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NOTES ON CONTRIBUTORS

Andrew Bowie is Professor of Immunology in the School of Biochemistry and Immunology, Trinity College Dublin, and a local church leader.

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Rodney Holder is a Bye Fellow of St Edmund's College, Cambridge, and is former Course Director of the Faraday Institute.

Muzaffar Iqbal is the founder-president of the Center for Islamic Sciences, Canada and editor of the journal *Islamic Sciences*. He has a PhD in chemistry from the University Saskatchewan and has published widely on the relationship between Islam and Science. He is the general editor of *The Integrated Encyclopaedia of the Qur'an* (volume 2, forthcoming).

John Maxwell Kerr is a former research scientist and university teacher in physics and medical ethics. He is a Founding Member of the Society of Ordained Scientists, a member of the American Association for the Advancement of Science, and recently retired as Chaplain from the College of William and Mary.

Scott A. Shalkowski is Senior Lecturer at the University of Leeds. His research interests concern metaphysics with special attention to modality and metaphysical method and the epistemology of religious belief. His current projects concern nominalist accounts of logical consequence, the alleged value of inference to the best explanation in metaphysics, essentialism, modal epistemology and a monograph on the fundamentals of metaphysics.

EDITORIAL

This summer, for the first time, astronomers were able to use NASA's Hubble Space Telescope to search beyond our own solar system for atmospheres around planets roughly the size of earth. Their most exciting find was the discovery of two planets that did not have hydrogen-dominated atmospheres. This is important because it makes these planets more likely to be able to support life. In fact, a surprising number of planets that are earth-sized and in potentially habitable zones have been discovered in the last few years, raising some pertinent theological questions. Many of these questions touch on whether the earth and human life can be considered uniquely special, the nature of revelation and—particularly in Christian theology—the nature of incarnation.

Debates about extraterrestrial life are not new. In fact discussion about life on other planets can be traced back to antiquity although it wasn't until the seventeenth and eighteenth centuries that there was any scientific ground for thinking such life might actually exist. The discoveries of recent years, including those made by astronomers this summer, add to the body of empirical evidence that suggests such life is more likely than not. Theories about the possibility of a plurality of universes—the multiverse—make the theological questions mentioned above ever more pressing. These questions are the focus of Kass Kraay's edited book, *God and the Multiverse*, reviewed by Scott Shalkowski in the first of this edition's featured reviews. To the question, 'is our earth, galaxy, or even universe, special?' the idea of the multiverse might suggest a negative answer but Kraay's book explores the more positive possibility of 'particularity'. Shalkowski also discusses the multiverse theory as a potential response to the problem of evil as well as a platform for rethinking the concept of God, especially pantheism. His review also gives consideration to theologies of incarnation, vital to consider in

the light of the multiverse theory. If other beings in other universes in need of redemption are a distinct possibility then a theology of multiple incarnations becomes increasingly necessary.

The second review included in this edition addresses questions about the nature of matter and the nature of reality itself. John Maxwell Kerr considers Roger Trigg's book, *Beyond Matter*, which makes for a robust debunking both of materialistic reductionism and post-modernism. Trigg's background in philosophy makes this book a valuable tool for scientists and theologians who wish to consider the inescapable but often ignored metaphysical underpinnings of the scientific enterprise.

Providence forms the subject of David Wilkinson's latest book, *When I Pray, What does God do?*, reviewed by Rodney Holder. As Holder points out, any suggestion that God answers prayer involves a theology of God's action and must put forward some sort of theodicy together with, ideally, a theology of miracles. This is just what Wilkinson proposes in his account of prayer, which attempts to reject demythologising approaches (the only change is in the person doing the praying) while also rejecting a God who determines all events and allows no freedom. Holder shows how the book ultimately presents an important challenge to a Newtonian mechanistic view through consideration of quantum mechanics and chaos theory.

Following on from this, the next review is by Andrew Bowie who discusses Ruth Bancewicz's *God in the Lab*. This book makes a valuable contribution to the science-theology conversation by promoting a method of how science and faith might benefit one another. For Bancewicz, this involves finding common ground between the two in terms of the creativity, awe, wonder, beauty and imagination that are a

feature of both. Bowie highlights how she presents a promising avenue for further discussion.

We return to a consideration of divine action in Jordan Bradford's review of Karl Giberson's edited book, *Abraham's Dice*. This volume examines theologies of God's action in a chance universe and is an important text, not least because every contribution is from a leading thinker in the field. Bradford's review explores issues of theodicy, free will, providence and the evolution of humans, as well as the historical context of some previous debates, insightful because it raises questions about the importance of context for considering the validity of our own approaches today.

The last review in this edition is written by Muzaffar Iqbal who discusses Maria Elshakry's *Reading Darwin in Arabic*. This is a fascinating volume providing some of the historical and political context for the reception of Darwinism in the Arabic world, and engaging with Arab thought about materialism and the philosophy of science.

It won't escape the notice of the more astute readers that this edition contains reviews reprinted from elsewhere. The journal is reliant on contributions from Forum members for original reviews so please do get in touch with me if you become aware of a new book that you would like to review for a future edition. In the meantime, the reviews included here cover some of the most notable new publications and, I'm sure you'll agree, they offer much stimulating discussion of a range of significant theological themes.

ARTICLE REVIEW

Klaas J. Kraay (ed.) *God and the Multiverse: Scientific, Philosophical, and Theological Perspectives*. London: Routledge, 2015, pp. 247, \$116.00 Hbk, ISBN 978-1138788671.

REVIEWED BY SCOTT A. SHALKOWSKI

Reproduced with the permission of the author and editor from the *Notre Dame Philosophical Review* (2016) <https://ndpr.nd.edu/news/god-and-the-multiverse-scientific-philosophical-and-theological-perspectives/>

This volume brings together twelve essays on God and multiverse physical theories. Some theists have embraced a way of understanding modern physics that arose partly as a way of avoiding the apparent theological implications of cosmic fine tuning. Multiverse theories bring with them new options for handling some well-known apologetic problems, such as the problem of evil, though not all contributors embrace the multiverse. The collection has five parts: "Physicists on God and the Multiverse", "Theistic Multiverses: Details and Applications", "Criticisms of Theistic Multiverses", "Pantheistic Multiverses", and "Multiverses and the Incarnation".

Robert B. Mann begins with an essay skeptical of the merits of multiverse theories. Mann's discussion is formulated in terms of a principle of "mediocrity" that began as a claim that there is nothing special about Earth and its location and role in the universe and is now extended to our universe as a whole. He resists this extension by relying on apparent points of "particularity" that make our biophilic universe not merely one amongst infinitely many. Without this extension, he argues that multiverse theories are unwarranted. Regarding the

science behind these theories, Mann raises an important question: "How does one go beyond normal scientific inquiry and still do science?" (p. 35). How is it scientifically proper, for instance, for scientific multiverse theories to rely on an arbitrarily large supply of resources for the postulated universe generation or to be beyond the reach of anything like typical empirical refutation? Those touting the scientific credentials of multiverse theories need to address these matters with some urgency.

Like many other works in contemporary metaphysics, many contributors argue their respective cases by noting their preferred theory's alleged virtues compared to some alleged vices of alternatives. Donald M. Page proposes a simplicity-based argument for a theistic multiverse (TM). He admits that our universe is not the best, but that it could be part of the best multiverse, thus undermining some versions of the problem of evil. Page's contribution is one amongst many that rely on some key principle that calls for more justification than it is usually given. It might be that typical standards of simplicity are indicators of truth and that God's contemplating true simple laws of nature brings such value that Page's 'Optimal' Argument for the Existence of God is correct in its premises and conclusion. It is hard, though, to see why the key claims should be plausible. Why is simplicity an indicator of truth rather than of convenience and why think God loves simplicity so much? Whether answers are required demands closer attention to the specific rhetorical and dialectical context within which they are deployed. In defensive manoeuvres they have better chances than if Page intends to convert others to TM. Since he notes "it is subjective which theories are simpler" (p. 46), Page has not yet shown that even if his claim about divine contemplation is correct, this provides grounds for thinking our world/multiverse really is the sort of thing to be so contemplated and, thus, the product of divine creation.

The next three essays defend theistic versions of multiverse theories. Peter Forrest's is quite demanding, both scientifically and philosophically. Those who know about the "Humphrey" objection to David Lewis's metaphysics of many concrete possible worlds will be able to follow the relevant brief section where it figures. Those not already clued up will need to do some homework. Similarly, for "collapse" and "no collapse" versions of quantum theory. The bulk of the essay involves formulations of various forms of multiverse theories (Separate Worlds, Branching, and Hyperspace). The argument for the preferred Hyperspace version involves claims about action, freedom, and persistence as well as theological concerns regarding creation, divine action, suffering, and the afterlife. This is a very dense essay that is most useful for multiverse specialists who must confront nuances of various versions of that genus once it is embraced. It is laudable that Forrest addresses the relation between the physics-inspired multiverse theory and the metaphysics of modal realism. Most readers would find it helpful to have just a bit more that addresses the degree to which multiverse theory constrains the scope of the possible by the basic quantum theory or to what degree the quantum theory that applies to our world is itself a result of a maximally unconstrained "universe generator".

Jason L. Megill defends not a multiverse as physicists understand multiverses, but a plurality of concrete possible worlds—a pluriverse. He defends a modest version of so-called modal realism, which does not commit him to the existence of every (logically—though questions against essentialist versions should not be begged) possible world. His argument is based on two claims (94-5):

(1) If an entity *e* is possibly literally concrete in the actual world, then, there is a possible world *w* in which it is literally concrete.

(2) There (i) is an entity e that is possibly literally concrete in the actual world, but (ii) e is not literally concrete in the actual world.

Megill is right that (1) begs no realist/ersatzist question. All major versions of possible worlds theories, however, agree that both (1) and (2) illicitly mix existence in/at a world with possible existence. Any possible worlds theory that takes existence to explain modality takes the inventory of each world to be defined by what exists at each world. Things not in that world but in some other (accessible) world possibly exist. As 'possibly' and 'actual world' are handled as technical terms in these theories, though, the only things that possibly exist in any given world are those things that do exist in that world. Nothing that fails to exist in the actual world even so much as possibly exists in the actual world, even though they possibly exist and they do exist in their other respective worlds. Megill's argument for a modest modal realism falls at the first hurdle.

Donald A. Turner's essay illustrates the delicacy with which these matters must be handled. Like much of contemporary metaphysics, there are many issues in this domain that take on lives of their own as artefacts of a given framework. Once you embrace a plurality of worlds created by God, the number of them becomes an issue. If creating more than one is desirable for maximizing utility, then why not duplicate some of them? If some, why not all? If some duplication of each, why not lots? If lots, how much? It is very hard to know what is not negotiable in these discussions. The Identity of Indiscernibles? Personal Identity that is a species of Identity? I do not say that Turner's replies to critics are not on point, only that it is very hard to see how to settle the disputes he has with his critics. What to one is wheels coming off of the bus is to another the reconfiguration of a much more satisfactory bus. If, however, we think that we are engaged in truth-telling metaphysics, we

must have some grasp of which principles act as a check on the limits of acceptable theory, since empirical data are not up to the task. If elegance, simplicity, beauty, and "explanatory" power are to serve that purpose, it is incumbent upon their users to make the case that these are truth-indicating features and to do so in a way that does not tacitly rely upon a great deal of well-confirmed theory—as their use in empirical matters does—even if that is hardly ever noticed by those who invoke them.

Michael Schrynemakers takes aim at Klaas J. Kraay's own development of the theory of TM by relying on a principle that is plausible in a pre-multiverse framework, but dubious within that framework, not unlike Megill. Schrynemakers maintains on pages 134-136 that no possible world contains a world's history along with an alternative history. Yes, so long as we think of possible worlds as single universes, this is so. Once we think that some possible worlds contain multiple universes (whether they branch from each other or are wholly self-contained), then the principle no longer has force. Of course, no universe contains its history plus another. No one maintains that. Whether another universe counts as an alternative possibility for another can be a matter of similarity. For example, I could have done that instead of this, because of what happens in another sufficiently similar universe even if it is part this world. Think of universes that branch at "choice points". Another universe embodies what it was possible for me to do by actually containing me doing it, even though in this universe I did not do it. Furthermore, when multiverse possible worlds are at issue, Schrynemakers is no longer entitled to assume that alternative histories are a matter of different possible divine choices about governing universes. True, multiverse theories can no longer analyze possibility in terms of spatio-temporal unities and they must ultimately supply another account, but Schrynemakers' principle is no

less question-begging when scrutinizing them. The multiple histories in a multiverse are all matters of how God does choose to govern.

Michael Almeida scrutinizes claims that TM can help with the problem of evil. On the one hand, it would be convenient if our world were the best possible world. On the other, it is convenient to maintain that divine power and benevolence conspire so that God cannot create any sufficiently morally dubious worlds. If God's power, however, is tied very closely to what it is possible to do, then God's inability to create such dubious worlds renders them impossible. Rather than God choosing from among a wide array of worlds and virtuously choosing to actualize (insofar as God can) a morally laudable world, God's inability to act other than virtuously constrains the very range from which any creative choice could have been made. Even if there is not total modal collapse which thus erases distinctions between necessity, actuality, and possibility (which would be A Very Bad Thing), the range of the possible becomes oddly limited within some developments of TM.

Jeremy Gwiazda's contribution is largely mathematical, focusing on the nature of the infinite and arguing that Cantorian approaches to the infinite are misguided. Infinite numbers—as contrasted with a never-ending infinite series of numbers—share characteristics with more tractable finite numbers. Consequently, some paradoxes of the infinite are avoided and there are grounds for thinking that some numbers of universes are antecedently more probable than others, thus neutralizing some grounds for preferring some instances of multiverse theories. This is a highly speculative essay that hangs on the rejection of Cantorian orthodoxy and which demands a fuller treatment than is possible here.

Yujin Nagasawa argues that multiverse pantheism avoids the standard objections to single-universe pantheism. If the multiverse is all of the possible universes, then God is as all-

encompassing as anything could be, is the greatest possible being that is necessary, self-existent, transcending any particular cosmos, and exhibiting all possible moral virtue. God is not a creative agent, but is the cause or grounding explanation for any particular cosmos. If greatness is understood as all-encompassing, then God encompasses as much evil as is possible, which appears to be devastating to any form of multiverse pantheism that is not very revisionary regarding God's nature.

John Leslie defends the pantheistic multiverse in what is largely a manifesto. He thinks that reality is most fundamentally infinitely many minds contemplating infinitely many things. Ordinary worldly actors, such as you and I, live in such a mind. Accordingly, it is literally God within whom we live and move and have our being. No metaphor is needed to affirm Acts 17:28. To the extent that Leslie makes a case for his version of multiverse pantheism, he relies on a version of the Identity of Indiscernibles that merits at least some scrutiny beyond the usual, since his version is "if two things were infinitesimally different, then neither of them could change in a way removing the infinitesimal difference without one of them vanishing or else the two of them fusing into one" (p. 198). Perhaps this is just a trivial consequence of the usual atemporal versions of the principle which are not framed in terms of change, but that is not obvious. Regardless, that any differences would be infinitesimal is beside any point regarding the principle itself. Since this is largely a manifesto, there are many points at which the reader will want more explanation and/or more justification for Leslie's unconventional views. The bibliography is dominated by references to his previous relevant work.

Robin Collins maintains that if there are other "vulnerable, embodied conscious agents", whether within our space-time or not, there is no good theological reason to think that God

became incarnate only once in the person of our historical Jesus. Philosophically, the Kenotic view—that God the Son emptied himself of divine attributes—is difficult to square with multiple incarnations. Some theological and philosophical problems and potential solutions to a practical problem are noted.

Defending a similar thesis, Timothy O'Connor and Philip Woodward round off this collection with some thoughts on the implications of a multiverse for the Christian doctrine of the Incarnation. They rely heavily on the Leibnizian thought that God acts for reasons and not arbitrarily. If there are other "divine image bearing creatures" in need of redemption, then eschewing arbitrariness points toward multiple incarnations of God the Son. Other authors in this collection are attracted to the same Leibnizian thought, which is somewhat under-explored and under-justified. It is one thing to act without sufficient reason when such reasons are to be had, but another to act without sufficient reason when none is to be had. Some have inferred a multiverse from some principle of non-arbitrary divine action; O'Connor and Woodward are prompted to explore multiple incarnations. Though the exploration is worthwhile, so would be a more intense and direct exploration of the prompting principle. Why, for instance, does the non-arbitrariness principle warrant the expansion of universes created or the number of incarnations? Why couldn't the lack of good reasons to choose one thing over another show the limitation of the principle? One worry to be dispelled is that philosophical and theological problems are granted more plausibility than they ought to have, were the principle examined more directly.

This is a valuable collection of state-of-the-art essays on a timely topic. Each essay has material worth considering and each bibliography is a useful resource. I look forward to those working on the topics addressing some of the issues

that newcomers may find to be barriers to entry to the philosophical and theological reflections contained in the book.

REVIEWS REPRODUCED FROM ELSEWHERE

Roger Trigg, *Beyond Matter: Why Science Needs Metaphysics*. London: Templeton Press, 2015, pp. 162, £24.95 Hbk, ISBN: 978-1599474953.

REVIEWED BY JOHN MAXWELL KERR

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Here is Roger Trigg at his most incisive and succinct as he returns to his examination of where the limits of the modern scientific enterprise might legitimately lie. He makes a clear and persuasive case for the validity of explanations in metaphysics, ethics, and theology, against both the reductive stance we have inherited (through various permutations) from positivism and the abnegation of universal truth claims of post-modernism.

Trigg neatly and concisely evaluates methodological naturalism (a metaphysical position not known to be such by the many working scientists who espouse it) and philosophical naturalism, with its wider claims about the nature of what can exist. Trigg cites one definition of 'naturalism' as asserting that all that is consists solely of the physical, spatio-temporal world, with its corollary that such a world is accessible to science. That this is hardly a scientific claim is evident. However, without the metaphysical ground assuming the

existence of an objective reality, science would simply be a game of which it might be said that, for those who like that sort of thing, that is the sort of thing they like.

The examples he deploys suggest that naïve naturalist claims are not easily substantiated in the face of quantum realities and multi-universe speculations. His case requires re-examination of the belief one has heard so often, that science is what there is any evidence to suppose is the way the world is, not what it would be nice to suppose about the way the world is. The assertion that there really is an infinite number of universes, each transcending any possibility of being known by humans, has struck practising cosmologists (even those who have never heard of William of Ockham) as rather profligate with universes, verging on mere speculation. Most working scientists would distinguish between speculation and science, without the benefit of Trigg's arguments and well-chosen examples, though it would be to their very great advantage to have read "Beyond Matter."

His analysis rather neatly (but again, fairly) undermines the post-modernism project (derived originally from architecture, and perhaps too-widely extrapolated) that there are many meanings, not that one universal relationship between human knowledge and "the universe" traditionally claimed by science.

Why would anyone believe that science is omniscient as an explanatory method? Why would anyone claim (with the Oxford physical chemist, Peter Atkins) that, if science has not objectively explained everything quite just yet, it can and will undoubtedly do so, at least in principle. Could such a claim be, in any sense, scientific? Philosophers of science will appreciate that the "at least in principle" caveat goes back to Carnap's qualification of the Vienna Circle's criterion for meaningfulness. Trigg valuably supplies an outline of the history of his opponents' positions: this background

illuminates his examples. For instance, Eugene Wigner's observation about "the unreasonable effectiveness of mathematics (the free creation of the human mind) in the natural sciences"... "something bordering on the mysterious" has never quite persuaded this reviewer of Max Tegmark's assertion that "all mathematical possibilities are actual" in an infinite multiverse. Tegmark's is notably a classically metaphysical position, though he denies it.

The weight of many of the arguments in senior common rooms and laboratories against science's reliance on metaphysical assertions, is usually not the more grandly philosophical one that science has somehow eliminated the need for metaphysics and all other forms of explanation. The banal claim is that "science works": it has delivered the goods and ever more shall do so. Science progresses (the evidence is all around us) by self-correction of models and hypotheses in the light of empirical data. Philosophy does not bring about change in the world; it leaves things as they are. Scientific progress rests on increasingly more comprehensive explanations and remarkable predictions. In effect, the assumption is that metaphysical explanation has been eliminated by the inductive idea of progress derived from the rapidity and effectiveness of the "the human appliance of science" over the last two centuries.

The brief overview Trigg affords us in "Beyond Matter" (its 162 pages includes notes and an index) is written in the sort of prose one longs to meet in any book one wants to put into the hands of graduate students in the sciences. Such readers may not notice, nor be dismayed by, the few but stunning lapses in proof-reading confronting one, for example on page 27, where one reads, "Physics in the nineteenth century bares (sic) little relation to contemporary physics." No doubt that is so but it distracts from the force of an otherwise well-developed, sustained, and comprehensive argument.

David Wilkinson *When I Pray, What Does God Do?*
Oxford: Monarch, 2015, pp. 222, £8.99 Pbk, ISBN
978-0857216045.

REVIEWED BY RODNEY HOLDER

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Science and Christian Belief (2016) 28:1, pp. 35-6.

In this excellent little book David Wilkinson tackles one of the more perplexing aspects of the Christian life. He does so in a light and easy style, with humour, but it is apparent that he also brings to bear a lifetime of personal experience and reflection, and of grappling intellectually with the complexities of the way God interacts with the world and answers our prayers. So, he looks at the problem of unanswered prayer, and the problem of the seeming arbitrariness of answered prayer, at least on some popular views of the matter. If God provides my friend Bill with a parking space for his car, why does he not cure my aunt of cancer? Thus the way we view prayer is intimately linked with the problem of theodicy.

It is of course also intimately linked with the way we think God acts in the world, if indeed he does act within it apart from creating and sustaining it in being. Wilkinson is rightly critical of some modern theologians who deny that God acts in special providential ways in the universe—a position which may alleviate the theodicy problem but at the severe expense of making God impotent. He also rejects the idea of the all-too-powerful God who pre-determines every event from before the foundation of the world. These positions are impossible to maintain if one takes the Bible seriously, as Wilkinson himself emphatically does, where God is seen as relational and responsive. Wilkinson rightly rejects the Bultmannian demythologisation programme, which is both false to the Bible

and locked into an outdated Newtonian clockwork universe view of science.

Wilkinson is not prepared to settle for prayer as simply changing the person who prays, as Bultmann and others have thought. That is no doubt true and important, but his main concern is with intercessory prayer in which we ask God to change people and situations, things going on in the physical world. He also affirms the place of miracles, ably setting forth the weaknesses of David Hume's famous argument against their occurrence, and providing positive reasons for believing in them, especially the sine qua non of the Christian faith, the resurrection of Jesus—even if his treatment is necessarily brief. On the other hand, Wilkinson is rightly critical of attempts to test the efficacy of prayer experimentally.

It is the impact of a scientific worldview which will most interest readers of this journal. Here Wilkinson notes how quantum theory and, more recently, chaos theory undermine the mechanistic clockwork view. He sees these as potentially helpful in seeing how God might act now the universe is no longer seen as deterministic and predictable. However, he is cautious in not fully endorsing any particular view, simply drawing what positive lessons he can. He gives a good critique of process theology and sees some merits in open theology, though ultimately Wilkinson thinks this goes too far and maybe undermines God's ultimate victory.

One omission is any reference to St Thomas Aquinas's distinction between primary and secondary causes, which is a popular approach to divine action in the modern discussion. God's acting through secondary causes can be seen in the laws of nature, but as St Thomas says (though not all his modern supporters), this does not limit God's action since he can act outside the regime of the secondary causes or bring about effects without their preceding cause. Nevertheless, this omission hardly detracts from an excellent book which can be

thoroughly recommended to a wide readership, indeed to any Christian who wonders about the efficacy of prayer.

Ruth M. Bancewicz, *God in the Lab: How Science Enhances Faith*. Oxford: Monarch Books, 2015, pp. 25, £8.99 Pbk, ISBN 978-0857215680.

REVIEWED BY ANDREW BOWIE

Reproduced with the permission of the author and editor from *Science and Christian Belief* (2015) 27:2, pp. 216-18.

The author Ruth Bancewicz, a former research biologist and currently a Senior Research Associate at The Faraday Institute for Science and Religion, has contributed significantly to the conversation between Christianity and Science over the past decade, especially with the production of the excellent 'Test of Faith' website and resource materials. As she explains in the first chapter of *God in the Lab*, this current book represents an attempt to start new conversations about the interface between science and faith, rather than simply responding to common issues raised. The book is the final output of a Templeton Foundation-funded project, which also included her blog scienceandbelief.org.

The provocative subtitle of the book, *How Science Enhances Faith*, sums up the author's goal in writing. Here we go beyond a discussion about how science is consistent with faith and how it is possible to be a scientist and a Christian (still a radical idea for many), to how science and faith can actually mutually benefit one another. In that regard, the subtitle could equally be 'How faith enhances science'. The journey the author brings us on, which she clearly is very passionate about, is to firstly understand how scientific research works at

the coal face, then to succinctly explain how science and Christianity fit together for her, before launching into more innovative areas of thought around how imagination, creativity, beauty, wonder and awe typify both science and Christianity. The style of the book is similar to some of the author's blog posts, being personal and conversational, which works well since much of the content is drawn from interactions and conversations with research scientists who are Christians.

Chapter 2, 'Life in the lab' was fascinating. The author suggests 'Practising scientists may wish to skip this chapter', (13) yet as a practising scientist I found this one of the most interesting parts of the book, as it describes very accurately how day-to-day research works in a modern science lab, with lots of interesting insights from Dr Harvey McMahon about ideas and thought processes that underpin his approach to research as a Christian. I think other research scientists will also find this chapter highly interesting, as much as a 'compare and contrast' exercise with one's own approaches as a very successful exercise in explaining how a research lab functions. For anyone from a non-science background wanting an insight into how research actually works, this is excellent material.

The main themes of the book are covered in Chapters 4 to 8: Creativity, Imagination, Beauty, Wonder and Awe. In each of these chapters, the author carefully weaves together her own personal insights, historical perspectives, biblical content and quotations and thoughts from specific interviewed scientists, which gives a well-rounded picture of how these topics are critical to both good science and good theology. There is a logical flow to the order in which they are dealt with too, and each chapter builds on insights from the previous one, which does lead to a sense of arriving at the heart of the author's thesis once one gets to 'Awe'.

As might be expected, covering such vast topics in such a short book does make some of the sections feel incomplete, or to be just scratching the surface. For me an example of this was the section on 'God and Imagination', (105) which very briefly began to address the idea of how using our imagination is a reflection of being made in the image of God, before it wound up. But the goal of the book is not to be comprehensive, but to be provocative and to initiate new conversations about science and faith, a goal that the book definitely does achieve. For those wanting more, there is a good bibliography included, too.

I found the final chapter (Chapter 9) an excellent succinct synthesis of the ideas discussed in the book and a helpful summary of the journey that the author has brought the reader through. In fact I would recommend that this chapter be read first prior to launching into the book, as a compass for the journey ahead.

Overall I found the book highly readable, although at times it took me a while to 'catch up' with the author's thinking or thought structure on the more abstract topics such as imagination and wonder, probably due to the fact that although we all think about such topics, it is still quite rare to read about them in the context of science and faith intersecting.

This book will appeal to a number of audiences, both young and old, academic and non-academic, which is one of its great strengths. For example, practising Christian research scientists will draw encouragement and inspiration from the personal insights of fellow Christians working in the sciences. Also, those outside the sciences who desire to understand the motivations of Christians involved in research. I hope it will also be read by both scientists and non-scientists who believe that there is a conflict between Christianity and science, and if so such readers will be challenged by how comfortable

Christian scientists are expressing their faith through their scientific research—a faith that enhances science rather than co-existing uncomfortably with it.

Karl Giberson, (ed.) *Abraham's Dice: Chance and Providence in the Monotheistic Traditions*. Oxford: Oxford University Press, 2016, pp. 376, \$35.00 Pbk, ISBN 978-0190277161.

REVIEWED BY JORDAN BRADFORD

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Questions regarding God's providential role (or possible lack thereof) in a world that appears objectively chancy are currently the source of much interdisciplinary interest among scientists, theologians, and philosophers. Given that these questions simply will not go away on their own, Karl Giberson, professor of science and religion at Stonehill College and one of the central voices in the field, has edited this volume in order to lay the groundwork necessary for investigating how it is that God as conceived broadly by the Abrahamic monotheistic religions can exercise care over a creation that appears shot through with contingency. This task is taken up by Giberson's wide array of distinguished contributors that include Templeton prize winners and Gifford lecturers, not to mention a New York Times bestselling author and every scholar who has so far held Oxford's prestigious Andreas Idreos Chair in Science and Religion.

Throughout the book's sixteen diverse chapters any reader is likely to find something they would deem interesting. Split between four different parts, some chapters are essentially

historical and provide an overview of a particular person, period, group, or tradition's positions on chance and providence. Others are more scientific in character, detailing the development of science from its Aristotelian roots and describing how views of providence adapted concomitantly.

In order to facilitate an overall understanding of the book I will give an unfortunately brief summary of each section before evaluating the volume's content. The first part, "The Challenge of Chance," is comprised of Giberson's introduction to the volume along with a range of essays that includes a discussion of ancient Hebraic struggles with chance and providence evidenced by the books of Job and Ecclesiastes (Hecht, ch. 2), a general overview of current cosmology with particular attention dedicated to the limits of the universe's knowability (Barrow, ch. 3), a model of "divine randomness" drawn from Christian Platonism and contemporary computer science (Bradley, ch. 4), and a treatment of Paul of Tarsus' "super-providence" in contrast to the accounts of providence held by Greeks and Jews at the time (Ruden, ch. 5).

The second part, "Theological Conversations," contains overviews of the Islamic (Ruzgar, ch. 6), early Christian (Miller, ch. 7), and Calvinist (Han, ch. 9) traditions, along with chapters dedicated to Thomas Aquinas (Silva, ch. 8) and Jonathan Edwards (Crisp, ch. 10). Each chapter places its tradition or individual within their respective historical context in order to facilitate a greater apprehension of their understanding of God's providential role in the world.

The third part, "The Complications of Science," is a wide-ranging section. It begins with the Christian theological responses to the shift from a universe governed by Aristotelian teleology to the Newtonian mechanistic universe (Brooke, ch. 11). Alister McGrath then presents a biographical sketch of William Paley before discussing the conception of chance in Natural Theology (ch. 12). The other three chapters in this

section focus on evolution by natural selection and quantum phenomena which present a number of difficulties for those attempting to develop a coherent doctrine of providence and divine action in the world. Peter Harrison argues that the perceived incompatibility between Darwinism and Christianity is an artifactual accident resulting from the logic of design being unnecessarily separated from human history (ch. 13). Shaun Henson outlines the history and basics of quantum theory and argues that the openness of the future found therein allows God to act providentially (ch. 14). Michael Ruse closes the section by arguing that the randomness found in evolutionary theory problematizes theistic evolution if one does not also accept multiverse theory (ch. 15).

The final section, "Closing Reflection," contains the sixteenth and final chapter. Reinhold Bernhardt gives a philosophical reflection on "the tragic" and discusses several possible theological explanations. An interpretation of the doctrine of original sin as the necessary possibility of relational disaster serves to render the tragic explainable. This is done not by giving the contingent tragedy intrinsic meaning but by appeal to a faithful realism that takes the reality of God's spiritual presence seriously, with such presence providing the possibility to attribute meaning retrospectively to the experience of the tragic.

A general evaluation of the book's contents should begin with its diversity problem, which is acknowledged by Giberson in the first essay. Besides the scarcity of female authors, the volume has an obvious slant towards Christianity. While it is true that most of the work in the discipline of science and religion is done from a Christian perspective, or is at least done with Christianity being the only possible substitute for the word "religion" in such work, it is surprising that so little of the volume is dedicated to the other

monotheistic religions. For instance, while many chapters are dedicated to a particular tradition or thinker within Christianity, only one chapter is dedicated to the entirety of the Islamic faith. This makes Mustafa Ruzgar's attempt to outline the complex history of Islamic thought on providence and chance all the more valiant, but unfortunately it leaves one wanting much more depth than can possibly be provided by a single chapter.

The problem of evil always lurks in the background of discussions of divine providence and rightly so, as instances of apparently unnecessary suffering are hard to square with theistic providence while being easily explained by the hypothesis that our universe is indifferent towards us. Some of the authors provide short discussions of the problem, which is understandable given that a more detailed examination would be tangential to their main theses. The book would have benefited greatly by including an essay (perhaps authored by a philosopher) specifically regarding providence's (in)compatibility with evil in light of recent scientific developments. Bernhardt's essay partially fulfils this need by arguing that tragic events, conflicts, and failures can be rendered meaningful retrospectively by God's operative presence. His concerns, however, are more pastoral and theological than philosophical in character, and he does not appeal to current science to justify any of his conclusions. Oliver Crisp also feels the tug of the problem of evil, providing an interesting and charitable argument that Jonathan Edwards' occasionalism need not necessarily imply that God is responsible for evil, although he fails to mention that such a compatibilist position is nearly universally rejected by contemporary theistic philosophers who tend to think that free will in a libertarian sense is a necessary, though certainly not sufficient, condition for a solution to the problem of evil broadly conceived.

Despite these concerns, the selected authors exhibit a deep awareness of the historical development of the doctrine of providence in relation to differing accounts of chance and necessity found in the past, continuing through the scientific revolution, and ending with contemporary scientific challenges. By placing their historical, scientific, philosophical, and theological investigations within this developing history they have ensured that the reader will come away with a thorough understanding of the topics they collectively address, even if the subject matter of their respective contributions overlaps with others.

Given the number of chapters and the breadth of their subject matter, I will limit more specific evaluation to three of the contributions, beginning with Peter Harrison's thought-provoking essay "Evolution, Providence, and the Problem of Chance." He argues that two theological expectations had formed regarding providence before Darwin. First, God's care over history was "invisible" so to speak, with history's purpose being discernible only by the eyes of faith. Second, and in stark contrast, the purpose of things in the natural world were obvious to anyone who cared to investigate. When Darwin showed that the natural world was just as historical, dynamic, and apparently stochastic as human history this brought about a crisis regarding the compatibility of providence and chance, despite the fact that the first expectation seemed to dictate that God's providence over apparently chance events was unproblematic from the standpoint of faith.

Harrison goes on to affirm, "the plausibility of certain philosophical positions is not a function of whether they are sound or valid but, rather, depends upon the historical context in which they are articulated" (279). Thus, resolving the apparent incompatibility between providence and chance in the natural world with a fideistic stance was not a live option

according to Harrison, despite the fact that such a solution was relatively uncontroversial in the context of human history.

I will let the reader decide whether this claim is plausible. But a weaker interpretation of Harrison's claim is certainly correct: that the historical background limits what we are likely to find feasible, especially within the disciplines of theology and philosophy. Thus Harrison's historical analysis forces us not only to reconsider how an account of providence is affected by the historical circumstances in which it is developed, but also brings a sense of humility to this daunting theological project.

Harrison's point is unintentionally defended by John Hedley Brooke in the latter's chapter "Divine Providence in the Clockwork Universe." In this essay, Brooke begins by summarizing the synthesis between Christian theology and Aristotelian natural philosophy that entangled belief in providence with belief in final causes. The scientific revolution then displaced humanity from the center of the universe, made the existence of other forms of intelligent life plausible, signaled the return of atomism, and excised final causes. In these ways the new mechanistic world stood opposed to providence as conceived by the Thomistic synthesis, and the malleability of the doctrine of providence was thereby severely tested.

The doctrine survived, however. Brooke documents how providence in a general sense was easily conjoined with the clockwork universe, with special providence also finding a home, albeit with some difficulty. But the clockwork/machine metaphor left creation open to interpretation that resulted not only in defenses of divine intervention within the natural order, but also varieties of deism.

This ambivalence of the mechanical universe is wonderfully brought out by Brooke's discussion of the disagreements between Newton and Leibniz. For Newton the universe was

the result of divine free choice, not chance, and its natural workings could be interrupted from time to time. Armed with his principle of sufficient reason Leibniz disagreed, for God must have created the best possible universe with no intervention required. Their ensuing disagreements over this and a variety of other matters provide a microcosm of the continuing historical dialectic between science and religion. As Brooke states, "in the construction of new syntheses there was much more involved than the unidirectional impact of science on religion. Philosophical and theological ideas could influence the way the science was interpreted and, in some cases, even shape its content. Competing understandings of providence could eventuate in competing systems of natural philosophy" (228).

The last piece I would like to accent is Michael Ruse's essay "Darwinian Evolution and a Providential God: The Human Problem," which focuses on the plausibility of theistic evolution and is written with his characteristic wit and charity towards religion that those who are familiar with his work have come to expect. He argues that the production of human-like beings by natural selection renders God's providential creation of such beings problematic. If we say that God could have guided the necessary mutations to bring us about, then we have solved one problem of providence only by substituting it for another one that renders it inexplicable why God allows or produces harmful mutations that lead to Huntington's chorea and other horrendous afflictions. Further, according to Ruse, we cannot appeal to evolutionary arms races, convergent evolution, or other factors in order to make the eventual existence of human-like organisms likely. But Ruse wants to give the defender of providence a way out: postulation of a potentially infinite number of universes guarantees the eventual arrival of human-like beings and solves the theological conundrum.

The structure of Ruse's argument is clear and represents a well-known problem: if Christianity is true, then the fact that human-like beings exist is necessary in some sense, for God wanted them to exist. Taking providence seriously requires that we are not the result of chance. But apparently God, if such a being exists, created us by natural selection, which seems to entail the contrary. A solution to this problem will show that our existence is guaranteed without dropping natural selection or other well-confirmed scientific theories, and a speculative multiverse hypothesis is the best we have.

Regarding whether God could interact with natural selection, Ruse unfortunately only considers two accounts: current "Intelligent Design" theory and Robert John Russell's "Non-Interventionist Objective Divine Action." Russell's position in particular has become a well-known potential solution to worries about God's providence in light of current science. On such a view, God can exert influence in the world on the indeterministic quantum level. But such accounts that look for a causal joint through which God can operate providentially are not the only accounts available. Kenotic, Neo-Thomistic, panentheistic, and process accounts of divine action and providence are competitors with Russell's view and are neither obviously ruled out by scientific considerations nor open to objections regarding deleterious mutations. Ruse's argument would fare better if it had given some attention to these other positions that are becoming increasingly prevalent within contemporary theology, but it is understandable that they are left out of the discussion as such views differently modify classical theism's account of God's attributes and are grounded on sometimes radically diverging metaphysics.

Abraham's Dice will be of particular benefit to those who are new to the topics addressed therein. It is to be commended for its interdisciplinary appeal that brings history, theology, philosophy, and science to bear on a series of questions that

both scholars and the general public will find interesting. Further, it shows that the discipline of science and religion is, and hopefully will continue to be, a vibrant field of study.

Marwa Elshakry, *Reading Darwin in Arabic, 1860-1950*. Chicago: University of Chicago Press, 2013, pp. 448, £37.50 Hbk, ISBN 978-0226001302.

REVIEWED BY MUZAFFAR IQBAL

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This ground-breaking work on the reception of Darwin in the Arab world opens several windows to the complex process of the making of Darwin's image in the Arab world; it also situates "Darwin's dangerous idea" in a broader context by exploring attitudes and ideas of a diverse and influential minority including Free Masons, missionaries, colonial agents, officials of the fledging Ottoman Empire, Arab propagators of the new science, and religious scholars ('Ulamā') who were not equipped to deal with the brave new world of modern science. The opening chapter of the book is a fascinating narrative about the milieu in which Darwin arrived; this is followed by a thorough exploration of the attitudes of chosen individuals and institutions responsible for the spread of Darwin's views in the Arab world via translations, discussions, and interactions, which were also intertwined with the broader discourse on science and religion in the Arab world.

"The Gospel of Science", the first chapter of the book, recounts the story of the spread of science journalism in the Arab world, especially through the influential journal *Al-Muqtataf* and the missionary zeal of its founders, Ya'qub

Sarruf and Faris Nimr, both “enterprising young Syrian Protestant College instructors who dedicated themselves to campaigning for scientific advancement” (p. 27). The chapter presents a synthetic and layered account of the internal politics of the Syrian Protestant College as well as informative episodes from the public life of the small elite which had started to mold science and religion discourse on a pattern that imitated similar discourse in Europe and America. In this chapter, Elshakry is at home with her sources, she writes with confidence and presents historical evidence for the fast-flowing narrative.

The second chapter, insightfully entitled “Evolution and the Eastern Question” brings into sharp relief the dynamics of the intellectual and political contours of the “Sick man of Europe” (the Ottoman Empire) and especially its flagging fortunes in Egypt, which was formally taken over by the British through a “veiled protectorate” that was to simultaneously re-energize the efforts of Sarruf and Nimr to spread the gospel of new science. They also started a daily, *Al-Muqattam*, and thus entered “a political minefield—one that ultimately tarnished their reputation and altered the reception of their ideas” (p. 79).

“Materialism and Its Critics”, the third chapter, considerably widens the scope of the book’s narrative. It brings in other actors and links this scene in the Arab world with other parts of the Muslim world, although this attempt remains limited to a few individuals such as Jamal al-Din al-Afghani, who exerted considerable influence on Muhammad ‘Abduh and, through him, impacted other Egyptian thinkers of the time. One fascinating aspect of Elshakry’s work is its frequent perusal into issues of linguistics, as well as social and political aspects of reading Darwin in Arabic. She notes how new Arabic terms were invented and how this process was influenced by both the classical Arabic sources and modern

Western ones. Materialism, for instance, was “called *al-maddiya*, an abstract noun derived from *al-madda* (matter or material). But Shumayyil’s particular brand of materialism had very little to say about matters of central concern to most European materialists of the time—such as the relation of mind to matter or the nature of emotion, reason, or consciousness.” (p. 109).

The fourth chapter, “Theologies of Nature”, is the only chapter of the book which does not present what one would expect from the title; it, rather, focuses on another protagonist of the wider discourse, Husayn al-Jisr. It is through al-Jisr that Elshakry brings in a truncated reference to Islamic theology of Nature. This is not a problem in itself, as it serves well the aim of the book, but the misleading title does remind one that the book has nothing to say about the Islamic concept of the critical issues it discusses.

Elshakry’s ability to synthesize a coherent narrative out of a large number of historical accounts and textual sources is best exhibited in the fifth chapter, “Darwin and the Mufti”, which encapsulates the life, works, and ideas of Muhammad ‘Abduh, the architect of Arab modernism. She recounts the story of the life and career of ‘Abduh with remarkable insights and the chapter has several memorable quotes: Yet “religious modernism” is perhaps not the best way to describe what ‘Abduh saw himself engaging in. In the first place, his vision of science was (as for so many thinkers treated in this book) rather eclectic. Like others of his generation, he drew on the emerging consensus that science as merely the uncovering of the “true principles,” or laws, of nature, which he allied to final causes (and divine laws), an approach drawn as much from past Arabic philosophical and exegetical works as it was from contemporary views. Second, ‘Abduh was primarily concerned with the fate of the Muslim *umma*, not with modernism, and his ideas on civilization and even the “West”

cannot be separated from this, particularly as his project of reform was critically couched in an older language of *islah* and *tajdid* (Muslim communal reform and renewal) (p. 165).

Such insights into the complex, diverse, and overlapping intellectual currents which were transforming the Muslim world are clearly a result of deep reading of sources and clear thinking. Elshakry's treatment of 'Abduh maintains a critical detachment throughout the chapter and although the undercurrent of her narrative indicates her own perspective on the life and ideas of her protagonists, she consciously remains objective and non-judgmental. One, however, feels less than satisfied with the section on "Adam and Evolution", where her treatment is rather cursory. Likewise, the list of Muslim thinkers on page 192 is either due to the lack of familiarity with pre-modern Islamic sources or simply poor proofing; one hopes it is the latter: the names listed here are random, there is no chronological order, and Abu Bakr Muḥammad ibn al-Ṭayyib al-Bāqillānī is called Abu Bakr al-Baklani. Here, one also feels that the text could have used proper transliteration, at least for names and major technical terms.

"Evolutionary Socialism", the sixth chapter of the book, focuses on broader social, intellectual, and political currents which informed the reading of Darwin in Egypt through a number of thinkers, such as Farah Antun, Mustafa al-Mansuri, and Salama Musa who were less influential than other protagonists of the book, but who, nevertheless had a place in the making of the intellectual discourse. The general sweep of this chapter is, once again, panoramic, and the summary presented in the last two pages is a highlight of this chapter.

"Darwin in Translation," the last chapter of the book, is, once again, a skilful treatment of both the story of Arabic translation of the *Origin of Species* and Isma'il Mazhar, the person who undertook this task. Elshakry shows deep insights into the process and difficulties of translation as well as cross-

cultural and historical currents which informed the choice of Mazhar's use of technical terms and syllogism. In her own words, this final chapter of the book "explores this process of translation as a complex project of intercalating linguistic, conceptual, and historical references and metatexts by focusing on the figure of the translator himself. Viewing Darwin through Mazhar's eyes, we can capture the local referents through which Darwin was read. The focus on Mazhar, meanwhile, takes us into the nexus of ideas, places, and people that helped to construct this particular reading of Darwin in translation" (p. 264).

BOOKS AVAILABLE FOR REVIEW:

Stephen M. Barr, *The Believing Scientist: Essays on Science and Religion*. Grand Rapids, Mich.: Eerdmans, 2016.

Jonathan Jong and Jamin Halberstadt, *Death, Anxiety and Religious Belief: An Existential Psychology of Religion*. London: Bloomsbury, 2016.

Eric Priest, *Reason and Wonder: Why Science and Faith Need Each Other*. London: SPCK, 2016.

Robert Wagner and Andrew Briggs, *The Penultimate Curiosity: How Science Swims in the Slipstream of Ultimate Questions*. Oxford: Oxford University Press, 2016.

The Editor welcomes offers to review these publications. Please contact her on L.Hickman@newman.ac.uk

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