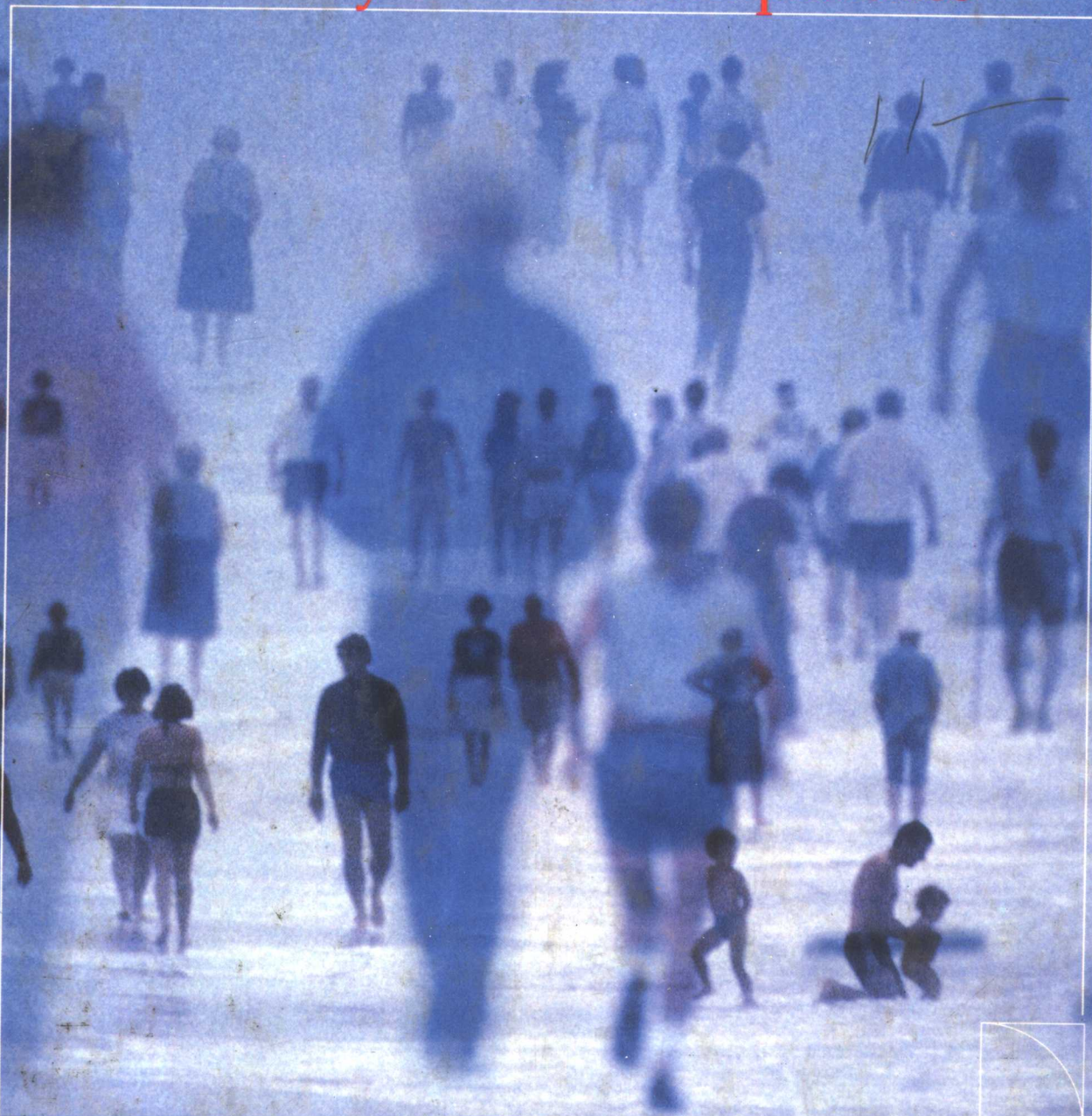


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# PSYCHOLOGY

The Study of Human Experience



Robert Ornstein



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The Study of Human Experience

Robert Ornstein




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# Preface

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*I*t can be difficult to say when the writing of a book begins. This one is easy to date. When I sat in my first introductory psychology class 25 years ago, I decided to study the field in more depth and to learn enough about it to write my own book. I thought, smugly, that I could easily write one. But it took, at this reckoning, 25 years.

Why all that time? Well, it took some experiences in my own life, some research of my own, and much reading in the field and meeting with the contemporary psychologists who were doing all that famous research. Then, 10 years ago, I finally thought I could give it a try.

We are all the stars in our own lives, but we each see the world from only one viewpoint, from one culture, through one set of parents, one sex, one time and place. We learn much from our own experience, but the experiences of others and of scientists can deepen our understanding of ourselves and our lives. We want to know how human life evolved and what makes us think, act, feel, live, love, and learn the way we do. There are pieces to this human puzzle, but they are scattered throughout many studies and disciplines: archeological studies of the dawn of our ancestors, genetic analyses of the transmission of physical characteristics, neuroscience and psychophysiology, and studies of our intricate sensory system. There are clues in the analyses of how we think; how we make mistakes in remembering and learning; how we assess others' intelligence; how emotions are expressed by



peoples of various cultures; and how we face stress, depression, and old age.

There was no book, either in or out of the field of psychology, that assembled these pieces into one coherent story. Yet, there is a real story to tell, I found, and it is the story of our lives. It begins where human life first emerges and continues, in each of us, until we die. In it there are glimpses of the human condition and of human possibilities.

This is a book written for the student who wants to know more about why he or she does "stupid" things, what going "crazy" is like, how

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stress can be reduced, how the brain evolved in different eras, and how the dazzling mechanisms of maturation coalesce to produce the miracle of a 3-year-old who can speak sentences never heard before. This book is written, too, to explore and explain those miracles that seem beyond ordinary understanding: how populations can physically grow and change; how every cell of the body contains the information necessary to make every other cell; and how the senses routinely screen out most of the information that reaches us and yet transform the external world—silent, colorless, odorless—into a rich world of sight, sound, smells, and tastes. I hope to show clearly how extraordinary the ordinary experience of life really is.

This is a book for students, but there are many aspects directed at teaching and teachers. Information is presented from many viewpoints throughout the book so that students can recall what they have learned in different contexts. This principle, called “multiple encoding,” is an important concept, and I have tried to put it to use here. Concepts are developed throughout the book to increase familiarity, but also to offer slightly different views so that students can connect what they have learned with their own experience.

This leads to a second principle I have used here: everything is learned better if it is related to oneself. The examples are drawn from personal experiences that have happened to me and to others. The brain is described as an organ with a purpose that students can follow and relate to

themselves. Memory is described as a functioning system designed to aid us in operating in the world, not as a wiring diagram of a nonexistent machine. There are glimpses of other’s experiences: creative moments, dreams, being unemployed, and getting married. Questions many students ask are addressed: Does everyone dream? What happens to children when their parents divorce? Can I improve my intelligence? Are whites and blacks different in intelligence? Who stays healthy under stress? Why am I shy? Would I be able to resist harming another?

These are among the great questions with which psychology must constantly deal. And yet some of them remain mysterious, and all give up their answers slowly. We learn more by our continuing investigation as we put together more pieces of the puzzle. But the process is by no means complete, and this second edition, while remaining true to the overall themes established in the first edition, reflects that state of affairs—how things have changed in the last two or three years.

Working with the suggestions of many students and instructors who have used the book, I have been able to improve it in many ways.

I have been able to put in much new material, including discussions of Alzheimer’s disease, the social genesis of homosexuality, Bronfenbrenner’s and Stern’s views of child development, psychoimmunology, Type A behavior, and Oliver Sacks’s description of brain diseases related to the nature of self-centeredness. There is new work on the modular view of mental activities; new views of intelligence by Fodor, Gazzaniga, Ornstein,

---

and Sternberg; Gardner's view of the "frames of mind"; and Marr's approach to vision expert systems. I have included expanded treatments of defense mechanisms and of self-monitoring. An analysis of terrorism is presented and why evolved mental mechanisms influence our response to the news. The viewpoint on evolution is strengthened throughout, from the inception of our response to terrorism to living in modern society.

The major change in the book is the addition of Chapter 18, *Living in a High-Tech Society*, which includes a new view of stress, the latest research on blood pressure and the heart in the new field of health psychology, new ideas on how we are adapting to computers, and some thoughts on our changing society.

Of course, I could not have done it alone. I have had the pleasure of collaborating on many new works since the first edition, and my collaborators, notably David Sobel and Paul Ehrlich, have left a strong imprint. Others at the Institute for the Study of Human Knowledge have helped revise and extend the book, and I want to thank them all. Carolyn Aldwin, Linda Garfield, Stephen LaBerge, Tom Malone, and Charles Swencionis all contributed significant extracts or working drafts for me. Shane DeHaven, Warren Davis, and Lauren LaBerge helped put the last edition into the computer when it couldn't be done mechanically and made the task of revision much easier, allowing me to

incorporate much more new material and to rewrite what remained. Lauren helped greatly on the galley proofs as well. Mary Ann Cammarota contributed much to the difficult problem of tracking down and organizing hundreds of new references. The work of Nancy Hechinger on the first edition still infuses the spirit of the second.

I am fortunate to have had a wise and lucid editor in Marc Boggs and an enthusiastic manuscript editor in Kathy Walker. Maggie Porter selected great photographs and managed to improve the art immeasurably, while Cheryl Solheid continued and refined the fine design.

Robert Ornstein

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# Contents

Preface v

## **1** --- *The Study of Human Experience* 2

Introduction	3
Who Am I?	4
Behaviorism: What People Do	7
Biological Approach	8
Cognitive Approach	9
Social Environment	11
Range of Human Experience	13
Some Universal Psychological Characteristics:	
Priorities and Policies	16
How Scientific Psychology Differs from Everyday Psychology	19
Demonstrations	24
What Does It Mean? Statistics	30
Individual and Group Differences	31
A Concluding Note	34
How This Book Is Organized	34



## *Part I* **The Biological World** 40

## **2** --- *Where We Come From: Evolution and Genetics* 42

Introduction	43
Origins and Development of Human Beings	49
Human Adaptation	59
Sex Differences and Division of Labor	64
Genetics: Influences on Evolution	73
Beyond Our Inheritance	83

## **3** --- *Early Development: Birth to Adolescence* 88

Introduction	89
The Newborn	91
Food, Drugs, and the Unborn Child	92
Physical Growth in the Early Years	94
Cognitive Development: Piaget's Theory	98
Wit and Wisdom of 2- to 5-Year-Olds	103



Moral Development: Kohlberg's Theory	107
Psychosocial Development	110
The Small World of the Child	121
Adolescence	123
A Concluding Note: The Seeds and Fruits of Development	128

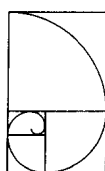
## 4 --- The Brain and Nervous System 132

Introduction	133
A Tour of the Brain Structure	134
Early Twentieth Century Views of the Brain	139
Education, Society, and the Hemispheres of the Brain	149
How the Brain "Minds" the Body	154
The Brain's Neural and Chemical Systems	160
Food for Thought	161
Lock and Key: Architecture of Molecules	165
The Individual Brain	168

## 5 --- Sensory Experience 176

Introduction	177
Reflecting Important Events in the World	179
How the Senses Simplify and Organize the World	180

Human Sensitivity	182
Vision	185
Looking through Blood Vessels: A Demonstration	187
Stimulating the Retinal Cells in a Different Way	189
Hearing	199
Chemical, Skin, and Internal Senses	202
The Relativity of Sensory Experience	207
How Judgments about News Are Based on the Characteristics of the Senses	208



## Part II The Mental World 212

## 6 --- Perceiving the World 214

Introduction	215
Process of Perception	217
Theories of Perception	227
Constancy: Computing the Stable World	231
Perceiving the World:	
Place, Space, and Time	235
Seeing without Eyes	238
Decomposition, Composition, and the Model of the World	248

---

## 7

### *The Varieties of Consciousness* 252

- Introduction 253
- Structure of Consciousness 256
- Variations in Consciousness 258
- Deliberate Alterations in Consciousness 265
- Teaching Stories 268
- Warts and All 272
- Cycle of Addiction 278
- Frontiers of Consciousness Research 281

---

## 8

### *The Basics of Learning* 288

- Introduction 289
- Classical or Respondent Conditioning 290
- Operant or Instrumental Conditioning 296
- Conditioning Can Be the Mother of Invention 299
- Superstitions 304
- Cognitive Learning 305
- Making Things Fun to Learn 308
- Comparison of Theories:
  - Cognitive versus Behavioral 311
- What We Are "Prepared" to Learn 313
- Learning Theory and Modern-Day Behavior 316

---

## 9

### *Remembering and Forgetting* 320

- Introduction 321
- A Perfect Memory 323
- Functions of Memory 324
- What Day Is It? 327
- Processes of Memory 328
- How We Forget and What We Remember:
  - Long-term Memory 331
- Remembering Phone Numbers 334
- Memory Disorders 338
- Meaningfulness and Organization in Memory 339
- Improving Memory 347
- Things That Are Impossible to Forget 350

---

## 10

### *Thinking and Language* 356

- Introduction 357
- Characteristics of Thought 359
- A Nonexistent Category System 360
- Problems with Using "Fast Paths" of Mind 364
- Decision Making and Judgment 368
- Problem Solving 371
- Creativity 378
- The Creative Person 379
- Language 379
- The Computer and the Mind 385

---

## 11

---

### *Intelligence and the Mind* 392

- Introduction 393
- Studying and Measuring Intelligence 393
- Distribution of Intelligence 401
- Enhancing Intelligence 405
- Analysis of the Components of the Mind 412



## Part III

### *The World of the Individual* 422

---

## 12

---

### *Emotions and Feelings* 424

- Introduction 425
- What Emotions Are and What They Do 425
- Psychological Terms Used to Describe Emotional Life* 428
- How We Experience Emotions 432
- How to Read Faces* 434
- Knowing What We Feel 438
- Emotions and Health 442
- Human Sexuality: Intimate Feelings 447

---

## 13

---

### *Needs and Goals* 452

- Introduction 453
- An Overview of Needs and Goals 454
- Physiological Needs 456
- Resisting Disease* 462
- Anorexia Nervosa and Its Treatment* 468
- Belonging and Safety 470
- Human Goals 472
- Avoiding Boredom* 474
- Beyond Knowledge 477

---

## 14

---

### *The Puzzle of Personality* 484

- Introduction 485
- Ourselves and Other People 486
- Formal Theories of Personality 491
- Types, Traits, and the Measurement of Personality 499
- Interview with a Type A Personality* 501
- Dimensions of Personality 505

---

## 15

### *Psychological Disorders* 516

- Introduction 517
- An Overview of Psychological Disorders 518
- Mild Disorders: Anxiety and Somatoform 519
- Personality Disorders 523
- A Case of an Antisocial Personality 526
- Substance Use Disorders 527
- Psychology and the Homeless 528
- Severe Mental Disorders 529
- Seasonal Affective Disorder (SAD) 532
- "Interference Patterns" in a Schizophrenic 537
- Importance of Being Normal 541

---

## 16

### *Psychotherapies* 546

- Introduction 547
- Brief History of Psychotherapy 547
- Psychoanalysis 549
- Behavior Therapy 552
- One Problem, Four Treatments 556
- Humanistic Therapy: Person-centered 560
- Biological Therapy 562
- Effectiveness of Psychotherapy 567



## Part IV

### *The Social World of the Adult* 576

---

## 17

### *Social Psychology* 578

- Introduction 579
- The Person in the Situation 579
- Social Influence 585
- Scarcity and Comparison: Using Social Psychology to Make Money 586
- Attitudes and Prejudice 588
- Using Social Psychology to Teach Energy Conservation 589
- Attribution 596
- Love and Attraction 599
- Shoplifting and Good Looks 603
- Aggression and Violence 605
- Learning to Change Harmful Situations 610

---

## 18

### *Living in a High-Tech World* 614

- Introduction 615
- Adapting to Changes in the World 616
- Health Psychology 623
  - Blood Pressure, Hypertension,  
and Heart Disease* 630
- Problems of Judgment in the Modern World 634
- The Tale of Watergate* 638
- Adapting to Computers 638
- An Expert System* 640
- Adapting to Density 642
- Adapting to the Modern World: Stability 647

---

## 19

### *Development in Adulthood* 652

- Introduction 653
- Theories of Adult Development 654
- Biological and Cognitive Changes 655
- Early Adulthood: Work and Marriage 659
  - Communication and Marital Satisfaction* 664
- Middle and Late Adulthood 666
- Death and Dying 672

### *Appendix*

### *Statistics: Making Sense of Fallible Data* 681

### *Glossary* 695

### *References* 714

### *Copyrights and Acknowledgments* 747

### *Index* 750



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SECOND EDITION

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# PSYCHOLOGY

The Study of Human Experience



# Chapter 1

## *The Study of Human Experience*

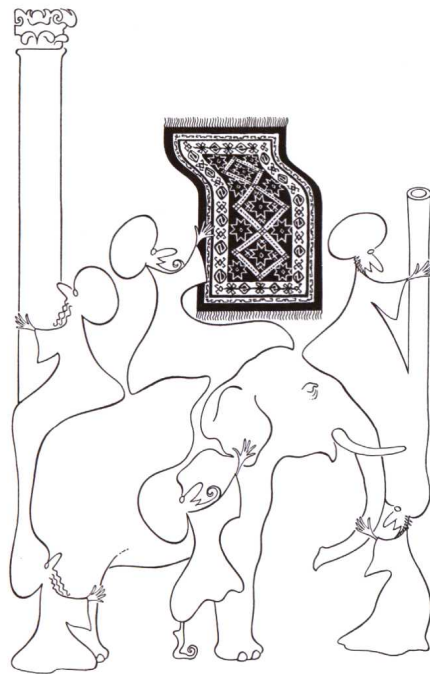
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<b>Introduction</b>	3	Science Goes Beyond Personal Experience	19
Selected Moments from the History of Psychology	4	Personal and Scientific Knowledge of Dreams	19
<i>Who Am I?</i>	4	Some Aims and Virtues of Science	19
<b>Behaviorism: What People Do</b>	7	Scientific Ideas and Tests	21
<b>Biological Approach</b>	8	<i>Demonstrations</i>	24
<b>Cognitive Approach</b>	9	Experimental Method	24
<b>Social Environment</b>	11	Thinking Like an Experimental Psychologist	26
<b>Range of Human Experience</b>	13	<b>What Does It Mean? Statistics</b>	30
Clinical Approach	13	<i>Individual and Group Differences</i>	31
Health, the Mind, and the Brain	14	Mean and Median	31
Humanistic Approach	15	Correlation	32
<i>Some Universal Psychological Characteristics: Priorities and Policies</i>	16	<b>A Concluding Note</b>	34
A Concluding Note	18	<b>How This Book Is Organized</b>	34
<b>How Scientific Psychology Differs from Everyday Psychology</b>	19		

**H**ere is a tale called “The Elephant in the Dark” about a town in which everyone was blind.

One day, an elephant appeared in the town square. No one in town had ever heard of or knew of this strange animal. The King of the Blind sent his three wisest men to find out what manner of creature this elephant was. Each sage approached the elephant from a different side. The one whose hand had touched the ear reported back that he had discovered the true nature of the elephant. “It is large and flat, rough — like a rug.” The second, who had felt only the trunk, said, “That’s not it at all — I know the answer. It is like a trumpet, but capable of dramatic movement.” The third touched only the legs, and he disagreed vehemently with the other two, “No, no, no. You’ve got it all wrong. The elephant is mighty and firm like a pillar.” Needless to say, none of the single observations could reveal the true nature of the elephant. (Adapted from *Tales of the Dervishes* by Idries Shah, 1970)

Suppose *you* were curious about the discovery of a “strange creature,” but instead of an elephant, it was a human being. How would you find out what it is



like? You would need to understand where it came from, its past, its family history, its physiology. You would ask, how does its brain work? How does it behave and communicate? What is its sex? What pleases it? How does it act with others? How do culture, groups, and family affect it? How is it like all other individuals of its species?

You would have to ask all these questions—and many more. Each question answered could lead to more questions. One that seems quite simple such as “What is sleep?” might remain unanswered, even after years of inquiry.

Psychologists are in this situation. They approach their study from numerous directions, ask different questions, and use diverse methods. Each aspect of psychology tries to shed some small light on some previously mysterious part of being human: to illuminate the “person in the dark.” Psychology tries to answer many of the questions we have about ourselves, other people, and the nature of human life: Why do I feel lonely? What is “going crazy” like? What makes someone “creative”? What happens when I take drugs? What is a mystical experience? What makes someone help another?

Psychology can be broadly defined as a complete science of human experience and behavior. The science involves the study of the brain and nervous system, mental life, behavior, stresses, and disorders. What all this means will take this chapter to start to define and the rest of the book to begin to flesh out.

### Selected Moments from the History of Psychology

Psychology is a recent addition to the sciences. In 1900 there were about 125 psychologists in the United States, while there are now more than 60,000. Psychology borders and draws from many different disciplines—from biology and genetics to philosophy and sociology—since psychologists may work probing a gene or a group, a child’s thoughts, or a politician’s popularity.

It is a fertile science and its sources are abundant. For centuries, inquiry regarding the mind, behavior, and human nature was the dominion of philosophical schools. But after the Renaissance, many thinkers speculated that direct observation of human conduct, as well as inspection of the structure of the human brain and body, might illuminate the perennial questions of philosophy: Is thinking

#### WHO AM I?

How do you know what you are like? Often our personal deliberations about our own identity do not suffice. Nasrudin, an essential folk character, tried many ways to know himself. We

will become acquainted with more of them as this book goes on.

Psychology is both a science and a method of understanding yourself and others from a collection of viewpoints.

*Nasrudin went into a bank with a check to cash.*

*“Can you identify yourself?” asked the clerk.*

*Nasrudin took out a mirror and peered into it.*

*“Yes, that’s me all right,” he said.*