

TABLE OF CONTENTS

EDITORIAL FOREWORD	ix
PREFACE	xi
INTRODUCTION	xiii
ACKNOWLEDGMENTS	xxxvii
PART I Metascience: Philosophical Analysis of Scientific Truth	
1 The Problem of Physical Explanation	3
2 Probability and Causality in Quantum Physics	21
3 Meaning and Scientific Status of Causality	39
4 Methodology of Modern Physics	52
5 Metaphysical Elements in Physics	90
6 Is the Mathematical Explanation of Physical Data Unique?	114
PART II Fundamental Problems of 20th Century Physics	
7 Probability, Many-Valued Logics and Physics	125
8 On the Frequency Theory of Probability	143
9 Can Time Flow Backwards?	158
10 Causality in Quantum Electrodynamics	175
11 Relativity: An Epistemological Appraisal	186
12 Philosophical Problems Concerning the Meaning of Measurement in Physics	199
13 Bacon and Modern Physics: a Confrontation	211

PART III Science and Human Affairs

14	Western Culture, Scientific Method and the Problem of Ethics	225
15	Physical versus Historical Reality	241
16	The New View of Man in His Physical Environment	165
17	Science and Human Affairs	283
18	The New Style of Science	295

PART IV Issues Beyond the Boundaries of Present Science

19	Phenomenology and Physics	317
20	Physics and Ontology	329
21	Faith and Physics	333
22	Metaethics	339
23	The Pursuit of Significance	351
24	Note on Quantum Mechanics and Consciousness	373
25	Religious Doctrine and Natural Science	375
	LIST OF PUBLICATIONS	391
	INDEX	401