



ORDER: GOD'S, MAN'S AND NATURE'S

The Cambridge Companion to Science and Religion, edited by Peter Harrison
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I

Peter Harrison begins his 'Introduction' to this fine collection of 14 essays on the relations between science and religion with a reference to an observation made in 1939 by the Cambridge philosopher (and proponent of a distinctive view of the science-religion relation) C. D. Broad, who remarked that such discussions had "acquired something of the repulsiveness of half-cold mutton in half-congealed gravy". (1) In an apparent contrast, Michael Stenmark opens his chapter, 'Ways of Relating Science and Religion' (the last in the volume), with the observation that "the number of books and articles written during the past twenty years on the relationship between science and religion is truly amazing, and new ones are coming out almost every day" (278).

In collecting together these 14 essays under the distinguished banner of the *Cambridge Companions to Religion* series, Harrison clearly aims to demonstrate that the upsurge in publications in what is now usually referred to as 'the science and religion field' is justified and reflects what he describes as "the renewed vigour of discussions about science and religion" (1). This aim is most certainly achieved: these essays, all in their different ways, show areas of renewed academic – and more broadly intellectual – interest. From the role of the medieval church as patron of the universities (and hence effectively as sponsor of scientific enquiry) to the possibility of a theological enrichment of psychological analyses of forgiveness and the significance of the notion of 'downward causation' for understandings of free will – to pick three of the many topics considered – it is beyond dispute that work at the interface of science and religion is concerned with issues that are of vital, and mainstream, importance within contemporary thought. More impressively, perhaps, for a collection that aims to serve as "an accessible and stimulating introduction to the subject for new readers

and non-specialists” Harrison has managed to indicate the importance of a renewed consideration of the *relations* between science and religion for the wider intellectual public. Indeed, throughout the book the issue of the complexity of the relations between science and religion is a recurrent theme; an emphasis which in itself justifies the treatment of ‘science and religion’ as a topic of study in its own right.

The result is an excellent volume that not only introduces and makes important contributions to a series of key issues within science and religion but also serves to stimulate further reflection on the complex ways in which the relations between science and religion have and ought to be characterised. Both are clearly urgent, with the latter of particular relevance in an intellectual landscape that is still largely dominated by either/or narratives of militantly atheistic scientists locked in a perpetual battle with gleefully anti-scientific religious believers. Time and time again Harrison’s contributors reject such antagonistic ‘conflict’ models of either science or religion, along with the related ‘independence’ model that affirms that science and religion should never be brought into conjunction with one another, but rather stand apart in sealed-off isolation one from the other (a position most commonly associated with the palaeontologist Stephen Jay Gould’s notion of ‘non-overlapping magisteria’). Both models, conflict and independence, are critiqued as over-simplifying the rich patterns of relations between science and religion – historically and philosophically, as well as scientifically and religiously – and, crucially, as avoiding the really interesting questions raised by the unavoidable, and one should say generally unlamentable, conjunction of science and religion in contemporary intellectual life. Few would dispute the centrality of science, and the natural sciences in particular, to our intellectual landscape and to our lives more widely; notwithstanding some of the wilder claims of postmodern philosophy, ours truly is an “Age of Science.” And yet (in a theme explored by John Hedley Brooke in his chapter ‘Science and Secularization’), it is equally apparent that religion has not gone away: our Age of Science has turned out to be very different from the ‘secular millennium,’ such as that predicted by the anthropologist of religion Anthony Wallace when he wrote in 1966 that “belief in supernatural powers is doomed to die out, all over the world, as a result of the increasing adequacy and diffusion of scientific knowledge” (cited by Brooke, 106). For better or for worse, it is – and as the essays with an historical focus emphasise – always was “science *and* religion”, and this collection serves as an outstanding companion to the rich variety of ways in which this conjunctive relation can and has been negotiated.

II

In keeping with his obvious desire to explore the *relations* between science and religion, Harrison has organized the book into three parts: Historical Interactions, Religion and Contemporary Science, and Philosophical Perspectives. Each part has four or five chapters (fourteen in total), which are supplemented by a brief 'Introduction' and a helpful section of suggestions for further reading. As would be expected of the *Cambridge Companions* series, the book is well-presented and produced to a high standard. The contributors are well-chosen; all are recognised authorities in the areas they discuss and yet all can present their arguments clearly and accessibly to the non-specialist. Clearly, such a diverse set of contributors brings problems of continuity and there is a certain degree of variation in the level at which the different chapters are pitched. More importantly, there is clear common ground between the various contributors; this is not to say that they all speak with one voice, but simply that there is a clear consensus, as indicated above, that consideration of questions on the relations between science and religion requires an awareness of the complexity of the strategies available for their interaction. In general, the contributors are not (explicitly) concerned to advance and defend a particular view of the 'correct' relation between science and religion, but rather to explore the patterns of their inter-relations and the possibilities opened up for new relations by recent developments in historical, scientific and philosophical scholarship.

As might be expected from Peter Harrison the first section, 'Historical Interactions,' is particularly strong. David C. Lindberg gets things underway with a compelling defence of the significance of the natural sciences for patristic and medieval Christian theologians ('Science in Patristic and Medieval Christendom'). He notes that whilst there were some in pre-modern Christendom who were deeply suspicious of what Tertullian condemned as "a stupid curiosity on natural objects" (22), it was "Augustine's handmaiden formula [the sciences are closely disciplined but put to use as needed], rather than Tertullian's rant, that shaped the relationship between Christianity and the natural sciences throughout the Middle Ages and beyond" (25). Against those historians of science and theologians who make common cause in proclaiming the long-term *disjunction* of science and religion, Lindberg sets what will be the recurrent tone of the book as he concludes that what we find in this period "as we ought to have suspected, is a relationship exhibiting all of the variety and complexity with which we are familiar in other realms of human endeavour – conflict, compromise, accommodation, dialogue, alienation, the making of common cause and the going of separate ways" (34).

This refrain is taken up in the second chapter by John Henry ('Religion and the Scientific Revolution'), in which he develops Amos Funkenstein's claim that during the so-called Scientific Revolution "science, philosophy, and theology [could be] seen as one and the same occupation" (41). This acknowledgment enables Henry to correct long-standing myths

of the churches' suppression of science out of a dogmatic religious antipathy to scientific innovation. An historically dispassionate and crucially, theologically informed, examination of the circumstances surrounding the famous condemnations of Galileo, Descartes, and Servetus, for example, "makes it obvious that complex institutions, widely interconnected with other social and political institutions, must respond to many pressures, and try to anticipate a bewildering range of possible developments which might result from innovation. It is hardly surprising, therefore, that the churches sometimes acted against innovations in the sciences and in philosophy; but this should not be taken to mean that religious belief and the scientific enterprise are inherently inimical to one another" (40). The rest of the chapter is more concerned with historiographical interpretations of the various interpretations of the influence of religion on the rise of early modern science, including an interesting discussion of Descartes, theology and the laws of nature – of which more below.

Jonathan R. Topham's chapter 'Natural theology and the Sciences' gives a condensed history of "the idea that the existence and attributes of a divine being could be inferred using natural reason" (61). Topham surveys varieties of natural theology from classical antiquity through to the revival of a 'new natural theology' in early twentieth-century Britain by theologically liberal scientists and theologians, placing an understandable emphasis on those forms of natural theological thinking that have drawn most explicitly on the evidences supplied by the natural sciences. Typically, however, Topham insists on the complexity of the enterprise of natural theology, noting throughout that the various versions of natural theology were "far from uniform, and the motivations of those who developed them were not only diverse, but also mixed" (62). In particular, Topham draws attention to the various religious and theological motivations, beyond simply the desire to defend religious faith by appropriating the methods and contents of the natural sciences.

Whilst the debates surrounding various key developments in the history of science and religion are accorded due recognition, this collection follows the widespread consensus that it is Darwin's theory of evolution by natural selection that has proved to be "the most theologically controversial scientific hypothesis since the time of Galileo" (80). Accordingly, Jon H. Roberts' chapter is dedicated to a survey of 'Religious Reactions to Darwin' from the initial responses to *Origin of Species* (1859) up until 1920. Not unexpectedly, a complex picture emerges in which reactions of religious thinkers to Darwin's hypothesis are shown to be situated within the wider context of the development of religious and theological thinking, in particular as regards the history of doctrine and the role of the Bible. If any generalisations can be made, perhaps the most secure is that of a general shift that reflects the increasingly orthodox status of Darwinism within the scientific community, as Roberts notes, although some of those religious thinkers who rejected Darwinism "continued even after 1875 to raise

objections to evolution based on scientific considerations, most made it clear that the primary source of their animus towards the theory was theological or moral” (92).

The final historical chapter (‘Science and Secularization’) is given over to the most celebrated champion of the complexity thesis himself, John Hedley Brooke. Brooke aims not only to break the widely held belief that scientific progress entails the secularization of society but also “to offer reasons why there is no simple or general answer” (103). Central to this attempt is the argument, made with reference to Charles Taylor’s *A Secular Age* (2007), that the real driver of secularization in the West was not the rise of the natural sciences but instead the development of an ‘exclusive humanism,’ itself the result of a “new moral order...associated with...a providential deism, a philosophy in which the world ran according to laws that had been set up by a benevolent creator who had not, however, made any special revelation to humankind” (118). From this analysis Brooke detects a ‘pervasive ironic pattern’ in which science is used both by those who advocate the kind of revolutionary developments that lead to secularization and by those who oppose these moves. Again with reference to the centrality of conceptions of order and the laws of nature, Brooke writes that “a mechanistic worldview, which did eventually challenge Christian ideas of a deity involved in the minutiae of human lives, had earlier featured as a defence of Christian theism through its support for arguments from design. Machines did not, and could not, design or make themselves. The concept of laws of nature that was eventually placed in opposition to notions of divine intervention originated, at least in part, in the theological concept of a divine legislator” (119).

The second part ‘Religion and Contemporary Science’ brings the story of the relations between science and religion up to date by focusing on five key areas of debate in evolutionary biology, physics, psychology and bioethics. Whilst it is surprising that other ‘hot topics,’ such as the cognitive science of religion and religion and the environment, are not covered (although references for further reading are given for both these subjects), this is nonetheless a fair selection of current flashpoints in the relations between science and religion and each chapter provides a helpful overview of the relevant material. Importantly, on the whole, the chapters avoid the common temptation to assume that the live debates in science and religion are those driven primarily by scientific developments, in which the dynamic presented is one of scientific innovation and religious reaction. Of course, there is some truth to this characterization, but as Ronald L. Numbers shows in the first chapter of this section (‘Scientific Creationism and Intelligent Design’), even in the case of the rise of creationism, and more recently of the intelligent design movement factors other than a desire to oppose science in the name of religion play a crucial role. Strikingly, Numbers makes clear the extent to which debates about creation vs evolution take on a political character, especially in the United States, such that what is really at stake is not so much an

interpretation of scientific data (indeed most anti-evolution creationists and proponents of ID profess a love of science), such that it is unlikely that the debate will be settled any time soon.

Simon Conway Morris' chapter ('Evolution and the Inevitability of Intelligent Life') does not so much survey contemporary debates over evolutionary explanations of the origins of life and of the specific form of cultural intelligence peculiar to humanity as offer an account that combines Athens and Jerusalem so as to be consistent with both the scientific commitment to the continuity of all living things and the theological conviction of the uniqueness of humanity. Conway Morris concludes, with reference to the Inklings Owen Barfield and J. R. R. Tolkien, that whilst "the Darwinian mechanism is entirely unexceptional...[and] possesses a hitherto unrecognized predictability as is evident from the ubiquity of evolutionary convergence....we might suggest that it has the capacity to discover deeper realities, not least consciousness and language" (166). Unfortunately, the metaphysical and theological conclusions of this revisionary account of Darwinian evolution are not spelled out beyond somewhat elusive suggestions; this is a shame, especially given the centrality of a certain (neo-Darwinian) interpretation of evolution to the highly prominent attacks on religion in the name of science associated with Richard Dawkins and other so-called 'new atheists'.

William R. Stoeger, SJ is equally unafraid to lay his cards on the table in his chapter, 'God, Physics and the Big Bang' that deals with current debates surrounding the compatibility of cosmological theories of the beginning of the universe and theological accounts of creation, as well as the discussions about the apparent 'fine-tuning' of the universe. For Stoeger, "fruitful interactions between cosmology and the theology of creation will reinforce their complementarity and prove to be mutually beneficial and enriching" (186) precisely because, for all of their apparent overlap, both scientific and theological accounts are essential components of our reflections on the origins and structure of the universe. This conclusion, however, is reached after a careful and balanced statement of the different claims of scientific cosmology and theology of creation that recognises the possibility of conflict, even as it affirms complementarity.

In his chapter ('Psychology and Theology'), Fraser Watts gives a generous overview of the various ways in which psychology and theology can be brought into dialogue. Advocating a stronger version of the complementarity thesis than that advanced by Stoeger, Watts argues that "the dialogue between theology and psychology can be a more two-way one" (190) in which the psychological contributions to theology are balanced out by the possibility of a theological enrichment of psychology. We are here a long way from a reductionist 'psychology of religion,' rather Watts proposes that theology can offer a bulwark against a problematic "reduction ideology that often distorts the way in which scientific research is presented" (193) (and presumably also undertaken) as well as offering a positive of topics in

'secular psychology,' such as forgiveness. A further aspect of the relation between psychology and religion is that, unlike many other sciences, psychology is often explicitly concerned with religion and religious phenomena, such as prayer and glossolalia, to cite Watts' examples. Here the stress is that psychological research into such phenomena can helpfully sit alongside theological interpretations; here again the emphasis is on the need for both the science *and* the religion to be taken seriously.

The final chapter in this section ('Science, Bioethics and Religion') takes a slightly different tack focusing "on a conflict between religion and science that is not about epistemology but rather about values" (221). Drawing on a perspective informed by the social scientific study of science, John H. Evans takes the debates over issues having to do with the human body as a case-study of the relation between science and religion that have for many (in particular those not trained in specific sciences) "been the primary location of interaction between religion and science from the mid-twentieth century forward" (207). Evans maps the patterns of interaction – from the origin of 'public bioethical debate' within theology to the marginalization of theology and then the subsequent re-emergence of religion into public bioethics – onto a gradual shift from elite to public influence in these debates.

The final part, 'Philosophical Perspectives' consists of four chapters that tackle a variety of issues by drawing on discussions in philosophy, predictably, most notably those in the philosophy of science and the philosophy of religion. As before, the essays are united by a concern to probe the ways in which science and religion relate to each other and how best, from philosophically informed perspectives, to regulate their interaction. As Wittgenstein famously put it, a philosophical problem has the form "I do not know my way about" and there is a sense in which the essays in this section aim to guide those entering into the study of science and religion as to how best to find their way about this territory.

Noting the recent upsurge in so-called scientific new atheism, Michael Ruse offers his chapter ('Atheism, Naturalism and Science: three in one?') as a reflection of the interest that these often bad-tempered and philosophically uninformed critiques has sparked. In his characteristically jovial manner, Ruse unpicks the assumption that atheism, naturalism and science necessarily belong together by arguing that it is consistent to hold to both religious faith and methodological naturalism ("that in doing science one assumes that there are no God-directed supernatural causes like miracles" (229)). As he concludes: "science and religion do interact and there is no doubt that science makes some religious claims untenable....However, this clash between modern science and various facts insisted on in the name of religion does not prove the impossibility of any kind of meaningful religious faith" (241). Whether or not a particular person does wish to combine a commitment to a particular religious faith with an advocacy of science is, for Ruse, best determined by other factors; from

the perspective of a philosophical analysis of the sorts of claims that such a person would be required to hold to what is clear is that it is indeed possible, for example, for one to be a Darwinian and a Christian.

The themes of methodological naturalism and the nature of scientific explanation are taken up by Nancey Murphy in the next chapter ('Divine Action, Emergence and Scientific Explanation'). Like Ruse, Murphy draws on distinctions formulated in the philosophy and science as a means of advancing discussion of the relations between science and religion. Further than this though, Murphy's chapter illustrates her general approach of moving from the philosophy of science to the philosophy of religion, in this case, using the specific example of the consequences for understanding human freedom and divine action of the "rejection of reductionism in favour of the recognition that complex wholes often have reciprocal effects on their components" (244). A case study of this kind of apologetic natural theology, Murphy's chapter first sets out the case for the replacement of what she calls the "influential atomist-reductionist-determinist worldview" with an account of causation that combines the notions of downward causation and emergence to enable the world to be seen as "composed not only of things but also of complex systems, which organize spontaneously and constrain the behaviour of their components in such a way as to preserve themselves and operate in the world as causes in their own right"(251). She then applies this meta-scientific view to the problems of human freedom and divine action, concluding that genuine philosophical progress can be made in both cases. In brief: "the overturning of the causal reductionism that characterized much of modern thought...helps to defuse some of the most significant objections to traditional views of humans as free and morally responsible [and] offers promising, scientifically informed ways of understanding God's immanent divine action in nature and human life" (258).

John Haught, in his chapter 'Science, God and Cosmic Purpose,' also explores the consequences for religious thought – in this case the question of cosmic purpose – of the recognition within the philosophy of science of the inadequacy of the previously dominant atomistic reductionist view. According to this position, characterized by Haught as "the horizontalizing and atomizing of the cosmos," "heart-warming religious accounts of a purposeful universe must now give way to the coldness of scientific realism" (267). However, Haught argues that this conclusion – 'cosmic pessimism' – is unwarranted; not on the basis of a rejection of the scientific evidence via a retreat to religious dogma, but because of developments within science and the philosophy of science, in particular the growing recognition of the importance of 'information.' Haught relates claims that information is the "third component" of nature, alongside matter and energy, to the discovery that "the physics of the Big Bang universe has a much tighter connection to the existence of living and thinking being than scientists formerly thought" (270). This, finally, leads him to return to the

cosmic optimism of two scientifically informed religious visionaries – Teilhard de Chardin and Alfred North Whitehead – and to conclude with them that “the universe (or multiverse) is bounded by an aesthetic cosmological principle and that the purpose of this totality is, at least from one point of view, that of maximizing beauty” (275).

In the final chapter, ‘Ways of Relating Science and Religion,’ Michael Stenmark turns explicitly to the central common thread of the book as a whole and develops a typology of relations between science and religion that recognizes the complexity of their relations with greater precision than the standard four-fold schema proposed by Ian Barbour. Stenmark suggests that Barbour’s typology of conflict, independence, reconciliation, and replacement can be supplemented by the recognition of further distinctions with the reconciliation model, which after all is the position held by far the majority of writers in the so-called science-religion literature. Here Stenmark distinguishes between what he call ‘reformative’ and ‘supportive’ versions of the reconciliation model in order to capture the difference between those for whom the science and religion encounter ought to result in the ‘reformation’ of one or other (or both) of the interlocutors and those for whom the result of such a dialogue ought to be the support (or enrichment) of one or other (or both). Further complications arise with the recognition, frequently affirmed by not sufficiently developed within the literature, that science and religion themselves are not monolithic phenomena. In terms of religion, Stenmark notes a spectrum of more conservative and more liberal groupings (noting in addition that this spectrum must itself be differentiated in terms of different religious traditions) that results in at least four further sub-versions within the reconciliation model: conservative, traditional, liberal, and constructivist reconciliation positions. As regards science, here the main point of differentiation is of how realist a view of science is adopted; again here Stenmark proposes four sub-versions: realism, instrumentalism, empiricism and constructivism. Finally, learning the lessons from the history of science as much as from the philosophy of science, Stenmark insists that the science and religion are as much “social practices with many layers” as they are sets of propositional beliefs or doctrines and that science-religion relationships are “dynamic and evolving over time” (293).

III

As the above summary indicates, this is a rich collection of essays that address important and central themes within the science and religion field. On the whole, the contributors strike the right balance between surveying their particular area and advancing their own constructive arguments. The division of the book into the three sections is a particular benefit, enabling a broader set of perspectives than one might normally encounter in work on this subject. As a collection it will make a fine introduction to science and religion for an undergraduate student and the individual essays will be useful recommended reading for

those interested in the particular topics they consider. Above all, it is the constant injunction to recognise the complexity of the relations that comes across as the book's 'take home message,' if this is heeded there is at least some hope for an improvement in the general standard of debate in science and religion beyond the depressingly antagonistic standoff between Dawkins and ID that continues to dominate the headlines.

Of course, there are bound to be omissions in any such collection and what one finds missing is as much a matter of personal taste and interest as anything else. I wonder, nonetheless, whether it might not have been possible to have differentiated in the second section of the book between those instances of the impact of science on religious questions and those (more neglected) cases where religion has an important bearing on science. Watts' chapter touches on the possibilities for a theological enrichment of psychology and Evans considers the role of religion in bioethics, but otherwise the impression does rather remain that the direction of travel is predominantly from science to religion and that the major task of those working in the science and religion field is to find ways of accommodating or reconciling their religious commitments to the epistemically authoritative claims of science. Further, following the suggestions made by Stenmark (and notwithstanding Ruse's argument to the contrary), it would have been an interesting addition to the volume had the contributors addressed the relations between science and religion with regard to non-Christian religions. There is nothing worse than token contributions of dealing with "science and Islam" or "science and Buddhism", for example, but it seems odd for discussions of cosmic purpose or the inevitability of intelligent life to be framed solely in reference to Christianity. Similarly, there are some glaring omissions in terms of the sciences engaged with: evolutionary biology and cosmology are given due attention, but there is little recognition of the recent explosion of work in the neurosciences and in particular the question of the evolution of religion itself. Finally, the question of the status of science and religion themselves is a topic that could do with more elaboration: if, as Stenmark alludes to, science and religion are best thought of as communities of practice, how might this affect the ways in which they can be thought to relate to each other?

Of more relevance to the Order Project, the essays confirm both the importance of understandings of order and natural law within the science-religion discussion and underscore the need for further reflection on this theme. On this, let me make just one observation. As John Henry makes clear, the character of the relation between science and religion in the modern period (with which we still seem to be wrestling today) was crucially affected by Descartes' rejection of Aristotelian causes and their replacement with his own three laws of nature, offered, as Henry puts it, as "explanatory principles in their own right" (53). This, it seems, is the sharp end of the problem of the relations between science and religion in modernity: on the one hand it is possible for science to describe the natural world

purely in terms of the formal explanatory principles of the laws of nature; at the same time, however, as Henry notes, such an enterprise leaves an enormous explanatory gap: “how can inanimate matter know the laws that Descartes has decreed, much less obey them?” (53) For Descartes, the answer was obvious: God. The result is, as Henry concludes, that “we have a clear, and very profound, case of an innovator in natural philosophy introducing a carefully wrought theology into his natural philosophy, not on a whim owing to routine piety, but because he recognized that his physics would be completely unworkable without an immutable God to guarantee it” (53). It is then surely no surprise that it was precisely this issue of the theological implications of the laws of nature that Robert Boyle saw as central to his own rival natural theology – and it is of the utmost importance if further progress is to be made in unpacking the dynamics of the relations between science and religion (in our own period as much as in early modernity) that the role and character of laws of nature in both science and religion be more clearly understood. Perhaps, in the end, as John Hedley Brooke implies, the surprising result will be it is not so much the conjunctions between particular sciences and particular religions that are crucial but the more fundamental disjunction between two competing (and mutually exclusive) metaphysics: either the universe is governed by universal, immutable and exceptionless laws of nature or it is not. If, as the Order Project proposes, there are good philosophical reasons to suppose the latter, what then are the consequences for the relations between science and religion? Perhaps it will be by further exploring this possibility that we will be able to find a new way about the problems of the relations between science and religion so admirably described in this volume.