

TABLE OF CONTENTS

PREFACE	V
PREFACE TO THE ENGLISH EDITION	IX
INTRODUCTION	1
CHAPTER I/SPACE AND TIME	7
1. Formulation of the Problem	8
2. The Special Theory of Relativity	10
3. The Structure of Physics in the Theory of Relativity	22
4. Space and Time in the Philosophy of Kant	25
5. Critique of the Concept of Time in the Theory of Relativity	30
CHAPTER II/EUCLIDEAN AND RIEMANNIAN GEOMETRY	37
1. Formulation of the Problem	38
2. The Foundation of Euclidean Geometry	41
3. The Theory of the Metric Field	61
4. The Foundation of a Physical Geometry	71
5. Summary	82
CHAPTER III/THE QUANTUM-MECHANICAL MEASUREMENT PROCESS	88
1. The Uncertainty Relation	89
2. Quantum Theory	93
3. The Measuring Process	98
4. The Cut	106
5. The Function of the Observer in Quantum Theory	112
CHAPTER IV/THE CONCEPT OF SUBSTANCE	114
1. The Concept of Substance in Classical Physics	115
2. The Concept of Substance in Quantum Theory	119
3. Objectifiability	122
4. Critique of the Concept of Substance in Quantum Theory	129

CHAPTER V/THE CAUSAL LAW	133
1. The Concept of Causality in Philosophy	134
2. The Concept of Causality in Physics	138
3. The Invalidity of the Causal Law in Quantum Theory	142
4. The Problem of Hidden Parameters	147
CHAPTER VI/LOGIC AND QUANTUM LOGIC	156
1. Formulation of the Problem	157
2. Classical Logic	160
3. The Logic of Commensurable Properties	172
4. The Logic of Incommensurable Properties	177
5. Probability and Quantum Logic	192
6. Summary	201
BIBLIOGRAPHY	205
INDEX	208