

Contents

Preface, ix

Acknowledgments, xiii

Introduction, xv

Part One **Interpretations of Scientific Discovery and Creativity**

- 1 Investigation, Discovery, and Experimental Practice, 3
- 2 The Three Scales of the Investigative Pathway and the Materials for Their Reconstruction, 11

Part Two **Phases in the Lifetime Career**

- 3 Apprenticeship and the Achievement of Independence, 27
- 4 Mastery of a Domain, 43
- 5 Is Distinction Achieved or Conferred?, 56
- 6 Maturity and the Dilemmas of the Aging Scientist, 72

Part Three Episodic Rhythms within an Investigative Life

- 7 Complicating the Pathway Metaphor, 93
- 8 Complicating the Episodic Rhythms, 103
- 9 Predictability and Unpredictability, 122

Part Four The Fine Structure of Experimental Investigation

- 10 The Interplay between Thought and Operation, 149
 - 11 Flashes of Insight and Moments of Discovery, 171
- Conclusion: The Narrative Representation of
Investigative Pathways, 189
- Afterword: F. L. Holmes and the History of Science
by Jed Z. Buchwald, 193
- Notes, 203
- Index, 215