

punishment, and so forth. Therefore, social positions, social roles, and social interactions need to be accounted for in any interpretation of the relationship between religion and science. Society creates all elements of culture, but the interpretations of those elements differ and give rise to communities that accept one interpretation and reject another. (Another important distinction that would help in this discussion is between spontaneous and intentional social and cultural changes, including hybridization.)

The discussion that follows Hefner's lectures is devoted to: Thoughts, Science, Religion, Ethics, Human Values, and Spiritual Quest. The individuals asking questions or offering comments are identified by their background or expertise, and Hefner has edited his responses, in which he clarifies the concepts and ideas presented earlier.

This publication reflects an attempt by Hefner to clarify his proposed concept of religion-and-science and invite his readers to further reflect on the process of a spiritual quest for meaning.

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Ultimate Explanations of the Universe. By Michael Heller. Berlin-Heidelberg: Springer-Verlag, 2009. 216 pages. \$69.95.

Professor Michael Heller is a famous Polish physicist, cosmologist, philosopher, and theologian. This, his latest book, may be deeply inspirational for a reader struggling to answer questions about the universe and its origins.

The introductory first chapter deals with the quest for an ultimate explanation of the origins and function of the universe. The author observes that every scientist has natural aspirations to grasp and know reality in the best possible way. Cosmology cannot go beyond empirically based methods for explaining the universe. However, because cosmology in a sense talks about a whole, this adds a new perspective of seeing things "from the outside" and consequently allows for dissertations metaphysical or even theological in nature. The "ultimate explanations" thus require drawing the boundaries of the method used by a scientist at the particular moment.

In the first part, "Models," Heller presents groups of cosmological models built in accordance with the achievements of relativistic cosmology, inflationary cosmology, and quantum cosmology. He considers them in the context of the question about the origins of the world. The presentation of contemporary cosmological models dealing with the genesis of the universe informs the reader not only of the condition of recent research conducted by cosmologists but also of their main aim—that is, producing a coherent cosmological theory. Moreover, Heller makes an effort to single out the philosophical level present in the given cosmological theories that the model creators draw on. According to Heller, the special care so as not to overstep the competencies of cosmology as an empirical science is a postulate that has still been taken for granted by cosmologists.

In the second part, "Anthropic Principle and Other Universes," Heller raises the issue of multiple universes, whose existence is acceptable according to some

cosmological theories and interpretations of quantum mechanics. This idea emerged in connection with the so-called anthropic principles. Thus, the author tackles contemporary questions such as: What made the universe “life-friendly”? The idea of multiple universes seems to be a rational attempt at explaining the universe by means of the universe itself. However, Heller wonders whether the multiverse idea is still science. He treats with reserve attempts to challenge scientific method in such a way that the multitude of universes incomprehensible by definition could be treated as a proposal of a “new science” going beyond empirical knowledge. At the same time Heller admits that rationality limits do not coincide with the limits of scientific method.

In the third section, “Creation of the Universe,” Heller analyzes the development of and changes in the understanding of the theistic concept of creation from the Old Testament book of Genesis to contemporary theological vision developing in accordance with cosmological data. Consequently, he reexamines the relationship of natural sciences and theology and looks for a holistic vision of the universe. The above-mentioned analyses result from Heller’s conviction that both images of the world, scientific and theological, fall within the limits of rationality, even though their methodology is very different. In the conclusion of this section Heller argues that a rational approach to reality means that questions should be asked as long as there remains something to be explained. Thus no scientific theory, even if it is the “ultimate theory,” can answer Leibniz’s famous question, Why there is something rather than nothing?

The book is supplemented with a short epilogue, “Pseudo-Dionysius’ Lesson.” Pseudo-Dionysius is a representative of the so-called negative theology, whose supporters believed that God is transcendent to such a degree that it is impossible to say anything positive about God. In the context of Pseudo-Dionysius’ theories, Heller points out serious limitations to human rationality. However, he believes that these limitations do not force us to adopt human criteria of what can be perceived as meaningful. According to Heller, there is also Mystery, which requires from us an open-minded attitude that allows for crossing the limits of what has so far been recognized as rational.

The book is an interesting review of contemporary scientific and philosophical knowledge dealing with the creation of the universe. Heller takes great care to distinguish the differences between scientific hypotheses and facts established through observation. Reading this book therefore provides the reader with thorough knowledge although it is conveyed in a popular manner. At the same time it offers food for thought of a philosophical nature. Contrary to its title, the book does not claim the right to give an ultimate explanation of the universe. Heller strongly recommends accepting many ultimate explanations, which in turn leaves the question of explaining the universe unanswerable and one that requires gaining new knowledge and looking for new interpretations. “Ultimate” explanations are in fact only temporary.

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