

ESSSAT News & Reviews

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*European Society for the Study
of Science and Theology*



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Instructions to Authors

ESSSAT News and Reviews publishes academic style book-reviews and article-reviews, or articles describing the current developments in a sector of science-and-theology through the analysis of recent publications.

The fields covered are:

- general developments in science-and-theology;
- philosophical and epistemological issues;
- cosmological and physical (quantum) issues;
- evolutionary and biological questions;
- anthropological areas;
- the scientific study of religion;
- historical studies in the field of science-and-theology
- practical or ethical issues.

Book reviews should normally be of 700-1500 words. Review-articles should be kept between 3000 and 4000 words. In both cases contributors are asked to bear in mind that the majority of readers will not be specialists in the same field, and will not have English as their first language.

This publication will favour the Chicago Style Citation format.

Submissions and all correspondence should be sent to the Editor, Lluís Oviedo: loviedo@antonianum.eu

From the Editor

Things are probably slowly improving for many of us, after these days we remember that just a year ago the pandemic was officially declared and we were called by our governments to severe lockdowns to counter the plague's expansion. In several countries, academic personnel are among those being called to vaccination, and in some places the published figures start to show sharper declines in the number of registered cases, hospital admissions and lethality. My expectation is that next issue of this bulletin I will avoid mentioning Covid-19 and we can focus on something else.

Yes, we are moving on and trying to think about a possible post-Covid world – one in which the pressing issues we left somehow suspended before the great emergency we have suffered, will re-emerge with force. Some observers have noted that a difficulty in the dialogue between science and theology is that they move at quite different rhythms. While science is moving fast and we risk not being able to keep pace, theology moves very slowly, and claims to make from its stability or little changeability a virtue. Theologians are often more used to deal with texts from the past, with classical works and a revelation we consider as unaffected by the passing of time. In those conditions, we can expect that theologians will always find current developments in the scientific or technological realm hard to deal with, and that we, as theologians, will often arrive too late at the latest discovery or application.

Well, possibly, theological stability or resistance to change or becoming affected by novelty can be seen as an advantage. Religious systems are well-known for providing stability, certainty and even a resistance to change or disrupting novelty. For some observers, this could be described as a central function of religious system: to limit the impact of change, contingency or increasing complexity.

However, beyond theories and abstract models, theology needs to account for ongoing developments that bring into question beliefs and values we considered most sacred. Some examples are in everybody's minds: genetic editing, for instance, is one pressing issue, and indeed we paid attention to it recently in this journal. Another issue at stake is the development of artificial intelligence or super-intelligent systems, able to displace humans from many tasks and to render redundant activities and processes we consider central to human performance. AI has been already a focus for our bulletin, and in this issue we again take up this topic, but from a different perspective. Indeed the last few years have seen a growing concern regarding the ethical dimensions involved in the development and application of such systems. Besides the ethical issues, legal regulation appears as an important point in which not just lawyers, but a broad interdisciplinary team needs to be involved. Many books

are being published devoted to those issues and recent news involving big companies has raised justified worries, and sometimes even outrage, about how those intelligent systems work and make decisions beyond human control.

True to our mission, to keep our colleagues, engaged in fruitful dialogue between science and theology, informed about recent developments, we provide an updated review on those issues by Radoslaw Komuda, a young Polish researcher who is very involved in exploring the interface between AI and its applications, and the ethical concerns arising from this quickly moving field.

Beside this, the present issue offers a selection of reviews on recent books that once more demonstrate the great fecundity of this interaction, which is probably one of the most forward-looking areas of theological thought.

And yes, the issue I raised some paragraphs earlier still looms: is theology just about conservation or is about renewal and an ability to adapt to new times and conditions? Probably only the current production and our ability to fruitfully engage with current issues will offer an answer.

Please, also, keep an eye on developments concerning our planned ESSSAT Conference, foreseen for next 23-26 June in Madrid. Most depends on how European and other countries will manage to speed up vaccination roll-on, at the moment still too slow. Let's trust things will move faster in the coming weeks, and Europe manages to reach a level of immunity that allows this Society to meet face to face at the beginning of summertime.

Lluís Oviedo, Editor

Article Review

Machine Ethics as an issue for science and theology

Radoslaw Komuda, Copernicus University, Torun

Despite its name, *Machine Ethics* is an interdisciplinary discipline trying to bring together not only computer programmers and ethicists. This rapidly developing field of science can be of interest to sociologists, psychologists, pedagogues and technical specialists engaged in artificial intelligence research in general.

Being unfairly narrowed by some writers to the problem of “ethical choices” made in the future by driverless cars, Machine Ethics goes beyond 1) relations of a machine towards a human; its main goal is in fact to analyze and regulate relationships in two other directions as well: 2) human towards a machine and 3) machine towards another machine.

One of the main problems within Machine Ethics lies in the field’s name. For many years researchers have been trying to sort out semantic and etymological issues around both elements of the name, proposing different variations of each. In 1996 the term “computer ethics” was introduced by Pierce and Henry (1996, 425) and defined as “a set of rules or principles used for moral decision-making regarding computer technology and computer use”. However, they were focused on “rules individual (humans) apply when making decisions involving computer technology and computer use”. Actually Machine Ethics *per se* is not interested in the way humans work or interact with and use computers and machines. Therefore, e.g. the ethical issues of military usage of unmanned aerial vehicles (UAV; commonly known as drones) are not within the scope of interest of the field. The same problem occurred with Warwick’s (2003, 131) discussion on the possibility of “cyborg ethics” in which “an individual’s consciousness is [being] modified by the merging of human and machine”. Two years later a paper by Allen et al. (2005, 149) introduces “artificial morality [that] shifts some of the burden for ethical behavior away from designers and users, and onto the computer systems themselves”. Eventually, Allen and his colleagues (2006, 12) coined the phrase “Machine Ethics” and defined it as “[a] field that seeks to implement moral decision-making faculties in computers and robots”.

Machine Ethics has had to cope with an aggravating legacy with literature-based origins since the middle of the 20th century, when Isaac Asimov created a set of rules that were to regulate the relations described. Known as “The Three Laws of Robotics” or “Asimov’s rules”, the principles state that 1) A robot may not injure a human being or, through inaction, allow a human being to come to harm, 2) A robot must obey the orders given it by human beings except where such orders would conflict with the First Law, and 3) A

robot must protect its own existence as long as such protection does not conflict with the First or Second Laws”. At first glance, The Three Laws seem to cover everything involved – they are precise in talking about both actions and inactions, exclude the chances of potential deadlocks arising from contradictory commands, and even cover a robot’s “law to existence”. Though never being a scientific deliberation on the issue, Asimov’s approach seemed to foreshadow a crucial flaw of modern discussion in the Machine Ethics field – namely its lack of technical considerations regarding ways to implement the ideas. Because how can a robot know if its actions (or inactions) can harm a human? How does it even know what “harm” means? And this remains as a major problem with scientific discourse on Machine Ethics, since most papers in the field for the last decade or so have merely been arguments on choosing the best ethical school or system of values for intelligent machines to follow. Covering a utilitarian approach to the problem, a deontological solution or applications of a Kantian ethical system, scientific papers – with only a few honorable mentions (e.g. Anderson and Anderson 2007, 15-26) – have lacked any technical details, not to mention experiment results, supporting the ideas presented and the approach discussed.

Even though the present article-review deals with just two recent books devoted to AI and ethics, it is important to remind readers that this is a field swiftly expanding with new titles. As just some examples, a quick search finds the following: S. Matthew Liao, *Ethics of Artificial Intelligence* (Oxford University Press 2020); Christoff Busch and Alberto de Francechi, *Algorithmic Regulation and Personalized Law: A Handbook* (Beck 2021); Thomas Wischmeyer, Timo Rademacher, *Regulating Artificial Intelligence* (Springer 2020); Luis M. Pereira and Antonio B. Lopes, *Machine Ethics* (Springer 2020); Cesar A. Hidalgo, *How Humans Judge Machines* (MIT 2021); Sven Nyholm, *Humans and Robots: Ethics, Agency and Anthropomorphism* (Rowman & Littlefield 2020). All these titles are a sign of the attention being paid to this very interdisciplinary field.

Mark Coeckelbergh, *AI Ethics*, [The MIT Press Essential Knowledge Series]. Cambridge, MA: MIT Press, 2020, pp. 248; ISBN: 9780262538190 (Ppbk.) \$15.95

With 12 chapters and over 200 pages, Coeckelbergh’s “AI Ethics” may be considered an all-round introductory reading into the fascinating field of Machine Ethics, covering AI in relation to such topics as: (trans)humanism, privacy, social bias issues, politics and policy making, as well as religion or climate change. From a comprehensive philosophical overview enriched with sociological challenges and modern technological solutions, the author often represents the case of AI development as a question of what it means

to be human, and the direction we are taking. Unfortunately, that is a question he somehow refuses to answer, just as he skips any attempts at solving the other issues discussed. With *AI Ethics*, Coeckelbergh fits into a category of authors scratching the surface of this vast and engaging area which each day is influencing our lives more and more. It is a pity that in a 2020 book published at MIT we still get an academic debate on questions of how self-driving cars should behave, since one should already acknowledge that saving the driver's life will be the ultimate path all car manufacturers will take. Why would anybody consider getting a car that might calculate somebody else's life as more valuable than the driver's or his family's? Not to mention that modern cars can be hacked, jeopardized and life-threatening even if they are not equipped with self-driving capabilities). All of these efforts to somehow "science-fictionalize" the narrative are unnecessary and uncalled-for.

When reading more scientific elaborations in the book, we find a solid research background conducted by the author. By exploring mythologies and religious byeways of Western culture, comparing them with Japanese approaches to nature and robots, recalling philosophical stances, state of the art approaches to AI ethics and official documents and policies, the author makes his erudition stand out.

The main goal of this book seems to be giving a bird's-eye view over Machine Ethics and certainly it provides a great map for the reader to explore further. Was it a book that we needed in 2020? That's a hard tell.

Michael Kearns and Aaron Roth, *The Ethical Algorithm: The science of socially aware algorithm design*. Oxford and New York: Oxford University Press, pp. 232; ISBN: 978-0190948207; \$17,90 (Hdbk.)

In over 200 pages of *The Ethical Algorithm* the authors take us on a journey through the main socio-algorithmic problems representing social constraints upon algorithms, their consequences and trade-offs. Unlike many other publications in the AI-ethics field, they provide concrete technical solutions for the challenges discussed throughout the book's 5 chapters: privacy, fairness, user-data-algorithm feedback loop, data-driven scientific discoveries and (brief) thoughts on the ethical issues (transparency, accountability, morality) yet to be pursued scientifically. All the chapters include a theoretical introduction and technical summary of the challenge at hand as well as a case study or example to discuss it and a solution designed to deal with it.

Chapter 1 focuses on privacy issues. It starts by recalling a daring investigation conducted by a PhD student at MIT, who needed a grand total budget of \$20 to trace inadequately anonymized medical records back to the governor of Massachusetts, William Weld, using only birthday, sex and zip code. A

PhD student at the University of Texas at Austin raised the bar by de-anonymizing movie ratings data released by Netflix without knowing people's sex and zip code; just by using 6 movie ratings and rough dates (with a 14-day errors possible) of when the ratings were placed. The authors argue that the main issue with these data sets is the number of records matching single data sets. They use this lead as a way to introduce a possible solution for the issue – k-anonymity. Though, their question is just after that and asks about reidentification being the only (or even the main) risk, just to show us how difficult and complex the challenge really is.

Chapter 2 opens with an introduction on teaching analogies to machines and how Google's 2013 "word to vector" (a.k.a. "word2vec") recognizes "bike" as a synonym for "bicycle" in proximity to "mountain", but does so for "motorcycle" when in proximity to "Harley-Davidson". The same mistakes were responsible for a 2018 Amazon automated resumé evaluation scandal, just like clues in a well-written detective story, lead to the main focus of this chapter: biases and discrimination. Well, actually the potential algorithmic solutions to detect, measure and deal with them are presented through examples of a college graduation-probability calculation and an automated loan-approving system. When discussing these scenarios, the authors bring up racial or gender biases and note how providing such direct inputs into the systems is illegal, however – as explained in the previous chapter – it is not that easy to determine what "irrelevant" data used can give an accurate prediction on user's gender, race, finances or political views; some of them being related almost directly to the zip codes in America. To give fairness a shot, the authors take us to... another planet, an Earth-like world inhabited by two races of people, Circles and Squares. And they use this new, politically correct reality to give a rundown on different approaches to fairness: parity, randomness, exploration, exploitation and so on, to the conclusion of an imperfect but somehow considered fair predictive model known as equality of false negatives. Tested and questioned from different angles, the analysis of balance between accuracy and fairness eventually brings the authors to introduce what they call a "reasonable" choice for the trade-off of them, the Pareto frontier / Pareto curve. The main problem arising is "fairness gerrymandering", defined by the authors as a situation "in which multiple overlapping groups are protected, but at the expense of discrimination against some intersections of them" and discussed again on the two-race population model getting free tickets to see... the Pope. When having enough tickets for 20% of the total population of 80 people evenly distributed (Circle men, Circle women, Square men, Square woman), one would argue that the "most fair" solution has been assigning 4 tickets for each group (Circle men, Circle women, Square men, Square women). But if one would want to be fair with respect to gender and race separately, 8 tickets could be given to Circle men and 8 to Square women without any tickets going to the other two groups and

still be sure that 8 tickets went to men, 8 to women, 8 to Circles and 8 to Squares. And this seemingly ridiculous solution is something machine learning can come up with if the top-level attributes are left alone, without pointing out specific subgroups to be protected. Why? As the authors poetically put it in a later part of the book, “I really hate this damn machine, I wish that they would sell it. It never does just what I want, but only what I tell it”, which would have made a neat transition to the next chapter.

Chapter 3 is all about making the algorithms stop being the “perpetrators” and actually work for us, so we do not consider ourselves “victims”, as we tend to do to a first approximation. To illustrate that, the authors recall a 2013 article by Amanda Lewis about the “Coffee Meets Bagel” dating app matching her only with Asian men. The investigation concluded that it was just a matter of her in-profile settings (not specifying racial preferences) and local population’s oversupply of Asian men, and the obvious yet reluctant solution being adjusting the settings to state that she is unwilling to date Asian men. Explored further with references to game theory in Rock-Paper-Scissors and Prisoner’s Dilemma, the authors navigate us to a common engagement that we do not, but maybe should, consider a “game”: driving a car. Its objective? Beat the traffic. The opponents? Other drivers. And as far as we kind of understand how user generated (or better – crowdsourced) data make it possible for applications like Google Maps or Waze to find the fastest routs from Point A to Point B, the book uses the discussion outlined so far for an accurate, deep and insightful observation: “apps are computing best responses for every player individually (...) and thus encourage selfish behavior”. Luckily for the readers there is a solution, based on implementing Maxwell’s equation within the algorithm. Discussed in detail and with proper calculations by the authors, this approach is presented and looks like the solution for the future of entirely self-driving cars, putting better collective outcome over the “competitive nature” of currently leading apps. But such daily commute conundrums are not the only area where players are not aware of the game.

In chapter 4, the authors introduce the mechanics behind the so-called stock market e-mail scam where users, day after day, receive a spot-on “predictions” of the stock prices and are finally asked to pay a high fee for the next tip of the stock directions. The scam is based on the system where you are in a poll of people getting an “up” prediction while the other half of the mailing list get a “down” one; making it 50% certain to proceed. And if one considers the initial 1 million users contacted, the payout can be remarkable. This can be used by us, and scientists as well. Known as p-hacking, the (deliberate or unconscious) process of performing different tests on the same data set but reporting only the most interesting results is not uncommon as a practice to making sure that a journal article gets a lot of citations. Not only in traditional sciences but in machine learning as well, as the authors recall a Chinese

Baidu team cheating in the ImageNet competition. All of it leading to a “reproducibility crisis” in which scholars find it difficult or impossible to replicate / reproduce experiments results.

Privacy, bias, algorithm- and p-hacking are crowned with a chapter (five) of a more open discourse. This combination of approaches within each issue presents a coherent understanding of the problem and one should not be surprised, since the content of the book is a result of “hours talking to lawyers, regulators, economists, criminologists, social scientists, technology industry professionals and many others”. However, the conclusion of those hours and the book itself leaves the reader eventually ... unsatisfied. A great example of this somehow unfinished business can be found in the case discussed of racial profiling and bias. While the authors accurately analyze the problem and debunk easiest solutions (remove race information from the list of variables) showing how other information provided (e.g. zip codes) can still influence the output – they seem to struggle with the notion of fairness in the results that an algorithm should pursue. And although they are loud and clear that this is not the subject of this book, and defining terms like fairness or privacy should be a collaborative effort of different experts (including scientist, engineers, layers, regulators, philosophers, social workers or even concerned citizens), this absence of taking a stand between 3 definitions of fairness presented eventually disappoints. Luckily for the readers, the authors complement the book with a compensating and justifying list of references and further-reading papers, and declare between the lines that once those things are decided, they will join the efforts in “explaining” them to the algorithms.

This book is a great read for somebody who wishes to get a deeper understanding of current problems with the algorithms powering many AI-based solutions that drive (literally!) our lives, e.g., how Google Maps decide the fastest route for our daily drive. By putting it into perspective, the authors argue that though effective at the end of the day it may not be as efficient and desirable, socially. If you are interested in hacking Waze to get a better commute, wish to know why that dating app is matching you only with Asian men, and want to know what strategy is best for a rock-paper-scissors game, this book is for you. For people researching or at least interested in race- and sex-bias in artificial intelligence I would consider it a “must”. Especially since it is written in a highly approachable way for non-technical readers.

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Book Reviews

Philip Nord, Katja Guenther, and Max Weiss (Eds.), *Formations of Belief: Historical Approaches to Religion and the Secular*, Princeton, NJ & Oxford: Princeton University Press, 2019, pp. 328, ISBN: 978-0-691-19075-4 \$ 45,00 (Hdbk.).

For Western countries secularization constitutes probably the main context in which science and theology interact. Still more: for many experts, since Max Weber, science has been amongst the main secularizing factors since the XIX century, or the force that exerts a higher negative pressure on traditional religious beliefs. In other words, science elicits a process of disenchantment from all spiritual views or feelings. In these conditions, efforts to connect theology with science, or to find inspiration in scientific development, need to come to terms with that overwhelming socio-cultural process, and to re-elaborate the conditions in which such a relationship takes place. To that end, it is advisable to know as thoroughly as possible the history that could lead to such a negative state, in order to gain a better perspective, and to analyse to what extent this story still casts its shadow in the present, rendering any exercise of dialogue more difficult.

The book under review takes a historical and multi-cultural perspective. It is the outcome from a seminar held in Princeton for two years around the topic “Belief and Unbelief”, in which several scholars were invited to present their views and to discuss them with concerned colleagues. It gathers 10 essays distributed in two big sections. The first one carries the title “Religious pluralism and the origins of the secular”, and comprises 5 chapters. These are mostly case studies of how religious beliefs and rituals have been adapted in different situations and contexts. The first study is an exception, since it introduces early modern historiography applied to Church history, and how that critical effort could nourish a broader criticism. The second chapter reviews a case of Jewish Messianism and resistance to it, again in the early modern period. In a similar time is placed the third chapter, concerning doubt and unbelief in early modern Spain, inspired by emergent new Pyrrhonism. Then the fourth moves backward to study a change of mentality and practices regarding afterlife in late antiquity, due to Augustinian inspiration. Colonial Mexico – and hence the same early modern time – is the context for an analysis of the cult of saints and its adaptation to that evolving milieu.

The second part is entitled “Secularism and its discontents”. Its 5 chapters are distributed between case studies, like the one devoted to Soviet rituals trying to cope with the life cycle and to provide meaning. Two chapters more deploy analysis of believing in the Middle East, and the incidence of

minorities on Pakistan's Islamic identity. Two other chapters are more theoretical and engage deeply with broad issues concerning Western religion and secularization in modern times, with clear resonance in the period we are living now. These chapters deserve a deeper comment since they are more relevant for science and religion.

Brad Gregory is a historian in Notre Dame specializing in early modern Europe and the many religious controversies that convulsed those centuries after 1520. He delighted us already with a magisterial book published in 2013, *The Unintended Reformation*. Many of the topics touched in that book re-emerge now in his chapter, but the focus now is "secularization of knowledge". His thesis can be summarized as follows: a very wild religious reformation movement triggered a policy by most European rulers aimed at taming that chaotic impulse with all its destabilizing potential. As a result, theology was confined to supervised and well checked universities, in which it should follow clear confessional constraints. Science and critical thought needed to move somewhere else, mainly to royal courts and to academic or learned societies, away from the classrooms and their imposed controls. Science and updated philosophy grew at the margins of confined theology, well preserved in the aulais. That divorce was fateful, and over later centuries it rendered theologians unable to deal with new philosophical knowledge and scientific new insights, linked after the XIXth century to research universities. The new science ended gaining the ground and completely displacing theology as reliable knowledge. We are still living out the consequences of that process, whose main culprit appears to be the distortions brought by wild Reformation ideas, subverting the traditional epistemic order. Things seem to be quite unsatisfactory for Gregory, who misses the role theology needs to play in relating God to everything and the Christian truth claims to the new knowledge science was providing through evolution theory, the new physics, and the like.

The second relevant chapter is authored by Peter Gordon, a historian specialized in contemporary German thought, and carries the title "Contesting secularization: the idea of a normative deficit of modernity after Max Weber". This chapter analyses a well-known thesis attributed to Weber: the modernization process entailed a secularizing dynamic, which marginalized religion; however, the new mentality born from Enlightenment and scientific progress has been unable to provide values and meaning to build a moral character. This is the "normative deficit" to which the title alludes: a perceived failure in secular modern times to nourish ethical norms and strong hopes. This thesis has been considered in different ways and been the subject of several discussions after Weber's first proposal at the end of his masterwork *The Protestant Ethic*, but being once and again reformulated in later essays, and especially at the end of his life, for instance in his famous lecture on *Science as Vocation*, where he claimed that science cannot take on the role or the

inspiring function of religion. Gordon reviews the form that thesis takes in hands of another German thinker, much closer to us: Habermas. The author describes how this heir of the Frankfurt School, and supporter of modern ideas of rationality, grew in his later years to recognise the need to make room for religion in a cultural context which seemed to exclude it. Religion was needed as a way to deal with big life issues and to safeguard a normative system, a function that modern reason appeared unable to guarantee. As a result, it seems that what appeared as less rational in Habermas's model, becomes useful and needed perhaps besides or beyond the model of communicative reason he put forward as a rule for social advancement.

What can be learned from these historical and recent approaches for those engaging in science-and-theology? In my opinion, a first lesson is that such an exercise should not be disentangled from its historical roots. This is a point well learned after several recent studies. Indeed, trying to distribute the 'territories of science and religion' and to test how they can interact demands greater attention to the historical circumstances that inform that process and the successive forms of cultural evolution both spheres have known. The issue becomes more critical and subject to historiographic discussion, after many voices express their dissent and dissatisfaction concerning the current state of things. That point seems most critical regarding theologians, who probably have not done their homework well and need to be much more careful and alert to the new state of things, or the discussions arising in contemporary scholarship.

A second lesson can be learned from the serious points Weber and Habermas raised and Gordon has highlighted: science, technology and critical thinking alone will hardly cover the needs the new generations experience regarding moral motivation and meaning building, a point that is quite present in different authors since modernity's inception, at least since Kant, and invites us to rethink the tensions and forms of cooperation between religious faith and a scientifically informed mind. This is the role theology urgently must play. The issue is to what extent traditional religious forms still provide meaning, hope and moral encouragement, while being able to speak a language that scientifically minded people can understand. Or in other words, to what extent theology will be able or willing to play that game, accepting very different rules from those it has assumed and played in the last decades.

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George Karuvelil, *Faith, Reason, and Culture: An essay in Fundamental Theology*, London: Palgrave, 2020, pp. 402; ISBN: 978-3-030-45814-0. € 93,59 (Hdbk.)

Fundamental Theology (FT) is today probably the most open and developing trend in theology. This is due to its vocation to “give reason for our hope” to those who raise objections concerning Christian faith, or to address doubts and challenges that that faith faces in environments now quite de-Christianized and with serious problems for belief. Although FT has been stabilized with excellent manuals published in the last 20 years – at least in the Catholic academic milieu – many issues that burden Christian faith are still pending and require proper theological treatment – something that FT should better address. Among those outstanding tasks, the relationship with natural sciences is probably the most pressing and important. Indeed, scientific development touches theology, willing or not, at the epistemological level, and in several contents, raising clear apologetic issues.

In a way, the new approach to that sub-discipline offered by G. Karuvelil, a Jesuit theologian of Indian origin who teaches at a North American College, provides a good sign of an ongoing evolution in this theological field; a healthy effort that allows unlocking the debate and connecting it much more with contemporary authors and concerns arising from the current intellectual scene, to vindicate the cognitive and cultural validity that Christian faith still holds.

The book displays an extensive tour through three parts, with ten chapters in all. In the first place, it tries to show the inadequacy of the available proposals when it comes to revealing the reasonable character of Christian faith; second, it develops an epistemological proposal that allows us to recover the intellectual validity of that faith; and third, it establishes a convergence point in the natural mystical experience with other religions and with non-believers. Let us examine more closely those three sections.

Part I carries the title “Science and Religion”, and is hence the most relevant for our readers. Karuvelil carries out – as a first step – a good historical review of the attempts to show the reasonable character of Christian faith, a review that leads to strong dissatisfaction after perceiving the unfeasibility of the classical models, and the insufficiency of recent proposals. The problem lies in the importance of the contextual or cultural dimension in which such proposals were produced, which largely determines the scope of the rational foundation proposals from the past, and their gradual devaluation in later times. The pressing problem is to be able to render religious faith relevant in an environment dominated by scientific reason and the naturalism that derives from it. The author engages in a committed dialogue with science after a new attempt at building a typology of the different approaches he

conceives. Karuvelil offers four possible models: “(1) the anti-religious view that science conflicts with religion, (2) the traditional Christian view that scientific study is basically a religious endeavour, (3) the more recent view that science and religion cannot conflict as they deal with different subjects, and (4) the equally recent view that, just as sciences are based on empirical or sense experience, so too religion is based on religious experience” (84 f.). Next pages expand these different models with many cases and descriptions, to render the four into five cases, as he seemingly unfolds the second model into two possibilities: the “Holy Science model” and “Naïve metaphysical realism”; and describes the last two as respectively a complete autonomy view, and a distribution between the realm of sense or empirical experience (science) and the one of “direct existential experience” (religion).

The postmodern drift and the strong relativism it introduces does not help to address the pending issue: how to render religious faith credible in a world of scientific standards. The author points to the existential nature of religious faith and the strong conditioning that we all live in relation to our deep convictions, which are prior to, or also influence scientific research. The author is convinced that it is at the level of those convictions or beliefs, and not in scientific development, that the greatest tensions with the Christian faith arise. However, it would not be a gain for anyone to apply this principle to justify a relativism that would prevent the search for truth and dialogue between different programs both aimed at better knowing reality. That analysis reminds us of the point that Agustin Fuentes made in another book recently reviewed in these pages: that scientism is more like a ‘belief system’ and not sheer science.

In the second part of his book, Karuvelil develops an epistemology that aims to allow a fruitful and constructive dialogue between different convictions or worldviews. To that end, he develops a broad theoretical framework that includes an analysis of communication processes, of justification and perception, with their cognitive values. This is a demanding exercise that the author carries out in critical dialogue with leading specialists and in debates over the last decades. It is interesting to note how the chapter on communication offers useful indications to better understand the role of theology, the idea of revelation as divine communication, and the specific place that FT occupies, as a field of external communication for theology, whose recipients are mostly interlocutors outside the Church, or who do not share the same beliefs as Christians.

The third part builds on the bases that the author has laid in the previous chapters, especially on the process that ensures efficient communication between subjects who do not share many convictions but who can converge in a common access or a shared background of experience. The proposed route points to the experience that he calls “natural mysticism”, as an experience

that is practically universal, transcends the particular limits of each religion, and can also include non-believers. In addition to ensuring a more open avenue for interreligious dialogue, it also provides a basis for developing the credibility of Christian faith. Karuvelil extends this experience to the idea that arises in the Jewish environment of perceiving the divinity also in people, a vision that reaches a special intensity in the person of Christ, and that connects Christology with the broad principles previously developed.

The effort developed by Karuvelil is impressive, without a doubt, and – from my point of view – this is clearly a theological essay that brings more fresh air and a much needed renovation to FT. It certainly touches on its great topics – revelation, credibility and epistemology – but it does so in a completely original way and without too much dependence on the styles or proposals up till now available. FT clearly becomes an approach that is oriented from a vocation of dialogue with culture, science, philosophy and religions. This vocation clearly reflects the program proposed by the magisterium of the recent popes, and especially of Pope Francis. Furthermore, the idea of interreligious convergence clearly connects with the ideas that we find in the recent encyclical *Fratelli tutti*, and that go beyond the positions that were fixed in the discussions of the past decades, from inclusivism to pluralism.

The effort to find an intermediate way between scientific objectivism – leading to naturalism and ignoring the conditions linked to previous convictions we hold – and postmodern relativism, which condemns the ideal of truth to isolation and abandonment, deserves special mention. This proposal merits particular consideration because it is based on an analysis of the justification and communication processes inspired by demanding scientific epistemologies. Such proposals then find an application to a special type of experience that also deserves to be the object of these demanding epistemological controls.

However, I think that not everyone will be convinced by these arguments. From my own perspective, I am clear that the problem of beliefs deserves a deeper treatment, since the study of them has advanced a lot in recent years, with promising results awaiting a more conscious theological application, and that may allow for quite interesting convergences with other religions and other ways of seeking and projecting meaning in one's own life. Furthermore, I am not sure that “natural mystical” experiences can play the central role attributed to them by the author. They are probably a good case study and allow for some development, but again I am not sure they will convince those who claim a normative role for the scientific method, which can hardly concede so much space for purely subjective experiences. Perhaps more attention should be paid to their practical consequences – for example, to what extent they help people who live them and the groups to which they belong

– so that they could be validated for a more practical reason and attentive to their actual effects. Scientific reason is not everything, but neither can we ignore the objections of such people when it comes to practicing the healthy dialogue to which Karuvelil’s impressive work invites us.

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Ilia Delio, *Re-Enchanting the Earth: Why AI Needs Religion*, Maryknoll, New York: Orbis Books, 2020, pp. 238, ISBN 978-1-62698-382-3; \$ 26,00 (Pbck.)

Can religion still play a relevant part in the hyper-connected, hyper-technologized society of the third millennium? This is the question that Ilia Delio, Roman-Catholic theologian, Franciscan sister, and author, deals with in her newest book. The simple answer is a resounding yes, but in order to demonstrate it, Delio takes an impressive *tour de force* through a wide array of disciplines, from evolutionary biology to critical posthumanism, and from the history of technology to philosophy and theology.

The thesis of the book is “that religion is the linchpin to the future of AI-mediated cosmic intelligent life and that an AI world, oriented by new religious sensibilities, can bring about an ecological re-enchantment of the earth” (xvi). This idea is highly provocative, because AI and religion are usually perceived as being at odds with each other. But Delio convincingly argues that this is because our idea of religion is itself outdated, because it was forged in what is called the “Axial” age. The notion of the Axial period was first introduced by Karl Jaspers and refers to the simultaneous birth of a new type of mentality in several separate human cultures – Greece, Israel, China, India, Iran. While pre-Axial consciousness was centered around community, ritual, myth, and the unity of the world, the Axial mentality focuses on the individual and on a radical distinction between transcendent and immanent (39).

While the Axial type of thinking was instrumental in bringing about the great world religions, the scientific revolution, and the kind of societies we live in nowadays, it is currently being gradually abandoned. The new scientific paradigm promotes an understanding of nature that emphasizes relational holism and interconnectedness, as exemplified by quantum physics, the complex biology of living systems, or the dynamic relationship between matter and mind (26). Society too is catching up on these insights, through its movement toward a new, critical posthumanist, understanding of the human person as a

hybrid with blurred boundaries, and of the remapping of human relationships and culture by technology. The posthuman cannot be characterized in terms of biological essentialism or binary categories, as was the individual of the first Axial period (131). A new, second, Axial period is thus about to begin, marked by a new level of consciousness that is collective, communal, ecological, and spiritually immanent (111).

But while science and culture are already very much on their way toward this new world, religion is still mostly stuck in first-Axial mentality, practises and institutions. Traditional religions have emerged in the age of the individual, so they are incapable of meeting the needs of people who live their lives in this hyper-relational new world.

To address this problem, Delio calls for “a new religion of the earth,” one that is better adapted to the new challenges that lie ahead. Both religion and technology are in a way inevitable and they badly need each other. Religion represents our tethering to the wholeness of reality. Technology is nothing new, it is a primary way through which we engage with reality and enhance our presence in the world since the dawn of our species. Technology is part of our natural evolution, so Delio even questions whether we should even call it “artificial” (85).

But the inadequacy of first-Axial religion creates a void of meaning in our modern technological society. Without religion, we are prone to be drawn to aberrations like transhumanism, which are as much indebted to first-Axial thinking as traditional religions. We need a good religion to provide us with a sense of connectedness and noble purposes that can guide our technological efforts in the right direction. A re-enchantment of the world is necessary for human flourishing in the new age.

Delio’s suggestion for where we might start our reconstruction of religion is the theology of paleontologist and Jesuit priest Pierre Teilhard de Chardin, whom she calls nothing less than a Steve Jobs of religion (xvii)! In science-&-religion discussions, Teilhard is often brought into focus because of his theological engagement with evolutionary theory. The kind of collective mind (noosphere) envisaged by him seems very appropriate for the global consciousness that humanity seems to be evolving in the current, second Axial period. Teilhard’s particular appeal comes from his ability to integrate this new electronic stage in human evolution with religion: religion is a necessary dimension of electronically-mediated hyper-connected life. Furthermore, by speaking of the “ultrahuman,” he anticipates the new type of hyper-social and boundary-fluid personhood that is currently emerging. Post-human life in the new millennium should therefore be reconsidered from the perspective of the relation that technology has with mysticism, the sacredness of the world, and a shared planetary faith.

There is a lot of merit in bringing all these threads together, and Delio does manage to paint a coherent picture. The book is convincing when it rings the alarm bells about the increasing inadequacy of some aspects of traditional religion, such as patriarchy, biblical literalism, or ancient metaphysical principles. It is also on point in correctly sketching the big lines around which these aspects need to be rethought: a fruitful dialogue with science and an honest engagement with society as it is, and not as some religious institutions might want it to be.

The proposed solution, however, is likely to raise some eyebrows. What is the likelihood that a new religion can become global in a world that is still severely divided? The deep fractures of our world seem to be largely absent from Delio's description of the second Axial age. How can we speak of shared consciousness and a global mind when we are still so divided along political, economic, or religious lines? Perhaps the author would respond that these are just temporary frictions, which will gradually settle down as we advance into the new age, but this wouldn't be very different from the futurist visions naively assuming that technology will simply solve all our current problems.

This brings us to a second, related, criticism: are we really entering a second Axial age? Most of us would likely attest that we feel some new type of consciousness to be currently emerging. We are more united than ever in our global fight against climate change, and the Covid-19 pandemic has brought this solidarity to new levels. We are more aware than ever of racial injustice, as the global echo of the Black Lives Matter movement is showing. But is this transformation radical enough to be qualified as marking the beginning of a new Axial period? Furthermore, the theory of Axial ages serves well to convey the argument in the book, but it is rather controversial and far from universally accepted as a good description of human history.

To a certain extent, the same can be said of the theology of Teilhard de Chardin. His intuitions are remarkable and insightful, but few would follow him wholeheartedly in the more controversial claims that he makes, especially when it comes to his understanding of God in evolution or the process of the so-called theogenesis.

The proposed new planetary religion sounds appealing, but some might find it a little bit too New-Agey. While it is true that religion should respond well to the needs of the posthuman person, it seems somewhat problematic for this to be its primary driver. In other words, Delio's proposed new religion of the earth seems a tad too custom-made, like a very well-designed product. Christians might be dissatisfied with the quasi-total absence of Christ from this new religion, except for the references to Teilhard's Omega point and deep incarnation. Moreover, besides its light resemblance to pantheism, the

proposed global religion also has a vague and somewhat problematic declared teleology: "we need a new type of religion that can enkindle a new type of organism emerging in evolution whose destiny is to realize new possibilities for evolving life on this planet" (206).

Finally, this review has suspiciously avoided speaking of artificial intelligence (AI). This is, nevertheless, a reflection of the text. One would expect more engagement with AI from a book that has it in its title, but that is disappointingly not the case. While AI is mentioned several times, it is seldom used with its primary meaning, namely, the project of building artificial minds. Instead, Delio employs AI as a big umbrella that includes human enhancement, the internet, and technology in general, especially the kind of technology that connects us and creates a new type of hyper-personal consciousness.

This is somewhat unsatisfactory for two reasons. Firstly, current AI is not a monolithic concept. There are different types of AI, various groups aiming to do various things with this technology, and each of these brings with it its own ethical, societal and philosophical challenges. Secondly, by equating AI with just a new, technological, phase of human evolution, Delio leaves aside the much more intriguing possibility of machines themselves becoming persons in a posthuman world. What if AI should evolve to be a Someone, a new type of being that we will have to live with, instead of a mere upgrade to human nature? Would such a being also need religion? This is precisely the question hinted at in the book's subtitle, "Why AI needs religion." Unfortunately, it never gets to be asked in the text.

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Lisanne Winslow, *A Trinitarian Theology of Nature*, foreword by Alister E. McGrath, Pickwick, Eugene (Oregon) 2020, 160 pp.; ISBN: 978-1532684135 (ppbk.) \$ 24.

"There is much to be gained from a close reading of this work. It reinforces the growing interest in the retrieval and reconfiguration of natural theology, both as a legitimate and productive enterprise in itself, and also as an interface between the natural sciences and Christian theology": so McGrath in his foreword to this short but profoundly rich and well-argued book. Its author, Lisanne Winslow, an ordained minister in the American National Association of Congregational Christian Churches, is Professor of Marine Biology at the Northwestern University, St. Paul, where she also teaches in the

Department of Biblical and Theological Studies. She is, therefore, best equipped to tackle the double task of natural theology pointed out by McGrath. Her approach hinges on the following five interconnected theses.

First of all, natural theology is best understood as a theology of nature – that is, not as a process of reasoning which begins from the complexity or intelligibility of nature and tries then to ascend to God, but rather as a theologically informed way of beholding the natural world which proceeds in the opposite direction and affirms the capacity of Christian theology to make sense of what we observe and experience, trumping all sorts of naturalism. Winslow criticizes the first way of conceiving natural theology as heavily anthropocentric and overconfident in thinking that the finite can “find” the infinite. She wants to turn that upside down and place God at the epicentre, showing that it is God who reaches humankind in revelation. Hers is consequently a theocentric approach, in line with McGrath’s Barthian-like proposal.

The second guiding idea consists in showing that nature, understood as God’s creation, can and does indeed reveal its Creator. Here the author aligns herself with Emil Brunner (and McGrath) against Barth, and defends the contention that there is a revelation not only in history, especially in Jesus, but also in nature. She even uses the traditional image of the two Books of Revelation, namely, Scripture and nature. The argument is both simple and sound: if the natural world has been created by God, it has to be full of the knowledge and glory of the divine Self. Moreover, if the creation reveals the Creator, then it must reveal the Trinitarian God of the Christian faith. There is a parallel between the revelation which takes place in nature and the historical revelation in Jesus Christ, but there exists as well a fundamental difference between them, which the author makes clear by reserving the Nicene term *homooúsios* for Jesus Christ, as he is one in being with God, while the natural world can only be characterized as *homoiousios* with God, since it is not of the same essence as He but stands only in analogy to Him. This should become clearer in what follows.

The third element is a theory of divine action called “divine compositionism,” proposed by the author together with Walter Schutz, a fellow philosopher from her university. It combines occasionalism for the natural world with concurrentism for the human person. Both nature and man depend completely on God for their existence, as He sustains them from moment to moment; but in the case of nature, this dependence extends to the realm of action, so that nature does not have any autonomy and there is no real natural causation. “In divine compositionism, God is the sole causal agent for every *physical event* in the natural world, but not the sole causal agent in free agent action” (46). For Winslow, divine occasionalism is the view of divine action most faithful to Scripture, since it does not conceive nature as self-sufficient and autonomous, but as needing to be refined through the preservation of

agent free will, lest evil acts be attributed to God. There are two other aspects of divine compositionism which the author considers worthy of underlining. Firstly, it accounts for basic concepts in science, such as indeterminacy, which according to this view reflects God's freedom in sustaining the physical world, as well as the contingency of all events and structures upon God. Secondly, the emphasis on God's commitment to act upon condition, constantly and coordinately, according to his plan in Christ, allows for a beautifully Trinitarian account of divine action.

Winslow turns now to the American Congregationalist theologian Jonathan Edwards (1703-1758), known both for his reaffirmation of the doctrine of the Trinity and his detailed creation metaphysics. According to him, three inter-related aspects can be distinguished in God's creative action: *willing* exemplars in His mind into existence, *emanating/communicating* knowledge of Himself and the divine glory into the creation, and *revealing* these to human intellect. The emphasis on knowledge and mind is not incidental; Edwards has been repeatedly accused of idealism. But the author clarifies that one can speak of idealism only in relation to the divine mind, not in relation to the human mind, since other created beings have real existence independently of humans; that's why she speaks of *res*-idealism. Be that as it may, each one of these aspects of God's creative action can be associated with – or traditionally spoken, appropriated to – one of the Trinitarian persons: willing to the Father, emanating/communicating to the Son, and revealing to the Holy Spirit. Thus, this divine action *ad extra*, while differentiated, remains *indivisa*. Such a development of Edwards' Trinitarian theology through a Theology of Nature, a Christology of Nature and a Pneumatology of Nature, is one of the main contributions of the book and takes up more than a third of it.

The fifth thesis builds also on an important Edwards' insight. According to him, "God intentionally created all of the structures and forces governing in the universe *analogically* in order to reflect attributes of the *divine nature* so that humankind could understand these mysteries in a creaturely manner" (59). This analogical relationship becomes more concrete through the scheme of "natural types and antitypes". This aims to offer a "semiotics of nature," which should help us not only understand nature but also feel it. The antitypes are the exemplars in God's mind; natural types (called "onto-types" to stress their ontological character) are shadows of divine things communicated into creation, that remain embedded in it and are revealed as truths to the human mind and heart. Every event, process, power, structure, mechanism in nature can be understood as a natural type. The author applies these ideas to the solubility of salt and develops four main criteria for qualifying this reading of the elements of the natural world. But the most important conclusion of all is that every item of natural knowledge tells us something beyond the mechanics of nature. "Natural knowledge, or the knowledge derived from

scientific findings, are a form of revealed knowledge of God” (142). There is no need to distinguish any more between natural and revealed knowledge; we have arrived at a *natural-revealed knowledge* of the divine Creator. Furthermore, “it is the contention of this view that what science discovers is God’s acting whether it is acknowledged as such or not. When it is acknowledged as God’s divine Trinitarian acting by one who believes, it provides the highest level of being and joy a human can know.” On the other hand, whoever rejects such revelation is left with scientific ontology alone, lacking “a complete understanding of the dynamic underlying reality of God’s... acting and self-disclosure” (143).

Up till now, we have presented, however inadequately, Winslow’s ideas. Let us add now some critical remarks. Apart from some minor objections (her characterization of traditional natural theology is too stylized, her reading of some authors – above all Pannenberg – is not convincing, her formalization efforts in chapter 9 seem an unnecessary complication), I find three main problems with her proposal of a Trinitarian theology of nature.

The first one concerns divine compositionism, the cornerstone of the whole argument. Does not the complete denial of natural causation amount to some sort of creational “monoenergism”? Absolute contingency and relative autonomy of creation are not mutually exclusive (see Pannenberg). Moreover, does not the postulated separation of natural events and free agency amount to some sort of inconvenient dualism? Is it possible to attribute free agency to humans if nature is deprived of autonomy? Are we not also part of nature?

The second problem concerns the notion of “natural-revealed knowledge”. Does it take into account all we know about scientific epistemology, about the role played by models and theories in our knowledge of the natural world, etc.? In other words, does not this notion assume some sort of naive scientific realism?

The third and final problem concerns the scheme onto-type/antitype. Despite Winslow’s efforts to secure some objectivity for her semiotics of nature, I cannot help finding it still exposed to too great a degree of arbitrariness. If that is the case, it can be useful to generate a spirituality of nature (even though natural evil is treated in a not-fully-satisfactory way), but its real contribution to science-and-theology remains limited.

Notwithstanding all such critical questions, this is a thought-provoking book which deserves to be read carefully. And the case it makes both for nature as God’s revelation and for a Trinitarian theology of nature is to be welcomed.

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Charles Amarkwei, *Paul Tillich and his System of Paradoxical Correlation. Forging a New Way for Science and Theology Relations*. Grand Rapids, Michigan: Wipf and Stocks 2020, pp 180; ISBN 978-1725258792 (Paperback), \$ 18,00

“This book shows the paradoxical mode by which Christians keep their faith in the Christian message as they relate with science. It reveals how Paul Tillich’s method of correlation helps us to understand how Christians interact with science without necessarily conflicting, separating, and dialoguing, and synthesizing with each other. It rules out natural theology but provides a non-eclectic theology of nature that frees Christians to be involved in science meaningfully and without undermining their faith.” (Back cover)

Amarkwei, its author, is a lecturer in systematic theology at the Trinity Theological Seminary, Legon, Ghana and a minister of the Presbyterian Church of Ghana.

And with this book he breaks the silence on the relationship between science and theology in the West Africa sub-region. It was written, i.e. is the result of, a PhD programme undertaken at Hanil University, Jeonju in South Korea

But substantially more than this, the book is a deep investigation into the significance of what Amarkwei calls “Paul Tillich’s paradoxical correlation”. It draws out that concept’s implications for a further development of the study of the relation between science and theology. And in doing so it provides new material for an extended discussion of Tillich’s “paradoxical correlation” together with the advancement of the ongoing discussion on the relation between science and theology.

“In the quest for Christian theology to maintain its position as a universal religion which is not made obsolete by the presence of scientific knowledge, the relationship between science and theology remains a very relevant field of study for contemporary theology. In order to engage in science-and-theology relations, questions have been raised regarding appropriate theological methods as well as finding ways to help the discussion become more genuine and fruitful. This work is a contribution to the ongoing discussion by showing that the method of correlation, which is also paradoxical, may serve as a credible and viable alternative.” (p. XI)

Let us briefly recall Tillich’s method of correlation – within his dialectical and therefore also paradoxical theology:

Correlation for Tillich is a fundamental theological conviction that situation (Human Existential) and message (Christian Message) already stand in correlation to each other; they do not have to be brought into such a correlation first. As to reason and revelation it can be said that theology formulates the

questions implied in human existence – as do other sciences – and theology formulates the answers implied in divine self-manifestation under the guidance of the questions implied in human existence. This is a circle which drives man to a point where question and answer are not separated. This point, however, is not a moment in time.

Amarkwei makes it clear from the beginning that he is conservative, in the sense that a synthesis of theology and science, natural theology as well as biblical literalism deviate, from traditional Christian thought. What he, on the other hand, tries to develop with the help of Tillich's method of correlation is a modern theology of nature which avoids the deification of science as well as religious fundamentalism.

In chapter 1 Amarkwei starts by studying Tillich's life history which for him defines the context within which Tillich worked out his systematic theology. He looks at the significance of Tillich's theology as a "...contribution to world Christianity through an analysis of his perspective on the system of the sciences, which has been constructed to relate effectively to the multidimensional unity of life" (p.12).

Chapter 2 deals with the structure of the method of "paradoxical correlation" for science and theology relations. It follows Tillich's methodological structure and consequently so by relating to science as a question in existence and a theological answer. "Emphatically it is done in the light of tracing his method of correlation that is paradoxical, firstly, in the very structure of his systematic theology, and secondly, in his philosophy of science." (p.45) The special role of symbols in accommodating the scientific understanding of reality is laid out.

Chapter 3 stresses the nondualist scheme of Tillich's system. Amarkwei attempts to engage the Tillichian understanding in evaluating the theology-and-science relationship in classical philosophy, in church patristics and in medieval Christianity as well as the renaissance, enlightenment and modern theological relations with science. And finally, this is done with respect to contemporary theology-and-science relations.

Chapter 4 sums up the outcomes of "paradoxical correlation" as a new way of science-and-theology relations in using the classification, i.e. the four views on science and theology, introduced by Ian Barbour. Amarkwei again makes a strong plea for a theology of nature as having its main sources outside science, but on the other hand he points out that scientific theories strongly affect the reformulation of certain doctrines, particularly those of creation and human nature.

In his conclusion Amarkwei makes clear that he uses the Tillichian system of "paradoxical correlation" as a method whereby science and theology could

relate as scientific question and Christian message, providing an answer in the sense that the correlation is perceived in a manner which respects scientific knowledge as legitimate and important human knowledge, but sees it as limited and not absolute, but rather transformable and utilized by the Christian message.

The conclusion also, as it is stated at its beginning, express the usefulness of the method of “paradoxical correlation” in science and theology relations in the life of the church. Due to limited space however this is done mainly in terms of short considerations and suggestions, and by highlighting some ideas worthy of being dealt with in more detail in the future.

This is a very special book and I highly recommend it, although it has a clearly conservative and – as I would term it – “inclusivist” Christian standpoint. Besides Amarkwei’s inspiring suggestions to make Tillich’s method of correlation especially fruitful for the encounter of theology and science, it tells its very own story of the contextualization of this very encounter. Written in South Korea as a doctoral thesis and for the special Ghanaian/African context it is also ecumenical and partly practical in its setting.

The reader however should be basically familiar with Tillich before taking this book in hand – it is not a first introduction into Tillich’s method of correlation and is not meant to be.

But if you have a basic understanding of Tillich, the book will take you on an exciting interdisciplinary, intercultural and ecumenical journey towards one more aspect of the challenging and important debate about the relation of science and religion.

One last word, concerning the publisher:

When I first came across this very interesting title and decided on a review, I was wondering which publishing house might have been courageous enough to produce it.

Subsequently I have learned about the special history and impetus of Wipf and Stock, who describe themselves as a creative and adventurous team, whose staff handle every step of publication in house and publish on the merits of content rather than marketability. By combining innovative technology with academic excellence this publishing house seems to be able to produce affordable books of enduring value. The books never go out of print.

And in times of incredibly expensive good scientific books and ever-growing big publishing houses, in times of Amazon growing even faster than usual due to a pandemic crisis which especially hurts the poor and not so educated people in my own country and, seen from a global perspective, does even more harm to southern countries, I suggest that everyone should buy and read

this book for every possible good reason: its innovative and skilled contribution to the dialogue between theology/religion and science, and to new applications of Paul Tillich's theology, making it even more relevant today: its effort to see the theological outcome and ecclesiological relevance together instead of dividing research and practice, i.e. parish work: and its deep ecumenical grounding.

Also because of its affordable price thanks to its publishers, and its conviction in favour of, and work for, a more just global society and in intercultural and interdisciplinary learning in order to bring this about.

Pn. Dr. Sybille C. Fritsch-Oppermann
TU Clausthal

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Denis R. Alexander, *Is There Purpose in Biology? The Cost of Existence and the God of Love*, Lion Hudson Ltd, Oxford, 2018, pp. 288; ISBN: 978-0857217141 (Ppbk), \$ 18.00.

The teleological cause, the greatest favorite of Aristotle (introduced already in *Physics*, 194a) now has disappeared from modern science [1]. Dr Denis Alexander, founding Director of The Faraday Institute for Science at St. Edmund's College in Cambridge, undertakes a difficult task of discussing the question of purpose in modern biology.

In the very first instance he makes the distinction between "purpose" and "Purpose". "Everyone needs some purposes in his life if they wish to flourish and maintain good mental health" (p. 179). Then, biology is particular full of *purposes*. "Unlike physics and chemistry biology is full of the teleological language of purpose and has been ever since Aristotle. The beaver builds its dam in order to protect its home from predators. The male peacock displays its plumage in order to attract a mate" (p.14). And so on.

But evolutionary biology tends to eliminate purpose as a factor in changes: instead "Chance rules" (p. 14). It is quite difficult to prove the existence of purpose, especially from *ex posteriori* results and in non-repeatable processes. David Hume, the philosopher, tried to deny the very feasibility of proof for the cause-effect relation. A modern philosopher, Patricia Churchland answers [2]: "I cannot literally observe the causal relation between a mosquito on my arm and the itch that follows its departure. But my causal inference is based on strong background knowledge."

So, Denis Alexander wisely inverts the question: instead of proving that purpose exists in biology, he asks – can we with certainty demonstrate that no purposes are hidden in evolutionary processes?

Is it *necessarily* the case, as these [Atkins, Dawkins, Dennett] and other commentators are suggesting, that biology in general, and the evolutionary process in particular, tells us that it has no purpose? This question is carefully worded. If I were asked the question: “Does evolutionary history necessarily demonstrate that there must be a purpose in biology?”, then I would answer simply that I don’t think that such metaphysical conclusions, referring to questions concerning ultimate goals, can be derived so readily from the study of science. The scientific observations might make an affirmative answer more or less plausible, a point to which we will return later. (p.13-14)

Detailed documentation cited by Denis Alexander, on “strange coincidences” in evolutionary processes, is vast. From the morphological side he compares the recently extinct Tasmanian marsupial wolf with that from Mexico (placental). Similarly, astonishing “convergences” are observed comparing the Tenrec “hedhehog” and the mouse-like shrew from Madagascar with the proper European species. Note that Madagascar (together with Australia) separated from other continents some 90 millions years ago. Alexander recalls also the astonishing study of three independent developments of the “eye” in primitive eukaryotic unicellular organisms (Warnowiid dinoflagellates, *Chlamydomonas* algae, and *Blastocladiella* fungi), made by Richards and Gomes [3]. They commented on the evolutionary *repurposing*: “The ocelloid example is striking because it demonstrates a peak in subcellular complexity achieved through repurposing multiple components.”

Genetics brings more proofs of “multiple fishing in the same pool of solutions”, as the reasoning of Denis Alexander can be expressed in a picturesque way. This is the case of the conversion of valine to an alanine in the Krebs cycle by enzyme IDH2 at position 186, which favours an increased uptake of oxygen. This happened three times, in independent evolutionary lineages of *Animalia*: bats (that fly), dolphins (that have bigger brains than humans) and primates. A similar “coincidence” has occurred with the *TRIMCypA-1* gene that assures resistance to the monkey equivalent of the HIV-1 retrovirus: some 5 million years ago in an owl monkey (in South Africa) and currently in macaque monkeys, those of Gibraltar, Africa and Asia (p. 133).

Denis Alexander reports on what in physics would be called “a repeatable experiment”. Richard Lensky with collaborators started in 1988 research on bacterial evolution. They studied *Escherichia coli* in 12 parallel lines derived from a single cell. After a decade of the experiment, in one of the flasks, “in generation number 33,127, one of the cultures ‘discovered’ how to use citrate as a food source.” (This is as if cats, having access to whisky, had suddenly based their metabolism on that, instead of glucose - writes Alexander.) In the *E. coli* sample, “The two ‘background’ mutations had to occur first, several

generations earlier, and the third critical mutation then enabled the complete ensemble of three mutations to allow the use of citrate, thereby opening up a whole new way of living for the colony” (p. 65).

The main part of the book clearly rotates around the statement: “Nor is our aim, it should once again be emphasized, to suggest that Purpose can be inferred from biology, but rather the more modest claim that when you stand back and look at the evolutionary process as a whole, it just doesn’t look ‘necessarily purposeless’” (p. 57).

Denis Alexander maintains this cool, scientific objectivity in five chapters. But an attentive reader starts to develop some anxiety about a final, concluding statement. This comes in chapter VI: “Death, Pain, Suffering, and the God of Love”. Alexander refers to Charles Darwin words [4]: “A being so powerful and so full of knowledge as a God who could create the universe, is to our finite minds omnipotent and omniscient, and it revolts our understanding to suppose that his benevolence is not unbounded, for what advantage can there be in the sufferings of millions of the lower animals throughout almost endless time?”

The conclusions of Denis Alexander are clear like a thunder-clap (pp. 246-247):

If we look at the biology, we see the sheer power and wisdom of God in bringing into being and sustaining the beauty and complexity of the living world. But if we look *only* at the biology, all we see is that life eventually ends in death – and indeed with the eventual energy death of our sun, all life on this planet will eventually become extinct. But if we lift up our eyes and also look on the cross, we see the doorway into a new creation that God is preparing for all those who put their faith in him through Christ. And we realize that life is going somewhere very good indeed – albeit via a tough and rocky road for us at present – when ultimately the whole present cosmos for which Christ died will finally be fully expressed and fully realized in the new heavens and the new earth. And this is the eschatological perspective we need if we are to make any sense of the ultimate Purpose of biology in the present world.

Resuming: objective and detailed scientific argumentation with fervent faith make “Is There Purpose in Biology?” a strong counterpart for “best-selling” authors named earlier in this description. It should get broad readership, as the works of Denis Alexander help to bridge the Christian faith with modern science, in the best tradition of English writers (but mainly physicists) – Newton, Boyle, recently mourned John D. Burrow, and others, like John Polkinghore, Tom McLeish, Nicolaus Saunders and so on.

This reviewer's (didactical) recommendation is that "Is there purpose in biology?" should become an auxiliary textbook for those biology students who are ready to ask fundamental questions about our (physical & biological) world. They need not share Denis Alexander's eschatological conclusions, but the weight of scientific evidence he brings precisely to bear will surely trigger their more attentive presence in the world.

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**Grzegorz Karwasz,
Torun Copernicus University**

Editor's note: *An alternative review of this book appeared in Vol. 29-4, pp. 21-25 of this journal.*

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Leland Royce Harper, *Multiverse Deism: Shifting Perspectives of God and the World*, London, Rowman & Littlefield, Inc. (2020), 144 pp; ISBN 978-1-7936-1475-9 (cloth); £34. 978-1-7936-1476-6 (electronic); £32.

Harper bases this book on his doctoral thesis, in which he examined and argued for the plausibility of multiverse deism. According to him, (1) theories of the multiverse serve as an "independent method of conferring plausibility and entailment on the idea of deism" (p.2) and (2) adding the multiverse aspect, "covers far more ground than it otherwise would have were it restricted solely to a discussion of deism" (p.2).

In **Chapter 2**, Harper briefly presents some philosophical and scientific theories of the multiverse. The philosophical theories of a multiverse put forward are those of Jason Megill, Donald Turner, Hud Hudson, Klaas Kraay, and Harper himself.

The concept envisaged by Megill and Turner consists of spatiotemporally isolated universes. Hudson, on the other hand, suggests a hyperspace which

is additional to the three dimensions of space-time. Hence, he suggests different regions in different spatial or temporal locations rather than parallel universes. Kraay's multiverse responds to the "best possible worlds" objection to theism.

Harper's own version is a general one, which actualises all metaphysically possible universes. There are no thresholds. Such a multiverse, he argues, is an ontological reality in which God would not have to intervene except for having created it. This is because everything possible happens in one universe or another, at one time or another, in one place or another.

The scientific theories of a multiverse derive from Max Tegmark, who made a survey of different types of multiverse theories. On the first level, the multiverse is understood as a series of parallel universes that maintain remarkably similar physical constants to those of our universe, but with initial starting points differing in time, either before or after ours.

The universes of the level two multiverse are represented by a bubble. Each universe in its bubble is unique in that it has different physical constants and laws of nature. All universes exist simultaneously.

The multiverse of level three does not contain parallel universes but is understood as a tree, each branch of which represents a universe. Hence, the universes are interconnected yet causally isolated.

The level four multiverse involves mathematical democracy, meaning that the universes are governed by other equations but are nevertheless equally real.

Harper also briefly recounts the Many Mind Theory of David Deutsch. Lastly, he mentions the multiverse version of A.D. Linde, which is a kind of self-reproducing multiverse. This implies, amongst other things, that not all universes are actualised or exist simultaneously; they all come into existence one-by-one over time.

In **Chapter 3**, Harper argues that an acceptance of a multiverse entails a deistic God rather than the God of classical theism. He does this by presenting the difficulties encountered by theists who accept a multiverse theory. The first difficulty is how it fits with belief in an omnibenevolent God. Because a multiverse contains all possible states of affairs, at least one of the universes would be entirely evil, and this does not sit well with an omnibenevolent God. A second problem is an ethical one: if every possible state of affairs is realised, why would morally good actions matter, knowing that the counterpart will be realised in another universe? A third difficulty is that multiverse theories seem to undermine the argument from design.

Harper discusses several possibilities of how a deistic multiverse could be composed with regard to free will (libertarian) and determinist (continuum).

In **Chapter 4**, Harper specifies the nature of the deistic God he proposes. After presenting some historical views, he suggests a deistic God whose attributes remain similar to those of the theistic God. The most important attributes are omnipotence and omnibenevolence, followed by omniscience, though to a lesser extent. He also briefly discusses some other attributes such as timelessness, immutability, and necessity, but does not place much emphasis on these. God's role is limited to the act of creation and the establishment of laws to rule the universe(s).

Harper adopts George Mavrodes' definition of omnipotence, stating that God's abilities are limited by logic, but adds some more limitations: (1) God cannot perform tasks that are not within God's nature; for example, God cannot make arbitrary decisions; (2) God cannot act in a less than perfectly efficient way. Omnibenevolence is simply understood as God wanting the best for creation. Here Harper is faced with the problem of evil, but he does not discuss it further at this point, only saying that one needs to accept that all states of affairs simply "*are*" (59).

Chapter 5 describes how deism copes better with three classical arguments for the existence of God, namely the teleological, ontological and cosmological arguments.

The teleological argument is compatible with deism and multiverse theories because it suggests that the complexity of our universe implies a designer. Since a multiverse is more complex than a single universe this argument supports multiverse deism.

The ontological argument is more difficult; but still, he argues, if one skips certain interpretations such as God being causally connected to and active within the world as part of God's perfection, deism is not incompatible with this argument.

The cosmological argument is largely compatible with deism because it does not make claims regarding the ongoing nature of the universe; rather, the universe is ongoing because of some wilful designer.

Thereafter, Harper presents some of the arguments against the existence of God and argues that deism copes better than traditional theism with these arguments. The first issue is the one of divine hiddenness. While this position causes problems for classical theism, it does not do so for deism because the universe has no personal relationship with God. However, another problem remains: i.e., how to explain God's omnipotence, omniscience and omnibenevolence if God has no occasion to demonstrate these attributes. It needs to be explained why the existence of God (or some aspect of God) is not clearly evident to us.

The second argument concerns the problem of evil, which is not a problem for the multiverse deist because the problem is based upon God either allowing evil or failing to prevent it. However, once again the problem remains because of God's attributes; whether God is active or not, God created the multiverse. God could have created an entirely good multiverse.

The next argument deals with the occurrence of miracles. According to Harper's multiverse deism God does not intervene in the world at all and therefore the question of miracles is not an issue for multiverse deism.

In **Chapter 6**, alternative versions of deism are presented. For his purpose, Harper renames the concept of "noninterventionist special divine action" as "epistemic deism" and renames "multiverse deism" as "metaphysical deism". He evaluates three versions of "epistemic deism": one put forward by Nancey Murphy, another by Thomas Tracy, and a third by Bradley Monton. All these theories are dismissed as being either a "skewed version of traditional (metaphysical) deism or [...a...] skewed version of classical theism". One problem, in my view, which Harper also acknowledges, is that none of the authors he discusses have signed up to deism. Furthermore, renaming noninterventionist special divine action as epistemic deism does not make it a version of deism. What the authors do is consider the plausibility for divine action on a quantum level.

In **Chapter 7**, various other difficulties are discussed. Firstly, how to explain God's inactivity despite his having acted once. The problem lies in the term "act", i.e., to explain what makes the initial act (creation) different from any subsequent divine acts, the kind which deism of any sort precludes.

Secondly, where to place God. The question is, does God necessarily exist for the multiverse or for each universe per se? Can God be located in each universe simultaneously, or is God to be found somewhere outside the multiverse? Harper's solution is to formulate a view akin to pantheism, which would allow some sense of God's existence within each universe. Another suggestion is to place God on a comparable level to numbers, which would allow God to be present completely.

Thirdly, how to tackle the idea of a personal relationship with God, which is seen as the greatest possible good. Since such a relationship entails reciprocity between a subject and God, it would imply that God is active in the world. Hence the multiverse deist needs to find an explanation that does not imply reciprocity. Multiverse deists do not exclude a relationship with God, but this relationship needs to be unilateral from the subject towards God.

Fourthly, how to respond to literal interpretations of the Bible. Harper suggests rewriting the scriptures in a Jeffersonian way; that is, removing the miracles of Jesus Christ as well as depriving him of his divine status.

Furthermore, with the advance of the natural sciences, many parts of the scriptures can already be understood as metaphors or analogies.

Lastly, how to tackle miracles; not so much those extraordinary events that people may experience today and may interpret as miracles, but the documented historical ones. The multiverse deist denies that any miracles have ever taken place. The way to proceed here is to explore the relationship between perception and belief during the historical time-period. Because science was limited, people in earlier times could not explain extraordinary events apart from ascribing them to God's specific action.

Chapter 8 – Practical Considerations and Concluding Thoughts

General considerations.

This book is the publication (revised or not) of Harper's doctoral thesis, and it should be considered as such. By this I mean that typically doctoral projects are limited in scope, something mentioned several times here. Problems are recognised but acknowledged as being beyond the scope of the project. However, this work has potential, whether one is keen to adopt multiverse deism or not. It fits very well into the discussion of science and theology/religion and opens up interesting debates.

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S. Joshua Swamidass, *The Genealogical Adam and Eve: The Surprising Science of Universal Ancestry*, Downers Grove, IL: InterVarsity Press, 2019; pp 246. ISBN 978-0-8308-5263-5 (hardback), \$23.54.

Few books – even ones I vehemently disagree with – fail to challenge me. Even though I may not be convinced by an author's thesis, I at least have to consider what they say, which helps to clarify my own thinking. Unfortunately, *The Genealogical Adam and Eve* by S. Joshua Swamidass is in that small group of books from which I learned virtually nothing of significance.

Swamidass, who holds both M.D. and Ph.D. degrees from the University of California, Irvine, and who is Associate Professor of Laboratory and Genomic Medicine at Washington University, St. Louis, was raised by fundamentalist Christian parents who held a young earth creationist perspective on origins. As Swamidass later immersed himself in modern biology and evolutionary theory, he jettisoned the young earth creationist view of his upbringing, but retained a mostly literal and salvation-historical approach to the Bible, a position that most would view as antithetical to modern evolutionary theory. *The Genealogical Adam and Eve* is Swamidass's attempt to square

this circle and find harmony between evolutionary theory and a literal reading of the Adam and Eve story from Genesis? How does he do this?

Swamidass delves into the science of ancestry, arguing that genealogical ancestry and genetic ancestry—normally treated as synonymous—are actually very different things. Genetic ancestry deals with genes, sequences of DNA that can be passed down over generations and inherited potentially even from pre-human organisms. Moreover, genetic ancestry becomes more and more diluted over time. Genealogical ancestry, on the other hand, refers to the people from whom we are direct descendants. Not all people leave descendants; many genealogical lines become dead ends. As a result, if we trace back far enough through the tangled web of genealogy with all its truncated branches, we will be able to identify common ancestors for all people alive today. This discussion of the difference between genetic and genealogical ancestry is the one part of the book that I found reasonably engaging. But this is only the beginning.

Swamidass then uses this insight to argue that God could have created Adam and Eve *de novo* within the last 6,000 years and placed them in the Garden of Eden. They could be the common genealogical ancestors of all people alive today who then interbred with people who lived outside the garden and who were the product of the natural evolutionary process. The people outside the garden would then be our genetic ancestors. Therefore, while our genetic ancestry is rooted in the evolutionary process – we have inherited DNA from our early hominid ancestors – a literal Adam and Eve could still be our genealogical ancestors, thus saving a literal, historical reading of Genesis.

To be fair, Swamidass is clear he is not arguing that science somehow proves the existence of a real Adam and Eve. As he repeats almost *ad nauseum* throughout the book, he is merely showing that belief in a historical Adam and Eve created *de novo* by God is not inconsistent with evolutionary science, provided that there were people living outside the garden who evolved by normal Darwinian processes and interbred with Adam and Eve. Thus science can neither prove nor disprove the existence of an historical Adam and Eve.

This scenario could be possible except that Swamidass focuses only on God's creation of the two human beings in the story and simply ignores the part where Adam is formed first and then the animals are created in order to assist Adam in tilling the garden. This would seem to put the whole story totally at odds with evolutionary science, since if Adam was created within the last 6000 years, all of the animals would have already been here, something that a professional biologist should know! Swamidass's speculations simply do not constitute a serious argument, but rather a vain attempt to render biblical literalism coherent with evolutionary theory.

Having “established” the possibility of a real Adam and Eve, Swamidass then uses the second half of the book to engage in a mind-numbingly repetitive series of engagements with conservative theological thought to show how his reconstruction of a literal Adam and Eve who interbred with people outside the garden might serve to mediate conservative theological disputes. But here Swamidass adopts a kind of false humility, constantly admitting that everything he is saying could be wrong. It seems to be his favoured rhetorical tactic to constantly admit his deficiencies in order to disarm his critics. But in doing so he ends up saying nothing at all!

In one place, Swamidass does try to crawl out from inside his conservative theological cocoon and draw a wider implication from his reconstruction. He argues that his monogenetic understanding of human origins can play an anti-racist role by showing that all racial groups share a common ancestry. While it is true that many early racist scientists held to polygenetic views of human origins, Ibram Kendi and others have pointed out that monogenesis has also been interpreted in racist ways. Humans may all be one family, but one can still argue that some racial groups (whites) have evolved further than others.

One other note is in order about the publisher, InterVarsity Press. Along with publishing a book that makes no significant contribution to the conversation between science and theology, this is one of the most poorly edited books I have seen in a good long while. Typographical errors involving missing words and repeated words and phrases marr at least one-quarter of the book’s pages, greatly interrupting the flow of reading. And the title of Darwin’s seminal work – one of the most famous titles in all of English literature – appears as *Origin of the Species* (125)!

Unless you are fully invested in a biblical theology based on a literal reading of the Adam and Eve story, you can safely ignore this book. And even if you are, you probably won’t find much to chew on other than perhaps the peace of mind to know that your biblical literalism may not put you at odds with evolutionary science. But even this is debatable.

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Scott A. Midson (ed.) *Love, Technology and Theology*: London/New York: T&T Clark, 2020, pp. XV + 178, ISBN: 978-0-567-68994-8, £ 85 (hdbk.)

This book is an interesting proposal combining, from a theological perspective, two key factors in understanding ourselves: love and technology. As the editor of the book, Midson, explains at the conclusion of the introductory chapter, it “seeks to contribute to important and often overlooked or

misunderstood conversations about love and technology, and it draws on theological insights to help make sense of some broader idea(l)s that texture our experiences of both” (p. 22-23).

The book is structured in four parts. The first one is an introduction, its one chapter written by the editor Scott A. Midson. The second part *Love and (non)humans*, has three chapters written by Peter Manley Scott, Celia E. Deane-Drummond and Anne Foerst. *Love and bodies* is the title of the third part with contributions by Robert Song, Amy Michelle DeBaets and Ronal Cole-Turner. And the fourth part of the book is *Love and societies* with the two last chapters of the book written by Thomas Jay Oord and Scott A. Midson.

The chapter entitled *Technoculture and technophilia: ‘Techne’, ‘agape’ and ‘eros’* opens the book, offering an introduction to the whole work and also to the relationship between technology and love in the framework of the notion of *texture* proposed by Don Ihde and other philosophers of technology. So the chapter introduces the main question of the book: “do love and technology texture one another and our existence?” (p. 7).

Starting the second part, Midson writes *Rethinking love in the Anthropocene*. He proposes a reformulation of the notions of love and nature in the technological context. As the technological developments imply a change in being, it is necessary to reformulate the notions of love and nature.

Affective affiliations is the third chapter written by Deane-Drummond who proposes reading the relationships between humans and other animals as an illuminating key to understand the relationships between humans and technology. Deane-Drummond proposes that “Humanity become human ... through their developing entangled relationships with other animals and their further embeddedness within their environment through use of their tools” (p. 45).

Closing the second part comes the fourth chapter written by Anne Foerst, entitled *Loving robots?*, in which there is a new approach to humans, love and technology. Foerst explores human desire in order to understand if it is possible for a human to love a machine – as sci-fi stories propose. Foerst starts by distinguishing *eros*, *philia* and *agape*, focusing on the last two and excluding *eros*. Then she explains how we achieve an anthropomorphising of machines – and of technology in general – as a first step in this love approximation to them. This is an important but not sufficient step, as we should explore the construction of another rejection-avoiding process (xenophobia). By exploring biblical images of acceptance by strangers, Foerst distinguishes between ‘person’ and ‘human’, understanding person in a relational way, and it is in this sense that she proposes the notion of loving robots as an inclusive

way to approach them ... and, by extension, to a more inclusive love with others.

The third part of the book looks to *Love and bodies*. As we have just seen, Foerst in the third chapter excluded the question of *eros*, centring on *philia*, and in some respects *agape*, to understand relationships between humans and technology. Now, Robert Song starts this section with the fifth chapter, *Desiring machines: The sexbot paradox*, pointing out this further question of sex-machines. As he writes: “The sex robot occupies an awkward, liminal position, both like and unlike, simultaneously ‘real’ and synthesized. It uncannily problematizes the boundaries of humanity, giving rise not only to anxieties about its ontological standing and the significance of this for human identity, but also a series of moral questions about the aspirations that are driving the creation and use of machines that seem to hover inescapably in this space” (p. 77). By exploring sex robots as cultural phenomena, and displaying a stimulating imagination, Song proposes: “the sexbot paradox consists in the fact that we want to make sex robots ever more realistic, but as soon as they were to become sufficiently realistic to be genuine lovers, we could no longer treat them as mere sexbots” (p.86). And he concludes with the peril that misunderstanding loving relationships may make human beings into mere robots.

The sixth chapter written by Amy Michelle DeBaets is titled *The robot will see you now: Reflections on technologies in healthcare*. DeBaets highlights another important issue about robots, as their use in healthcare is more extended at every opportunity. The chapter analyses several approaches in which technology is playing or may play an important role in healthcare – from health-data devices, and issues about accompanying the sick or elderly, to new technological treatments or technologically assisted surgeries – as a few examples. The chapter goes from the technological approach to the theological perspective, in which a better understanding of love may be helpful in humanising healthcare and caregiving.

Loving better (people)? Moral bioenhancement and Christian moral transformation, by Ronal Cole-Turner is the seventh chapter of the book, bringing up the issue of enhancement. Moral improvement is nothing new but “The most urgent calls for moral improvement, however, come today not from traditional moralists but from those who fear that our technological powers have outstripped our moral capacities” (p. 109). Cole-Turner argues the need to explore the real possibilities of technology to improve moral human behaviour and how theology should respond to it.

Questioning moral bioenhancement opens the fourth and last part of the book, *Love and societies*. The eighth chapter *Can technologies promote overall well-being? Questions about love for machine-oriented societies* is

written by Thomas Jay Oord. Oord opens the chapter with a reference to the TV series *Black Mirror*, a series which shocks viewers with the consequences – good or ill – that technologies produce in our societies. Oord explores the notion of love in our technological cultural frame, acknowledging limits and possibilities trying to show us that machines offer both challenges and opportunities and that we have the need to face up to this necessary questioning.

The last chapter is written by the editor of the book, Scott A. Midson entitled: *From “imago dei” to social media: Computers, companions and communities*. Midson explores here some chat bots, and the AI used in them to explore the notions of neighbourhood, social companion ship... in the “imago dei” framework. In fact, he points out how the new technological developments in social media urge upon us the need of a theological anthropological questioning.

The whole book is an interesting exploration in the theological anthropology in which love is challenged by technology and theology. It goes from fairly theoretical perspectives to the more practical and now everyday questions of the technological framework of our societies. As Midson concludes the book: “These questions attest to the complexity of our technological entanglements as well as the complexity of love, which are both important matters for us not to recoil from or downplay but to think through, together” (p. 160).

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New books relevant for Science-and-Theology

All the titles in this section are available for review; interested colleagues please contact the Editor to request one or more books.

General issues

Christopher C. Knight

Science and the Christian Faith: A Guide for the Perplexed

Saint Vladimirs Seminary Press 2021

How do we understand and articulate our Christian faith in the age of science? Are the two in conflict? Fr Christopher Knight - a theologian who also holds a doctorate in astrophysics - is well-equipped to guide us through these questions. He argues that not only is there no conflict between faith and science, but our contemporary scientific worldview can be deepened and refined by engagement with the riches of the ancient Orthodox tradition.

Gregory Dawes

Deprovincializing Science and Religion

Cambridge University Press 2021

This book sets the study of science and religion in a global context by examining two ways in which humans have understood the natural world. The first is by reference to observable regularities in the behaviour of things; the second is by reference to the work of gods, spirits, and ancestors. Under these headings, this work distinguishes three varieties of science and examines their relation to three kinds of religion, along four dimensions: beliefs, goals, organizations, and conceptions of knowledge. It also outlines the emergence of a clear distinction between science and religion and an increase in the autonomy of scientific inquiry. It is these developments that have made conflicts between science and religion possible.

Babie, Paul & Rick Sarre (eds.).

Religion Matters: The Contemporary Relevance of Religion

Springer Nature. 2020

This book draws together leaders in science, the health sciences, the humanities, and the social sciences to investigate the role of religion, its meaning and relevance, for their area of specialization. It provides a much-needed fresh perspective on the way in which religion operates within the modern, neo-liberal world. The book approaches the topic by way of a critical engagement between religion, broadly defined, and the individual disciplines in which each of the contributors is expert. Rather than simply taking the dogmatic position that religion offers something to every possible discipline, each of the chapters in this collection addresses the question: is there

something that religion can offer to the discipline in question? That is the value of the book – it takes a truly critical stance on the place of religion in contemporary society.

Malcolm A. Jeeves

Why Science and Faith Belong Together: Stories of Mutual Enrichment
Cascade Books 2021

As we try to understand ourselves and the world we live in, all too often we look first to science—and then, if gaps remain in our understanding, we try to fill the gaps with reference to God and our faith. Such a “god-of-the-gaps” approach has a long history and is sadly alive and well today. This book was written to provide an alternative approach, posing this basic question: How can educated Christians maintain their intellectual honesty and, at the same time, be faithful both to Scripture and to science? This book provides examples of some of the liveliest “science vs. faith” issues today and suggests ways to think constructively about each of them.

Diarmuid O'Murchu

Doing Theology in an Evolutionary Way
Orbis 2021

In his new book Irish priest and renowned author Diarmuid O'Murchu points the way toward a Spirit-driven evolutionary perspective, in which Creation is God's primary form of revolution. It is in the power of that Spirit that Jesus incarnates afresh God's embodied presence in our midst, and encourages us on the way to becoming creative participants in God's unfolding mission.

Charles Villa-Vicencio

Living between Science and Belief
Cascade 2021

Most thoughtful people live in an interregnum between science and religion. Traditional religious answers concerning the beginning, purpose, and end of life are questioned by the natural sciences, with neuroscience conceivably constituting the last frontier where sceptics and believers explore common ground. The question concerns the nature of reflective and creative moments in life. Can these be reduced to the intersect between the nerve cells and molecules of the physical brain? Does this account for the human sense of mystery, or even spirituality? Is there a nexus between the physical and unknown dimensions of existence? The mutation in the history of theism suggests that progressive theology in the West may be set for further change.

Paul Copan (Ed.),
Three Views on Christianity and Science
Zondervan Academic 2021

When it comes to relating Christianity to modern Western culture, perhaps no topic is more controversial than the relationship between Christianity and science. Outside the church, the myth of an age-old conflict between science and Christianity is nearly ubiquitous in popular culture and can poison the well before a fruitful dialogue can begin. Within the church, opposing viewpoints on the relation between Christianity and science often lead to division and rancour. *Three Views on Christianity and Science* addresses both types of conflict. Featuring leading evangelical representatives, it presents three primary options for the compatibility of Christianity and science and models constructive dialogue on the surrounding controversial issues.

Pierpaolo Donati, Antonio Malo, Giulio Maspero (Eds.)
Social Science, Philosophy and Theology in Dialogue
Routledge 2020

This volume explores the potential of employing a relational paradigm for the purposes of interdisciplinary exchange. Bringing together scholars from the social sciences, philosophy and theology, it seeks to bridge the gap between subject areas by focusing on real phenomena. Although these phenomena are studied by different disciplines, the editors demonstrate that it is also possible to study them from a common relational perspective that connects the different languages, theories and perspectives which characterize each discipline, by going beyond their differences to the core of reality itself. As an experimental collection that highlights the potential that exists for cross-disciplinary work, this volume will appeal to scholars across a range of fields concerned with critical realist approaches to research, and collaborative work across subjects.

Henry M. Cowles
The Scientific Method: An Evolution of Thinking from Darwin to Dewey
Harvard University Press 2020

The idea of a single scientific method, shared across specialties and teachable to ten-year-olds, is just over a hundred years old. For centuries prior, science had meant a *kind* of knowledge, made from facts gathered through direct observation or deduced from first principles. But during the nineteenth century, science came to mean something else: a *way* of thinking. *The Scientific Method* tells the story of how this approach took hold in laboratories, the field, and eventually classrooms, where science was once taught as a natural process. Henry M. Cowles reveals the intertwined histories of evolution and experiment, from Charles Darwin's theory of natural selection to John Dewey's vision for science education.

Cosmological issues**Stephen C. Meyer*****Return of the God Hypothesis: Three Scientific Discoveries That Reveal the Mind Behind the Universe****Harper One 2021*

The book presents ground-breaking scientific evidence of the existence of God, based on breakthroughs in physics, cosmology, and biology. Beginning in the late 19th century, many intellectuals began to insist that scientific knowledge conflicts with traditional theistic belief – that science and belief in God are “at war.” Philosopher of science Stephen Meyer challenges this view by examining three scientific discoveries with decidedly theistic implications. Building on the case for the intelligent design of life that he developed in *Signature in the Cell* and *Darwin’s Doubt*, Meyer demonstrates how discoveries in cosmology and physics coupled with those in biology help to establish the identity of the designing intelligence behind life and the universe.

Geoffrey H. Fulkerson, Joel Thomas Chopp (Eds.)***Science and the Doctrine of Creation: The Approaches of Ten Modern Theologians****IVP Academic 2021*

While there is no shortage of works that treat the intersection between science and religion, little attention has been paid to the *theological* reception of developments in modern science. Yet a deeper look at the history of Christian thought offers a wealth of insight from theological giants for navigating this complex terrain. *Science and the Doctrine of Creation* examines how influential modern theologians – from the turn of the nineteenth century through the present – have engaged the scientific developments of their times in the light of the doctrine of creation. In each chapter a leading Christian thinker introduces readers to the unique contributions of a key theologian in responding to the assumptions, claims, and methods of science.

Paul Matthews***The Revelation of Nature****Routledge 2021*

This title was first published in 2001. "The Revelation of Nature" embraces pragmatism, aesthetics and metaphysics in an effort to narrate a fundamental relationship between the contemporary world and the natural source and site for any world of meaning. Beginning with an exploration of Heidegger's seminal insight into the way we exist – that human existence must be understood in its everydayness – Matthews links these ideas to Heidegger's interpretation of the development of Western history in terms of its grounding metaphysical

determinations to do with truth, reality and the nature of things. Matthews concludes that our everyday lives are informed and shaped by intellectual precepts and normative modes of behaviour that promote the combination and enslavement of both nature and ourselves within a mass technological grid.

Life-Sciences issues

Michael Peterson & Dennis Venema

Biology, Religion, and Philosophy: An Introduction

Cambridge University Press 2021

The intersection of biology and religion has spawned exciting new areas of academic research that raise issues central to understanding our own humanity and the living world. In this comprehensive and accessible survey, Michael L. Peterson and Dennis R. Venema explain the engagement between biology and religion on issues related to origins, evolution, design, suffering and evil, progress and purpose, love, humanity, morality, ecology, and the nature of religion itself. Does life have a chemical origin – or must there be a divine spark? How can religious claims about divine goodness be reconciled with widespread predation, suffering, and death in the animal kingdom? Peterson and Venema develop a philosophical discussion around such controversial questions. The book situates each topic in its historical, scientific, and theological context, making it the perfect introduction for upper-level undergraduates, graduate students, scholars, and the interested general reader.

Anthropological issues

Silva, Ignacio & Simon Kopf (eds.).

Divine and Human Providence: Philosophical, Psychological and Theological Approaches.

Routledge. 2020.

This volume offers an original perspective on divine providence by examining philosophical, psychological, and theological perspectives on human providence as exhibited in virtuous human behaviours. Divine providence is one of the most pressing issues in analytic theology and the philosophy of religion today, especially in view of scientific evidence for a natural world full of indeterminacies and contingencies. Therefore, we need new ways to understand and explain the relations of divine providence and creaturely action. The volume is structured dynamically, going from chapters on human

providence to those on divine providence, and back. Drawing on insights from virtue ethics, psychology and cognitive science, the philosophy of providence in the face of contingent events, and the theology of grace, each chapter contributes to an original overall perspective: that human providential action is a resource suited specifically to personal action and hence related to the purported providential action of a personal God.

Mark C. Taylor

Intervolution: Smart Bodies Smart Things (No Limits)

Columbia University Press 2020

Science fiction has long imagined a future fusion of humanity with technology. Today, many of us – especially people with health issues such as autoimmune diseases – have functionally become hybrids connected to other machines and to other bodies. The combination of artificial intelligence with implants, transplants, prostheses, and genetic reprogramming is transforming medical research and treatment, and it is now also transforming what we thought was human nature. Mark C. Taylor identifies this process as “intervolution” and explores how it is weaving together smart things and smart bodies to create new forms of life. Our wired bodies are no longer freestanding individuals, but interconnected nodes in worldwide networks. Recognizing this transformation overturns deeply entrenched distinctions and oppositions between minds and bodies.

New scientific study of religion

Claire White

An Introduction to the Cognitive Science of Religion: Connecting Evolution, Brain, Cognition and Culture

Routledge 2021

In recent decades, a new scientific approach to understand, explain, and predict many features of religion has emerged. The cognitive science of religion (CSR) has amassed research on the forces that shape the tendency for humans to be religious and on what forms belief takes. It suggests that religion, like language or music, naturally emerges in humans with tractable similarities. This new approach has profound implications for how we understand religion, including why it appears so easily, and why people are willing to fight – and die – for it. Yet it is not without its critics, and some fear that scholars are explaining the ineffable mystery of religion away, or that showing that religion is natural proves or disproves the existence of God.

Szocik, Konrad & Hans Van Eyghen

Revising Cognitive and Evolutionary Science of Religion: Religion as an Adaptation

Springer Nature 2021

This unique and pioneering book critically appraises current work from both the cognitive science of religion and the evolutionary study of religion. It addresses the question: Why does the believer possess supernatural or religious beliefs in the combined context of his cognitive biases, their adaptive usefulness measured in terms of survival and reproduction, and the impact of social learning and cultural traits? The authors outline a pluralistic approach to the study of religion that does not treat religion as an accidental by-product but an adaptation selected by natural selection. Chapters discuss the role of religious components for the evolution of cooperation and altruism, and explore the development of atheism and secular ideas, in cognitive and evolutionary terms. Topics such as the usefulness of religion, the transmission of religious beliefs, and a Darwinian approach to religion are among those addressed. Contrary to standard views, religious biases are regarded as shaped by cultural influences and not merely by natural dispositions.

Liddle, James R. & Todd K. Shackelford (eds.)..

The Oxford Handbook of Evolutionary Psychology and Religion.

Oxford University Press. 2021

This book offers a comprehensive and compelling review of research in religious beliefs and practices from an evolutionary perspective on human psychology. The chapters, written by renowned experts on human behaviour and religion, explore a number of subtopics within one of three themes: (1) the psychological mechanisms of religion, (2) evolutionary perspectives on the functionality of religion, and (3) evolutionary perspectives on religion and group living. This handbook unites the theoretical and empirical work of leading scholars in the evolutionary, cognitive, and anthropological sciences to produce an extensive and authoritative review of this literature. Its interdisciplinary approach makes it an important resource for a broad spectrum of researchers, graduate students, and advanced undergraduates who are interested in studying the factors and mechanisms that underlie and/or affect religious beliefs and behaviours.

Practical and Historical Issues**Mark A. Waddell*****Magic, Science, and Religion in Early Modern Europe****Cambridge University Press 2021*

From the recovery of ancient ritual magic at the height of the Renaissance to the ignominious demise of alchemy at the dawn of the Enlightenment, Mark A. Waddell explores the rich and complex ways that premodern people made sense of their world. He describes a time when witches flew through the dark of night to feast on the flesh of unbaptized infants, magicians conversed with angels or struck pacts with demons, and astrologers cast the horoscopes of royalty. Ground-breaking discoveries changed the way that people understood the universe while, in laboratories and coffee houses, philosophers discussed how to reconcile the scientific method with the veneration of God. This engaging, illustrated new study introduces readers to the vibrant history behind the emergence of the modern world.

Calvin Mercer, Tracy J. Trothen***Religion and the Technological Future: An Introduction to Biohacking, Artificial Intelligence, and Transhumanism****Palgrave 2021*

We live in an age of rapid technological advancement. Never before has humankind wielded so much power over our own biology. Biohacking, the attempt at human enhancement of physical, cognitive, affective, moral, and spiritual traits, has become a global phenomenon. This textbook introduces religious and ethical implications of biohacking, artificial intelligence, and other technological changes, offering perspectives from monotheistic and karmic religions and applied ethics. These technological breakthroughs are transforming our societies and ourselves fundamentally via genetic modification, tissue engineering, artificial intelligence, robotics, the merging of computer technology with human biology, extended reality, brain stimulation, and nanotechnology. The book also considers the extreme possibilities of mind uploading, cryonics, and superintelligence. Chapters explore some of the political, economic, sociological, and psychological dimensions of these advances, with bibliographies for further study and questions for discussion. The technological future is here – and it is up to us to decide its moral and religious shape.

Announcement

New Updating on the Madrid ECST Conference (June 23-26)

Following the lead of other organizations similar to ESSSAT, and their conference plans for this year (like IRAS and its end June Conference), the organizers of the ECST are committed to celebrating this event in Madrid in physical presence for all those who are able to attend and enjoy a friendly atmosphere of exchange in a very open natural environment, and to relax sharing with other colleagues after 15 very stressful months (<http://santamariadelosnegrales.org/>).

The organisers will do everything in their power, in coordination with the staff of the *Los Negrales* residence, to secure the maximum level of health protection for all participants. The facility offers a very healthy environment in the mountains close to Madrid, and a lot of space to ensure social distancing and the other physical conditions to protect everybody and keep the event very safe.

We strongly encourage everybody who intends to attend the Conference to provide a negative result from a Covid-19 test performed a short time before their arrival – this being a general condition now for every traveller flying to Spain, as to many other countries – and, if possible, to be vaccinated against that disease.

The conditions and regulations now required for any kind of public meeting will be fully observed, like wearing protective masks; keeping social distance; and ensuring all the hygienic measures required in these circumstances.

Since the conditions are exceptional, we will operate a very flexible registration policy, and will refund registration fees to everybody who may be unable to attend for any reason, after having registered.

In addition, we plan to offer our main presentations and discussions via streaming for those who are unable to attend, but are interested in following the event. Papers contributed by participants (as below) will not be streamed.

We warmly encourage all ESSSAT and associated members to consider the opportunity to attend and to share their recent research and experiences during this special time.

Please, contact the organizers directly before May 15, indicating your intention to attend and, hopefully, to present a paper (of stated title) at this event.

Elena Montero: catedractor@comillas.edu

We recommend to avoid booking flights or making any reservation payments until the organizers positively confirm that the conference can be held in accordance with local and international regulations and travel conditions; this is, until mid-May.

**NATURALISM—AS RELIGION, *WITHIN* RELIGIONS, OR *WITHOUT*
RELIGION?**

IRAS, the Institute on Religion in an Age of Science,
66th conference June 26 – July 3, 2021, at Star Island, NH

Our conference home, Star Island, expects to be open for conferences this Summer. In consultation with public health experts they prepare various changes to life at Star Island. They are committed to our health and safety. For more information, read the great presentation by Star Island <http://starisland.org/2021update/> (be sure to scroll down, as the information on this page comes in various sections). There is also a FAQ, <https://starisland.org/2021faqs/>

The IRAS Council has great confidence in the way Star Island is preparing for the conferences this summer. The Council has decided that we will go ahead with our conference, *Naturalism – as Religion, within Religions, without Religions*. It will be another great conference, in a special year. Though some of the specific changes made for this season may seem a hassle, we expect that the joy of an ‘in person’ conference, after a year full of online meetings, will be well worth it. And years later, when we look back, this may shine in our memories as a special year, with a remarkable conference.

Some details

From the guidance Star Island provides (see above), I select those that seem to me most relevant. Of course, as the situation is evolving, there may be changes when we get nearer to the conference.

- The conference will begin on Sunday, June 27, and conclude Saturday July 3d, thus be one day shorter than the IRAS conferences usually are. Late arrivals will not be accepted.
- The maximum number of participants will be lower than usual, to allow for more spacing at dinner and in the accommodations.
- We will be expected to wear masks indoors and in situations where social distancing is impossible.
- All participants will have to furnish a recent COVID-19 PCR test result. Star Island strongly recommends that conferees and employees have their vaccination prior to coming to the island, but they are aware that this may not be feasible for all.
- Given current uncertainties, Star Island and IRAS are committed to a forgiving, low stress cancellation policy this year. You may cancel up to one day before the start of the conference, and will receive a full refund.

See for more information the website and the submission form,
<https://www.iras.org>.

#PLASUS21: PLANETARY SUSTAINABILITY 21 WORKSHOP 29/4/21

Do we really need to grow into space? How can we do it in a sustainable way? It is high time for an integrated discussion of space matters with planetary concerns. The workshop #PLASUS21 – „Planetary Sustainability 21: Challenges, Opportunities and Necessities” connects space and global sustainability, key space actors and sustainability thinkers and takes place on Thursday 29/4/21 9-17 CET online via Zoom. Speakers include

- Christian Berg, Club of Rome, on “Planetary Boundaries and Limits to Growth”
- Xiao-Shan Yap, EAWAG/University of Utrecht, on “Earth-Space Sustainability”
- Thomas Schildknecht, University of Bern, on “Environmental challenges: Space Debris; the Brightness of Megaconstellations”
- Luc Piguet, ClearSpace.today, on “How to address the space debris challenge”
- Gaetan Petit, Space4Impact, on “Space can do more for Earth”
- Dovelé Matuleviciute, Luxembourg Space Agency, on “Space Resources & Innovation”
- Traugott Jähnichen, University of Bochum, on “Space Activity & Social Sustainability”
- Stefaan De Mey, European Space Agency, on “Forward to the Moon: Europe’s exploration program Terrae Novae and Artemis”
- Emmanuelle David, EPFL, on “Sustainable Space Logistics”
- Oliver Ullrich, University of Zurich, on “Biological Challenges in Space”
- Andreas Losch, University of Bern/University of Pretoria, with André Galli, University of Bern and Xiao-Shan Yap, EAWAG on “Planetary Sustainability: the concept”

Have a look at <https://saveourplanet.info/2021/02/01/plasus21/> for an up to date schedule. Registration to the workshop will be free of charge.

First workshop partner is the **University of Zurich’s Space Hub**, welcoming further sponsors. Contact me directly: andreas.losch@theol.unibe.ch.

We are happy to announce **SpaceWatch.Global** as our media partner!

Think big. Think connected. Think planetary. Act Sustainably.

IAN RAMSEY CENTRE SUMMER CONFERENCE
NATURAL THEOLOGY IN THE 21st CENTURY
 Oxford, 15-17 July 2021

The Ian Ramsey Centre is pleased to announce that our 2021 summer conference will be held from Thursday evening 15 July to Saturday afternoon 17 July 2021 at the Mathematical Institute and Jurys Inn, Oxford.

Our keynote speakers will include: Helen De Cruz (St Louis University); and Alister McGrath, Iain McGilchrist and Olivera Petrovich (Oxford).

Call for papers:

Short papers are invited on topics relevant to the conference themes, to be delivered in parallel sessions of 30 minutes duration (20-minute paper, 10 minutes discussion).

Those wishing to contribute a paper should submit a title, a < 500-word abstract that situates the paper against its scholarly backdrop, and institutional affiliation by email to:

events.irc@theology.ox.ac.uk

Closing date for abstract submissions: **Friday 3 April 2020**

Notification of acceptance: **Thursday 9 April 2020**

Further information on the conference themes:

Natural theology investigates what we can know or not know about the existence and essence of God and divine revelation on the basis of what we can know about nature. Developments and discoveries in our explorations of nature (e.g., Aristotelianism, Copernican revolution, Newtonian physics, Kant's Critique, Darwinian Evolution, quantum mechanics, and Big Bang cosmology) have enriched and challenged the investigations of natural theology throughout its history. Likewise, discoveries and revolutions in our understanding of nature in the 21st century (e.g., AI, Extended Evolutionary Synthesis, fundamental physics, etc.) will have the potential to undermine or enrich future investigations in natural theology. What questions will natural theology need to confront in the 21st century? How can these insights enrich the engagement of religious communities, such as Christian churches, with the wider culture?

Looking backward, what lessons do the future enquiries of natural theology need to learn from its past enquiries? What are the enduring achievements, catastrophic failures, and tangential distractions from the history of natural theology? What place will cosmological, ontological, design, moral, and other arguments for God's existence have in its future investigations? What were the major contributions of the past hundred years of honorary lectures confronting questions in natural theology (e.g., Gifford, Hulsean, Bampton lectures)?