### Origins and Components of Behaviorology— Second Edition

### Stephen F. Ledoux, Ph.D.

This hardcover edition was first published by ABCs (Applied Behaviorology Consultants) of Canton, NY, USA, in 2002. (Improved and reprinted in 2011 for US\$100 retail per copy.)

ISBN 978-1-882508-08-2

[1-882508-08-4]

Printed in the United States of America.



**Prospective cataloging-in-publication data** (prospective call number based on the Library of Congress classification of the 1992 version of this book whose LCCCN was 92–97400):

Ledoux, Stephen F., 1950-.

Origins and components of behaviorology—second edition / by Stephen F. Ledoux, with contributions by Lawrence E. Fraley and David R. Feeney and Glenn I. Latham.

xxxII, 358 p. ill. 26 cm.

Includes bibliographical references, full—outline contents, foreword, two prefaces, appendices, annotated bibliography, index, and afterword.

- 1. Behaviorism. 2. Human behavior. 3. Operant behavior. 4. Behavior modification. 5. Verbal behavior. 6. Behaviorology [Future primary subject heading?].
- I. Title. II. Fraley, Lawrence E., 1936–. III. Feeney, David R., 1966–. IV. Latham, Glenn I., 1931–2001.

ISBN 1-882508-08-4 [978-1-882508-08-2] (acid-free paper)

BF199.L4 2002

99-73161

### Library of Congress Catalog Card Number: 99-73161

This edition is printed on acid–free paper to comply with the permanent paper z39.48 standard of the American National Standards Institute.

Improved printing number: >10 9 8 7 6 5 4 3 2 Nearest year of printing: >2050 45 40 35 30 25 20 15 2010

### Copyright Notice/Warning:

Copyright © 2002 by Stephen F. Ledoux and Lawrence E. Fraley and David R. Feeney and Glenn I. Latham, as per paper authorship. All rights reserved. This book and its contents are protected by the federal copyright laws of the United States of America. Reproduction or copying of these materials, by *any* means whatsoever, in whole or in part, without the express, hard—copy, written permission of the copyright holder(s) is prohibited and may subject the violator(s) to civil sanctions, criminal penalties, or both. Permission to reprint individual papers for worthy purposes is easy to obtain by writing the author(s) or ABCs. \$\frac{1}{2}\$

# Contents

## **Summary Contents**

æ	Full–Outline Contents vii
)ķ	Dedication xvii
æ	Acknowledgments xviii
æ	Preface to the 1997 Edition xix
æ	On This Book, Typography, and Interests / Orders / Other ABCs Books xxiv
ð <b>k</b>	Foreword to the 1992 Edition xxv By Robert E. Crow
æ	Preface to the 1992 Edition xxvii
1	An Introduction to the Origins, Status, and Mission of Behaviorology: An Established Science with Developed Applications and a New Name 3
2	An Introduction to the Philosophy Called Radical Behaviorism 25
3	Origins, Status, and Mission of Behaviorology 33 Seven chapters by Lawrence E. Fraley and Stephen F. Ledoux
æ	Quoted (B.F. Skinner) 170
æ	A Small Selection of Photographs 171
4	Behaviorology Curricula in Higher Education 173
5	Behaviorology in China: A Status Report 187
6	Increasing Tact Control and Student Comprehension through such New Postcedent Terms as Added and Subtracted Reinforcers and Punishers 199
7	Multiple Selectors in the Control of Simultaneously Emittable Responses 205
æ	Quoted (Tiba stationary header) 242
8	Successful Smoking Control as an Example of a Comprehensive Behaviorological Therapy 243

- 9 Creative Life-style Management Through On-line and Real-time Application of the Behaviorological Education Practices of Precision Teaching ... 259 By David R. Feeney
- 🤻 Quoted (L.E. Fraley & S.F. Ledoux) ... 296
- 10 China Through the Eyes of a Behaviorologist ... 297 By Glenn I. Latham
- 11 Appendices ... 303
- Representation Quoted (L.E. Fraley & S.F. Ledoux) ... 318
- \* A Little About the Authors ... 319
- ₹ Selected and Occasionally Annotated Bibliography ... 321
- ₹ Index ... 327
- Reader's Notes ... 336
- 12 Afterword ... 337 \$

## Note to Professors

Aset of study questions for each paper in this book is available to help you teach your students about some history and components of the behaviorological science and technology discipline (regardless of which name is used for this discipline—see the *Afterword*, after the Index at the end of the book). Each set of study questions guides students through most major points as they focus on each paper. A set of quizzes—one for each paper, and based on the answers to the study questions—is also available. Contact the publisher or any of the authors for details.

### Full-Outline Contents

Dedication ... xvii Acknowledgments ... xviii Preface to the 1997 Edition ... xix The Papers ... xx Increasing Tact Control and Student Comprehension Through such New Postcedent Terms as Added and Subtracted Reinforcers and Punishers ... xx Multiple Selectors in the Control of Simultaneously Emittable Responses ... xxi Successful Smoking Control as an Example of a Comprehensive Behaviorological Therapy ... xxi Creative Life-style Management Through On-line and Real-time Application of the Behaviorological Education Practices of Precision Teaching ... xxi China Through the Eyes of a Behaviorologist ... xxii Appendices ... xxii Authorship ... xxii Reference Note ... xxii Conclusion ... xxiii  $oldsymbol{O}$ n This Book, Typography, and Interests / Orders / Other ABCs Books  $\dots$  xxiv  $\emph{F}$ oreword to the 1992 Edition ... xxv Preface to the 1992 Edition ... xxvii The Papers ... xxvii An Introduction to the Origins, Status, and Mission of Behaviorology: An Established Science with Developed Applications and a New Name ... xxviii An Introduction to the Philosophy Called Radical Behaviorism ... xxviii Origins, Status, and Mission of Behaviorology ... xxviii Chapter 1: Introduction ... xxix Chapter 2: The Evolution of the Concept of Behaviorology ... xxix Chapter 3: Issues Driving the Independence Movement ... xxix Chapter 4: The Transition Period: Organizing the Discipline and Developing its Infrastructure ... xxix Chapter 5: The Continuing Debate: Reactions from the Behavioral Community at Large ... xxix Chapter 6: Interdisciplinary Context: A Cultural Role for the New Discipline ... xxx Chapter 7: Conclusion ... xxx Authorship history ... xxx Behaviorology Curricula in Higher Education ... xxx Behaviorology in China: A Status Report ... xxx

```
Design and Benefits ... xxxi
  Summary ... xxxi
oldsymbol{A}n Introduction to the Origins, Status, and Mission of Behaviorology: An
  Established Science with Developed Applications and a New Name ... 3
  What is Behaviorology? ... 3
  Where Does Behaviorology Come From? ... 4
    Science and Technology Origins ... 4
   Movement Origins ... 6
      Effects of incommensurability ... 6
     Early independence actions then the behaviorology movement ... 8
  How Does Behaviorology Differ From Other Disciplines and Fields? ... 8
    Of Paradigms and Eclecticism ... 9
    The Skinnerian Alternative ... 10
      Figure 1: Branching disciplinary tree and philosophical roots ... 12
    The Reaction for a Non-Natural Science Tradition ... 13
      The experience in China ... 14
      Transformations and eclecticism revisited ... 15
    The Historical Division ... 16
  How is Behaviorology Related to Other Disciplines and Fields? ... 16
    Figure 2: Disciplinary coverage for the three main levels of analysis in the life sciences ... 17
  How Much is Encompassed by Behaviorology, Such as its Contributions? ... 17
  Why Should Anyone Learn Anything About Behaviorology? ... 19
   A Matter of Epistemology Also ... 20
   A Matter of Hygiene Also ... 22
  Endnotes ... 22
  References ... 23
m{A}n Introduction to the Philosophy Called Radical Behaviorism ... 25
  Private Events: Covert Behaviors ... 26
  The Behavior and Philosophy of Scientists ... 27
    The Behavior of Scientists ... 28
    The Philosophy of Scientists ... 29
  Conclusion ... 30
  Endnotes ... 30
  References ... 30
  rigins, Status, and Mission of Behaviorology ... 33
  Chapter 1: Introduction ... 33
  Chapter 2: The Evolution of the Concept of Behaviorology ... 36
    The Concept of Behaviorology ... 36
    On the Nature of the Disunity ... 37
    The Early History of Behaviorology ... 37
    Skinner's Philosophy of Science and the Behaviorology Movement ... 39
    Radical Behaviorism Plus The Causal Mode of Selection ... 39
    The David Krantz Assessment ... 42
    Recent History: Disciplinary Identity, Name, and Support ... 47
```

```
Cash-flow management ... 105
   Scientific Contingencies Committee ... 105
   Conventions ... 105
   Research support ... 106
   Fine-tuning of membership criteria ... 106
   Leadership ... 107
 Summary of Chapter Four ... 107
Chapter 5: The Continuing Debate: Reactions from the Behavioral
 Community at Large ... 109
 Continuing Debate on the Movement ... 109
   The question of change strategies ... 109
   The place reserved for behaviorists in psychology ... 111
   Invalid attacks on radical behaviorism ... 112
   Some organizational and intellectual realities ... 114
   A public separatist review ... 116
   A comparison with the Cultural Materialism movement ... 116
   An original separatist move ... 118
 Skinner's Oscillations ... 118
   Back to psychology ... 118
   The Ulman–Skinner letters ... 120
   A declaration of independence ... 123
  The Issue of Covert Reform ... 125
 Adjustment Problems of Individuals Contemplating the
   Separatist Movement ... 126
  The Adjustment of the At-Large Behavioral Community ... 130
 Psychologists Tighten Control on Behavior Analysis Journals ... 132
   Behaviorism ... 132
   Journal of the Experimental Analysis if Behavior (JEAB) ... 133
   Division 25 Recorder ... 134
   Conclusion on journal control ... 135
 Internal Issues Debated ... 135
   Contest? ... 135
   Discipline/field/status relations ... 137
   Science club versus cultural mission ... 139
 David Krantz Revisited ... 141
 Summary of Chapter Five ... 144
Chapter 6: Interdisciplinary Context: A Cultural Role for the
 New Discipline ... 146
 The Cultural Context of Behaviorology ... 146
 Culturology ... 147
 Behaviorology Among the Life Sciences ... 147
   Figure 1: Disciplinary coverage for the three main levels of analysis in the life sciences ... 148
 Individual and Group Levels of Analysis ... 149
 A Niche in the Cultural Marketplace ... 152
 Belief and Intolerance in America ... 153
 Summary of Chapter Six ... 156
Chapter 7: Conclusion ... 157
```

```
Endnotes ... 159
 References ... 160
 uoted (B.F. Skinner) ... 170
oldsymbol{A} Small Selection of Photographs ...~171
 Authors of "Origins, Status, and Mission..." at TIBA-IV, New Orleans, LA,
    USA, January 1992 ... 171
  Participants at the Executive Board Subcommittee meeting, Waltham, MA,
   USA, December 1987 ... 171
  Most participants at the first TIBA Convention, Potsdam, NY, USA, August 1988 ... 172
m{B}ehaviorology Curricula in Higher Education ... 173
 Some General Behaviorology Training Concerns ... 173
    Consensus ... 173
    Curricular Design Alternatives ... 174
    Facets of Program Design ... 175
  Curriculum Related Issues ... 175
    Overview of the Certificate and B.A. Programs ... 176
     Behavior Literacy ... 176
     The ABC (Affiliate of Behaviorology Certificate) ... 176
     The PSBC (Professional Studies in Behaviorology Certificate) ... 176
     The в.а. . . . 177
    Program Parameters ... 177
    Specific Program Requirements ... 177
     Behavior Literacy Certificate ... 177
     Affiliate Certificate ... 178
     Professional Certificate ... 178
     B.A. Program ... 178
    General Program Requirements and Conventions ... 178
    Program Validation ... 179
    Graduate Level Programs ... 180
     Master's Program ... 180
     Ph.D. Program ... 180
 Behaviorology Courses ... 181
    Descriptions of Principle Courses in these Programs ... 181
     Beh. 101: Introduction to Behaviorology I ... 181
     Beh. 102: Introduction to Behaviorology II ... 181
     Beh. 201: The Behaviorology of Child-Rearing Practices ... 181
     Beh. 320: History and Philosophy of Behaviorology ... 182
     Beh. 325: Behaviorology and Culture ... 182
     Beh. 335: Survey of Behaviorology Applications ... 182
     Beh. 340: Behaviorology in Education ... 182
     Beh. 345: Experimental Behaviorology: A Survey ... 182
     Beh. 350/450: Behaviorology Research Lab: General ... 183
     Beh. 355: Verbal Behavior I ... 183
     Beh. 360/460: Non-Humans and Verbal Behavior ... 183
```

```
Beh. 365: Advanced Behaviorology I ... 183
     Beh. 370/470: Advanced Behaviorology II ... 183
     Beh. 375/475: Verbal Behavior II ... 183
     Beh. 380/480: Human Development ... 183
     Beh. 385: Behavior Technology: A Survey ... 183
     Beh. 390/490: Behavior Technology Fieldwork: General Experience ... 184
     Beh. 395: Teaching Practicum in Behaviorology ... 184
     Beh. 440: Seminar: A Survey of the Contributions of Behaviorology ... 184
     Beh. 465: Seminar: Current Issues in Behaviorology ... 184
     Beh. 485: Directed Reading in Behaviorology ... 184
     Beh. 495: Personal Project or Paper ... 184
     Beh. 496: Professional Paper ... 184
   A Selection of Additional Courses ... 184
     Beh. 346/446, 347/447, 348/448, 349/449: The Experimental Analysis of [a Se-
       lected Topic] ... 184
     Beh. 351/451, 352/452, 353/453, 354/454: Behaviorology Research Lab on [a Selected
       Topic] ... 184
     Beh. 386/486, 387/487, 388/488, 389/489: Behavior Technology in [a Selected
       Setting] ... 185
     Beh. 391/491, 392/492, 393/493, 394/494: Behavior Technology Fieldwork in [a
       Selected Setting] ... 185
     Beh. 430, 431, 432, ..., 439: Seminar on Behaviorology and [a Selected Topic] ... 185
     Beh. 441, 442, ..., 449: Seminar: The Contributions of Behaviorology in [a
       Selected Area] ... 185
 Practical Curricular Development ... 185
 Endnotes ... 185
 References ... 186
m{B}ehaviorology in China: A Status Report ... 187
 Specific Context and Developing Behaviorology ... 188
 The Nature of Psychology in China ... 190
   The Break in Contact with the West, and the Quest to Update ... 190
 Developing Behaviorology: The Challenge for China's Higher Education
   System ... 192
   The Extent of Available Training Opportunities ... 192
   The Requirement: Demonstrate Useful Applications First ... 193
     The effect of the education system's structure ... 193
   Resistance from Outmoded Opinion ... 194
 Contributory Action ... 195
 Conclusion ... 195
 Endnotes ... 196
 References ... 196
Increasing Tact Control and Student Comprehension through such New
 Postcedent Terms as Added and Subtracted Reinforcers and Punishers ... 199
 Problems ... 200
 Solutions ... 200
```

Figure 1: Diagram of the interrelated terms for various postcedent events in increasing specificity ... 202 Figure 2: Details concerning consequences and accidental selectors ... 203 **Summary ... 204 Endnotes** ... 204 References ... 204 Multiple Selectors in the Control of Simultaneously Emittable Responses ... 205 Introduction ... 206 Historical Background ... 207 Definitions ... 207 Related research ... 207 Historical background summary ... 211 Tentative Explanation ... 212 Tentative explanation summary ... 214 Possible Resolution ... 214 Possible resolution summary ... 215 Methods ... 215 Subjects ... 215 Apparatus ... 216 Figure 1: Typical arrangement of subject, chair, table, and panel ... 217 Figure 2: Arrangement of (a) response manipulanda and stimuli on the subject's panel, and (b) the two cumulative recorders ... 218 Procedures ... 219 General procedures ... 219 Table 1: Sequence of sessions received by each subject ... 220 Training sessions ... 221 Experimental sessions ... 221 Table 2: Number of conditioned-reinforcer sources, and sequences of component pairs, for within session and between session comparisons ... 222 **Results ... 223** Figure 3: Cumulative records of left and right hand responding for subjects BS and GS during the within-session comparison session (W) ... 224 Figure 4: Cumulative records of left and right hand responding for subjects ES and DS during the within-session comparison session (W) ... 225 Figure 5: Cumulative records of left and right hand responding for subject GS during the between-session comparison sessions (B1 and B2) ... 227 Figure 6: Cumulative records of left and right hand responding for subject BS during the between-session comparison sessions (B1 and B2) ... 228 Figure 7: Cumulative records of left and right hand responding for subject DS during the between-session comparison sessions (B1 and B2) ... 229 Table 3: Number of responses in extinction for all subjects during the within-session comparison session ... 230

Table 4: Number of responses in extinction for all subjects during the between-session

Discussion ... 231

comparison sessions ... 231

Table 5: Each hand's number of responses per minute in each component of the W session for each subject ... 232 Table 6: Each hand's number of responses per minute in each component of the B1 and B2 sessions for each subject ... 233 Facing Extinction—Contingency Sensitivity ... 234 Other Considerations and Improvements ... 236 Conclusion ... 238 Endnotes ... 240 References ... 240  $oldsymbol{Q}$ uoted (TIBA stationary header) ... 242 Successful Smoking Control as an Example of a Comprehensive Behaviorological Therapy ... 243 A Comprehensive Therapy ... 243 (a) Therapy Success Rate ... 245 (b) Therapy Process ... 247 Individual daily sessions ... 247 Group sessions ... 249 (c) Therapy Procedures ... 249 Antecedent stimulus variables ... 249 Response considerations ... 251 Postcedent stimulus variables ... 251 The combination of variables ... 253 A summary table ... 255 Table 1: Names of self-control techniques by the type of variables addressed and the session at which introduced ... 255 A Partial, Small Scale Replication and Extension ... 255 Conclusion ... 258 **Endnotes** ... 258 References ... 258 reative Life–style Management Through On–line and Real–time Application of the Behaviorological Education Practices of Precision Teaching ... 259 Precision Teaching: A Copernican Revolution in Instruction ... 260 Precision Teaching: Discovering Effective Instruction ... 261 Common Methodological Elements of Life–style Management Interventions ... 262 Interventions in Three Life-Style Management Areas ... 265 Weight Control ... 265 Weight control client's instructional procedures ... 266 Figure 1: Weightstar chart with results of on-line weight control course ... 268 Weight control client's results and discussion ... 268 Smoking Control (Client One) ... 269 Smoking client one's instructional procedures ... 269 Figure 2: Data chart of client one's on-line smoking control course baseline ... 271 Table 1: One of client one's expanded data reports ... 272 Figure 3: Results of client one's on-line smoking control interventions ... 273

```
Smoking client one's results and discussion ... 275
    Smoking Control (Client Two) ... 276
     Smoking client two's instructional procedures ... 277
       Table 2: Smoking data from week five of client two's data spreadsheet ... 278
       Figure 4: "Dual scale" progress chart with data from weeks 1-5 of client two's on-line
         smoking control course ... 282
     Smoking client two's results and discussion ... 283
       Figure 5: Client two's project data, intervention dates, and on-line seminar dates ... 284
    College Study Skills ... 286
      Study skill client's instructional procedures ... 286
     Study skill client's results and discussion ... 289
       Figure 6: Exam scores for study skill client's abnormal psychology course ... 290
  General Discussion ... 291
  Endnotes ... 293
  References ... 294
 Quoted (L.E. Fraley & S.F. Ledoux) ... 296
 hina Through the Eyes of a Behaviorologist ... 297
  Endnotes ... 301
  References ... 301
Appendices ... 303
  Appendix 1: Excerpt on "Adventitious Control" ... 303
  Appendix 2: Other Excerpts ... 306
    From Chapter 2 ... 306
    From Chapter 3 ... 307
      The scientific rift ... 308
     Capacity for contributions to the culture ... 309
    From Chapter 4 ... 310
      The relevance of contemporary professional organizations ... 310
     A journal for TIBA ... 310
    From Chapter 5 ... 311
      Cultural design and space settlements ... 311
     Adjustment problems of individuals contemplating the separatist movement ... 311
    From Chapter 6 ... 312
     Disciplinary boundaries and control ... 312
    From Chapter 7 ... 313
      Conclusion ... 313
  Appendix 3: Experimental and Applied Course Sequences ... 313
    Experimental Course Sequences ... 313
   Applied Course Sequences ... 314
  Appendix 4: TIBA Conventions VI through IX ... 314
  Appendix 5: Possible Geographically Based Behaviorology Associations ... 315
  Endnotes ... 316
  References ... 316
  Addendum... 317
```

```
Quoted (L.E. Fraley & S.F. Ledoux) ... 318
m{A} Little About the Authors ... 319
  Stephen F. Ledoux, Ph.D. ... 319
  Lawrence E. Fraley, Ed.D. ... 319
  David R. Feeney, Ed.D. ... 320
  Glenn I. Latham, Ed.D. ... 320
m{A} Selected and Occasionally Annotated Bibliography ... 321
  Articles: Primary Issues (for Behaviorology in the 1990s and Beyond) ... 321
  Articles: Directly Related Issues ... 322
  Articles: Other Related Issues ... 323
  Books: Primary Issues ... 324
  Books: Directly Related Issues ... 325
  Books: Other Related Issues ... 326
Index ... 327
Reader's Notes ... 336
Afterword ... 337
  Organizational Changes ... 338
    TIBA to ISB ... 338
     Three related quotes ... 340
    TIBI Founded ... 340
  Conceptual Advance ... 341
  Educational Opportunities ... 345
    Successes Through Fall 2001 ... 346
   Factors Relevant to Success ... 349
   Local Steps to Success ... 350
   Educational Opportunities Summary ... 351
  Connecting These Articles ... 351
  Other Elements of Progress ... 351
  Endnotes ... 354
  References ... 354
  Supplementary Bibliography ... 357
  Photographic Addendum ... 358 🕏
```

# Foreword to the 1992 Edition

Through this text, Drs. Ledoux and Fraley provide the reader a unique opportunity to develop an understanding and appreciation for a current scientific movement of historic dimension. Labelled "Behaviorology" by its proponents, this discipline of research and practice can show humanity how to solve our most pressing problems; how to progress toward our fondest ends. Glimpses of this phenomenal promise can sometimes be seen directly in the authors' words and at other times it can be developed by reflection on the part of the reader. While the aim of the authors is modest, that is, to document "an analyzed history" of Behaviorology, the more sweeping value of this text also deserves direct recognition.

First I will comment on the directly presented content of this important text. In the thoughtfully developed Preface and papers/chapters that follow, the authors provide us with fundamental information, conceptions, and encouragement regarding the science and practice of Behaviorology. The early papers describe the discipline of behaviorology and differentiate it from apparently similar paradigms of science. Later chapters inform us more about the contributions and promise of the "behaviorological movement."

Students of behavioral science are well served by the authors' careful development of the philosophical, historical, and rational underpinnings of the discipline they advocate. The internal consistency of their analysis is admirable and effective. These qualities equip the reader to witness the shortcomings of other approaches and to recognize why they might select to be proponents of Behaviorology.

In the second half of the text we are treated with papers that indicate the wide scope of study and application that behaviorologists can enjoy. In these pages we are introduced to how major aspects of human affairs, for example, educational systems and cultural sciences, can benefit by being developed in a "behaviorological" manner.

Throughout the text the authors are careful not to stray from empirical fact or legitimate extension from the established principles of behavioral science. Their objectivity is well taken. Certainly, to build an appreciative audience or attract adherents for this currently little–known discipline, it is important to establish a firm basis of understanding. With this they succeed while avoiding temptation to proselytize their descriptions of the great values of Behaviorology for its students and for humanity.

Those of us who are not so constrained can immediately suggest some of the outstanding virtues associated with the practice of Behaviorology. Uppermost for the individual practitioner might be the enormous stimulation, and the functional utility, offered by this unitary, comprehensive system called Behaviorology. By being equipped with an encompassing approach, the behaviorological scientist is generally able to interpret, predict, and support constructive alterations in the behavior of people.

This generative capability brings with it an ease for appreciating the deliberations and applications of all sorts of disciplines and endeavors. That is, all manner of scientific and applied activities are open to constructive analysis and contribution by behaviorologists. To realize this great potential of behaviorology requires sophisticated use of interprofessional skills, which should be given more direct attention in the literature.

While the positive motives for adopting the authors' view are attractive, the reasons that behaviorological science must be widely applied are becoming more pressing each

xxvi

day. Namely, for the well being of all inhabitants of the earth, we have to develop and apply systems that support adaptive behaviors, an assignment for which Behaviorology is more suited than any other discipline. Pollution, conservation, education, and all forms of interaction are legitimate areas of concern that should benefit from the promise and power of behaviorological productivity.

Drs. Ledoux and Fraley offer us a fine text and succeed with sharing information about a substantial approach to the study of humanity. This text is easy to appreciate for what it delivers so effectively. Appreciable, also, are the vistas that the authors begin to open for us. We can hope that this is only one in a collection of publications by these authors and similarly inclined others from which we can benefit.

Robert E. Crow, Ph.D. Human Development Center (Director) School of Allied Health Professions Louisiana State University Medical Center New Orleans, 1992 \$