Editorial

SCIENCE, RELIGION, AND PUBLIC POLICY

This editorial is a joint one, by the incoming and outgoing editors of *Zygon*. The editorial transition announced in the June 2018 issue is now complete: the incoming editor (Arthur Petersen) took responsibility for the evaluation of new submissions in June, and the coordination of the entire editorial process (including planning for future issues and overseeing the production process) came into his hands in September. During the transition period, the outgoing editor (Willem Drees) gently handed over and advised on all aspects of editing the journal. In this editorial, Petersen first outlines a direction in which he plans to take the journal; subsequently, Drees introduces his final issue.

A Renewed Emphasis on Public Policy (by Arthur Petersen)

Let me start with expressing my appreciation of Willem Drees's editorship over the past decade. Drees has expanded the breadth of *Zygon* and its visibility worldwide, while meticulously guarding and continuing to enhance the journal's academic quality. I have gladly witnessed this period as IRAS member, journal subscriber, and avid reader. I have had some engagement with *Zygon*'s editor as reviewer, occasional adviser on potential speakers/authors, and as a one-time author myself (Petersen 2014a). Until I was selected and appointed as incoming editor by the Joint Publication Board (with, for the record, no central role in the selection process for the outgoing editor), I had not worked closely with Drees. Still, we have been acquainted for over 25 years—since my undergraduate student days—and there are some similarities between us, including our nationality (Dutch) and our disciplinary training. Regarding the latter, our academic training shows overlaps in the sense that we are both physicists and philosophers—we even share a thesis adviser (Peter Kirschenmann) for our second doctorates in philosophy of science (obtained by Drees in addition to his theology doctorate in 1994, and by me in addition to my atmospheric sciences doctorate in 2006). But there are also many differences between us, and some of these provide clues about some moderate changes in direction that I wish to implement for the journal over the coming years. To mention two here: my university and academic setting and my orientation toward public policy distinguish me from Drees.

To start with the change in university and academic setting for the editor: I am Professor of Science, Technology and Public Policy in the School of the

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Built Environment, Engineering and Mathematical and Physical Sciences of University College London (UCL), one of the largest universities of the United Kingdom, which is proud to be rated as global "old star"—having the strongest academic reputations and broadest citation impact across disciplines—and which is still moving up in university rankings (already being within the top 10 or top 20 globally, depending on which ranking you consult). While personally I am skeptical about how much a global university ranking tells you about the real quality of a place, I do feel that I am operating in a very stimulating university setting where many of my colleagues are at the forefront of their fields and are genuinely interested in taking down disciplinary barriers. UCL has a nearly two-centuries-old reputation of crossing all sorts of boundaries and of engaging with society, and this university—including its leadership and individual academics from all across the institution—is providing full support for my new editorship and for further development of the field of science and religion. UCL is a secular university that has multiple units in which interactions of science and religion are studied (although not in a theology department since by design such a department does not exist within this university), even if those doing the study do not necessarily consider themselves (yet) part of the field of science and religion. At UCL, I am well placed to make links to (and where opportune sponsor or co-organize) research projects, conferences, and symposia all over the globe that can feed articles into *Zygon*.

I already academically engage with many different disciplines (such as science and technology studies, philosophy, psychology, anthropology, sociology, political science, policy studies, public administration, environmental studies, and environmental sciences) and this diversity will increase further in connection with my editorship (most notably in the direction of theology and religious studies). I increasingly work in the *humanities*—and am now close to obtaining a third doctorate, in theology (science and religion)—and the new department at UCL that I co-constructed is largely a *social sciences* department focused on studying linkages between science, technology and engineering on the one hand, and public policy on the other hand (for some examples of such studies see, e.g., Spruijt et al. 2014; Kouw and Petersen 2018). I also still maintain an active research portfolio in the *natural sciences*, in particular, the environmental sciences (see, e.g., Hazeleger et al. 2015; Visser et al. 2018). I realize that keeping research portfolios alive in multiple disciplines is not supported everywhere in academia and I am very fortunate to inhabit a niche academic home where this is actually valued. Like Drees who has been quite productive in terms of forging collaborations that lead to publishable outputs for *Zygon*, I intend to forge new combinations and to invite additional perspectives into the science and religion discussion.

As said, the change to *Zygon*'s profile due to the new editor's university and academic setting will most likely be moderate. I will continue the

existing collaborations with various science and religion and religious studies associations and I will add other associations to the mix, for instance, in science and technology studies and in policy studies. Let me add that, in addition to activities directly linked to my own research portfolios, I will be very open to working with other groups and disciplines outside of my own existing and growing network of collaborators and research topics, to invite them to generate content for *Zygon*'s thematic sections and book symposia. So please do not hesitate to contact me with your proposals! And of course, the journal continues to need (and thrive on) a continuous stream of unsolicited submissions, which I aim to grow further, involving a still widening group of contributors and reviewers—widening in terms of discipline, religion, gender, and geographical distribution; with regard to the latter, I would like to see more voices from Africa, Asia, and the Americas outside of the United States and Canada included in the journal.

I expect the second difference between Drees and myself, my strong orientation toward public policy (already evident from my university and academic setting), to have a somewhat larger impact on the future direction of *Zygon*; hence the title of this editorial: "science, religion, and public policy." I come with significant experience as science adviser to governments (national, regional, and global) since the late 1990s. From 2011 to 2014, I was a Chief Scientist within the Dutch Government, responsible for the quality of science advice on infrastructure (e.g., dikes) and the environment (e.g., air, water, and soil quality; nature vs. agriculture; mobility; energy and climate change). For 14 years, I have been a governmental delegate to the United Nations' Intergovernmental Panel on Climate Change (IPCC), with significant responsibilities as rapporteur for procedural reform of the IPCC after errors and other quality problems had become a public concern, and after I had co-led an investigation into these problems (Meyer and Petersen 2010). Since 1996, I have been active (among other roles, as Board Member of two National Groups and of International Student/Young Pugwash) within the Pugwash Conferences on Science and World Affairs on issues of nuclear disarmament, sustainability, and the social responsibility of scientists (e.g., van der Zwaan and Petersen 2003). I have been advising the International Risk Governance Council (funded by the Swiss government) on frameworks for dealing with uncertain risks, in particular those associated with emerging technologies; with MIT colleagues, I have been proposing "Planned Adaptation" as an approach to governance (policy, law, regulation, guidance) of uncertain risks (Petersen 2008; McCray et al. 2010; Morgan et al. 2016; Wiener et al. 2017). And at UCL, I direct two doctoral programs (Doctor of Philosophy and Doctor of Public Administration) on Science, Technology, Engineering, and Public Policy as well as a Master of Public Administration Program in Energy, Technology, and Climate Policy. These programs train the next generation of practitioners at the interface between science, technology, and engineering, on the one hand, and public policy on the

other hand. We focus on all levels (global/regional government, nation state, city government), and have a particular concern for the developing world.

In all these policy-oriented endeavors (advice, research, and teaching), I have applied an approach that is reflexive about uncertainties in the science and engineering base that is brought to bear on societal problems beset with value plurality; this involves a so-called "Post-Normal Science" problem-solving strategy guided by values derived from philosophical pragmatism (Petersen et al. 2011; Petersen 2014b). In particular, I have found the concept of "worldview" (understood by me as including both a world interpretation and a value orientation) useful as a tool for policy analysis (de Vries and Petersen 2009). In the context of science, religion, and public policy, colleagues and I have applied this concept to the analysis of Christian voices in the US public debate on climate change (Wardekker et al. 2009) and of Dutch Protestant versus Thai Buddhist appreciations of "delta plans" (Hogendoorn et al. 2018). In my judgment, there is a need for more academic work on science, religion, and public policy—work that goes deeper than the examples that I have referred to here, which were published in policy-oriented journals—and I would like to see the best contributions make their way into the pages of *Zygon*. Note that under the heading "science, religion, and public policy," I mean to include any area of public policy that is connected with the domain of science, technology, and engineering. This stated emphasis on *Zygon* contributions that pertain to "science, religion, and public policy" should not be interpreted as aiming to exclude (or largely reduce) other contributions which do not.

I see this emphasis on public policy as being continuous with *Zygon*'s past, even as a renewed emphasis. Let me illustrate this, first, with the journal's statement of perspective (which I am leaving unchanged):

> The word *zygon* means the yoking of two entities or processes that must work together. It is related to *zygote*—meaning the union of genetic heritage from sperm and egg, a union that is vital in higher species for the continuation of advancement of life. The journal *Zygon* provides a forum for exploring ways to unite what in modern times has been disconnected—values from knowledge, goodness from truth, religion from science. Traditional religions, which have transmitted wisdom about what is of essential value and ultimate meaning as a guide for human living, were expressed in terms of the best understandings of their times about human nature, society, and the world. Religious expression in our time, however, has not drawn similarly on modern science, which has superseded the ancient forms of understanding. As a result religions have lost credibility in the modern mind. Nevertheless some recent scientific studies of human evolution and development have indicated how long-standing religions have evolved well-winnowed wisdom, still essential for the best life. *Zygon*'s hypothesis is that when long-evolved religious wisdom is yoked with significant recent scientific discoveries about the world and human nature, there results credible expression of basic meaning, values, and moral convictions that provides valid and effective

> guidance for enhancing human life. *Zygon* also publishes manuscripts that are critical of this perspective, as long as such papers contribute to a constructive reflection on scientific knowledge, human values, and existential meaning.

The ultimate concern in this statement of perspective—and the normative goal that was behind setting up the journal 53 years ago—is the need for "effective guidance for enhancing human life." This guidance involves the construction of improved worldviews, more adequate combinations of values and knowledge that inform individual, group, and public decision-making. The specific challenges identified by Burhoe and Tapp (1966) in *Zygon*'s opening pages were related to the construction of new religious images, the ideal of universalism (in science and religious imagery in "the new one-world society") as a counter to religious pluralism, and applying what was learned in tackling the prior two challenges to solving public policy problems posed by new technologies such as nuclear weapons, "automation and cybernation," the population explosion, alterations in humanity's genotype, and more generally dealing with uncertainty due to the fast pace of change. My question now is: What has really changed in 2018 *vis-à-vis* science, religion, and public policy? Have new, more adequate worldviews emerged? How should one react to the suspicion against any universalist claims? It is good that *Zygon* continues to invite contributions that aim to build new worldviews and also those that are critical of the overall perspective.

I very much look forward to fresh thinking in this space, all in addition to the full richness of the science and religion discussion, as also evidenced again in the present issue. *Zygon* remains open to all contributions in science and religion.

In this Issue (by Willem Drees)

Mark Harris, who heads a strong academic program on religion and science at Edinburgh University, considers ways in which scientists and biblical scholars approach Biblical narratives about miracles, such as the parting of the waters when Moses led the Israelites out of Egypt. Would these have been violations of natural laws, as the philosopher Hume—also associated with Edinburgh—had it, and hence incredible? Or might they have been exceptional natural processes, religiously significant as they happened to happen at the right time? In his response, John Hedley Brooke raises a few significant questions, including one about the "Resurrection." In his rejoinder, Mark Harris responds carefully, with explicit discussion of the way one might handle texts about the risen Christ. A very careful dialogue, insightful about ways in which science comes into interpretations of stories that seem to be about exceptional and significant events.

Another section, with all authors based in Scotland, focuses on the general issue of "methodological naturalism." Andrew Torrance argued in 2017 in *Zygon* that a Christian who is also a scientist should not accept methodological naturalism. In this issue, colleagues of his, at that time also both based at St Andrews, John Perry and Sarah Lane Ritchie, who previously published in *Zygon* on the role of science in conceptualizing "divine action" (Lane Ritchie 2017), take up the challenge with their article "Magnets, Magic, and other Anomalies: In Defense of Methodological Naturalism," by considering the history of "methodological naturalism" and the practical response of scientists to anomalies. Constructively, they prefer "science-engaged theology." Torrance has offered a response with his "The Possibility of a Theology-Engaged Science." It is up to you as readers to see what you think of the two approaches.

The third pair of papers just happened to come together in this issue, with two contributions that consider the origins of the "conflict thesis." Classic references are the late nineteenth century books by Andrew Dickson White and William Draper. James Ungureanu once more makes clear that these authors were more on the side of religious reform than it may have seemed (see also Schaefer 2015). Ungureanu argues that the "conflict thesis" has its origins in the discipline of "history of science," in particularly, in the work of George Sarton. Behind this, Ungureanu goes back to Auguste Comte and beliefs about the progress of civilization. Miguel de Asúa begins with Comte and positivist history of science. Whereas Sarton reflects European migration to the United States, De Asúa discusses developments in Latin America, in particular in Argentina, under the influence of the Italian immigrant Aldo Mieli and others. Fresh historical perspectives, well documented, on the way our understanding of the history of science in relation to religion has been shaped by the historians of science.

Four articles in this issue address other aspects, two on morality and two that relate experiences to our bodies. Adam Willows and Marcus Baynes-Rock argue opposite positions on the question whether pro-social behavior of other animals might be considered moral. Emily Dumler-Winckler asks about human morality in our engagement with nature, drawing on Ralph Waldo Emerson. The other two articles relate our experiences to our bodies. Richard Jones discusses "Limitations of the Neuroscientific Study of Mystical Experiences," while Ann Pederson and her colleagues consider bodily dimensions of remembrance and resilience in response to trauma, including ways in which memories of traumatic experiences may be passed on to the next generation, and how spiritual and religious practices may help people to become more resilient.

A review of Nidhal Guessoum's *The Young Muslim's Guide to Modern Science* completes this issue, reminding us as readers of the larger world in which people of various traditions and backgrounds engage with science and technology. One issue of *Zygon* is not enough to capture the diversity of

issues and approaches, nor could a decade of editorship. Thus, under a new editor the journal will continue with serious scholarship and reflections on various issues, both old and new, theoretical and practical.

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