

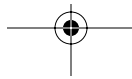


Preface

In his *Scientists as Theologians* John Polkinghorne issued an “open invitation” for theologians to become more involved in the science-religion conversation. The present work is, in part, a response to that invitation. This collection of essays is based on research for my course *Frontiers of Science and Faith*, taught at Gordon-Conwell Theological Seminary, which was a 1994-1995 winner in the John Templeton Foundation’s science and religion model course program. Participating in the Templeton Foundation’s program reignited old interests in questions of theology and the natural sciences that dated back to my undergraduate days as a physics major at Duke University in the late 1960s. Most of the essays in this book were written during a sabbatical leave spent in Cambridge, England.

The purpose of this book is to reflect theologically on certain cutting-edge issues in modern science. A basic presupposition of these essays is that the results of modern science, properly understood, are no threat to Christian faith. Christian faith and scientific method are understood to be *complementary* ways of knowing God’s creative work, each having its distinctive ways of knowing, methods and areas of validity. I also believe that a number of the areas of scientific research that are explored here point to the limitations of the scientific method for answering humanity’s deepest existential questions, and call for a new opening of the conversation between the scientific and religious communities.

Chapter one, “Genesis 1:1 and Big Bang Cosmology,” reviews recent biblical scholarship relating to the opening words of Genesis and current scientific discussions of the “big bang.” It is argued that Genesis 1:1 does indeed refer to a real beginning of the universe in time and is consistent with scientific under-





standings of the universe's beginning.

Chapter two, "Quantum Indeterminacy and the Omniscience of God," explores the question, does quantum indeterminacy in nature require a revision of or abandonment of classical theism's understanding of the omniscience of God? The proposal of Arthur Peacocke for a "self-limited omniscience" on the part of God is examined, and it is concluded that quantum physics does not require an abandoning of the traditional notion of divine omniscience.

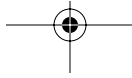
Chapter three, "The 'Copenhagen' Interpretation of Quantum Mechanics and 'Delayed-Choice' Experiments: New Perspectives on the Doctrine of Predestination," explores possible implications of recent experiments in quantum physics that seem to indicate that the "past" is not fully determined until the experimental measurements are completed. It is suggested that these experiments provided a framework for understanding the doctrine of predestination in a more dynamic way.

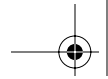
Chapter four, "Theological Reflections on Chaos Theory," begins with a survey of the main features and historical origins of the branch of physics now known as chaos theory. It is argued that chaos theory provides new ways of understanding the role of chance in God's providential interaction with the world.

Chapter five raises the question "Does Gödel's Proof Have Theological Implications?" A brief sketch of the life of logician Kurt Gödel is presented, and the salient points of his celebrated "incompleteness theorem" are discussed. I argue that Gödel's proof does not provide a warrant for epistemological relativism but does imply that the notion of truth cannot and should not be reduced to the notion of provability.

Chapter six, "Artificial Intelligence and the Christian Understanding of Personhood," argues that the progress of artificial intelligence research programs challenges Christian theologians to recover relational (as opposed to primarily functional) understandings of the person, and likewise challenges scientists in this field to reflect more critically on the ethical dimensions of their work. The scientific method cannot supply the moral framework needed to address the ethical questions posed by artificial intelligence research.

Chapter seven, "Is 'Progressive Creation' Still a Helpful Concept?" reviews scientific and theological developments since the 1954 publication of Bernard Ramm's *Christian View of Science and Scripture*. I conclude that Ramm's concept of "progressive creation," in which God is understood to





have created through a variety of means over long periods of time, is still a helpful way of relating the biblical texts concerning origins to the history of life on earth.

Chapter eight, “The Anthropic Principle—or ‘Designer Universe’?” examines discussions of the “anthropic principle,” a term often used to call attention to the fact that the existence of life in the universe is sensitively dependent on the remarkably “fine-tuned” values of fundamental constants in physics and cosmology. The evidence of such fine-tuning, I suggest, is better explained by the hypothesis of intelligent design than by appeals to an “anthropic principle” or to multiple universes.

Chapter nine, “The Search for Extraterrestrial Intelligence and the Christian Doctrine of Redemption,” examines the history of Christian and pre-Christian speculation on the question of intelligent beings elsewhere in the universe. I then argue that Paul’s Christology and soteriology expressed in Colossians 1:19-20 are sufficiently comprehensive to account for the redemption of any such beings anywhere in the universe, if in fact such beings exist and are in need of redemption.

Chapter ten, “Cosmic Endgame: Theological Reflections on Recent Scientific Speculations on the Ultimate Fate of the Universe,” interacts with scientific scenarios developed by physicists Freeman Dyson, Frank Barrow and John Tipler. It is contended that these scenarios do not succeed in escaping the “thermodynamic pessimism” of the nineteenth century and its predictions of the final “heat death” of the universe. The essay concludes that ultimate hope for humanity cannot be found in the laws of physics alone but must be derived from divine revelation.

I wish to thank my friends and colleagues Perry Phillips and Tony Castro for their helpful discussions of many of the issues in this book, as well as my students and colleagues at Gordon-Conwell, who have helped with their insights and suggestions. I also wish to thank the editors of *Science and Christian Belief* and *Perspectives on Science and Christian Faith* for permission to reprint several of the articles that are contained in this volume.

