ANNALS OF THE NEW YORK ACADEMY OF SCIENCES

Volume 950 December 2001

COSMIC QUESTIONS

Editor JAMES B. MILLER

This volume is the result of a conference entitled **Cosmic Questions**, sponsored by the AAAS Program of Dialogue on Science, Ethics and Religion, held April 14–16, 1999 in Washington, D.C.

CONTENTS	
Preface. By JAMES B. MILLER	ix
Cosmic Questions: An Introduction. By JOEL R. PRIMACK AND NANCY ELLEN ABRAMS	1
Part I. Did the Universe Have a Beginning?	
The Cultural, Historical, and Scientific Background	
Athens and/or Jerusalem: Cosmology and/or Creation. By JAROSLAV PELIKAN	17
Scientific Cosmology Meets Western Theology: A Historical Perspective. By OWEN GINGERICH	28
The Big Bang as Scientific Fact. By S.M. FABER	39
A Recipe for Primordial Soup. By EDWARD (ROCKY) KOLB	54
Before the Beginning: A Debate	
Eternal Inflation. By ALAN H. GUTH	66
Inflation and the Beginning of the Universe. By NEIL TUROK	83
Does It Matter Religiously?	
The Idea of a "Beginningless" World-Process: Perspectives from the Hindu Tradition. By ANINDITA N. BALSLEV	97
Did God Create Our Universe? Theological Reflections on the Big Bang, Inflation, and Quantum Cosmologies. By ROBERT JOHN RUSSELL	108

Part II. Was the Universe Designed?

Cosmic Evolution and Design	
The Meaning of "Design." By JOHN LESLIE	128
Cosmology, Life, and the Anthropic Principle. By JOHN D. BARROW	139
The Argument from Design: What Is at Stake Theologically? By ANNA CASE-WINTERS	154
Is the Universe Designed?	
A Universe with No Designer. By STEVEN WEINBERG	169
Understanding the Universe. By JOHN POLKINGHORNE	175
An Exchange between Steven Weinberg and John Polkinghorne	183
Religious Reflections on Design	
Is the Universe Designed? Yes and No. By DAVID RAY GRIFFIN	191
Cosmic Design from a Buddhist Perspective. By TRINH XUAN THUAN	206
What Did the Mystic Say to the Hot Dog Vendor? Six Neo-Kabbalistic Metaphors for Cosmic Design. By LAWRENCE KUSHNER	215
Part III. Are We Alone?	
Life in the Universe	
Are We Alone? Lessons from the Evolution of Life on Earth. By SARA VIA	225
Searching for Life in the Universe: Lessons from the Earth. By KENNETH H. NEALSON	241
Homes for Extraterrestrial Life: Extrasolar Planets. By DAVID W. LATHAM	259
What is SETI? By JILL C. TARTER	269
Intelligent Life in the Universe: A Debate	
Not Likely. By IRVEN DEVORE	276
The Outlook for Cosmic Company. By SETH SHOSTAK	289
Theological Reflection	
Theology after Contact: Religion and Extraterrestrial Life. By JOHN F. HAUGHT .	296
Afterword	
Cosmic Questions and the Relationship between Science and Religion. By JAMES B. MILLER	309
Annotated Bibliography	31
Index of Contributors	32