ESSSAT News & Reviews

24:1 (March 2014)

European Society for the Study of Science and Theology

Contents

ESSSAT News & Reviews is a quarterly publication of the **European Society for the Study of Science and Theology (ESSSAT).**

ISSN: 1385-3473

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IBAN DE58 4401 0046 0000 6544 60
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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, Lluis Oviedo: *loviedo@antonianum.eu*

From the Editor

Science committing sins... and being called to conversion

The *Concise Oxford English Dictionary* defines 'Sin' as "an immoral act considered to be a transgression against divine law". The semantics of 'sin' are clearly connected to the religious field, or – if you prefer – to the 'religious linguistic game', i.e., it makes little sense to speak about 'sins' outside a communication code that is built on the distinction between immanence and transcendence, between profane and sacred.

This is Lent time for most Christians, traditionally a time of penance and a call to conversion. It entails the awareness of one's own failures, mistakes, and, yes, sins. A theological gaze towards scientific activity might sometimes wonder how fitting the category of 'sin' is regarding some forms of scientific misbehaviour.

Recently several media have denounced forms of scientific wrongdoing. In my opinion, it has been the authoritative magazine *The Economist* which has risen most harshly to the issue. Last October its cover page was devoted to the big title *How Science Goes Wrong* (Oct. 19, 2013). The leader article carried the title "Problems with scientific research". A long analysis spoke about "Unreliable research". I must confess that I felt quite depressed reading that report, informing us about the extent of bad practices in laboratory and research publishing; how often data go through a 'make-up' to render the outcomes more fitting to the expected hypothesis; and how difficult it has been to replicate many of the experiments described in important scientific articles.

Wrongdoing belongs to every social system, but in each case it assumes a particular form. Religious people identify moral transgression with sin. However, in economics bad practices could be associated with embezzlement and fraud. In politics, misconduct is identified as corruption, which is pervasive to many other social systems. In science, wrongdoing assumes many forms as well.

The problem is whether we are still able to distinguish inside each system between right and wrong; if the sensitivity towards 'negative developments' inside each system is still in place and is able to prevent and correct movement in the wrong direction. In broad strokes, many symptoms point to defects linked to the 'self-referential' character of social worlds becoming autonomous and self-managed. Science needs its autonomy, and to escape from external interests; but at the same time, too much autonomy can mislead researchers, and be the cause of many abuses. In recent years, it has

often been journalists who have revealed misbehaviour, and denounced bad practices in the scientific realm, not laboratories or scientists.

Maybe a rule of thumb is revealed here for every social system: complete isolation is never a good idea. And possibly, in this case, theology could help to re-establish a sense of balance in scientific activity, which – as happens in every other social realm – risks being derailed when it pretends to be too powerful, and to be beyond every other social and cultural instance or check.

Looking forward to Assisi ECST 2014

Moving to more enjoyable issues, it is my pleasure to remind all ESSSAT members and those who are interested in the advancement of the dialogue between science and theology, that we are close to the dates of our next biannual Conference, taking place in Assisi (Italy) from the evening of 30 April to the morning of Sunday 4 May.

We are working hard to prepare everything and to render this an opportunity for academic engagement with a hot topic in the current cultural arena; and also to provide a very friendly atmosphere to help everybody to feel at home. As you know, ECST conferences pursue a double goal: to provide an efficient forum for discussion of topics at the interface of science and theology; and to create the conditions for true meeting and exchange, beyond confessional boundaries, beyond cultures and disciplines.

Our aim is to overcome hostilities and diffidence, in order to create an ambience where academic fields often seen as very distant and exclusive can engage in healthy exchange and mutual enrichment.

You can see the complete program on the Conference webpage, and register if you have not yet been able to do so. You will find later in this issue useful information about the main speakers in that Conference, with information about their fields of research and specializations.

For further information, please see: **http://esssat2014.edicypages.com**

From the President

Dear Members and Friends of ESSSAT,

Time runs very fast. Almost two years ago, many of us met in Tartu, Estonia, to find answers to the question "What is Life?" Today, it is with great pleasure that I look forward to welcoming you to Italy for the Fifteenth European Conference on Science and Theology (ECST XV).

On the last day of April many of us will meet in Assisi, the City of Peace, as it announces itself. Our vice president for ECST XV, Lluis Oviedo, is working hard on the final preparations for a conference touched by the spirit of Franciscan hospitality.

If you have not registered yet, please do! You are strongly advised to register before March 31. After that date, registrations will be accepted only if accommodation is available. You will find all details as well as the conference program at ***http://esssat2014.edicypages.com***

Conference theme and program

The theme that the organizing committee for ECST XV has chosen is **Do Emotions Shape the World? Perspectives from Science and Theology.**

Neuroscientist *Christian Keysers* will be setting the scene with the first plenary lecture. Among other things, he is author of the book "The Empathic Brain". Philosopher of religion and theologian *Rita Nakashima Brock* has done significant work regarding emotions, especially in respect to reconciliation and trauma. *Arne Öhman* has taught psychophysiology, and has done research on emotions (fear in particular) from evolutionary perspectives.

A public plenary lecture will be given by *Cardinal Gianfranco Ravasi*. This will take place in Perugia. Ravasi is a Biblical scholar and Head of the Pontifical Council for Culture. The current dialogue initiative "Courtyard of the Gentiles" is conducted under his auspices. Towards the end of the conference, *Jonas Kjellstrand* will challenge us from the perspectives of technology. Sophisticated analytical software on state of the art hardware gives us endless possibilities to change and shape future societies via the analysis of individual and collective emotions. What does that mean for the possibilities of shaping society for better or worse?

I am sure that at the conclusion of ECST XV, when we meet for a panel discussion, we will not lack complex perspectives!

As usual, we will also have Short Paper Sessions, General Assembly, Prize Presentation, Book Exhibition, daily Eucharist and a festive Conference Dinner. The Ecumenical Service will be held in a Chapel adjacent to the Basilica San Francesco.

Please check the website for a more detailed program.

All short papers, including abstracts, will be made available for ESSSAT members and for registered conference participants on the conference website. We expect the papers to be in place by March 25 in a password-protected section of the website. The password is: Umbria2014

General Assembly

The agenda for the General Assembly 2014 and the minutes of the General Assembly 2012 are on the supplement to this issue.

Non-members may attend the General Assembly.

Voting and membership fees

Please note that you need to be up to date with your membership fees in order to be able to vote in person or by proxy. You will receive notification of your membership status from Chris Wiltsher prior to the conference so that you will be able to pay your fees by bank transfer, or at the conference before the General Assembly takes place.

ESSSAT Prizes

I am pleased to let you know that we have received a total of 5 submissions for the Research Prize. I want to thank those of you who have encouraged candidates to submit their work for consideration to the ESSSAT Research Prize and the ESSSAT Student Prize. Your spreading the word is vital to the field. This year's Research Prize winner is Patricia Bennett, see page 48!

To those of you who have registered or are about to register: safe travels! To those who are not able to be with us this time: we will keep in touch through ESSSAT-News and our website.

Best wishes to you all,

Antje Jackelén
President of ESSSAT

Article Review

Relationality and Health: Developing a transversal neurotheological account of the pathways linking social connection, immune function, and health outcomes

by Patricia Bennett

My doctoral thesis, for which the 2014 ESSSAT Research Prize was awarded, had two distinct aims: first, to develop a new model for engaging the discourses of theology and neuroscience; and second, to explore whether relational experience can directly moderate immune function, and to build a theoretical physiological model for how this might be mediated. In pursuit of the first it took the dialogical model developed by Wentzel van Huyssteen (1999; 2006), using its key elements – the shift of connectional locus from the *specific methodological* to the *shared rational*, and the accompanying movement of epistemic standards from the *domain-specific* to those which are integral to the *nature of rationality itself* – as the basis for a new and very different way of bringing together theological insights and scientific data. It then used this methodology to draw together theological and philosophical reflection, and experimental scientific data from cognitive neuroscience and psychoneuroimmunology (PNI) to construct a neurotheologically derived account of a pathway connecting relationality[1] and health. The present paper introduces the background themes and premises and provides a brief overview of the thesis processes, main arguments and the resulting physiological model.

Background themes

Health and Social Connection

The suggestion that social environments might have effects on health was first raised almost forty years ago by Cassel (1976:107-23) and Cobb (1976:300-14). Subsequently there has been a steady accumulation of epidemiological evidence supporting the idea that the degree to which an individual is embedded in, and interconnected with, a community has important implications for their health and wellbeing. More specifically, multiple long-term prospective studies of community populations have consistently linked impoverished social connection with increased mortality from almost all major disease groups (for meta reviews see Berkman, 1995:245-54; Cohen, 1988:269-97; House *et al.*, 1988:540-5). In a seminal paper reviewing these data, House concluded that not only was a relative lack of social

[1] The neologism is used throughout to refer to the human capacity to form and sustain relational connections with others

connection a significant risk factor for health which was comparable to that of well-established ones such as hypertension, obesity, and smoking (House *et al.*, 1988:540), but also that social relationships had a predictive, and arguably causal, relationship with health *in their own right* (House *et al.*, 1988:545).

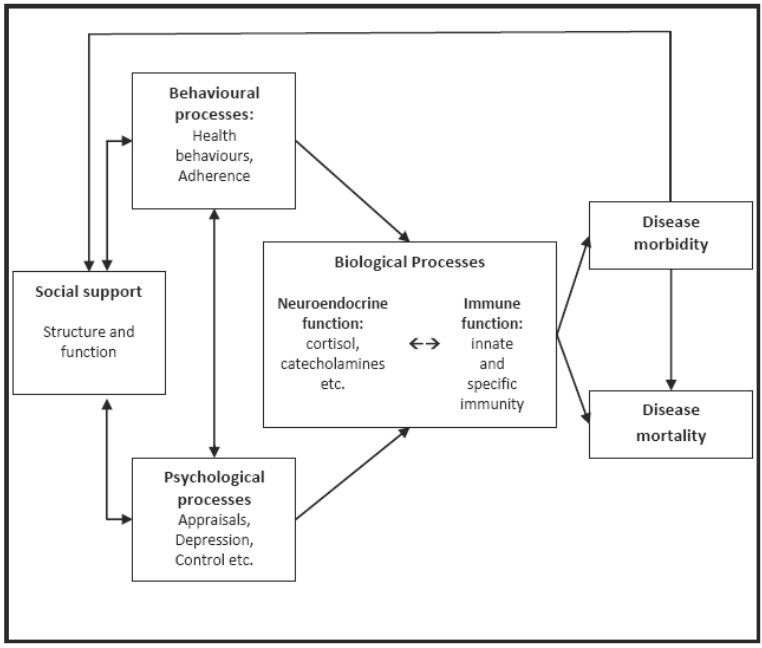

Figure 1: A broad model highlighting the major pathways by which social support may influence physical health outcomes (after Uchino *et al.*, 2012:220)

Subsequent studies have provided confirmation of House's insights and intuitions, but whilst the link itself is now well established, its nature is less clear, and the underlying mechanisms remain almost completely opaque (Cohen and Janicki-Deverts, 2009:377). Moreover, since social support comprises distinctly different structural and functional elements, pathways linking social connection and health are likely to be multiple, and potentially to act in summative or even synergistic fashions. Their elucidation, along with those of the mechanisms underpinning them, is seen as the primary research objective for 'second-wave' PNI studies (Uchino *et al.*, 2012:220). Uchino's recently developed theoretical model (figure 1) of the routes by which social support might influence physical health outcomes postulates two distinct pathways. The first is a behavioural one, involving elements such as general health behaviours and adherence to treatment regimes, etc.. A second, psychological, pathway involves appraisals, emo-

tions, moods, feelings of control, etc.. Behavioural and psychological routes are each thought to be influenced, in different ways, by both structural and functional aspects of social support, and also to act on each other; and both are deemed to exert their ultimate effects on morbidity and mortality through the common broad biological pathway of the endocrine and immune systems, which are also intimately and reciprocally linked (Uchino *et al.*, 2012:220)**.**

The focus of interest of this project however was the possibility of a more direct physiological pathway – i.e. one not routed through either the 'behavioural' or 'psychological' staging posts – by which social connection might moderate immune function. The hypothesis advanced and explored is that relationality is an emergent phenomenon arising from a complex system supporting social signal surveillance, decoding, and response, and can thus exert direct causal influence on components of that system, including its endocrine and immune signalling elements. However, the inherent complexity of these systems, combined with multiple methodological issues and the difficulties of bridging the gap between cellular level events and systems level effects, means it is not possible to investigate such a possibility purely from within the discipline of PNI. It thus provides a good test case not only for exploring whether a very different approach to integrating theologically derived insights and raw scientific data might offer a way of engaging with problems resistant to analysis within a single discipline, but also whether it might provide greater traction for the fruits of science/religion discourse outside of the dedicated S/R field.

Science/Religion Interaction

The inherent tensions of science/religion dialogue – in particular the epistemic divide and ontological disjunctions which it must negotiate – are well rehearsed. Moreover, important questions have been raised about the health of the field, its academic ambiguity and its wider impact (see for example Drees, 2010:2; Knight, 2001:1-3; Polkinghorne, 2008:xi-xiii; Smedes 2007:596-7). An implicit recognition of this enduring *dis*-ease at the heart of academic science/religion engagement is attested to by ongoing attempts to examine and restate the basic nature of the debates (Drees, 2010); reframe the meeting ground (Hefner *et al.*, 2010:419-522); and develop new methodological strategies (Gregersen and van Huyssteen, 1998) to set alongside the critical realism which has been the dialogical mainstay of the modern phase of S/R dialogical engagement.

In addition to these global concerns, there have also been specific criticisms directed at how theology and neuroscience have been brought into dialogue with each other (e.g. Coles, 2008:1956; Geertz, 2009:319-24; van

Huyssteen, 2006:259). Both the form of neurotheology practiced by its original pioneer James Ashbrook (e.g. 1984, 1989, 1997), and that envisioned by its most vociferous recent champion Andrew Newberg (2010), have encountered and stumbled on challenges in each phase of the dynamic of dialogical engagement. These difficulties, particularly in the case of Newberg, also seem to have roots in a lack of a clear identity for neurotheology and a related inadequate account of its primary purposes. An analysis of Ashbrook's 'unifying endeavour' model and Newberg's 'equal exchange' proposal suggests three key necessities for fruitful engagement between theology and neuroscience: a tight delineation of suitable loci and of appropriate contributory material, a robust methodology for directing interaction, and the ability to generate a coherent and distinctively neurotheological discourse. A key part of the project was thus to develop a new methodological approach which would not only address some of the inherent problems of interfacing science and religion generally – in particular the issues of dialogical asymmetry and the lack of wider traction for dialogical outcomes, but also those peculiar to neurotheology.

Thesis processes

Developing a new methodology

Starting from Wentzel van Huyssteen's concept of postfoundational rationality, and its associated 'transversal space' interdisciplinary dialogical model (van Huyssteen, 1999; 2006), the thesis develops a new and very different methodological approach for bringing together theological insights and scientific data. Van Huyssteen's model uses the ideas and language of transversality arising from his explorations of rationality and has two key features: the employment of transversal reasoning and the creation of what he terms 'transversal spaces'. The former is essentially coterminous with the performative dynamics at the heart of his conception of postfoundational rationality as an evolutionarily-derived set of complex cognitive evaluative skills (van Huyssteen, 2006:92) which allow us to *gather and bind together the pattern of our interpreted experience through rhetoric, articulation and discernment'* (van Huyssteen, 2006:18). The latter are a specific and novel conception for the locus within which the complex, many-levelled connections and exchanges facilitated by this transversal reasoning can take place.

These dialogical loci are situated not within the confines of any one contributing discipline, but in 'transversal spaces' located between them (van Huyssteen, 2006:9, 43). They are not therefore a disciplinary construct but are best understood as *shared rational spaces* located at specific points of intersection between disciplines – for example, common interests or re-

search foci. Since they therefore do not 'belong' to any of the participating disciplines, they are not constrained by any of their particular features *vis-à-vis* epistemological strategies or warranting. Instead they answer to the standards of postfoundational rationality itself: progress towards optimum intelligibility; the execution of responsible epistemic judgment for which suitable accounts can be articulated; an acknowledgement of the role of experiential accountability; and a willingness both to adopt a critical stance towards that which is rationally compelling, and to open it up to critical evaluation outside its disciplinary home. These transversal spaces are thus dynamic places of interaction, based on the shared tools of rational enquiry and coming into transient existence as part of a cross-disciplinary engagement on a specified topic. They function as liminal places where the different disciplinary voices can operate with a freedom from the assorted constraints which characterise other models, thus allowing for mutual influence and critique and the exchange of ideas and insights, models and reasoning strategies in a non-assimilative, multidirectional manner.

Van Huyssteen regards the outcomes of any such transversal engagement to be essentially *inter*disciplinary (van Huyssteen, 2006:35, 159, 273, 307, 323). That is to say, its output trajectories are always downwards back into the contributing disciplines to enlarge, clarify or challenge their respective understandings of the area under exploration (van Huyssteen, 2006:264). However, I argue that both the inherent dynamics of the model and the postfoundational rationality which undergirds it also – under carefully regulated conditions –allow the development of a very different sort of output, *viz.* one is itself transversal in nature, and which draws on and knits together disparate material from the contributing disciplines to build *composite* arguments and models which are coherent, stable and do not involve any improper appropriation or blending of material. These transversal outputs occupy, and are supported in, the shared rational space between the contributing disciplines, and thus they too neither belong to, nor are fully constrained by, disciplinary particularities but, just as with the transversal dialogue from which they arise, are answerable to the epistemic standards which inhere in postfoundational rationality itself. In effect this new movement within the model is simply one which engages the same dynamics and skills, but in connection with a different constellation of thought and action – that which belongs to the 'situated experience' of a specific transversal space dialogue. Furthermore, just as the dynamics of postfoundational rationality and transversal dialogue support the pursuit of transversal outcome possibilities, so the dialogical mechanics of the model itself, particularly as they act as critical filtering mechanisms, also facilitate such manoeuvres: first, the identification of transversal spaces effectively delimits

suitable dialogical grounds; second, the application – both prior to and during the course of transversal conversation – of the required epistemic standards of postfoundational rationality to all contributing material ensures that it fulfils the criteria of responsible judgement and a fallibilist approach. These standards also preclude the offering of privileged protection to any dialogical partner, demanding that all convictions must be open to critical evaluation as a part of such dialogue. Thus at various levels there is a winnowing of data, theories and models which allows various elements which might be incorporated into a planned transversal output to be evaluated against the standards of rational and epistemic accountability inherent in the model; this in turn gives a confidence that for any material selected for use in dialogue, a suitably robust account of its defensibility in these respects can be articulated. This is a strong step towards being able defend the value of theological insights as a legitimate contribution to knowledge outside the dedicated S/R field, since the nature of the winnowing means that the material offered cannot require concomitant assent to religious propositions of the kind which would be automatically rejected by those scientists not precommitted to a religious view of the world. These winnowing and interactive mechanisms also address issues noted earlier with respect to the potential problems of neurotheological dialogue: they aid the identification of very precise areas in which to locate dialogical encounter, provide a detailed and robust mechanism for managing dialogical exchange, and furnish a distinct and distinctive way of formulating and articulating any resulting neurotheological insights.

As an essential element of the proposed extension to van Huyssteen's model, I also consider the question of whether, given their hybrid nature, such transversal outcomes are themselves sufficiently warrantable to be offered as contributions to extending understanding of a particular topic or issue (especially outside the dedicated S/R field). Here I draw on Haack's crossword analogy (Haack, 2009:126ff), arguing that this can be used both to support the initial move to develop the transversal models and arguments themselves, and as a way of assessing their relative coherence and strength once they are put together. It is important here to note that what is being envisaged is neither the uncritical transfer of theological convictions into science to function as 'data' within its systems, nor a reverse flow which places theological agendas under the direction of science, both of which van Huyssteen rightly cautions against (van Huyssteen, 2006:323-4). Instead the proposal is that different disciplinary perspectives might interlock to provide the sort of 'pervasive relations of mutual support' which Haack (2009:57) describes. Thus arguments and models could be built in response to particular questions, even in the absence of direct definitive evidence

from within a particular discipline, on the basis of mutually supportive, albeit radically different, types of evidence contributed by different disciplines.

Selection and defence of material

Clearly the identification of appropriate places at which transversal spaces can be developed and supported, and the meticulous selection of contributory material which meets the epistemic standards of postfoundational rationality as outlined above, are critical elements of the model. Thus an important part of the thesis work was firstly to establish evidence for a strong enough interest in and exploration of the connection between aspects of relational experience and health/well-being on the part of the major contributing voices of theology and cognitive neuroscience to warrant a transversal approach. Once this was done, three more specific loci for exploration and exchange were identified within this: relationality as basic; relationality as emergent; and relationality as realised. In each instance a dedicated transversal interaction was conducted using the different contributory voices in different combinations, drawing on different material and putting this together in different ways to form the mutually interlocking support described by Haack.

Thus in considering whether relationality was ontologically basic to humanness, theological perspectives came from the writings of the Cappadocian Fathers on the Trinity, and from a re-examination of the traditional interpretations of the *imago Dei* in the light of this; while the scientific contribution came from an analysis of experimental data from cognitive neuroscience on social signal decoding. Whilst there were weaknesses and missing elements in the case offered by both disciplines, taken in tandem, the two offered mutual support for each other in a way which enabled the answer to the question to be pencilled in despite some missing letters.

With respect to considering whether relationality could be understood as an emergent phenomenon, an extended prolegomenon on emergence identified three potential markers of such an entity. Since assorted methodological issues precluded the possibility of establishing from within the perspective of a single discipline whether relationality exhibited these markers, an argument was developed in which each of the project's three disciplinary voices provided the evidence for a different one of them. Thus experimental cognitive neuroscience data were examined for evidence of complexity and complexification in signal decoding processes; von Balthasar's kenotic trinitarianism (e.g. von Balthasar 1988-98) gave pointers towards the role of restraint in relational connection; and experimental PNI data raised the possibility of whole-part restraint. These evidential

strands were then combined - again drawing on Haack's arguments regarding mutual support for justified belief - to form a composite argument supporting the contention.

In the final transversal interaction, both PNI and theology provided a perspective on the same issue *viz.* the effects of good and bad relational experiences, but at different levels of operation – with the former located at the cellular and the latter at the cognitive. This time experimental PNI data looking at immune and endocrine alterations in response to various interactional styles between couples were conjoined with reflections from Gabriel Marcel on Presence, *disponibilité* , hospitality and creative fidelity (e.g. Marcel 1927; 1948; 1952; 1960), to provide complementary facets of understanding a complex whole. Here the connection was analogous to that between the obverse and the reverse of a coin with each side bearing different information, but both being necessary to complete the whole.

Each different contribution – whether from the scientific or the theological side – was preceded by an analysis of how and why it met the standards of the post-foundational epistemic contract set out with the model and which highlighted any potential caveats to be born in mind regarding this. In the case of the scientific material, this included discussions of assorted experimental limitations, and of the extent to which claims and conclusions were warranted by the data. From the theological perspective it involved discussions of why both the particular theological themes and the specific authors had been selected as suitable contributors, and why the material did not necessitate a concomitant assent to specific religious propositions (one of the chief difficulties for science-religion engagement *outside* the dedicated field). Hand in hand with this was the additional challenge of whether meeting such a criterion could be done without eviscerating the content of everything which made it distinctively theological, and thus reducing it to the 'devalued coinage' and 'anaemic myth' feared by Westhelle (2000:165-72). In each case the rationale underpinning the choices of material was different, but each was also consonant with the standards of post-foundational rationality. This variation, set alongside that marking how the contributions were put together in each different dialogue, allowed the model's robustness and flexibility to be thoroughly tested and demonstrated.

Process outcomes

The penultimate element of the project was to bring these different transversal outputs together to form a composite stepped argument – and thus one which was itself transversally constructed. This began from the basis, derived from the first transversal space interaction, that the forming of relational connection was a foundational element of being human, but that

evidence also suggested that it could not be explained as simply the summation of a suite of basic processes for decoding social signals. Then using the tripartite argument built from cognitive neuroscience data, kenotic theology, and PNI data in the second transversal interaction, a case was advanced for considering relationality to be an emergent rather than a summative phenomenon and thus capable of exerting causal constraint over the diverse cognitive, endocrine, and immune components of social decoding and response. Finally the systems level and a cellular-level perspective, developed from theology and PNI respectively, were used to argue that the shape in which relationality is realised is significant and has non-trivial consequences. These three components were thus interlocked to propose a transversally derived model for one pathway linking social connection and health. This proposed that relationality, as an emergent phenomenon arising from a complex system of components dealing with social signal decoding, exerted causal constraint over elements of that system in ways which increased its predictive power, and thus the effectiveness of its response to different social scenarios. However, the differing experiential possibilities of relational connection also meant that the form and operation of such constraints could sometimes have consequences which were not beneficial to overall system functioning, and which might thus eventually lead to downstream health-related effects.

The final piece of the puzzle was to then fit this proposal into a coherent physiological framework. In order to do this, I considered how the diverse alterations in immune and endocrine function, which have been noted in connection with relational experience, might fit into the wider context of organism maintenance and repair in the face of stress. Stress is often understood as being a universally bad thing, but in fact it is neither synonymous with damage nor necessarily something which compromises health. However, the paradox of stress is the simultaneity of its adaptive nature and the possible maladaptive consequences of this. A helpful analogy here is with aspects of fire-fighting: whilst water is necessary to extinguish some fires, overuse can lead to more damage than the original flames; furthermore, increased usage can lead to a drop of pressure in the supply system with the consequent decline in effectiveness then contributing to the spread of flames. In the same way, stress responses are necessary – indeed they are a central part of allostatic maintenance, and ideally are beneficial – but they can also come at a cost to the body, especially if elicited too frequently, or managed inefficiently (Korte *et al.*, 2005:4-5).

For an organism to survive, it needs to be able to maintain its internal environment within certain ranges. Traditionally this has been understood in terms of homeostasis – maintaining stability through constancy – with

the physiological goal construed in terms of the constant maintenance of all internal parameters at an optimum set point, and understood as being achieved by the immediate correction of deviations from this point via negative feedback loops. However, the last two decades have seen this model superseded by the more dynamic understandings of allostasis. This reframes the guiding principle as one of achieving stability through change, and hence physiological response systems become understood in terms of achieving maximum efficiency – 'coordinated variation to optimize performances at the least cost' (Sterling, 2004:26). Thus the goal of regulation is not *constancy* but *fitness*. Since the body does not store vast reserves of essential materials, this efficiency turns on reciprocal trade-offs which enable resources to be directed where most needed in response to dynamic situations. Crucially, effective resource allocation involves the ability to predict what resources are likely to be needed as a given situation arises; this in turn necessitates that any relevant system sensors are able to adapt their sensitivity to the expected range of input, and similarly requires each relevant response effector to adapt its output to the expected range of demand. This predictive capacity to anticipate demand, and to facilitate rapid response shifts to meet this, is crucial to maintaining allostatic balance – and system sensors are a vital lynchpin in this.

The model I am proposing thus hinges on the interaction between allostatic control mechanisms and predictive modelling arising from a complex system of social de-coding and response, with poor relational experience leading to brisker responses at lower levels of social threat and stress. In essence, how relationality is realised acts as a constraining influence on parts of the social monitoring system in order to maximise appropriate response in the system as a whole. If we view this in the light of the operation of downward causality, component constraints operate to increase the range of system possibility: raising sensor thresholds (i.e. decreasing sensitivity) in line with positive relational experiences prevents unnecessary expenditure of resources and energy; conversely, lowering them in the light of negative experience allows earlier, greater and more sustained response, thus improving survival chances. However, when responses are engaged too frequently or sustained inappropriately, then allostatic overload occurs. In these situations, alterations in sensitivity leading to overstimulation and over production in one part, with consequent development of receptor resistance to circulating signallers in another can, because of the complexity of the interplay between the sympathetic nervous system and the HPA axis, lead to chronic dysregulation with prolonged elevation of circulating cytokine levels. Since these immune signalling molecules are increasingly implicated in the pathogenesis of major causes of mortality such as cardiovas-

cular disease (Hansson, 2005:1685-96) and cancer (Hong *et al.*, 2007:1911-28), as well as in depression (Miller *et al.*, 2009:732-41) and neurodegenerative conditions (Hayley and Anisman, 2005:947-62), chronically elevated levels have the potential to cause downstream effects with heath implications. The last piece of the model is thus to suggest that poor relational quality has both short *and* long term consequences for allostatic maintenance: it leads to greater amplitude allostatic responses, triggered at lower thresholds and more frequently in its own right; but in addition, the constant resetting of sensors and effecters leads, over time, to chronic dysregulation in allostatic maintenance systems; this in turn has long term health consequences.

Whilst this postulated mechanism is admittedly speculative, it sits comfortably with the well detailed complexity of the potential connectional pathways and the consequent difficulties of direct experimental investigation and is more detailed than any yet coming from PNI itself, although it is inevitably somewhat simplistic and underdeveloped, given both the massive complexity of the systems involved and the restricted nature of the project. However within these limitations, I believe it accords well with both the mechanisms of allostasis as we are increasingly coming to understand them, and with a steadily growing corpus of data implicating dysregulation of inflammatory cytokine signalling systems as an important factor in various pathological processes.

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Book Reviews

Philip Clayton & Steven Knapp: *The Predicament of Belief. Science, Philosophy, Faith.* Oxford: Oxford University Press, 2013, 194 pp., ISBN 978-0-19-969796-2 (pbk) £10.99; also 978-0-19-969527-0 (hdbk, 2011), & ISBN 978-1-4653-8081-4 (e-book)

Described at one level, this book is a concise exploration of almost all the main topics of philosophical theology, achieved without technical language. (Where a sophisticate word *is* introduced, it will be to the effect that "What we've been discussing is called XXX in the professional literature."). At another level it is an impressively simple and unwaveringly honest personal confession of interacting faith and doubt − one can say "personal" because the two authors have shared and collaborated about such similar views for so many years that they write as one. The book they have produced is not easy, but its difficulty resides entirely in the subtlety of its thought, not at all from any aspects of its structure, approach or style.

Their opening chapter, *Reasons for doubt*, explores familiar issues: the explanatory power of science, the problems of evil and of the diversity of religions, the remarkably different accounts of Jesus' death (we might add, of his birth too) by the four Evangelists, and the ever-problematic concept of his resurrection. The authors' stance toward all these problems is explicitly not agnostic, but it is what they themselves designate "Christian minimalist". And that is their position throughout the book.

Chapter 2, *The ultimate reality*, considers the very possibility of asking fundamental questions, the consistency or otherwise of scientistic arguments, the question whether only like can produce like, and against this the concept of emergence, and the thought that, if the ultimate reality, taken as fundamentally personal or more-than personal, were evilly disposed to its creation, our thinking could not have meaning.

Chapter 3 follows Wesley Wildman's *Argument from neglect* − "If God really is personal … God has a morally abysmal record of inaction or ineffective action". The response is that "creating and sustaining a universe in which free rational agents can evolve and act turns out ... to be an either/or affair. A benevolent God could not intervene *even once* without incurring the responsibility to intervene in every case." In such a situation there would be no consistency, and rationality could not have evolved. Yet this argument could prove too much, so Clayton and Knapp claim special exception for the realm of the mental as "one natural sphere in which divine

action can occur, without overriding the [physical] regularities whose preservation is a necessary condition for the emergence of finite rational agents."

Chapter 4 considers *The plurality of religions* and, at this point in the argument, finds in it little problem. The authors' "Minimally personalistic theism" is able to stride, scarcely perturbed, through the jungle of different human formulations, whilst it takes them as equivalent.

In Chapters 5 and 6 we face the much harder problem: *The scandal of particularity* − the particularity of the historic Christian claims. Specifically, chapter 5 considers *The resurrection testimony*. This presents two entirely independent challenges. Clayton and Knapp first confront the implication for what, in Chapter 4, had not seemed a special problem, namely the status of Christianity among the world's religions. There is a serious difficulty if we adopt a traditional, literal understanding of the claims themselves. But they are based on disconcertingly inconsistent New Testament accounts, and they entail a cavalier divine disregard of physical law − a disregard of exactly the kind which had to be ruled out in Chapter 3. Instead, Clayton and Knapp propose a "participatory theory" closely (and of course deliberately) akin to their proposal in that earlier connection that God interacts with our minds though not our bodies. The heart of their theory is, therefore, "*that in the event which came to be known as Jesus' resurrection, his self-surrendering engagement with God became newly available, through the agency of the divine Spirit, to his followers… as the form, model and condition of their own engagement with the divine*" (p 90).

Clayton and Knapp have thus "*shifted the primary focus of interpretation from what happened to Jesus immediately after his death to the new relationship with God that [that] death … brought about*" (94). Given their minimalistic … theism, I admit to finding this still a surprisingly near-orthodox position. Confirming such neo-orthodoxy, Clayton and Knapp then affirm "*that the grace and compassion of God can only be defended adequately if it makes sense to suppose that there is hope for a continuation of human existence beyond the grave. Otherwise, the unmerited suffering and despair that have defined the lives of so many human beings over so many millennia seem to be not only pointless but unredeemed and unredeemable"* (104). The moral plea is strong indeed, but is the argument anything more than wishful thinking?

Chapter 7 asks, *How do we assess our beliefs?* The ground position is that the belief-claims discussed in the preceding chapters are "irreducibly controversial", i.e. they are matters about which reasonable people can appropriately disagree (113). From this, Clayton and Knapp move to their ty-

pology of degrees of belief (115-6). Level 1 claims are those endorsed by the whole, or almost the whole, community of experts; many scientific claims are on this level, but few if any theological ones. Most of these reside on level 2, where relevant highly-informed people may legitimately disagree. At the other end of the scale are levels 5 and 6, on the first of which the subject hopes the claim is true, but does not regard it as rationally permissible when considered in relation to the propositions of science, while on the last she regards it as wholly metaphorical. In between are the key levels of irreducible controversy, where beliefs can be rationally maintained but with no possibility of universal acceptance. As such, this typology is psychological not theological, yet even in this chapter C & K ask searching theological questions, such as "How can one be transformed from a finite to an infinite person and yet continue to count as the *same* person?" (134)

Finally, Chapter 8 considers *The spectrum of belief and the question of the church.* An endearing feature, especially of this chapter, is the authors' ready recognition that a person's beliefs may change from day to day, up and down the spectrum of Chapter 7. They therefore urge that churches must accept the presence of the whole spectrum within any congregation, and find ways of accommodating all, not to the beliefs but to the practices of the group. Surely right!

In overview, it may be helpful to remark that the authors acknowledge that their position is fairly comparable to that of John Selby Spong and the members of the Jesus Seminar, though it is worked out with greater rigour. They also compare themselves several times to one of the giants of the immediately preceding generation, John Hick; explicitly, however, they are consistently a shade more traditional, more literal, and less pluralist than Hick.

How to sum up? I have never met Steven Knapp, but on the one occasion that I shared a conference with Phil Clayton we had some of the most stimulating philosophical conversations I have ever enjoyed. It is with some sorrow, therefore, that I admit only to respecting, not being bowled over by this book. One cannot fail to admire the unfailing lucidity of the writing, the plangent honesty of the exploration, and the authors' untiring determination to consider every direction in which the argument may take them. But, I chanced, when about halfway through the book, to spend a little time in a Buddhist prayer-room; the contrast was stark, and I confess to feeling that the Buddhist refusal to embark on theologising has much to recommend it. Or, if not the Buddhist, then nearer home the great apo-

phatic call of the Pseudo-Dionysius as, in imagination, he follows Moses up the mountain:

> *The holiest and highest of the things perceived with the eye of the body or the mind are but the rationale which presupposes all that lies below the Transcendent One. Through them ... his unimaginable presence is shown, walking the heights of those holy places to which the mind at least can rise. But then Moses breaks free of them, away from what sees and is seen, and he plunges into the truly mysterious darkness of unknowing. Here, renouncing all that the mind may conceive, wrapped entirely in the intangible and the invisible, he belongs entirely to him who is beyond everything. Here, being neither oneself nor someone else, one is supremely united to the completely unknown God by an inactivity of all knowledge, and knows beyond the mind by knowing nothing*.
>
> (From *The mystical theology*, trans Paul Rorem)

Or do I do Clayton and Knapp an injustice? Despite their untiring effort to be rational, I have a quiet suspicion that they might, in the very end, smilingly incline their heads in the direction of Dionysius.

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Galen Guengerich. *God Revised: How Religion Must Evolve in a Scientific Age*. New York: Palgrave Macmillan, 2013, 227 pp., ISBN: 978-0-230-34225-5 (hdbk) $18.30

While in the Princeton Theological Seminary preparing to become a Mennonite minister, Galen Guenerich's relatives told him that they were afraid that he would lose his faith. He says that this did not happen. "What I lost was someone else's faith; what I began to seek was a faith of my own" (p. 9). And so began his journey in the Unitarian Universalist Church that subsequently led to a Ph.D. in theology from University of Chicago and then to All Souls Unitarian Universalist Church in New York City, where he currently is senior minister. The Unitarian Universalist Church was formed in 1961 in the United States as a consolidation of the American Unitarian Association (est. 1825) and the Universalist Church of America (est. 1866).

This book is about one man's life history and perspective in finding a solution to what he came to realize were incompatibilities between science and certain aspects of traditional theology and religion. Once he rejected the existence of a supernatural God, revelation as a source of knowledge, and much of traditional, organized religions' doctrines and dogmas, the remainder of his solution easily fell into place.

It would be tempting, but yet a mischaracterization, to say that this book is about religion without God. However, Guengerich's God is not a separate ontological entity within a supernatural realm. It is not the God of traditional Judaism, Christianity, or Islam. He writes, "God is the experience of being connected to all that is – all that is present, as well as all that is past and all that is possible" (p. 78). In other words, Guengerich's 'God' (in scare quotes for good reason) replaces the God believed by many to exist in a supernatural realm. His subjective perspective on God is not incompatible with science as one cannot prove or disprove someone else's subjective experience.

The book is not a natural science search for the proximate, neurobiological mechanisms of the subjective experience that Guengerich calls 'God.' In fact, there is almost no science in the book. Instead, the "arguments" (in scare quotes for good reason) for Guengerich's various positions are constructed from bits and pieces of literary testimonials drawn from classical and contemporary poetry, historical narrative and fiction. This approach is, shall I say, different, at least for this reviewer.

The book is a general readership trade book. It has no footnotes or endnotes and contains a perfunctory 6 full pages of Index. The four full pages of Bibliography contain the kind of books that would be at home on the personal bookshelf of a humanist man of letters.

The book is divided into ten chapters that have catchy titles and subtitles. If the titles are thought of as questions, the subtitles are the answers. As an example, Chapter 4 is "What's Divine: *The Experience of God*." Chapter 6 is "Keeping the Faith: *The Necessity of Religion*."

There are many thought provoking statements throughout the book that challenge some of the sacred pillars upon with which Christianity rests. As one example, he cites Augustine's fourth century statement, "believe that though mayest understand." Guengerich argues that "Children of the Enlightenment seek to move in the opposite direction: not from belief to understanding, but from understanding to belief. We take everything we know into account as we decide what to believe. Enlightened faith never asks us to set aside what we know" (p. 120).

The book falls within the genre of theology and religion adapted to the age of science. It presents a particular and successful tactic being used by a very-small-in-numbers, American-born, ultra-liberal religion in the service of a strategy to keep God and religion from being swept away by the rising secular tide. I say successful because as of 2011, even though in the United States the Unitarian Universalists had only have 211,000 adherents, between 2000 and 2010, the congregation grew by 15.8%. That includes a growth of 20.8% in Tennessee, 22% in Georgia, and 42.5% in Colorado. In terms of the relevance of all this to ESSSAT, there are only a paltry 200 or so Unitarian Universalists in Europe, most of whom are American ex-pats who belong to the European Unitarian Universalists (EUU), a loosely linked network founded in 1982.

Who should read this book? The audience could be religious professionals interested in a short-term, successful tactic by which a "Christian-like" religion has been able to grow in the United States in a secularizing scientific age. Another audience could be formerly-religious lay-person "nones" searching for meaning.

The book is in the same genre as, but less persuasively argued than, Michael Dowd's very heavily endorsed (including five Nobel Laureates) *Thank God for Evolution: How the Marriage of Science and Religion Will Transform Your Life and Our World*. In comparing the two books Dowd's message is more inspiring and ecumenical. Guengerich's is more parochial and personal.

Jay R. Feierman

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Klaus Nürnberger, *Informed by Science – Involved by Christ: How science can update, enrich and empower the Christian faith,* Dorpspruit/Pietermaritzburg: Xlibris Corporation, Cluster Publications, 2013; 263 pp., ISBN: 978-1-4836-0594-4.

Klaus Nürnberger is not unfamiliar name to the members of the ESSSAT or the readers of *Zygon* and other science-and-religion people in Africa, Europe or America. His list of publications speaks for itself – some seventeen books, countless articles, pamphlets, reviews and other writings. Nürnberger has been a Lutheran pastor and while presently professor emeritus of Systematic Theology and Theological Ethics at the University of Natal (University of KwaZulu-Natal) in Pietermaritzburg, South Africa (with his first education in agriculture and economy), one certainly cannot say

that he has left teaching! In his most recent book he has taken on an interesting task: to convince Christians in particular to take modern sciences wholeheartedly (and critically) on board. Without doubt, many pastors either in Europe or elsewhere would rather not get into the complicated topics of science and religion, and many would not know how to bring these two together for the members of their congregations. This book could be very helpful for them, but also for the students and professors of Christian seminaries.

In this book one gets a sort of two-in-one. It can be read as a small systematic theology which covers all most important loci (themes, topics) from God the Creator to the miracles and eternal life. In all topics covered, the best of contemporary research is taken into account. For example, in the case of 'faith', its neurological, psychological and developmental biological basis is presented in a fair and critical manner, as are subjective descriptions of faith. On the other hand, it can be read as an introduction both to various natural sciences and biblical and theological research. Both contemporary scientific knowledge as well as historical-critical reading of the Bible demand a rethinking of outdated doctrinal assumptions. "Science is God's way of displaying the profundity, greatness and glory of God's creation before us. It is also the most potent instrument for God's redeeming action in the world. … Christians must accept science as a gift of God and a tool of God to cope with an accelerating and increasingly dangerous process" (p. 12). However, Nürnberger does not consider this a one-way street. "Just as science can update, enrich and empower the Christian faith, the Christian faith can provide meaning, criteria of acceptability and the vision of comprehensive optimal well-being to the scientific enterprise. Scientists are human beings rather than mechanical gadgets. They need assurance and direction as much as any other human being in the world" (p. 12).

The book gives an insight into the development of a healthy faith that is not closed to contemporary knowledge but also does not lose itself. The book could be seen as a call for all readers to draw their own conclusions – but only after considering all issues and studying them in an interdisciplinary manner. The author does not take an arrogant position, telling you how things really are, but rather invites the reader to think along and construct their own standpoint. It is obvious that the author would not be offended if somebody remained at a different position, but he would expect reasonable argument.

There are many books in the field of science and religion. But also there are many readers with diverse interests and knowledge bases about the issues. This book is a popularizing version and summary of a lifetime of

research and many previous books and articles. It is easy to read, and thus might appeal to those intelligent readers who do not regularly read academic and more technical literature in the field. The book does not discuss theological or scientific alternative hypotheses or controversies. In this, the author assumes full responsibility for his arguments – remaining always ecumenical, fair, and on the side of the less powerful or less privileged. The book's audience is well chosen – churches and their theologians, as well as ordinary believers in the pews, have to form a worldview that is capable of dealing with scientific knowledge of our world, our bodies and consciousness, history and memory etc. Nürnberger offers, however, substantial amounts of biblical interpretation – this might be the distinctive characteristics of his book. The Bible is the book of the Christian community, and only a historical-critical reading of the Bible can be considered an accountable and appropriate reading.

Nürnberger makes useful distinction between "God's creative power experienced in reality and explored by the sciences and God's benevolent intention proclaimed by faith on the basis of the biblical witness. Science provides information, faith spawns commitment" (p. 23). Yet it is obvious that Christian communities and believers need to regain their personal integrity and the credibility of their message in the face of countless people who have opted out of biblical faith, either because of the attractions of the modern world, the abuses and failures of the Christian churches, or the mistaken understanding that faith and contemporary science don't fit together.

Nürnberger calls his approach experiential realism, which he considers to be the most commonly used term also by scientists. He focuses on the reality that we actually experience and that the sciences make ever more lucid. All sciences (including religious studies) study the same immanent reality. He suggests that we can talk of "immanent transcendence" (which can be experienced in our awareness of boundaries and limits, simultaneously with our desire to transcend these limits). When we refer to God, we are talking of a different kind of transcendence, 'radical transcendence' which, by definition, is not accessible to our observations, explanations, or predictions (p. 49). Radical transcendence is that on which everything immanent depends.

Many other useful and creative arguments can be found in this book. Yet the question remains: what if the believers just don't want to update their faith and turn instead to the literalist-fundamentalist versions of Christianity (it is happening globally in the matters of homosexuality and women's ordination)? What if aggressive "new" atheists among scientists manage to create such a hostile climate among scientists, and perhaps the

general public, that it is almost criminal to consider any religious claim, not to speak of belonging to one or other faith tradition? What if Christianity and other world religions become pulverized at the hands and minds of spiritual seekers who want to avoid traditions, structures, and authorities? Klaus Nürnberger's book sustains hope that Christianity is still capable of renewal, and can do justice and keep in balance both rational and spiritual needs and quests.

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Gennaro Auletta, Ivan Colagè, M. Jeannerod (eds.), *Brains Top-Down. Is Top-Down Causation Challenging Neurosciences?*, Singapore: World Scientific, 2013; pp. 365 ISBN: 978-981-4412-45-2 (hdbk.) $ 93,80.

Brains Top Down contains 10 chapters written by the participants in the workshop "Endogenous Processes and Causation in Brain and Behavioural Sciences", which was organized by the editors and took place in Vatican City on April 2-4, 2009. The volume may be seen as a final achievement of an interdisciplinary research project started in 2008 and supported by the John Templeton Foundation ("Consciousness and Top-down Causation in Brain and Behavioural Sciences", with Gennaro Auletta as Principal Investigator).

The Vatican workshop saw the participation of distinguished scholars like Michael Arbib, Jean-Pierre Changeux, Charles Crowell, Antonio Damasio, Hanna Damasio, Pierre Jacob, Marcus Raichle, Juan José Sanguineti, and Wolf Singer. Speeches as well as discussions have been recorded, transcribed by editors, and successively sent to speakers who agreed in publishing the proceedings. Then, the speakers revised this material for the final version of their own chapters, which now appear in *Brains Top Down*. The closing part of each chapter reports the discussion that followed each author's talk; an extensive discussion engaged by all participants in the concluding sessions is included as well. The volume also features an introductory essay by editors Gennaro Auletta and Marc Jeannerod, as well as a postscript by Giacomo Rizzolatti in memory of Jeannerod, who passed away on July 1, 2011. Two brief appendices conclude the volume: a reconstruction of the making of the volume and the reproduction of the document drawn up by the three editors ("Top-down Causation in Neurosciences?", Lyon, February 25, 2008); the latter document had been sent as

a preliminary to all the invited speakers, in order to introduce them to the general topics of the workshop.

In recent decades, scientists and philosophers have increasingly pointed out the significance of top-down causation in relation to hierarchically-organized natural systems, in particular biological ones. Roughly speaking, it is a matter of understanding the way in which higher levels of organization can affect the dynamics pertaining to lower levels. In this case, the extremely interesting challenge is in trying to figure out the role that top-down causation may play in cognitive processes; accordingly, one has to deal with the functionalities fulfilled by the most complex system that we know, namely, the brain.

As the editors state from the very beginning, the scientific level of analysis represents the necessary background of the inquiry, which is to be framed in biological and evolutionary considerations. Given the difficulty of the problems at stake, one achievement of the volume can be seen in the *clarity* with which authors express their ideas. A basic familiarity with the scientific knowledge would obviously be an advantage for the reader, especially in order to fully realize the relevance of more technical aspects of the argument. However, plain language, accurate explanations, and straight argumentation, as well as a good number of figures (very often accompanied by thorough captions), will greatly help the non-specialist reader. Moreover, chapters are endowed with up-to-date lists of references: a precious tool for appropriately guiding readers through the current massive production of literature in the cognitive neurosciences.

In their contributions, eminent neuroscientists present data coming from the activity carried out in their labs, empirically supporting their conclusions and working hypotheses. It is worth stressing that approachable outlines of current research pathways are offered, and starting points for further investigations suggested; these scientists even updated their manuscripts with new findings in the course of the editing process. Furthermore, during the workshop, both scientists and philosophers committed themselves to an assessment of scientific developments in the context of the envisaged theoretical perspective. Indeed, top-down causation represents a wide-ranging issue that may lead us to rethink the very foundations of research addressing complex biological systems. Hence, attempts were made at defining the terms of a conceptual framework consistent with scientific evidence and, at the same time, capable of steering future research; chapters and discussions contained in *Brains Top Down* reflect these efforts. I would therefore say that a convenient interpolation of scientific *soundness* with

theoretical *innovation* can be seen as another distinctive quality of the volume, maybe the most telling one.

It is possible to particularly appreciate the innovative components of this book by following the discussions that are reported in it – an editorial choice that, in my personal opinion, usually confers an additional value on this kind of publication. In the lively debates entertained throughout the workshop, technical aspects have been evaluated in relation to foundational questions and basic notions (including top-down causation itself) considered from different viewpoints, without prejudice; a remarkable agreement on relevant conceptual points was eventually reached, as the final overall discussion may testify. Not a bad result, if we consider the theoretical difficulty of the central topic, together with the fact that some of the participants (mainly scientists and philosophers) had never met before. So, one could say that an old-fashioned practice, that is, dialogue, allowed for the gaining of some novel understandings, in accordance with what some well-known classical authors used to maintain.

Actually, from the philosophical standpoint, the issue of top-down causation in cognitive processes can be utterly relevant also for dealing with traditional problems, like the monistic vs. dualistic view and the mind-body relationship. Contributions to this volume show how these problems can be tackled in the light of the most recent scientific discoveries and trends of research. I would therefore recommend *Brains Top Down* not only to readers interested in modern epistemological debates, but also to those concerned with philosophical anthropology and the philosophy of nature.

Finally, I would like to mention that even though *Brains Top Down* does not offer theological essays, it seems not difficult to acknowledge the significance of the issues with which they are concerned for theological reflections addressing, for instance, the nature of human consciousness and the role of free will. Indeed, in the first appendix to the volume, editors G. Auletta and I. Colagè regret the fact that, notwithstanding Jeannerod's own wishes, they were unable to involve professional theologians in the activities of the project (a second workshop titled "Human Brain, Human Mind, Human Being" was held at the Gregorian University in October 2010, again with the participation of leading scientists). I think that scholars interested in the field of Science & Theology will not fail to find the chapters and discussions contained in *Brains Top Down* insightful and suggestive of new perspectives. This could represent a bridge for theologians for partaking in these fascinating inquiries, possibly within future academic endeavours.

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John Cowburn SJ, *Scientism: A Word We Need*, Eugene, OR: Wipf & Stock, 2013, pp.168, ISBN: 978-1625643391 (pbk.)

John Cowburn SJ is a former professor of philosophy at the Jesuit Theological College, Melbourne. Is scientism a word we need, and if so, for what purposes do we need it? These are the core questions of this book. John Cowburn first treats his subject from a philosophical perspective, discussing the nature of scientism, before taking a more historical and sociological perspective on the consequences of scientism, and concludes with his own view on the relation between different disciplines. A minor issue with the book is that it contains quite a number of typographical errors, for which the publisher probably should take responsibility. More fundamentally, the book does not even mention other religions besides Christianity, while (for example) "The Nature and Origins of Scientism" by John James Welmuth SJ, published in 1944, explicitly mentions Islam and Judaism.

In the first chapter, distinctions are made between "pure science", "hard science", and "soft science". Cowburn defines pure science as the attempt to come to a full description of the world by logical deduction alone. As such, pure science does not exist but remains an ideal vision for science. Hard and soft science, however, do exist. Cowburn argues that hard science deals with non-organic matter, while soft science is concerned with living organisms. Both kinds of science start from observation, but while observation in hard science leads to the establishment of laws, soft science can only come to generalizations. Cowburn then goes on to claim that "scientific snobbery" (p. 13) has given hard science normative status within the sciences: "Hard is high, soft is low, in this class structure" (p. 14). This in turn has caused advocates of the soft sciences to search for ways to go beyond generalizations towards the formulation of causal laws, thus attempting to resemble physics as much as possible, Cowburn argues. This brings him to a definition of scientism: "(…), which can be roughly defined as the belief that science can explain and do everything: it is the belief that science and reason, or scientific and rational, are co-extensive terms." (p. 14) What remains implicit in this definition, is Cowburn's proposal that hard science has become a normative 'role model' for all the sciences. In other words: scientism assumes that science is nothing but hard science. After a short discussion of the influence of scientism on society, Cowburn points to some problems with scientism. His first remark is that "(…) it dismisses wisdom" (p. 22). While this remark in itself is valuable, it is unfortunately not explicitly developed further throughout the book. Moreover, it is hard to see the relevance of offering the fact that Einstein had problems in his personal re-

lationships as support for this statement (the same question can be asked regarding the rather extensive treatment of Auguste Comte's personal life later in the book). A second remark Cowburn makes is that the cultural influence of science might be more limited than often assumed, since most people did not receive a thorough scientific education and have only a rough sense of what scientific concepts mean. Thirdly, Cowburn argues that there is much more disagreement within the sciences than proponents of scientism are ready to admit.

After laying the groundwork in the first chapter, Cowburn briefly addresses empiricism, positivism, and logical positivism in the second chapter. The third chapter is devoted to a discussion of determinism, arguing that determinism excludes the possibility of moral judgment and responsibility. After dismissing determinism altogether in the conclusion of the third chapter, the fourth and fifth chapters describe how scientism leads to a rejection of values. Cowburn sees this as inconsistent, pointing to implicit values guiding scientists in their research. Moreover, he is convinced that values are necessary for a flourishing society.

From chapter six to chapter ten, Cowburn offers historical and sociological case studies of the influence of scientism on society, in particular in the fields of psychology, criminal justice, eugenics, and religion. Reading through these chapters, the reader may begin to wonder about the distinctions between science and scientism Cowburn so carefully tried to make in the beginning of the book. It seems that these distinctions are at times blurred, as becomes most apparent in chapter nine, on scientism and religion.

Cowburn could have benefited from recent work in the field of science and religion in this chapter. Moreover, it is a little disappointing that he does not even refer to classics in the field, for example Ian G. Barbour's 'Religion and Science' (Londen, SCM Press Ltd, 1998.) Maybe it is this omission that leads Cowburn to focus so strongly on conflict between science and religion, thereby conflating science and scientism. Should we not use the word 'scientism' precisely in this context, to enable us to conceive of other forms of relation between science and religion, beyond conflict? For, as Cowburn himself suggests in the introduction to the ninth chapter: "Many scientists have believed, and many now believe, in God and belong to one or another Christian church. (…) That is, they believe in science, not scientism, as one can be rational without being a rationalist." (p. 112) Here he might have benefited from further developing his earlier suggestion that scientism disregards 'wisdom'. Maybe this could have lead to conceiving of different disciplines as complementary to each other.

In the last chapter, Cowburn offers a hierarchy of levels of reality. The lowest level is that of particles, the higher levels being: individual material bodies; the material universe as a whole; individual non-sentient living beings; the universe, including plant life; individual, non-human sentient beings; nature without humans; individual human beings; all of creation, including humans; and the divine. Cowburn argues against reductionism, claiming that "(…) physics is the most fundamental of the sciences but it is the lowest, not the highest." (p. 155) Cowburn's hierarchy to some extent calls to mind the work of Teilhard de Chardin, to which he does not refer in his text, but which is nonetheless included in the bibliography.

Cowburn's argumentation could have benefited from developing some ideas further, while omitting on the other hand stories about the personal life of exponents of our intellectual history. Does he give us an answer to the question whether we need the word 'scientism'? In a way he does, because throughout his attempt to show the shortcomings of scientism it becomes clear that without a proper distinction between 'science' and 'scientism' one risks seeing conflict as the only possible relation between science and other disciplines, such as religion.

Tom Uytterhoeven
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Neil Messer. *Flourishing. Health, Disease, and Bioethics in Theological Perspective*. Grand Rapids, MI: Eerdmans, 2013, i – xvii, 1-238. $ 35; ISBN: 978-0-8028-6899-2 (pbk.).

QUESTION: 'What should be understood by "health", "disease", and related terms?' That is the manifesto set by Neil Messer, Winchester (UK) in his 'modest aim of answering a simple-seeming question – and its practical outcomes'.

Chapter 1 reviews varied attempts at answers, beginning with the WHO definition as 'complete physical, mental and social well-being and not merely absence of disease or infirmity' – a somewhat grandiose, if opaque, approach, which probably hardly encompasses many in the world these days. There follow recitals of variously proposed models – biostatistical (Boorse); holistic (Nordenfelt and Fulford); 'phenomenological' (S. Kay Toombs); capability (or capacity) as envisaged by Sen and Nussbaum; dysfunction (as proposed by Wakefield from psychiatric perspectives) or even disorder, which is harmful at the phenotypic level (Wake-

field); and teleological (Megone) although his positing of human beings as merely 'rational' is highly questionable, as Darwinism reveals. Messer's methodology is to evaluate such themes from a theological angle, such that one is seen as a creature of God whose embodiment as a means to flourishing should be encouraged, although he is unable to clearly differentiate "disease" (process) from "illness" (subjective). Surely, bridging that gap demands physicians trained to understand both, and to deal with them on their own terms: from that, it seems Toombs might benefit from another doctor. This also rightly emphasises Messer's *practical* approach to medical care and the true realisation of human *frailty* – since we are all creatures in a corruption-laden environment.

Chapter 2 suddenly lurches into disability. So how does disability contribute to understandings about health and disease? Social legislation has drawn attention to some needs – recognition, education, medical care, and overcoming inbred discrimination. Interestingly, Messer does not consider himself 'part of the disability community' (53) but that reveals a difficulty – that disablility manifests often as a graded characteristic (eg, blood pressure), so there may be no cut-off: it is not bimodal. Indeed, we are all on a sliding scale of disorder, although few people recognise that. By age 30, bones are already heading towards osteoporosis, leading to pain, disordered locomotion, and manual inabilities. Impotence (40-50) may never be manifest, yet is of profound psychological concern to those so impaired. By 50, most of our brains are beginning to involute. Conversely, Professor Colin Barnes has championed the "able-disabled" who occupy major places in goverment, academe, sport. This makes assessment of QoL issues extremely difficult. The pain of a 70-year-old (and the daily tablet ritual which variably controls, but never eradicates, dysfunction at the worse end of the sliding scale) becomes a gradually accepted way of life, totally unacceptable to those in their twenties. 'Flourishing' likewise becomes graded. Moreover, I see little reference to the disability, dysfunction and resulting fear caused by reckless, "psychopathic" behaviour of healthy individuals and the ensuing disablements, which may be severely compromising – and that is a huge problem, worldwide.

Thence to Chapter 3, and a consideration of what theological resources might underpin our perspectives on health, disease and illness, such as the role of scripture and church in "healing ministry", and their relationship to the biomedical sciences – as external influences (cf. the Barthian account which identifies 'freedoms' before God, in social fellowship, for life, and in limitation). But what does life as 'loan' from God really mean, I wonder? Or even, the 'will to be healthy'? Seemingly, the teleological command to live as creatures, with health the strength for its accomplishment, perfected

by grace. The fourth resource employs disability as witness to the dismissiveness of 'normal' society. Unfortunately, no-one in society is ever 'normal' and no-one in society has the ultimate power to judge others – as John Hull, Nancy Eisland and Tom Shakespeare have, from their personal viewpoints, made evident.

Importantly, mental health (of which we see little in this book) is of enormous relevance because of prematurity in death, poor economic support, and societal abuse – again a worldwide scourge. All these issues do temper our theological anthropology, but what is that anthropology – the mere bearing of the image of God? I would dispute Reinder's claim that our humanity is to do with ourselves before God. Zizioulas, quoting Maximus the Confessor, God (as Father) 'knows us' not by our human nature (ousia) but only through our baptismal hypostases, wrought through the Spirit, and in Christ. Now that's a thought.

I do have other reservations over this book.

First, in regard to the rather loose interplay between the theological applications of "sin" to "disease" and resulting debilities (for example, pp, 187ff). I am all too aware of the hurt, disablement, enormous fear and even death resulting from sinful actions – incompetence, wanton irresponsibility, or even recklessness, perpetrated either by individuals or corporates on unsuspecting, ordinary people: that's another important part of *enforced disability*. However, this interplay needs handling with much care. So, for theologians to suggest to grief-stricken parents that the death of their first-born, 6-month old baby from acute leukaemia, for example, was due to inherited "sin", or a "sinful world", would be outrageous and highly reprehensible.

From that, secondly, I have words from the eminent Orthodox theologian and Bishop of Pergamon, Professor John Zizioulas ringing in my ears (from his Eucharistic tome, I think) where he cautions theologians about their working vocabularies and the dangers inherent in creating an esoteric verbal "ghetto" lacking meaning and pertinence to all others outside their little inclusive cliques. Similar remarks were made some years ago by George Pattison about irrelevance, in his *The End of Theology*. So I wonder about the utility of the "teleological Thomistic-Barthian" theology modestly proposed (and so warmly applauded by the back-page endorsements given by Messer's friends – did they all have time to read the MS critically, I wonder?), but which hardly answers the questions posed at the outset. Neither would this be particularly intelligible or useful to those who run services – the hospital CEOs, local health managers and all medical personnel involved.

Third, and with that latter critique, this book, strangely, is not addressed to any particular audience. I don't seem to have come away with any further clarified insights about the definitional task initiated by the author. Indeed, after plodding the wards within the British NHS as an academic clinician and biomedical research physician for over forty years, I hardly recognise much of what is on view

There are other biomedical and theological approaches which could have been employed in discussing these questions and bringing them to a sharper focus and which would have employed an equally large, but different literature. And is "Flourishing" the most appropriate title for this foray into the disabilities and diseases to which, as humans, we are *all* heirs?

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Gerald O'Collins S.J. and Mary Ann Meyers (Eds.), *Light from Light: Scientists and Theologians in Dialogue*, Grand Rapids MI, Cambridge U.K.: Eerdmans, 2012, pp. 250, ISBN: 978-0-8028-6667-7 (pbk.).

The dialogue between scientists and theologians takes place in multiple settings and at different levels, giving rise to new developments and exchanges. The topic of 'light' seems to be one which is susceptible to a variety of treatments, as much for physicists as for theologians. With the support of the Templeton Foundation two conferences were organised, in 2009 in Istanbul and in 2010 in Oxford, gathering together a good number of experts and encouraging exchanges around this topic. This book brings together the papers from these events.

The book consists of two parts. First, a wide and instructive introduction by the editors reviews up seven big topics that they spot as common for both cultures – the scientific and the religious. These topics are also present throughout each author's contributions. The first part of the book is more scientific, although not exclusively so. In fact the first of the authors – John Polkinghorne – is one of the well known "scientist theologian" who has published numerous books and essays trying to bring closer issues in that interdisciplinary environment, and endeavouring to allay the tensions that often arise in the close contact between science and faith. It may come as a surprise, when keeping in mind this background, that he expresses doubts around the theological utility of the most recent scientific developments in the fields of the physical cosmology and of quantum mechanics. The theo-

logical images based on the idea of light were built on an intuitive experience of that perception, while the recent studies show a quite counterintuitive reality which is far from the physical world that was seen by the ancients. At most, some metaphors can take advantage of this new panorama, as for example in the case of the quantum description of reality, whose paradoxes and mysterious expressions could illuminate aspects of Trinitarian theology.

The second essay is written by another physicist very engaged in the dialogue between science and faith, the Polish professor Michael Heller, who develops an alternative cosmological model, that of Georges Lemaître, as a source for theological inspiration. The other four studies that are brought together in this scientific part often try to expose, in a more productive way for the theological interlocutors in the dialogue, the broad views of light provided by contemporary physics. Questions arise around the so called 'physics of the interactions'; in the deepening of quantum models; and from a revision of the classic conceptions of causation. These contributions complete this rich panorama. In general the scientists try hard to find analogies and applications of their own investigations for the theological field.

The second part gathers seven essays of strictly theological character; often they focus on authors from the great Christian tradition, Patristic and Medieval. Figures from the Christian East and West are present in these syntheses of the rich theological reflection that has been often built on the metaphor of light, to propose appropriate images of the Trinity, of divine action in God's creatures, and regarding mystical experiences. The symbol of light has a clear biblical origin and it assumes a special character in the Johannine writings in the New Testament. But the development of this imagery spans many authors, from Augustine to Bonaventure and Thomas Aquinas in the Western tradition; from Gregory of Nyssa to Simon the New Theologian and Gregory Palamas, in the Eastern.

This work contributes without doubt to an exploration of a possible shared ground between scientists and theologians, at least in analogical terms. Topics like 'light', 'life', or 'universe', surely belong to both semantic fields, or are important elements in the codes of communication of both, scientific and religious. Nevertheless, doubt arises concerning scientific developments, which could reinforce the feeling of a growing contrast between both fields, or of a differentiated, specific use that is being made of these terms. One might even sometimes suspect that the common character of such terms belongs to the past. In fact the great majority of these theological studies refer to authors of many centuries ago, while contemporary

science would have 'disenchanted' – appealing to a Weberian category – those concepts in recent decades. Only a bigger reflexive effort could help theology to regain its own meaning of these terms in a very secular and scientifically driven culture. The challenge is to render them significant again in a totally different cultural context; otherwise, theology will persist with poetic and imaginative references, but be unaware of the changes that science has introduced. Frankly, there is still a lot more to be done if terms like 'light', 'life', 'mind' and 'cosmos' are to resonate again with a theological sense or content, after their scientific appropriation and the loss of the cultural influence that religious faith has so long exercised.

Lluis Oviedo
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Amos Yong. *The Cosmic Breath. Spirit and Nature in the Christianity-Buddhism-Science Trialogue*. Leiden/Boston: Brill, 2012; ISBN 978-90-04-205130 (hdbk). € 135.00.

When reading a book for review, one usually scribbles some minus points about it on a piece of paper, to include them later. As I could not find any obvious ones in Amos Yong's book, I was wondering how I would go about writing my review. I found things to mention though, although most are positive, and the critical ones are solely concerning substance, not concerning the construction of the book, its questions, or its argumentation.

The first thought that sprung to mind about *The Cosmic Breath* was: here we see interdisciplinarity having come of age. Remembering difficult and endless discussions on methodology in the nineteen-eighties, when academic disciplines started seeking connections to let their knowledge be fruitful to each other, Yong's arguments convince his readers continuously, while jumping from the history of Mahayana Buddhism to systems theory, or from the anthropology of Pannenberg to cognitive science. He is knowledgeable to a high extent in every discipline he brings into his discussion, and at the same time meticulously navigates a route for sailing through all the different streams.

The act of navigation in this case involves a trialogue, a word Yong introduces to indicate that what he is doing is more complex than the now fairly common interreligious dialogue. His is a dialogue, between certain strands in Buddhist philosophy and in Christian theology – but at the same time he lets these reflective religious traditions dialogue with modern sci-

ence, which branches into general cosmological concerns on the one hand, and cognitive science on the other. The concept of a trialogue is perhaps too modest, as there are so many dialogues established in the process, not least the one between theology/philosophy and religion. One easily forgives the author for not labouring all the branches potentially involved in his research, for it is already complex as it is. He earns a lot of respect, rather, for his conscientious demarcating of so many methodological steps, when crossing disciplinary and religious boundaries, as well as when tying his results together again.

Yong, a Pentecostal theologian, gives convincing reasons for practicing the trialogue, indicating that theology that wants to matter a) has to relate to modern science and b) has to do something about the fact that we are living in a globalized world with a plurality of religions. One can no longer just continue a traditional theological discourse that dates back to antiquity, but has to test it in a conversation with scientific knowledge as well as with other religions, while trusting that when it contains truth it will not lose but benefit from the process. It is Yong's conviction that engaging in dialogue deepens conventional views by adding hermeneutically to them. His choice of Christianity and Buddhism for his trialogue is coincidental and personal, representing the original tradition of his parents, and his present faith. He makes this clear in the introduction, which prevents the choice from coming across as uncritical or arbitrary.

And now for the substance. *The Cosmic Breath* is, as the title indicates, in the end a study in spirituality. Not an empirical one, as research into actual traditions would be, but a 'dogmatic' one, searching for what is true in spiritual matters. The term 'dogmatic' might be misleading, as Yong's approach does not want to be metaphysical or speculative, but rather to express a deconstructive and pragmatist kind of hermeneutic. It is not the theological philosopher who decides, by way of rational argumentation, what we should believe: the writer rather leads the reader in a fallible project of trying out meanings, testing them against existential experiences, while keeping an eye on the difficulties created by translating them into different discourses.

For his research into spiritual meanings, Yong has singled out from the Christian and Buddhist traditions two concepts which are not only useful for comparison between them, but also for the dialogue with science: Pneuma, the Spirit, which is analyzed in its many meanings, from the Church Fathers to Hegel, and Shunyata, which also is followed through time, from the Buddha himself, through Nagarjuna, to the Kyoto school in philosophy. The connections which Yong makes on the scientific level are

with systems theory and quantum theory, among others, but he does not leave out a discussion of 'esoteric' traditions (alchemical and psychological) in the West. All the time, following the writer through his many turns, one learns something new, or sees what is already known from a fresh framework. The overly academic style of the book (in dissertation style, Yong accounts for every step, repeats his questions, summarizes results) is therefore not a hindrance to staying captivated, as its content are exciting enough.

After many turns of the road, Yong makes his reader understand that 'true' spirituality is not so much concerned with inner knowledge, but with a caring attitude towards one's relations, on the human level as well as concerning our non-human environment. In the end, thus, Christianity and Buddhism find one another, according to Yong, in their soteriology (which is another word, to my view, for a pragmatist dogmatics). In searching for the best ways to find salvation from the troubles of this world, both traditions provide road-signs directing us towards an ethic, especially an environmental ethic, which Yong, in the last resort, as a Christian, understands pneumatically. While Buddhism teaches us compassion for 'all sentient beings', and thus has enriched the understanding of spirit by researching 'emptying' (a better translation of shunyata, according to Yong, than 'emptiness'), this empowers one in witnessing to the living Christ, through whom the Holy Spirit finds expression. I do not mind a partial conclusion like this, rather prefer it in its explicitness to so many so-called impartial 'comparative' dialogues, which remain implicit about the beliefs of their initiators.

After following the many roads of this interesting book, however, there remain for me two points of dissatisfaction. The first seems to be a minor one, but might indicate a more serious problem. When, near the end, Yong is providing building blocks for an interfaith environmental ethics, he relies solely, for the Christian part, on an author called Marthinus Daneel, who for his theology of environmental care relies on an African-grown 'theology of healing and exorcism' of 'ecological sinfulness' – which combines Shona (Zimbabwe) traditional knowledge and African Christianity. This, to my view, indicates that there is something missing in traditional 'Western' Christian theology, when it comes to understanding the relation between spirit and nature.

All the same there is something missing in the general approach of Western Christian theology, which makes it not yet completely fit for entering the religion-science dialogue in a convincing manner. Yong's study has made it clear that Buddhist reflection enters this dialogue naturally, as it is,

as Yong states, radically empirical (not in the manner of measuring phenomena of consciousness, but by its practice of systematic introspection – practice which leads to insights comparable only to pragmatist and phenomenological approaches in the West). Such a phenomenological approach has not yet entered fully into Christian theological discourse, which despite Yong's own pragmatic and deconstructive intent, every time he cites and discusses it, sounds rather speculative, arid, and cerebral.

Here is a chance for renewal, though. If Christian theology wants to venture further in the dialogue with science and with the present pluralist condition, it should search for the experiential content of ancient concepts like spirit and salvation, kenosis or tri-unity, instead of repeating them as sacred memorials of a Spirit that has passed. It is with reluctance that I bring up this point of dissatisfaction, as Amos Yong is practicing a very complex conversation in a bold and serious manner. I mention it, however, as I am convinced that each study, while breaking new ground, also shows what is still lacking, and thereby stimulates the conversation to move further and not stand still.

Angela Roothaan
VU University Amsterdam

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

David Bentley Hart
The Experience of God: Being, Consciousness, Bliss
Yale University Press 2013
Despite the recent ferocious public debate about belief, the concept most central to the discussion – God – frequently remains vaguely and obscurely described. Bentley Hart pursues a clarification of how the word "God" functions in the world's great theistic faiths. Ranging broadly across Judaism, Christianity, Islam, Vedantic and Bhaktic Hinduism, Sikhism, and Buddhism, Hart explores how these great intellectual traditions treat humanity's knowledge of the divine mysteries.

Peter J. Colyer
The Prescientific Bible: Cultural Influences On the Biblical Writers and How They Affect Our Reading of the Bible Today
Circle Books 2013
The Prescientific Bible examines issues in which the view of natural and human events held by biblical authors differs from present-day scientific understanding (such as the emergence of the landscape, earthquakes, the weather, health and illness, sudden death, gender, geopolitical changes, etc). It also suggests ways in which the modern reader can accept these differences and still find the Bible a source of spiritual nourishment.

Peter J. Colyer
The Self-emptying God: An Undercurrent in Christian Theology Helping the Relationship with Science
Cambridge Scholars Publishing 2013
Peter Colyer examines in detail the concept of the self-emptying (kenosis) of Christ and of the ways in which this understanding of the historic figure of Jesus Christ has been extended to the whole being of God. The sections of the book deal with: the need for compatibility between theological and scientific views of the natural world; the increasing inadequacy of some descriptions of God in the light of scientific knowledge; a detailed examination of the biblical material; the history of kenotic theology in Christian teaching.

David P. Barash
Buddhist Biology: Ancient Eastern Wisdom Meets Modern Western Science
Oxford University Press 2013
David Barash highlights an intriguing patch of common ground between scientific and religious thought, illuminating the many parallels between biology and Buddhism, allowing readers to see both in a new way. Indeed, he shows that there are numerous places where the Buddhist and biological perspectives coincide. For instance, the cornerstone ecological concept – the interconnectedness and interdependence of all things – is remarkably similar to the fundamental insight of Buddhism.

Bruno Latour
An Inquiry into Modes of Existence: An Anthropology of the Moderns
Harvard University Press 2013
Latour analyzes modern 'modes of existence', accounting for the many differences between law, science, politics, religion, and other domains of knowledge. Though scientific knowledge corresponds to only one of the many possible modes of existence Latour describes, an unrealistic vision of science has become the arbiter of reality and truth, seducing us into judging all values by a single standard. Latour implores us to recover other modes of existence – like religion – in order to do justice to the plurality of truth conditions that Moderns have discovered throughout their history.

Cosmological issues

Steven Gimbel
Einstein's Jewish Science: Physics at the Intersection of Politics and Religion
John Hopkins University Press 2013
Philosopher of science Gimbel considers whether there is any sense in which Einstein's theory of relativity is Jewish. He examines Einstein and his work to explore how beliefs, background, and environment may have influenced the work of the scientist. Einstein's science cannot be understood without knowing the history, religion, and philosophy that influenced it.

Mark Harris,
The Nature of Creation: Examining the Bible and Science
Acumen 2013
This book addresses the complex debate around science and creation by engaging with both modern science and biblical scholarship together. Creation

is central to Christian theology and the Bible, and has become the chosen battleground for scientists, atheists and creationists alike. It presents a sustained historical investigation of what the creation texts of the Bible have to say and how this relates to modern scientific ideas of beginnings. The book aims to demonstrate what science and religion can share, and how they differ and ought to differ.

Terence Picton
Creature and Creator: Intersections between Science and Religion
Abebooks 2013
The book provides a balanced review of the relations between science and religion. Many different sciences and many different religions are considered. The main message is that science and religion can be complementary rather than antagonistic. The book differs from other books dealing with science and religion by considering many different religions, and by placing both science and religion in the general context of human culture.

Ilia Delio
From Teilhard to Omega: Co-creating an Unfinished Universe
Orbis Books 2014
Thirteen scholars – including John F. Haught, Ursula King, and John C. Haughey, SJ – "take off" from where Teilhard de Chardin "left off", opening new windows to the divine mystery, to the evolving person, and to the new energies of love needed for the forward movement of life.

Shaun C. Henson
God and Natural Order: Physics, Philosophy, and Theology
Routledge 2013
Henson brings a theological approach to bear on contemporary scientific and philosophical debates on the ordered or disordered nature of the universe. Henson engages arguments for a unified theory of the laws of nature, a concept with monotheistic metaphysical and theological leanings, alongside the pluralistic viewpoints set out by Nancy Cartwright and other philosophers of science, who contend that the nature of physical reality is intrinsically complex and irreducible to a single unifying theory.

Rodney Holder
Big Bang, Big God: A Universe Designed for Life?
Lion Hudson 2013
How did the universe begin and how has it evolved? Does a scientific explanation mean that we can do without God? Why are the laws of nature so special as to produce a universe with intelligent creatures like us in it in the

first place? Can the existence of a multiverse, a vast or infinite collection of universes, explain the specialness of this universe? This book argues that only God provides an explanation for the universe to exist at all, and for fine-tuning.

Evolution studies

Stefan Lorenz Sorgner, Branka-Rista Jovanovic (eds.)
Evolution and the Future: Anthropology, Ethics, Religion
Peter Lang 2013
Leading scholars from various disciplines analyze the relevance of evolutionary theory for future developments, whereby the fields of anthropology, ethics, and theology are considered in particular detail. The main parts of the collection are dedicated to the following three questions: What are the basic principles of evolutionary processes? Is it morally legitimate to influence evolution by means of enhancement technologies? What is the relationship between evolutionary theory and belief in God?

Anthropology issues

Michael R. Trimble
The Soul in the Brain: The Cerebral Basis of Language, Art, and Belief
John Hopkins University Press 2013
This provocative study tackles the interrelationship between brain function, language, art – especially music and poetry – and religion. By examining the breakdown of language in several neuropsychiatric disorders, neuroscientists have identified brain circuits that are involved with metaphor, poetry, music, and religious experiences. Drawing on this body of evidence, Trimble argues that religious experiences and beliefs are explicable biologically and relate to brain function, especially of the nondominant hemisphere.

Lynne Rudder Baker
Naturalism and the First Person Perspective
Oxford 2013
Science and its philosophical companion, Naturalism, represent reality in wholly nonpersonal terms. How, if at all, can a nonpersonal scheme accommodate the first-person perspective that we all enjoy? This volume explores that question by considering both reductive and eliminative approaches to the first-person perspective. After finding both approaches

wanting, it mounts an original constructive argument to show that a non-Cartesian first-person perspective belongs in the basic inventory of what exists. That is, the world that contains us persons is irreducibly personal.

A. Battro, S. Dehaene and W. Singer (eds)
Neurosciences and the Human Person: New Perspectives on Human Activities
Vatican Press 2013
The book provides the proceedings from a workshop held in Vatican Academy of Sciences about the following areas of research: Origins of Mind; The Dynamic Brain and Consciousness; Towards a neuroscientific understanding of free will; Sources of human comprehension and incomprehension; Can neuroscience improve the brain and mind?

Malcolm Jeeves
Minds, Brains, Souls and Gods: A Conversation on Faith, Psychology and Neuroscience
IVP Academic 2013
Jeeves, addresses in this book the questions: Do I have a soul? How free am I? What makes me uniquely human? Does my brain have a 'God spot'? In this hypothetical correspondence with a student, Jeeves argues that we must avoid false choices in the relation between Scripture and science. Christians need not choose between a 'God of the gaps' that competes with science, a 'neurotheology' that bases our understanding of God on the latest scientific theory, or a scientific reductionism that claims to have explained God away as a mere function of the brain.

New scientific study of religion

Peter J. Richerson and Morten H. Christiansen (Eds.)
Cultural Evolution: Society, Technology, Language, and Religion
MIT Press 2013
Over the past few decades, a growing body of research has emerged from a variety of disciplines to highlight the importance of cultural evolution in understanding human behaviour. The contributors take as their guiding principle the idea that cultural evolution can provide an important integrating function across the various disciplines of the human sciences, as organic evolution does for biology. The benefits of adopting a cultural evolutionary perspective are demonstrated by contributions on social systems, technology, language, and religion.

Practical issues

Elizabeth A. Johnson
Ask the Beasts: Darwin and the God of Love
Bloomsbury Academic 2014
For millennia plant and animal species have received little sustained attention as subjects of Christian theology and ethics in their own right. Focused on the human dilemma of sin and redemptive grace, theology has considered the doctrine of creation to be mainly an overture to the main drama of human being's relationship to God. The book leads to the conclusion that love of the natural world is an intrinsic element of faith in God and that far from being an add-on, ecological care is at the centre of moral life.

Bruce V. Foltz
The Noetics of Nature: Environmental Philosophy and the Holy Beauty of the Visible
Fordham University Press 2013
Working from texts in Eastern Orthodox philosophy and theology not widely known in the West, as well as a variety of sources including mystics such as the Sufi Ibn 'Arabi, poets such as Basho, Traherne, Blake, Hölderlin, and Hopkins, and nature writers such as Muir, Thoreau, and Dillard, this book challenges both the primacy of the natural sciences in environmental thought and the conventional view, first advanced by Lynn White, Jr., that Christian theology is somehow responsible for the environmental crisis.

Announcements

The ESSSAT Research Prize for Studies in Science and Theology 2014

The ESSSAT Research Prize for 2014 has been awarded to Dr. Patricia Bennett for her dissertation *Relationality and Health: A Transversal Neurotheological Account of the Pathways linking Social Connection, Immune Function, and Health Outcomes*. With this original study, Bennett earned a doctorate in theology from Oxford Brookes University, UK.
Bennett's study brings together in fruitful conversation medical literature, especially on neuro-immunology (links between 'how we feel' and our immune system), and a theological vision of a healthily connected human person. She draws on primary scientific literature as well as theological and philosophical texts. The author uses her earlier training and experience in medicine to good effect, and in this shows the wisdom that comes from time spent in two very different disciplines.
The jury considered this an ambitious study drawing on a wide range of literature, focused on a relevant problem in a way that gives purpose and a practical thread to the work. Thus, the jury consisting of scholars from Germany, Spain, the UK and the Netherlands, unanimously chose this book as winner of the ESSSAT Research Prize. The Prize, sponsored by the Udo Keller Stiftung Forum Humanum, consists of 2000 euro, as well as coverage of travel to and participation in the next European Conference on Science and Theology.

Chair of the jury was Prof. Dr. W.B. Drees, Leiden University (NL); w.b.drees@hum.leidenuniv.nl.
The winner of the ESSSAT Research Prize, Patricia Bennett, can be reached at: patbennett23@btinternet.com.

The winner of the ESSSAT Student Prize 2014 will be announced shortly on our website: www.esssat.org

The ESSSAT Research Prize and the ESSSAT Student Prize for 2014 will be presented during the Fifteenth European Conference on Science and Theology, in Assisi, Italy, April 30th – May 4th, 2014.

We are grateful to the Udo Keller Foundation "Forum Humanum" for sponsoring the Prizes. www.forum-humanum.org

15th European Conference on Science and Theology, Assisi, Italy: April 30th - May 4th, 2014

Introducing ECST XV Main Speakers

Christian Keysers

Christian Keysers is French and German and was born in Belgium. He did his PhD in St Andrews with David Perrett on the neural basis of face perception before moving to Parma (Italy) to work with Giacomo Rizzolatti on the Mirror Neuron System. He contributed to the discovery of auditory mirror neurons in primates and showed that the idea of mirror neurons also applies to our emotions and sensations using fMRI in humans. He then moved to Groningen, the Netherlands, where he became a full professor for the social brain.

In 2010, he moved to Amsterdam to become a department head at the Netherlands Institute for Neuroscience, a research institute of the Royal Dutch Academy of Arts and Sciences. He is an associate editor of the journals *Social Neuroscience* and *Social Cognitive and Affective Neuroscience* and *Philosophical Transactions B*. His work has been published in leading journals, including *science, neuron, trends in cognitive sciences, nature reviews neuroscience* and *current biology* and has been cited over 5000 times (h=30). He is also member of the Young Academy of Europe, received an ERC grant, and is author of the book *The Empathic Brain.*

Rita Nakashima Brock

Rita Nakashima Brock, Research Professor of Theology and Culture at Brite Divinity School and Founding Co-Director of the Soul Repair Center (*www.brite.edu/soulrepair*), holds a Ph.D. in philosophy of religion and theology and was a professor for 18 years. In 1997, she became Director of the Radcliffe Institute for Advanced Study at Harvard University, a fellowship program for distinguished scholars in the sciences, humanities, social sciences, law, public service, and arts. From 2001-2002, she was a fellow at the Harvard Divinity School and then an independent scholar, nonprofit director, and professional editor from 2002-2012. An award-winning author, her 2008 book, *Saving Paradise*, co-authored with Rebecca Parker, was selected by *Publisher's Weekly* as one of the best religion books of 2008 and was a finalist for the American Academy of Religion Award for Excellence in Constructive-Reflective Studies in Theology. Her most recent book is *Soul Repair: Recovering from Moral Injury After War*, co-authored with Gabriella Lettini.

Arne Öhman

Arne Öhman has held a professorship in psychology at Karolinska Institutet (KI), Stockholm, Sweden since 1993. Currently he is a senior professor and a professor emeritus at this institution. He finished his Ph. D. at Uppsala University in 1971, and he has held full professorships at the University of Bergen, Norway (1976-82) and at Uppsala University (1983-1992). He was an elected member of the Nobel Assembly at KI 1998-2003. He is also a member of the Royal Swedish Academy of Sciences, and Academia Europeia, and he is a foreign member of the Finnish Academy of Science and Letters. He has been a visiting scholar at the University of London psychiatry department, and the Department of Clinical and Health Psychology at the University of Florida Gainesville. The Academic year 2005 – 2006 he was an invited fellow at the Center for Advanced Studies, University of California, Palo Alto. Professor Öhman taught psychophysiology and health psychology at the University of Bergen, and clinical psychology at Uppsala University. Currently he teaches cognitive and affective neuroscience at KI. He was instrumental in getting started an integrated five-year training program for clinical and health psychologists with a biomedical profile at KI in 2007. Professor Öhman's research interests are centered on evolutionary perspectives on emotion, and particularly on the role of nonconscious processes, psychophysiological responses, and neural mechanisms in emotion. He has published more than 200 articles and chapters in edited books.

Gianfranco Cardinal Ravasi

Cardinal Ravasi, President of the Pontifical Council for Culture and President of the Pontifical Commission for Sacred Archeology, was born in Merate, Italy in 1942. He was ordained a priest of the archdiocese of Milan in 1966 and studied at the Pontifical Gregorian University and at the Pontifical Biblical Institute.

He taught Old Testament at the theological faculty of northern Italy. From 1989 to 2007 he served as prefect of the Ambrosian Library in Milan. He has written many books, articles for *L'Osservatore Romano* and *L'Avvenire* and hosted the television show *Frontiers of the Spirit.*

In 2007 he was appointed titular Archbishop of Villamagna in Proconsolari and president of the Pontifical Council for Culture. He was created and proclaimed Cardinal by Benedict XVI in 2010.

Since March 2012 he has been president of the cultural association *Casa di Dante* in Rome, dedicated to making the works of Dante

known throughout Italy and abroad. He is also a member of the Congregation for Catholic Education and the Pontifical Councils for Inter-religious Dialogue and for Promoting New Evangelization.

His academic interests include theology and science as well as theology and literature.

Jonas F. Kjellstrand

Jonas Kjellstrand is Senior Executive Adviser, SAS Institute. He has over 20 years' experience as an advisor on the intersection of technology, society and business. He frequently helps boards of directors and management teams understand the interdependencies between these three forces and how to manage their influence on the development of organizations. Jonas' global outlook and experience allow him to think from many different perspectives on issues and opportunities facing society and business based on technology. With his pragmatic approach he describes a world that is getting increasingly interconnected and complex.

Before joining SAS Institute Jonas worked as an analyst with Gartner and prior to that he spent several years as a fellow at Institute for the Future, a Silicon Valley IT research institute focusing on global trends. Before that Jonas worked in the bank/finance and insurance industry.

Jonas was educated at Stanford Graduate School of Business and holds an MBA in IT from Stockholm School of Economics. Very few know Jonas started in life as an airline pilot and flew his first helicopter as a 12 year old.

Ramsey Centre Conference 2014: Special Divine Action

2014 IRC Conference, St Anne's College, Oxford, 13-16 July

Background

Is there special divine action in the world, beyond the purported effects of a divine first cause? Beliefs about particular kinds of special divine action (such as incarnation, inspirations, grace, miracles, providence, and resurrection) have had an incalculable impact on civilisation, including art, ethics, institutions, music, literature, philosophy, theology, the perception of nature, and what human beings can and should hope for. But if there is special divine action, what is such action like and how would we know? Are there particular ways of thinking about the world that make such actions probable, possible or impossible? How does contemporary research in philosophy, theology, and science bear on these questions? What tools of scholarship can and should be used? Are there advantages and disadvantages, from the point of view of knowledge and human flourishing, of taking a stance for or against the possibility of special divine action? Might there be advantages and disadvantages to various modes of special divine action from a divine perspective?

This conference aims to address these questions anew from a wide range of perspectives, especially in the light of recent developments in science, philosophy and theology. Besides plenary speakers and panel discussions, there will be up to fifty short papers presented. The conference will begin at 4pm on Sun 13 July (registration from 2pm) at St Anne's College, Oxford, and finish with dinner on Wed 16 July, with final departures after breakfast on Thu 17 July 2014.

For further details, please contact the Ian Ramsey Centre administrator: irc.admin@theology.ox.ac.uk

CALL FOR PAPERS

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

Those wishing to contribute a paper should submit a title, a 200 word abstract, and institutional affiliation, by email to the Ian Ramsey Centre administrator:

irc.admin@theology.ox.ac.uk

ESSSAT News & Reviews is the official publication of ESSSAT (European Society for the Study of Science and Theology), a scholarly organisation, based in Europe, which aims to promote the study of the relationships between the natural sciences and theological thought.

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