

## PART II: CASE STUDIES

1. <i>17TH-CENTURY MECHANICS</i>	47
MAURICE FINOCCHIARO / Galileo's Copernicanism and the Acceptability of Guiding Assumptions	49
B. J. T. DOBBS / Newton's Rejection of the Mechanical Æther: Empirical Difficulties and Guiding Assumptions	69
BRIAN S. BAIGRIE / The Vortex Theory of Motion, 1687–1713: Empirical Difficulties and Guiding Assumptions	85
2. <i>CHEMISTRY FROM THE 18TH TO THE 20TH CENTURIES</i>	103
C. E. PERRIN / The Chemical Revolution: Shifts in Guiding Assumptions	105
SEYMOUR H. MAUSKOPF / Molecular Geometry in 19th-Century France: Shifts in Guiding Assumptions	125
A. J. ROCKE / Kekulé's Benzene Theory and the Appraisal of Scientific Theories	145
WILLIAM BECHTEL / Fermentation Theory: Empirical Difficulties and Guiding Assumptions	163
ARTHUR M. DIAMOND JR. / The Polywater Episode and the Appraisal of Theories	181
3. <i>19TH-CENTURY PHYSICS</i>	199
JAMES R. HOFMANN / Ampère's Electrodynamics and the Acceptability of Guiding Assumptions	201
DEBORAH G. MAYO / Brownian Motion and the Appraisal of Theories	219
RONALD LAYMON / The Michelson – Morley Experiment and the Appraisal of Theories	245

TABLE OF CONTENTS

vii

4. <i>RECENT GEOLOGICAL THEORY</i>	267
HENRY FRANKEL / Plate Tectonics and Inter-Theory Relations	269
RICHARD NUNAN / The Theory of an Expanding Earth and the Acceptability of Guiding Assumptions	289
5. <i>20TH-CENTURY PHYSICS</i>	315
JOHN M. NICHOLAS / Planck's Quantum Crisis and Shifts in Guiding Assumptions	317
HENK ZANDVOORT / Nuclear Magnetic Resonance and the Acceptability of Guiding Assumptions	337
MICHAEL J. HONES / Electroweak Unification and the Appraisal of Theories	359
Index of Thesis Citations and Evaluations	377