). What impels people to search for the form of scientific knowledge that accounts for their genetic connections is the desire to find out the 'truth' about their biological relations, whatever further purpose this truth might have, be it discovering whether they may suffer from a hereditary disease or simply finding out about their origins and so on (see Salazar 2009). An example taken from Carsten's ethnography of kinship relations in modern Britain illustrates this quite clearly. A woman whose birth father did not recognize his paternity was able to prove he was lying thanks to a DNA test performed on a half-brother on her father's side. When asked, it was evident that her aim in obtaining this genetic knowledge was simply to find out who her real father was. She just wanted to 'stop the lies' and 'waft the results under his nose'. In other words, she wanted to 'establish the truth' (Carsten 2004: 103–4, 151).

Arguably, this search for truth is probably as old as mankind. That is not what brings science into existence, however, but merely what makes it attractive and useful to non-scientists. In all likelihood, the aforementioned woman did not understand much of what goes on in genetic testing, but that did not affect her belief in science, as it was based, as we have already

seen, on the argument of authority.⁶ No matter how meagre or perhaps even flawed her knowledge of modern genetics may be though, it is fairly unlikely that her belief in the truth of genetic testing had anything to do with some sort of supernatural power, as in the case, for instance, of the famous poison oracles used in Zande magic (Evans-Pritchard 1976). Scientific propositions might look quite mysterious to non-scientists, quantum mechanics and relativity theory being obvious examples. However, that mystery originates in ignorance, and in the fact that propositions of the kind in question normally violate our ontological intuitions quite substantially. Such violations are different from those we find in religious representations. The mystery that stems from scientific violations of our ontological intuitions can be dispelled with proper education, as it has no other cause than mere ignorance. The mystery that surrounds religious representations, by contrast, has nothing to do with ignorance. Religious representations are inherently mysterious, both to ordinary folks and to religious specialists. Given their mystifying attributes, it is a moot point why they have been so successful throughout history, as already indicated. We have seen some of the answers to this question provided by the mainstream cognitive science of religion, such as adaptive value, by-product and so on. To my mind, none of them is fully satisfactory (see Salazar 2007, 2010), though this is not the issue I want to address in this introduction.

Forms of Life

Our concern is to look at the interactions between scientific and religious beliefs as 'forms of life', by which I mean, as I have already suggested, that we are not interested in looking at science and religion as theories. That is the way in which they and their interactions are normally dealt with. They are seen as theories, formulated by specialists about the world, about life, perhaps about everything. As such, they can be regarded as utterly incompatible (Dawkins 2006; Rosenberg 2012), or as having different degrees of compatibility and incompatibility (Gould 1999; McGrath 2011; Plantinga 2011). Our purpose is to consider science and religion from a different viewpoint, as fully fledged socio-cultural systems likely to colonize ordinary people's minds and impinge upon their lives in various ways. I subscribe to the Wittgensteinian concept of form of life as equivalent to a worldview, although not only as a way of thinking but also as a way of acting, behaving and living.⁷ Anthropologists know only too well that all beliefs occur in a context; a 'trivial truth', according to Knight and Astuti (2008: S151). What they tend to ignore, however, is that this context is not simply a cultural

construction but a complex network (I am struggling to find the right word here), a web of cultural and non-cultural determinants in interaction with each other.

Our hypothesis is that science and religion, as forms of life, are likely to come into more contact and interact with each other in contemporary societies, particularly (but not exclusively) Western societies, due to the growing relevance of scientific knowledge in ordinary people's lives (see Jenkins, Melhuus, this volume). I should add an important caveat. We are talking about the growing relevance of scientific knowledge as knowledge and not as a mere technology. As a tool for acting upon the world and producing certain effects, and which is the direct or indirect result of some form of scientific research, technology has been relevant to people's lives since the industrial revolution at least.8 Nonetheless, our use of technology, no matter how sophisticated that technology happens to be, rarely impinges on our way of thinking, or only does so in a rather marginal way. It is true that technology can change our lives in the far from trivial sense of improving our living standards and so forth. Consider the case of biomedicine. Nowadays, practically all humans have had the chance to enjoy, to different extents, the enormous improvements in their health brought about by biomedicine. However, the degree to which the huge amount of scientific research that underlies modern biomedicine impinges upon its users' ways of thinking, in the sense of making them more familiar with the intricacies of scientific knowledge, is certainly very small. People 'believe' in biomedicine because they rely on its efficacy or because of the argument of authority. Whatever the case, it is not because they have become more scientifically minded (see Coma, this volume). I believe that the case of biomedicine can be extended to the other scientifically produced technologies that have been shaping the lives of ordinary citizens for quite a long time. The point we wish to make in our hypothesis is, precisely, that this state of affairs has begun to change in the so-called knowledge societies. Here, scientific knowledge, and not only scientific technology, is penetrating ordinary people's life-worlds (see Melhuus, this volume).

Let us again consider the scientific knowledge of our genome. When a particular kind of scientific research can tell an individual, such as the woman referred to before, who her 'real' father is, that scientific research is changing the way that woman thinks about her relations (cf. Strathern 1999: 65–85). This example involves only one form of scientific knowledge, that of human genetics. What about other forms of scientific knowledge? Are they becoming similarly relevant to ordinary people's lives? It is unclear how the relevance of scientific knowledge will affect other modes of thought that

have been shaping ordinary people's ways of life since time immemorial. We think this is definitely a topic worth exploring.

Structure and Contents of the Volume

The object of this book is to rethink the concepts of religiosity, rationality and secularization in our contemporary world on the basis of specific pieces of research, theoretical and empirical alike, that take the situated human being as their starting point. The book is divided into three sections: 'Cognition', 'Beyond Science' and 'Meaning Systems'. The chapters included in the first section all deal with the nature of scientific knowledge, religious knowledge and the relationships between the two from a cognitive and evolutionary perspective, encompassing their natural or unnatural foundations (McCauley), the adaptive or maladaptive property of science and religion (Blume) and the persistence of religious and/or magic thought in the era of scientific knowledge (Sørensen). The contributors to the 'Beyond Science' section take a different approach. In all the chapters of this section, science seems to transcend itself while interacting with other belief systems. The subject matter examined consists of moral or extra-scientific uses of science (Jenkins), scientific creationism in the UK (Coleman), debates concerning the nature of the human embryo in Norway (Melhuus), the mutually constitutive character of science and religion in Brazil (Sansi-Roca) and notions about illness among Catholic charismatics in Barcelona (Coma). Finally, in the section entitled 'Meaning Systems', we find chapters that, in one way or another, take the so-called problem of meaning as their starting point. They look at the contextual nature of so-called superstitions (Pina-Cabral), religion and science in everyday life in contemporary Ireland (Inglis) and scientific and religious understandings of war-induced trauma in the US and Vietnam (Kwon). This division is somewhat arbitrary, since several chapters would fit equally well in more than one section. It is no more than a heuristic device that should help the reader locate particular chapters in a particular context.

The alleged naturalness of religious ideas and the supposed unnaturalness of science constitute the core argument of McCauley's chapter. Ever since the beginning of the Enlightenment, those who espouse any version of so-called secularization theory have been announcing the demise of religion, specifically its aspects that more blatantly contradict scientific discoveries. Nonetheless, even the most superficial observer cannot deny the resilience of religious symbolic-cultural systems in the face of scientific development. What could be the reason for this rather puzzling phenomenon? McCauley's

point is that evolution made human maturationally natural cognition particularly vulnerable to the influence of religious messages, in the same way as it made our bodies susceptible to colonization by viruses and bacteria. In contrast, nothing in the human mind/brain facilitates the accommodation of scientific knowledge. Little cultural input is needed for religion to spread, while science can only be assimilated thanks to arduous cultural instruction. It is no wonder that science is such an intellectual oddity in human cultural history, in contrast to religion's ubiquity. Consequently, instead of science replacing religious ontologies, as classical secularization theories would have us believe, it is rather science itself that turns out to be the most cognitively vulnerable partner.

In a similar fashion, but perhaps with a more optimistic outlook as far as the future of science is concerned, the concept of epistemological pluralism is defended in Blume's contribution. He argues, in a non-relativistic manner, for the validity of different forms of knowledge, namely scientific, nonscientific and, in particular, religious knowledge. Picasso's painting Guernica provides us with a form of knowledge about the horrors of the Spanish Civil War which cannot be matched by any scientifically informed account. Perhaps religions the world over fulfil a comparable function. However, the efficacy of religious knowledge is not reflected in its empirical value but in its functional utility in promoting adaptive behaviour. Religious believers do not bring more empirical arguments to the science/religion controversy, Blume provocatively contends, but more children. We might thus be in a sort of evolutionary transitional stage as far as the biological basis of religiosity is concerned. If religious people are spreading their genes more successfully than the non-religious, atheistic or agnostic genotypes might become extinct at some time in the not too distant future.

Sørensen's chapter raises the issue of why magic persists in many contemporary societies, despite modernization and rationalization. Rational choice models of human behaviour have predicted the demise of magical thinking due to its vulnerability to being falsified by modern technology. Modernity will not get away with magic though, Sørensen asserts, in so far as modernity creates more rather than less uncertainties. Hence, magic might help us come to terms with the insecurities of the modern world. However, Sørensen's goal is to look not only at the functions fulfilled by magic (such as helping people cope with such uncertainty, as Malinowski had already argued in a different context), but also at what makes magical rituals believable for those who otherwise master 'technological' rationality. His answer is that ritualization prevents magical action from being assimilated into the rational cause–effect association, as if ritual interfered with our capacity for making logical inferences.

The connections, articulations and contradictions between science and religion in particular contexts are dealt with in the contributions of Jenkins, Coleman, Melhuus, Sansi-Roca and Coma. Scientific thinking can be mysteriously recast as a form of life that brings it into very close proximity to religion and magic in functional terms, as Jenkins argues in his contribution. His main concern is with the moral employment of science, how discoveries of science are recaptured by common sense and put to work in moral descriptions of the world. Science certainly breaks with commonsense categories, but then common sense might reuse science for its own ends, so to speak. Science can break with common sense because scientists form moral communities, the last pre-modern moral communities in existence, interestingly and somewhat paradoxically. Again, matters of life and death, as well as the afterlife, turn out to be particularly relevant in this context. An interesting illustration of Jenkins's thesis is provided by the way in which nineteenth-century 'scientific' spiritualism made use of scientific methodologies and discoveries, such as Newtonian physics, to explore the alleged materiality of ghosts. Another example of the moral or extra-scientific employment of science can be taken from the other end of the spectrum, so to speak, in Richard Dawkins's work against religion, a clear instance of 'thinking with science' in order to engage in particular moral crusades that have, or should have, nothing to do with scientific thinking strictly speaking.

Coleman's analysis of everyday creationism in the United Kingdom further develops the comparison between scientific and religious modes of thought. In creationism, we can once again, although perhaps rather unexpectedly in this particular case, see a clear instance of a belief system that cannot be approached as a theory about the world and its origins, but rather as a Foucauldian technology of the self, Coleman contends. In contrast to the intellectualist production of creationism as public discourse versus another public discourse – that is, scientific discourse – as implied by a propositionbased conception of belief, Coleman's research portrays creationism as an embodied and embedded form of knowledge. The evangelical Christians with whom Coleman has carried out fieldwork are reluctant to produce a 'creationist discourse' as a sort of autonomous body of knowledge separate from congregational life, from religious life itself. Hence the apparent paradox that Coleman came across at the beginning of his research, namely that creationist beliefs are conspicuously absent from creationists' ways of thinking. Torn apart from the rest of religious life, creationism becomes a caricature of itself, a 'situated ignorance', as implied in Dawkins's performative disclosure of creationist discourse.

Melhuus puts forward a similar argument in her analysis of the moral status of the embryo. On the one hand, the embryo can be seen as an object

of scientific scrutiny, in the same way as any other biological entity, with the particularity, perhaps, of its regenerative potential. Hence, the value ascribed to the embryo as a biological substance originates in the possibility of generating totipotent cells with which degenerative diseases might be cured. On the other hand though, it is also a moral entity, a hybrid substance of sorts, on the verge of becoming a human being. This is what Melhuus defines as its reproductive potential. The problem is that, no matter how much we invoke science, or scientifically based moral arguments, such as the so-called 'twinning argument', we can never be sure of how such a moral status should be ascertained. It could be argued that the embryo looks very much like a 'creation', as humans are created 'in the image of God'. A creationist claim, or conception, does not have to refer to the Genesis story in a literalist way, but can be regarded as an argument that defends the human identity or quality of a 'bunch of cells', because they are seen as a value, not a mere fact.

Sansi's analysis of candomblé and the religions of Brazil looks at the issue of the mutually constitutive nature of science and religion. An interesting blend of 'scientific' and 'religious' approaches can be seen in spiritualism, where, as in the case of a previous chapter of this volume, science is put to work for the purposes of a religious cult, and, eventually, in candomblé itself, where the very scientists (psychologists and anthropologists) who study it become its practitioners. Sansi's notion of 'multiplicity' to define spirit possession in Brazil refers to the fact that such possession can be found in Afro-Brazilian religions and supposedly 'scientific' religions, such as spiritualism (of European origin), and perhaps even in Catholicism. This miscegenation of epistemologies can only be envisioned if we take science and religion as historical formations of a particular society – the notion of 'forms of life' referred to in the title of this volume – without either of them becoming a privileged standpoint from which to observe and analyse the other.

Finally, from a different point of view, the articulations between science and religion are brought to the fore in Coma's analysis of Catholic charismatic healing. There is an interesting paradox in the way scientific knowledge impinges on ordinary people's lives. Scientific world-views are cognitively costly, whereas the practical results of those world-views, what we normally define as 'technology', are ubiquitous. Nowhere is this contradiction more apparent than in the case of biomedicine. We all enjoy biomedicine's applications, even though we hardly understand how they come about. Interestingly, the very opposite seems to be the case where some religious beliefs are concerned. Here, it is overall world-views that agree with our intuitions (God is good, evil will be defeated and so forth), whereas the particular technologies that turn those general beliefs into practical results,

such as miraculous healings, are harder to figure out. An intriguing complementarity between biomedical technologies and religious world-views manifests itself in the minds of the group of Catholic charismatics Coma has been studying.

The problem of magic's believability is also tackled in Pina-Cabral's chapter, although from a different point of view to that of Sørensen, specifically that of the complexity of belief and the need to contextualize belief so that it is not understood in a 'propositional way', as a theory about the world, but as a form of engagement with the world. Not all beliefs are held in the same state of mind. We can adopt an ironic stance on belief, or treat it recursively, playfully, symbolically; we behave 'as if', but we do not really ... Beliefs make sense when they are interconnected with other beliefs, which is what the author calls 'retentivity', rather than with the things that underlie them, or 'ostensivity'. Pina-Cabral reclaims 'superstition' as situated belief, the sort of fuzzy logic that helps us get on with our lives, in contrast to scientific rationality (we do not live 'scientific lives' in the same way as we have a 'religious life'). Superstition is defined as the 'proneness of human beings anywhere to constitute their informal worlds in terms of the mutuality of personhood, polythetic thinking and the retentiveness of belief'.

Seeing belief as a situated form of knowledge leads us directly to the problem of meaning, in this case Meaning with a capital 'm', referring to how humans manage to turn their often chaotic experience of the world into a meaningful whole. Together with Pina-Cabral's chapter, the contributions of Inglis and Kwon take the issue of meaning as their central concern. Inglis's chapter approaches this contentious subject by postulating a close association between magic and religious beliefs in contemporary Ireland with a Kantian 'practical reason'. Religion and magic have to do with bonding and communication rather than with the search for some form of naked 'truth'. Hence, in popular belief, science, magic and religion do not necessarily contradict each other and there seems to be room for all of them. Furthermore, again in popular belief, no clear-cut boundaries can be identified between those modes of thought, for they seem to sit 'inside' rather than beside each other, Inglis contends. Interestingly, people who openly deny believing quite often act as if they do believe, as if their bodily movements occur for their own reasons, separately from what goes on in their mind. That is further proof of the embodied nature of belief, as seen in previous chapters.

Life and death are two sides of the same coin of human experience. Thus, the meaning of life and the meaning of death always appear inextricably linked. This is clearly demonstrated in Kwon's ethnography of trauma in the US and Vietnam following the Vietnam/American War, and beliefs in the afterlife in Vietnam in relation to the vagaries of Vietnamese political

history. Kwon pits scientific approaches to the study of post-traumatic stress disorder against socio-historical interpretations that turn them into fundamental categories of understanding, to paraphrase Durkheim's jargon, fragments of collective consciousness that help people cope with and make sense of terrible tragedies, such as mass deaths in wars. Whatever the intuitive or counter-intuitive foundations of such beliefs may be, their moral repercussions are constitutive. Making sense of life and death lies at the core of what it is to be human. Kwon ends his chapter with the provocative assertion that in the particular case of trauma brought about by the Vietnam/American War, it is the modern clinical tradition that turns out to be parochial in its application, whereas traditional Vietnamese religious views (interestingly, more concerned with the troubles of the dead than those of the living) appear more attuned to universally shared concerns with and concern for human suffering.

As stated at the beginning of this introduction, our purpose is to cross boundaries, build bridges and draw connections between different theoretical and disciplinary views of the same phenomena. Science and religion are multifaceted cultural formations that have been analysed from very different, sometimes contradictory perspectives. This volume is innovative in that it not only brings together some of these differing approaches, but also establishes a fruitful conversation between them. While a dialogue with an intelligent opponent may not necessarily change our views, it normally leaves us feeling more insightful and enlightened. That is how we hope the reader will feel after a thorough examination of this volume.

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Notes

- Compare anthropologists' endless discussions concerning the universal validity
 of the concept of kinship after Schneider's critique (Schneider 1984).
- 2. Note that 'poorly specified' does not necessarily refer to 'general purpose' cognitive tools. It merely alludes to the need for environmental (both natural

- and cultural, as far as humans are concerned) input to turn any genetic instruction into concrete behaviour.
- 3. See Salazar (2010) for a critical overview of the two approaches in question.
- 4. 'The superstitious man, and frequently also the religious man, believes in a twofold order of reality, the one visible, palpable, and subordinate to the essential laws of motion; the other invisible, intangible, "spiritual", forming a mystic sphere which encompasses the first. But the primitive's mentality does not recognize two distinct worlds in contact with each other, and more or less interpenetrating. To him there is but one. Every reality, like every influence, is mystic, and consequently every perception is also mystic' (Lévy-Bruhl 1926: 68).
- 5. 'If the question arises as to the existence of a god or God, it plays an entirely different role to that of the existence of any person or object I ever heard of. One said, had to say, that one believed in the existence, and if one did not believe, this was regarded as something bad. Normally if I did not believe in the existence of something no one would think there was anything wrong in this' (Wittgenstein 1996: 59).
- 6. The fact that humans have the capacity to process cultural representations that are not fully understood might have had an adaptive value in human evolution. Thanks to this capacity, humans could acquire complex items of cultural knowledge at a very low cognitive cost. Imagine we had to fully understand the process of production of every item of cultural knowledge we make use of (computers, medicines, planes, etc.). The obvious drawback is that this very same capacity makes us vulnerable to all sorts of harmful or 'maladaptive' cultural information (see Richerson and Boyd 2005).
- 7. Compare Coleman's 'technologies of the self' (Coleman, this volume).
- 8. I mean 'scientifically based technology', since technology originating from ordinary knowledge of the environment has been with us, much like religion, since the very beginnings of our species (see McCauley 2011: 88–100).

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