

## **JOHN POLKINGHORNE**

### **Guest Editorial**

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#### **The Future of the Science and Religion Debate**

The debate has been stirred up recently in the public mind by the provocative condemnations of religion delivered by the likes of Richard Dawkins. Typically these critics pay no attention to the extensive work done on the topic on recent years by honest truth-seekers of a religious persuasion. Instead, religion is presented as if it were entirely the preserve of a mindless fundamentalism. An important component of the future science and religion debate will be the demonstration that theology is as much concerned with the search for truth attainable though motivated belief as is the case in science. In fact, if we can only seize the opportunity, the high public profile of our critics offers the prospect of a wide audience for a coolly reasonable analysis of how religion and science complement each other, rather than being in mutual conflict.

Meanwhile, an important development has been taking place in science itself. It has become possible to investigate systems of moderate complexity, treated as totalities rather than their being reduced to collections of simpler components. None of these systems so far is anything like as complicated as a single living cell and at present complexity theory is at the natural history level of the study of specific examples, rather than the scientific level of the attainment of an overall theoretical understanding. Nevertheless, even at this preliminary stage, intriguing discoveries have been made. Complex systems are found to possess astonishing powers of self-organisation that would never have been guessed simply from considering constituent interactions. A simple example is provided by Benard convection. Fluid is contained within two horizontal plates, the lower of which is maintained at a higher temperature than the upper. In certain circumstances, the convective motion of the hot fluid self-organises into a highly regular pattern of hexagonal convection cells, involving the correlated motion of trillions of molecules. More is certainly different; the whole exceeds the sum of its parts. There must be a deep theory lying beneath all this. What this is is not yet known, but its general character is not beyond surmise. It will surely be characterised by two foundational concepts: holism and information. The role for the former is clear enough. As for the latter, by information I mean something like the specification of complex dynamical patterns of behaviour, such as that seen in Benard convection. Much work still remains to be done, but I believe that it is reasonable to suppose that by the end of the twenty-first century, some suitably defined concept of information will have taken its place alongside energy in the fundamental vocabulary of physical science.

The scientific imagination is being enlarged in a way that is congenial to all who oppose a crass physical reductionism. One might even dare to say that the

dualities of parts/wholes and energy/information bear a faint but promising analogical relation to the much more profound and puzzling duality of matter/mind. There is real promise here for the future of the science and religion debate.

What other future developments might one hope for? One is an enlargement of the scope of the dialogue to give a better balanced participation of all the relevant sciences. Physics and evolutionary biology have provided the staple for much of the discussion so far, and they will certainly remain important. Yet the conversation with the human sciences is potentially even more significant. Great advances are currently being made in neuroscience, but they are still mostly at the level of understanding the details of microprocesses. So far there does not appear to be ready access to conceptual advances at a level of sufficiently general scope to be really useful for interdisciplinary dialogue. Much has been done to identify the neural pathways by which the brain processes sensory inputs, but there still seems to be a vast gap yawning between this and the simplest mental experiences, such as seeing red or feeling pain. The problem of qualia is a hard problem indeed. More promising for the future, it seems to me, are the contributions that psychology could make to the area of theological anthropology. I hope that much more work will be done in the future on this aspect of the science and religion dialogue.

Finally, I turn to a rather different, but extremely important, area of enquiry. For the scientifically minded, one of the most pressing problems for theology is how to understand the diversity of the great world faith traditions. They display great stability in their historic constituencies. They are obviously all seeking to speak about human encounter with what one may call the sacred dimension of reality. But what they have to say about that encounter is often strikingly and perplexingly different between them. This does not apply simply to the foundational beliefs of the different traditions – the status and authority of Jesus Christ, the Torah, or the Qu’ran, for example – but also to general metaphysical ideas. Take the understanding of human personhood. Is it of unique and enduring individual significance (so say the three Abrahamic faiths), or something that is recycled through reincarnation (so says Hinduism), or is it fundamentally an illusion from which to seek release (as Buddhism maintains)? These cannot be three culturally different ways of expressing the same idea. They are claims fundamentally in conflict with each other.

These clashes in belief between the world faiths contrast strikingly with the universal reception of scientific ideas. Modern science may have started originally in Western Europe in the sixteenth century, but now it is worldwide. Stop someone in the street in London, Delhi or Tokyo and ask them what matter is made of and, provided you have chosen a suitably well-informed person, you will undoubtedly receive the answer ‘quarks and gluons’. Stop three people in the street in the same three cities and ask them the religious question of what is the nature of ultimate reality, and you are very likely to receive three very different responses.

The seemingly sectarian character of religion contrasts strikingly with the universal character of science. For the scientist this is a troubling recognition. Does it mean that, after all, religion is no more than culturally-shaped opinion? Moreover, the multifaith character of modern society means that the issue raised is one we cannot ignore. In the global village in which we now live people of faith are our neighbours and in many cases we can see the spiritual authenticity of their lives.

I believe that this is one of the most pressing problems facing theology today. As part of tackling it, a new phase of serious dialogue is just beginning between the world faiths. It will be a long and difficult conversation, often painful since fundamental convictions will be at stake. It will not be useful to start at the centre, as if yesterday we discussed Jesus, today we discuss the Torah, and tomorrow it will be the turn of the Qu'ran. Such direct confrontation at the start would be too threatening, so that defences instantly went up all round and no real meeting took place. Yet the discussion must concern serious issues, so that it is not just a kind of polite tea party which does not expect to get anywhere significant. The science and religion debate can furnish one possible forum for serious but non-threatening encounter, as representatives of the faiths meet to consider how they can relate the insights of modern science to their traditional understandings. In the 1990s just such meetings were organised by the Center for Theology and the Natural Sciences at Berkeley. Four groups of people with the same scientific background but differing faith commitments were formed. I was part of the physics group. It was not easy work, but it was worthwhile and some progress was made in mutual understanding. There remains much more to do. I think this is one of the most promising and significant developments awaiting us in the future of the science and religion debate.

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