

Scientific cosmology and theology: two separate worlds**By Helge Kragh****Professor of History of Science****Aarhus University, Denmark**

In his invitation to respond in this journal to theology in relation to cosmology, Theodore Walker asks whether or not scientific cosmology should include theology. Moreover, he takes cosmology (but not, perhaps, scientific cosmology?) to be “about the WHOLE of reality.” I would like to offer some brief remarks on the issue raised by Walker.

First, much of the discussion between physical cosmology and theology is of a semantic nature in so far that it depends crucially on the meanings of the terms “cosmology” and “theology.” Physicists and astronomers attempting to understand the universe operate, implicitly or explicitly, with somewhat different meanings of the concept of “the universe.” Yet these meanings have in common that they refer to what can be known scientifically, that is, they are based on theories that ultimately are grounded in observation and experiment.

By far most of the universe may forever be beyond the optical horizon, and hence be unobservable even in principle, a situation which occurs in an even more radical version in scenarios of the multiverse. But even in these cases cosmologists will base their hypotheses about the universe on testable theories, observations and various simplicity principles (such as

the cosmological principle). They will insist that their hypotheses have testable consequences, if not instantly or easily.

It is just not true that (scientific) cosmology is about the whole of reality, although one may of course choose to use this all-encompassing domain for an extended meaning of the term cosmology. It is indeed possible, as numerous philosophers and theologians have argued through the ages, that the world that is amenable for scientific investigation is only part of a larger non-physical world to which we have no empirical access. This is a basic postulate in theology, and within a non-theistic context it has been argued by, among others, Milton Munitz in his book *The Question of Reality* (1990). Even so, should such a boundless non-physical universe exist it would by its very nature be unknowable and outside the domain of science, hence of no interest to scientists qua scientists.

Walker's question, if scientific cosmology should include theology, is normative and for this reason of comparatively little interest. What is more important is the corresponding factual question, namely, whether scientific cosmology can include theology. If it cannot, there is little point in arguing that it should. As far as I can see, there is no way in which theology can be part of physical or scientific cosmology as ordinarily understood, which does not preclude that this kind of cosmology can include issues that are theologically relevant (or that theology can be cosmologically relevant). There are several such border-line issues, where the origin or so-called creation of the universe is probably the best known and most discussed. It needs to be pointed out that cosmological border-line questions such as this one are not only or necessarily questions that border to theology or invite inclusion of theism. They are admittedly of theological

relevance, but they are also of philosophical, sociological and psychological relevance.

There are undoubtedly questions in or related to cosmology about which we do not know whether they can be answered scientifically at all. But this does not in itself open the door for God as a legitimate explanatory cause in cosmology or any other science. The old metaphysical question of why there is something rather than nothing makes good theological sense and has traditionally been discussed within a theological context, but there are also modern cosmologists who consider it the ultimate question of scientific cosmology. I believe they are wrong. Absolute nothingness – something entirely different from the physicists' vacuum – cannot possibly be understood on the basis of science.

From this it does not follow either that it is meaningless or that it belongs to the realm of theology, for there are philosophers, such as Bede Rundle in a book of 2004, who argue that the question of why there is something rather than nothing (the title of his book) can be answered satisfactorily on a non-theistic philosophical basis. It should also be kept in mind that to ask about “the proper place of theology in cosmology” (Walker) seems to presuppose a consensus view of what theology is and how it relates to the nature studied by scientists. But theologians and philosophers of religion entertain widely different ideas about God, and they do far from agree upon these questions. For this reason alone it is difficult to see how theological perspectives can be of much help in clarifying some of the border-line problems of cosmology. For example, while the universe of the standard big-bang model is finite in time, according to some alternatives (steady state, cyclic, and pre-big-bang theories) the universe is temporally infinite in the past. Whereas the standard model is often considered support of, or at least

congruent with, the Genesis of Christian theology, since the middle ages many theologians have accepted that divine creation does not rule out an eternal universe. According to some theologians, the question of whether the world had a beginning or not is irrelevant for theology, while others emphasize that Christian doctrines are also cosmic claims that say something about the physical universe. With such a diversity of opinions there seems to be no advantage of including theology in the kind of cosmology cultivated by physicists and astronomers.

To summarize my argument, scientific cosmology should not include theology, and the basic reason is that it cannot possibly do so. The only way would be to accept a drastic change and extension of the meaning of cosmology – or to return to its original, pre-scientific meaning. Theology and cosmology (and the physical sciences generally) are not contradictory, but they are so different in their methods, domains and aims that an integrated cosmo-theology will have nothing to offer either theology or cosmology. It would be a monstrous disaster, or perhaps just another sterile academic exercise.

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