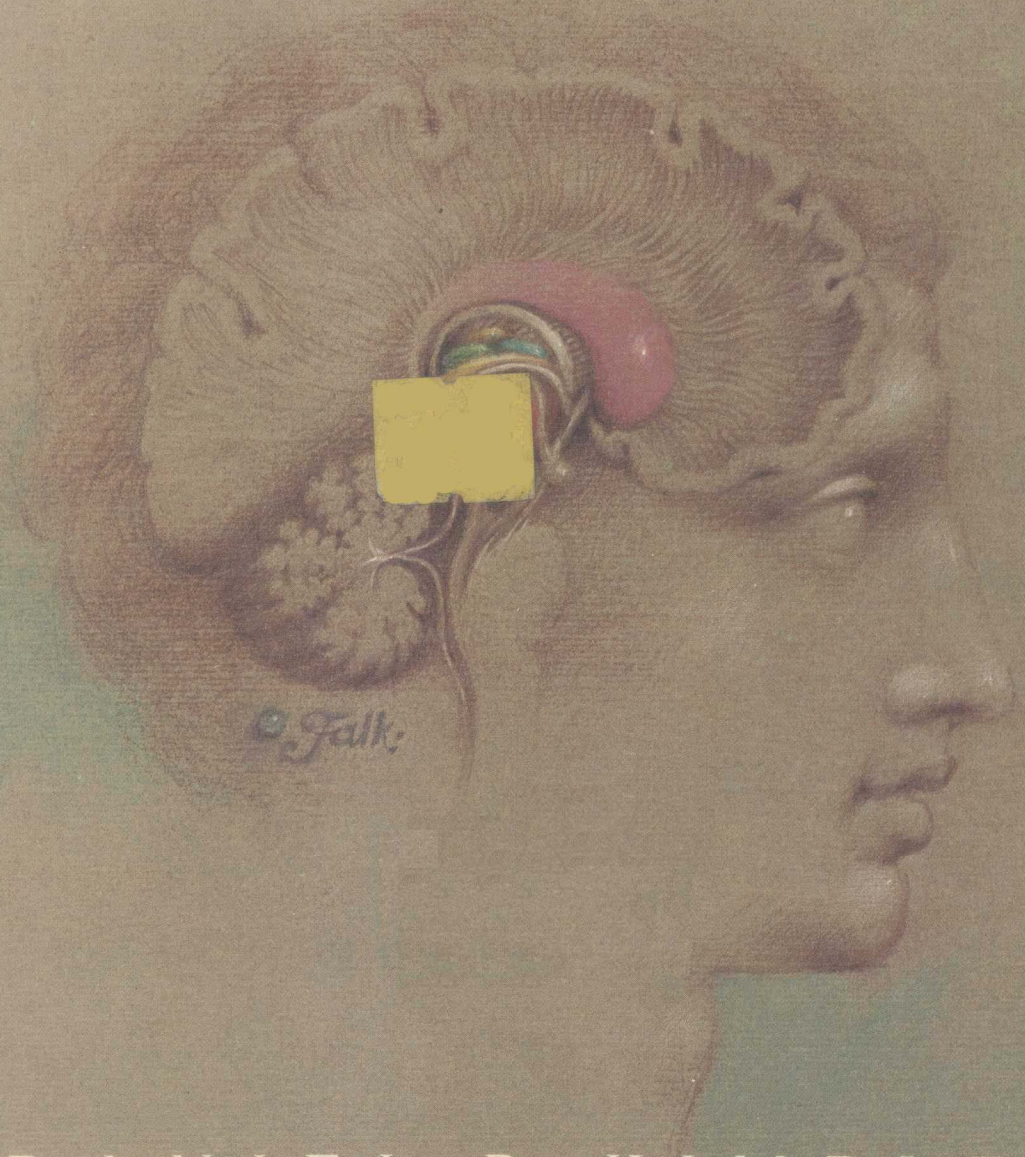


BIOLOGICAL  

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PSYCHOLOGY



DANIEL P. KIMBLE

# *Psychology*

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# *Biological Psychology*

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**Daniel P. Kimble**

*University of Oregon*

# Preface

In the nearly quarter-century that I have been teaching biological psychology at the University of Oregon I have learned a great deal from my students, most of whom are not psychology majors, about what a textbook should and should not be. It should be accessible to the general liberal arts student, yet contain sufficient detail to communicate the basic principles of the subject matter. Finding the correct balance between readability and technical exposition is not easy. I have tried to accomplish these two goals in several ways.

First, I have read research reports and review articles from a variety of fields, talked with researchers, and looked for interesting and relevant material from as many sources as possible. Second, I have tried to write clearly and simply. Wherever possible, I have related technical material to relevant psychological problems. Third, I have incorporated several organizational devices to help the reader. Each chapter is preceded by an outline and a preview. Throughout the book you will find key words bold-faced, indicating a “running pronouncing glossary.” (I find that most of us have difficulty learning new concepts if we do not know how key words are pronounced.) At the end of each chapter there are a summary and a list of suggested readings. At the back of the book you will find all the glossary items repeated, in alphabetical order. In reading this book you will learn a basic vocabulary that will allow you to read other material in this field, along with some of the fundamental concepts relating brain function and behavior. In addition, I hope you will become excited about this field and that at least some of you will contribute to the next generation of research. Although we know something about how the brain works and can make some tentative statements about how this knowledge can be applied to understanding our own behavior, we are still in the early days of this field and your generation will know more and discover much more than mine. I will be delighted if this book helps to further your interest and enthusiasm for biological psychology and related fields.

For instructors, several aspects of this book will make it particularly useful for courses in biological psychology. These include:

1. The material on development of the nervous system (Chapter 4) is more detailed than in most comparable texts. I have also tried to relate this material to the related topics of aging, brain injury, and learning. By placing this chapter fairly early in the book, I hope to present the idea that the brain is capable of profound changes and is not a static, “hard-wired” computer.



2. Considerable material is provided on the role of hormones in the regulation and modulation of behavior, including the development of personality characteristics, such as gender role and gender identity. In addition, the possible role of androgens in male aggressive behavior is discussed in detail. Most of this material is in Chapter 9.

3. An entire chapter is devoted to language and the brain. Most of this chapter is concerned with various aspects of aphasia. I believe that the study of language behavior by psychologists will continue and become even more important than it is now.

4. Several hundred references appear at the back of the book. In selecting articles to cite in this book, I have attempted to keep the list selective, and as current as possible. Thus this reference list should provide students with leads to finding their way into the scientific literature.

5. I believe I have addressed most of the basic topics usually taught in courses in biological psychology. In addition to the chapters just noted, there are chapters on neuron function and synapses, neuroanatomy, vision, the other senses, movement and the regulation of posture, thirst and hunger, sleep and dreaming, emotion, learning and memory, specializations of the human brain, and disorders of brain and behavior. (See the overview of the book in Chapter 1.)

I would like to acknowledge the help I received from many individuals in preparing this book. Part of this book was written while I was on sabbatical leave at Oxford University. I would like to thank people there, particularly Alan Cowey, Nick Rawlins, Edmund Rolls, and Lawrence Weiskrantz of the Institute of Experimental Psychology. In addition, I would like to thank Norman Adler, Huda Akil, Colin Blakemore, Jacob Beck, Gene Block, Ruth BreMiller, Larry Butcher, Suzanne Corkin, Christina Enroth-Cugell, Peter Donovan, Alan Epstein, Beverly Fagot, H. C. Fibiger, Deanna Frost, Michael Gazzaniga, Hill Goldsmith, Robert Goy, Robert Grimm, Philip Groves, Barbara Gordon-Lickey, Marvin Gordon-Lickey, Philip Grant, William Greenough, Charles Gross, David Gunner, Charles Hamilton, Doug Hintzman, Fred J. Hodges III, Harry Howard, Robert Isaacson, Wesley Jordan, Eric Kandel, Ray Kesner, Charles Kimmel, John Liebeskind, Michael Merzenich, Richard Marrocco, James McConnell, Mortimer Mishkin, John Money, Walle Nauta, David Olton, Charles Phoenix, Gary Pickard, Michael Posner, Ron Racine, Pasco Rakic, Benjamin Rusak, Marcus Raichle, Evelyn Satinoff, Elizabeth Schaughency, Paul Schinkman, Roger Sperry, Nico Spinelli, Donald Stein, Ann Streissguth, Philip Teitelbaum, Carl I. Thompson, Richard F. Thompson, Kathryn Tosney, Nathan Tublitz, Monte Westerfield, James Weston, Terence Williams, Sandra Witelson, and Irving Zucker.

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**Daniel P. Kimble**

*Eugene, Oregon*



# Brief Contents

1	Introduction	2
2	Neurons and Synapses	24
3	Anatomy of the Nervous System	62
4	Brain Development, Growth, and Aging	90
5	Vision	124
6	Our Other Senses	172
7	Movement	204
8	Thirst and Hunger	228
9	Hormones and Behavior	254
10	Sleep and Dreaming	288
11	Emotion, Pleasure, and Pain	308
12	Learning and Memory	336
13	Hemispheric Specializations in the Human Brain	362
14	Speech and Language	384
15	Disorders of Brain and Behavior	406
	Glossary	427
	References	443
	Name Index	469
	Subject Index	475

# Detailed Contents

## 1 Introduction 2

Preview	4
A Computer That Dreams	4
Overview of the Book	6
The Historical Roots of Biological Psychology	8
<i>Beginnings of Psychology</i>	10
<i>Beginnings of Physiology</i>	11
<i>Darwin and the Theory of Evolution</i>	11
<i>Modern Biological Psychology</i>	12
<i>A Neuroscience Hall of Fame</i>	12
Methods in Biological Psychology	14
<i>The Lesion Technique</i>	14
<i>Ethics of Animal Experimentation</i>	16
<i>Eavesdropping on the Brain</i>	17
<i>Stimulation of Brain Tissue</i>	18
<i>Histological Techniques</i>	18
Summary	22
Suggestions for Further Reading	23

## 2 Neurons and Synapses 24

Preview	26
Structure of Neurons	26
A Genetic Library	31

Glial Cells	29
The Neuronal Membrane—A Fluid Mosaic	33
Electric Signaling by Neurons	34
<i>Give the Squid the Prize?</i>	35
<i>The Resting Potential</i>	35
<i>Ion Channels</i>	38
<i>Electrical and Chemical Gradients</i>	39
<i>The Sodium–Potassium Pump</i>	40
<i>The Nernst Equation: Predicting Equilibrium Potentials</i>	41
<i>The Nerve Impulse</i>	42
<i>Changes in <math>\text{Na}^+</math> and <math>\text{K}^+</math> Permeability Underlie the Nerve Impulse</i>	43
<i>Restoration of the Resting Potential</i>	44
<i>Propagation of the Nerve Impulse</i>	45
<i>Threshold</i>	48
<i>All-or-None Law</i>	48
<i>The Frequency-Intensity Code</i>	48
Synaptic Transmission	49
<i>Chemical Synapses</i>	49
<i>Chemically Gated Ion Channels</i>	52
<i>Agonists and Antagonists</i>	52
<i>Importance of <math>\text{Ca}^{2+}</math> for Transmitter Release</i>	53
<i>Postsynaptic Potentials</i>	53
<i>Synaptic Delay</i>	54

<i>The Catecholamine Family</i>	55
<i>Excitatory Postsynaptic Potentials</i>	56
<i>Inhibitory Postsynaptic Potentials</i>	56
<i>Synaptic Integration</i>	57
<b>Summary</b>	58
<b>Suggestions for Further Reading</b>	61
<b>3 Anatomy of the Nervous System</b>	62
<b>Preview</b>	64
<b>The Peripheral Nervous System</b>	64
<i>Cranial Nerves</i>	64
<i>The Spinal Nerves</i>	65
<b>The Autonomic Nervous System</b>	66
<i>The Sympathetic Nervous System</i>	67
<i>The Parasympathetic Nervous System</i>	71
<i>Voluntary Control of Involuntary Responses</i>	72
<b>The Central Nervous System</b>	72
<i>Ascending Pathways</i>	73
<i>Descending Pathways</i>	73
<i>The Meninges of the Brain</i>	73
<b>Major Structures in the Brain</b>	74
<i>The Cerebral Cortex</i>	79
<i>Brodmann's System</i>	81
<i>Layers in the Cortex</i>	81
<i>Bumps on the Skull</i>	84
<i>Input Channels to the Neocortex</i>	85
<b>Summary</b>	88
<b>Suggestions for Further Reading</b>	89
<b>4 Brain Development, Growth, and Aging</b>	90
<b>Preview</b>	92
<b>Stages in Brain Development</b>	92
<i>Induction of the Neural Plate</i>	93
<i>Proliferation</i>	93
<i>New Neurons for New Songs</i>	95
<i>Migration</i>	96
<i>Aggregation</i>	98
<i>Differentiation</i>	98
<i>Environmental Factors in Fetal Development</i>	100
<i>Choosing a Transmitter</i>	101
<i>Synaptogenesis</i>	101

<i>The Chemoaffinity Hypothesis</i>	103
<i>Selective Cell Death</i>	105
<i>Whiskers and Barrels</i>	105
<i>Enriching the Brain</i>	106
<b>Responses of Nervous Tissue to Injury</b>	108
<i>Responses to Axonal Damage</i>	109
<i>Anterograde Changes</i>	109
<i>Retrograde Effects</i>	109
<i>Retrograde Transneuronal Changes</i>	110
<i>Axonal Sprouting and Synaptic Remodeling</i>	111
<b>Aging</b>	113
<i>Normal Aging</i>	113
<i>Fetal Brain Tissue Transplants</i>	114
<i>Mental Processes in the Elderly</i>	116
<i>Abnormal Aging</i>	116
<i>Brain Changes in Alzheimer's Disease</i>	117
<i>Therapy Attempts Based on the Cholinergic Hypothesis</i>	120
<b>Summary</b>	121
<b>Suggestions for Further Reading</b>	123
<b>5 Vision</b>	124
<b>Preview</b>	126
<b>Nature of the Visual Stimulus</b>	126
<b>Structure of the Eye</b>	126
<i>The Blind Spot</i>	128
<b>Anatomy of the Visual System</b>	128
<i>The Lateral Geniculate Nucleus</i>	128
<i>Visual Regions of the Cerebral Cortex</i>	131
<b>Transduction in the Retina: Straightening Retinal's Tail</b>	132
<i>Isomeric Changes in Retinal Underlie Vision</i>	133
<b>The Duplicity Theory</b>	134
<i>Other Cell Types in the Retina</i>	136
<i>Retinal Potentials</i>	136
<b>Receptive Fields</b>	140
<b>X, Y, and W Cells</b>	141
<b>Response Characteristics of LGN Neurons</b>	142
<i>Spontaneity</i>	143
<i>LGN Receptive Fields</i>	143
<b>Color Vision</b>	144
<i>Color Opponent Cells</i>	146
<i>Dual-Purpose LGN Neurons</i>	147

<b>Cortical Neurons: Feature Detectors or Spatial Frequency Analyzers?</b>	<b>148</b>
<i>Edge Detectors</i>	149
<i>Simple and Complex Cells</i>	149
<b>Spatial Frequency Analyzers: An Alternative Model</b>	<b>151</b>
<b>Binocularity</b>	<b>152</b>
<b>Blindness from Disuse</b>	<b>154</b>
<b>Development of Orientation Specificity</b>	<b>157</b>
<i>Are Visual Neurons Instructed or Preprogrammed?</i>	158
<b>Visual Regions Outside the Occipital Lobe</b>	<b>159</b>
<i>The Kluver-Bucy Syndrome</i>	160
<b>Brain Damage and Vision</b>	<b>162</b>
<i>Blindsight</i>	164
<b>Other Visual Regions of the Brain</b>	<b>164</b>
<i>The Superior Colliculus: Organ of Orientation</i>	165
<b>Serial Versus Parallel Processing Revisited</b>	<b>166</b>
<i>The Merzenich and Kaas Model</i>	166
<i>To See a Tree</i>	168
<b>Summary</b>	<b>169</b>
<b>Suggestions for Further Reading</b>	<b>171</b>

## 6 Our Other Senses 172

<b>Preview</b>	<b>174</b>
<b>Hearing</b>	<b>174</b>
<i>Psychological Correlates of Frequency and Intensity</i>	176
<i>Anatomy of the Ear</i>	176
<i>The Inner Ear: The Snail Shell and the Canals</i>	178
<i>Hearing Through Shearing: Transduction in the Cochlea</i>	178
<i>The Place Theory</i>	179
<i>The Volley Theory</i>	180
<i>Abstraction in the Auditory System</i>	183
<b>Balance: The Vestibular System</b>	<b>184</b>
<i>The Vestibular Organ</i>	184
<b>Taste</b>	<b>187</b>
<i>Taste Pathways</i>	189

<b>Olfaction</b>	<b>189</b>
<i>Chromatographic Theory of Olfaction</i>	191
<i>Wildlife Management Through Conditioning</i>	192
<i>Olfactory Pathways</i>	193
<i>The Vomeronasal Organ</i>	194
<i>Pheromones</i>	194

<b>Somesthesia</b>	<b>195</b>
<i>Free Nerve Endings</i>	195
<i>Encapsulated Receptors</i>	196
<i>Kinesthetic Receptors</i>	199
<i>Somesthetic Pathways</i>	199
<i>Cortex: Multiple Body Maps</i>	201
<i>Updating the Cortex</i>	201
<i>Columns in the Cortex</i>	202

## Summary 202

## Suggestions for Further Reading 203

## 7 Movement 204

### Preview 206

### Reflexes 206

<i>The Stretch Reflex</i>	206
<i>Reciprocal Inhibition</i>	207
<i>Sense Organs in the Muscle</i>	208
<i>Golgi Tendon Organs</i>	210
<i>The Final Common Path</i>	212
<i>Motor Units</i>	212

### Higher Command Centers for Movement 213

<i>Brainstem Controls on Posture and Locomotion</i>	214
<i>Decerebrate Rigidity</i>	215
<i>Decerebrate Rigidity as a Reflex</i>	215
<i>Neural Oscillators</i>	216
<i>The Cerebellum</i>	216
<i>Kornhuber's Theory of Movement</i>	217
<i>The Basal Ganglia: The Comet, the Globe, and the Peachstone</i>	218
<i>Ivan</i>	220
<i>Cerebral Cortex</i>	221
<i>Parkinson's Disease Produced by Designer Drugs</i>	222
<i>Corollary Discharge</i>	225

### Summary 226

### Suggestions for Further Reading 227

**8 Thirst and Hunger 228****Preview 230****Thirst 230***Primary and Secondary Drinking 231**The Dry Mouth Theory 231***The Double Depletion Theory of Thirst 233***Cellular Dehydration 233**Hypovolemia 235***Hunger 236****The Two Basic Phases of Metabolism 238***Absorptive Phase 238**Fasting Phase 238***The Search for Hunger and Satiety****Signals 238***Glucose as a Signal 239**Liver Glucose Receptors 241**Cholecystokinin: A Satiety Substance? 241***Overeating Without Increased Hunger 242***Are VMH Rats Not Really Hungry? 243**The VMH Syndrome and Human Obesity 243**Is Insulin the Link? 244***The Lateral Hypothalamic Syndrome: Rats That Won't Eat or Drink 246***Anorexia Nervosa: A Relentless Pursuit of Thinness 248**Set Point and the Regulation of Body Weight 250***Summary 252****Suggestions for Further Reading 253****9 Hormones and Behavior 254****Preview 256****Hormones 256***Target Tissues 257**Hormone Families 259**Steroid Receptors 260**Polypeptide Hormones 260**Miscellaneous Hormones 261**Some Factors New: The Hypothalamic Hormones 262***Sexual Dimorphism in Brains and in Behavior 265***Cyclicity of Hormonal Secretion: A Female Characteristic 266**Ovaries in the Eyeballs 267**Dimorphic Sexual Behavior 268**Hormones and Female Sexual Behavior 271**Ovarian Cyclicity 272**Nursing and the Posterior Pituitary 272**Hormones and Male Sexual Behavior 272**Testosterone and Sexual Vigor 274***Developmental Effects of Hormones on Sexual Behavior 276***Rat Studies 277**Primate Studies 277***Fetal Effects of Testosterone on Human Behavior 280***The CAH Syndrome 282**The Androgen Insensitivity Syndrome 283**The Guevedoces of Salinas 284**Male-Female Differences in Nonreproductive Behavior 284**Structural Differences in Male and Female Brains 285***Summary 286****Suggestions for Further Reading 287****10 Sleep and Dreaming 288****Preview 290****Measuring Sleep—The EEG 290***Hans Berger 291**Stages of Sleep 291***A Night's Sleep 293***Why Your Grandmother Always Hears You Come in Late 293**REM Deprivation and REM Rebound 295**Randy Gardner's Vigil 296**Sleep and Dreaming in Depression 296***Sleep Abnormalities 298***Insomnia 298**Sleep Apnea 298**Narcolepsy 298***Sleep as an Active Brain Process 299***The Brainstem Reticular Formation and Forebrain Arousal 300**Sleep-Producing Regions of the Brain 301**Jouvet's Theory of Sleep 302*

**Sleep as a Circadian Rhythm 303***Jet Lag 304**A Clock in the Hypothalamus? 305***Summary 307****Suggestions for Further Reading 307****11 Emotion, Pleasure, and Pain 308****Preview 310****What Is Emotion? 310***We See the Bear, We Run, and We Are Afraid 313**Cognition–Arousal Theory of Emotion 314***The Detection of Deception 315****Loss-of-Control Syndromes 316****Testosterone and Aggression 318***Anxiety, Drugs, and the Brain 319***Pleasure Centers in the Brain 320****Pain 324***Pain Pathways 325**Gate-Control Theory 326***The Endogenous Opioids: Pain-killers in Our Brains 326***Three Endorphin Families 328**Multiple Opiate Receptors 329**Functions of the Endorphins 330**Evidence for Pain Suppression as a Result of Endorphin Release 330**Stress and Illness 331**Endorphins and the Runner's High 333***Summary 334****Suggestions for Further Reading 335****12 Learning and Memory 336****Preview 338****Where Is the Engram? 338****Amnesia 338***What Is an Amnesic? 339**What Causes Amnesia? 339**Are There Different "Anatomies of Memory"? 340**What Is the Nature of the Deficit in Amnesia? 343**Learning Without Memory 346**Episodic and Semantic Memory Distinctions 348***A Search for Simpler Systems 348***Jimmie, Forever 19 Years Old 349**Your Shoes Are Full of Feet 349**Sensitization 350**Classical Conditioning: Pavlov's Legacy 350**Basic Conditioning Terms 351**Habituation, Sensitization, and Conditioning in the Aplysia 351***Classical Conditioning in a Vertebrate Brain 355***Hippocampus Involvement in Trace Conditioning 356***Long-Term Potentiation (LTP) 357****Summary 360****Suggestions for Further Reading 361****13 Hemispheric Specializations in the Human Brain 363****Preview 364****Is Your Left Hemisphere Different from Your Right? 364****Hemispheric Specialization 367***Hemispheric Disconnection: "Split-Brain" Patients 367**Communicating with One Hemisphere at a Time 368**Right Hemisphere Language: An Ongoing Controversy 370**Right Hemisphere Specializations 372**Pattern Recognition: A Right Hemisphere Specialization? 372**"I Just Can't Place Your Face" 377***The Frontal Lobes 377***Anatomy of the Frontal Lobes 379**The Patient Population 380**Frontal Lobe Symptoms 380***Summary 382****Suggestions for Further Reading 383****14 Speech and Language 384****Preview 386**

**Cerebral Dominance and Handedness 386***The Wada Test 388**Evidence from Other Species 389***Aphasia 390***Expressive Aphasia 393**Receptive Aphasia 394**The Disconnection Theory of Aphasia 396**Recovery from Aphasia 398***The Development of Cerebral****Dominance 398****Other Language-Related Difficulties with****Cerebral Damage 400***Apraxia: Disorders in Planned Movements 401***The Cortical Column as the Basic Module of  
the Cortex 402****Summary 403****Suggestions for Further Reading 405****15 Disorders of Brain and  
Behavior 406****Preview 408****The Drug Revolution in Psychiatry 408****Schizophrenia 410***Risks of Developing Schizophrenia 411***Drug Treatments for Schizophrenia—Drug  
Names 411***Drug-Induced Hallucinations 412**The Dopamine Hypothesis of Schizophrenia 414**How Do the Neuroleptics Take Hold? 414**Side Effects of the Neuroleptics 415**Dopamine Circuits in the Brain 416***Depression 416***The Monoamine Hypothesis of Depression 419**Antidepressant Drugs 420***Disorders of Brain and Behavior in  
Childhood 421***Attention Deficit Disorder with Hyperactivity 421**Infantile Autism 423***Summary 424****Suggestions for Further Reading 426****Glossary 427****References 443****Name Index 469****Subject Index 475**



# *Biological Psychology*

