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LEITMAN

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P S Y C H O L O G Y**

**F O U R T H E D I T I O N**



**H E N R Y G L E I T M A N**

W . W . N O R T O N & C O M P A N Y . N E W Y O R K . L O N D O N

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To Ellen and Zachary, Claire, David, and Philip

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# P R E F A C E

This is the fourth edition of my book *Basic Psychology*. One reason for this revision is the obvious fact that, like any other discipline, psychology advances and develops. When I began my graduate work fifty years ago, psychologists tended to be rather defensive about the status of the field and were perhaps a bit too loud in proclaiming that “Psychology is a science!” But by now there is no need for such defensive proclamations, for that assertion has become a simple statement of fact. In the last half a century psychology has assuredly become a “real” and vigorously progressive science.

As a field advances, so must all attempts to describe it. These advances, together with the suggestions by the many students and colleagues who have used this text, prompted a number of changes that I describe below.

## THE OVERALL AIM: COHESION IN A DIVERSE FIELD

Before describing these changes, let me briefly review what has not changed: my original aims. In writing *Basic Psychology*, I sought to present the field in all its diversity while yet conveying the sense in which it is a coherent intellectual enterprise. In pursuit of this goal, I did the following:

1. To present the different sub-areas of psychology, I organized the book around five main questions: How do humans (and where relevant, animals) act, how do they know, how do they interact, how do they develop, and how do they differ from each other?
2. To provide some intellectual cohesion, I considered each topic against the backdrop of one or two major ideas that could serve as an organizing and unifying framework. Thus the chapter on the biological bases of behavior opens with Descartes’ conception of the organism as a machine and the next chapter treats various aspects of motivated behavior as manifestations of negative feedback. To relate the material across chapters, I used several overarching themes. For example, the various chapters that deal with cognition (“Sensory Processes,” “Perception,” “Memory,” “Thought and Knowledge,” and “Language”) all consider variations on the two controversies of nature versus nurture and psychological atomism versus organization.



3. In many cases, the attempt at integration required taking a step backward to look at psychology's intellectual history, for a number of the field's endeavors are hard to explain unless one points to the paths that led up to them. Why did Thorndike study cats in puzzle boxes? Why did his conclusions have such an important effect on American psychology? Why were they challenged by Köhler and Tolman? It still pays to take a serious look at the work of such pioneers before turning to the present. Much as a river's water is clearer when it is taken from its source, so issues that have become more and more complex as detail has been piled upon detail become plainer and more evident when traced back to their origin.

## **GENERAL ORGANIZATION**

Several organizational changes distinguish this edition from the previous ones. One concerns the discussions of Freud, psychoanalysis, and current dynamic approaches to personality, which are now brought together. Toward this end I eliminated the separate chapter on psychoanalysis and dealt with that material within the general two-chapter discussion of personality (specifically, in Chapter 17). Another is a revision of the old chapter on thinking. This is now entitled "Thought and Knowledge" and deals with both the knowledge base of thought (that is, generic and semantic memory, which were formerly discussed in the chapter on memory) as well as the processes of thinking (that is, problem solving, reasoning, and decision making). As a result, the chapter on memory is primarily devoted to episodic memory. Further changes represent updatings (in some cases, major updatings) of the subject matter, which are best described within an outline of the overall structure of the book.

Another significant change is the addition of Focus Questions throughout and Questions for Critical Thinking at the ends of chapters. The Focus Questions have been added to help guide the students' reading, enabling them to attend more readily to the chapters' key points. The Questions for Critical Thinking have been added to help readers pull together the sometimes wide-ranging material covered within chapters. Both should help students think more clearly and more deeply about what they've read.

After an introductory chapter, the book is divided into five parts that reflect the perspectives from which most psychological phenomena can be regarded: Action, Cognition, Social Behavior, Development, and Individual Differences. In brief outline, they cover the following topics:

### **PART I: ACTION**

■ This part focuses on overt behavior and its physiological basis. It begins by considering the biological underpinnings of human and animal action, leading to a discussion of the nervous system and its operation (Chapter 2) and some phenomena of motivation (Chapter 3). It then asks how organisms can modify their behavior to adapt to new circumstances, a topic that leads to a discussion of classical and instrumental conditioning, modern behavior theory, and more recent approaches that take a more cognitive slant (Chapter 4).

In Chapter 2 ("Biological Bases of Behavior") the discussion of cerebral structures is revised, with demonstrations of hierarchical organization integrated into the description of cerebral anatomy and a greater emphasis on evolutionary

issues. Chapter 3 (“Motivation”) uses the concept of potentiation as an overall organizational principle. It also includes a section on pain and endorphins, topics that were formerly dealt with mostly in Chapter 2. Chapter 4 (“Learning”) stresses recent developments in animal learning, including work on contingency and modern cognitive approaches to classical and instrumental conditioning. It also explores the adaptive evolutionary perspective, as in a discussion of similarities and differences in the ways various animals learn.

## **PART II: COGNITION**

■ This part deals with knowledge and how it is gained and used. It begins by asking how the senses provide us with information about the world outside (Chapter 5) and how this information is organized and interpreted to lead to the perception of objects and events (Chapter 6). Further questions concern the way this knowledge is stored in memory and retrieved when needed (Chapter 7), the way it is organized through thinking (Chapter 8), and the way knowledge is communicated to others through the medium of language (Chapter 9).

Many of the changes in this part reflect a greater concern with recent information-processing approaches and a greater stress on evolutionary adaptiveness. Chapter 5 (“Sensory Processes”) contains a discussion of evolution and sensory equipment, as well as a new section on feature detectors (a topic formerly dealt with in Chapter 6). In Chapter 6 (“Perception”), the organization has been changed to give more prominence to modern approaches to pattern recognition. Chapter 7 (“Memory”) focuses primarily on episodic memory, including the modern emphasis on encoding and retrieval, the role of schemas in memory, the issue of false memories, and the difference between explicit and implicit memory. Chapter 8 (“Thought and Knowledge”) begins with the database on which thinking rests, including topics that were formerly dealt with in the previous chapter: analogical representations and symbolic or digital representations.

## **PART III: SOCIAL BEHAVIOR**

■ This part concerns our interactions with others. It begins with a discussion of built-in social tendencies in humans and animals, a topic to which ethology and evolutionary theory have made major contributions (Chapter 10). It then turns to modern social psychology, considering how people try to understand the social situation in which they find themselves, how they interpret their own internal states and emotions, and how they interact with others (Chapters 11 and 12).

There have been several changes in this section. In Chapter 10 (“The Biological Basis of Social Behavior”) the treatment of social cognition in primates has been expanded and now includes a discussion of whether monkeys and apes have a “theory of mind.” The section on human mating patterns has also been revised. Chapter 11 (“Social Cognition and Emotion”) continues to focus on the way individuals interpret social events, including discussions of attitudes, attribution, impressions of others, the interpretation of one’s own internal states, and emotions and facial expression. Chapter 12 (“Social Interaction”) continues to treat of the way individuals deal with others. In addition to discussions of social exchange, attraction and love, conformity, obedience, and crowd behavior, it has one new section on leadership and another on social dilemmas.

**PART IV: DEVELOPMENT**

■ This section contains two chapters on development. Chapter 13 (“Physical and Cognitive Development”) continues to focus on recent, post-Piagetian approaches to mental growth and includes material on social cognition in infants and preschoolers, including studies of false beliefs and their bearing on the child’s development of a “theory of mind.” Chapter 14 (“Social Development”) has been updated with expanded discussions of such topics as moral development, empathy, sex, and gender. Among topics treated in this chapter is the role of cultural factors in moral reasoning and recent discoveries about the physiological and genetic bases of homosexuality.

**PART V: INDIVIDUAL DIFFERENCES**

■ This part begins with a chapter on mental testing in general and intelligence testing in particular (Chapter 15), and then follows with two chapters on personality assessment and theory (Chapters 16 and 17). It continues by looking at several varieties of psychopathology and asking how they arise (Chapter 18), and concludes by examining various methods of treatment and therapy (Chapter 19).

Chapter 15 (“Intelligence”) is updated in various ways, including the consideration of intelligence in a social and cultural context. As already noted, the two chapters on personality have been reorganized to include both early and more recent psychoanalytic conceptions, thus incorporating material that was formerly presented in a separate chapter on Freud and psychoanalysis. Chapter 16 (“Personality I”) considers methods of personality assessment and discusses trait theory and behavioral-cognitive theory as two of five theoretical approaches to personality, with particular attention to the trait-situation controversy and to recent attempts to look for biological and genetic bases of personality differences. Chapter 17 (“Personality II”) takes up three other theoretical approaches to personality—the psychodynamic, humanistic, and sociocultural. It includes a full treatment of psychoanalytic formulations, beginning with Freud’s original theories and concluding with a discussion of early and later critiques. A completely new section describes some recent attempts to put the study of personality in a social and cultural context.

Both Chapter 18 (“Psychopathology”) and Chapter 19 (“Treatment of Psychopathology”) have been drastically updated to include modern developments, such as new pharmacological approaches to treatment and new approaches to the evaluation of treatment outcome.

**THE READER AND THE BOOK**

It is sometimes said that students in the introductory course want to learn about things that are relevant to themselves and to their own lives. But why should this be a problem? When you come right down to it, there is something odd about the idea that psychology is not relevant to anyone’s particular life history—specialist and nonspecialist alike. Psychology deals with the nature of human experience and behavior, about the hows and whys of what we do, think, and feel. Everyone has perceived, learned, remembered, and forgotten, has been angry and afraid and in love, has given in to group pressure and stood up to it. In short, everyone has experienced most of the phenomena that psychology tries to explain. This being so, psychology cannot fail to be relevant.

I've tried to point out this relevance by a liberal use of examples from ordinary experience and a frequent resort to metaphors of one kind or another, in the hope that in so doing I would show the direct relation of many psychological phenomena to the reader's own life. In these attempts, the most important guide has been my own experience as a classroom teacher. There is little doubt that one of the best ways of learning something is to teach it, for in trying to explain something to others, you first have to clarify it for yourself. This holds for the subject matter of every course I have ever taught, but most especially for the introductory course. Students in an advanced course will come at you with tough and searching questions; they want to know about the evidence that bears on a theory of, say, color vision or language acquisition and about how that evidence was obtained. But students in an introductory course ask the toughest questions of all. They ask why anyone would ever want to know about color vision (or language acquisition or whatever) in the first place. And they also ask what any one topic has to do with any other. They ask such questions because they—unlike advanced students—have not as yet accepted the premises of the field. They wonder whether the emperor is really wearing any clothes. As a result, they make me ask myself afresh what the field of psychology is all about—what the emperor's clothes are really like when you look at them closely.

This book, as well as its predecessors, grew out of my attempts to answer such questions over the years in which I have taught the introductory course, to answer them not only to satisfy the students but also to satisfy myself.

## **SUPPLEMENTARY MATERIALS**

To help serve the needs of students, instructors, and teaching assistants, several supplementary materials are available with this text.

### **1. For the student:**

There is a complete study guide for students, prepared by two of my colleagues and collaborators, John Jonides of the University of Michigan and Paul Rozin of the University of Pennsylvania. This study guide, a revised version of the guide the same authors wrote for the four previous editions of *Psychology*, should prove very useful to students who want some help and guidance in mastering the material in the text. Moreover, for every chapter, it provides experiments and observational studies that students can carry out on their own to get some first-hand experience with psychology's subject matter.

### **2. For the instructor:**

There is an instructor's resource manual, prepared by Kimberly Cassidy of Bryn Mawr College, Christine Massey of Swarthmore College, Hilary Schmidt of New Jersey Medical School, and myself, which offers specific suggestions for every textbook chapter, including discussion topics, a bibliography, an annotated film and media guide, and classroom demonstrations. Included in the demonstrations are materials necessary to perform some twenty-five in-class experiments covering a range of phenomena, from the speed of the nervous impulse, through the Stroop effect, to a demonstration of gender stereotypes. Transparencies, student worksheets, data summaries, and detailed instructions for the teacher are also included. These demonstrations are adapted from those that I and my collaborators, Paul Rozin and Lila Gleitman (both of the University of Pennsylvania), have used in our own teaching.

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## PREFACE

Paul Cornwell of Pennsylvania State University, Richard Day of McMaster University, and John Jonides of the University of Michigan, with the help of Tibor Palfai of Syracuse University, have prepared a test-item file, which includes questions for all chapters plus the statistical appendix. A proportion of these questions have been statistically analyzed at Syracuse and Pennsylvania State Universities; the resulting data are included in the printed test-item file. Of course, this test-item file is also available on diskette in MS-DOS and Macintosh formats.

## ACKNOWLEDGMENTS

There remains the pleasant task of thanking the many friends and colleagues who helped so greatly in the various phases of writing this book and its predecessors. Some read parts of the manuscript and gave valuable advice and criticism. Others talked to me at length about various issues in the field, which I then saw more clearly. I am very grateful to them all. These many helpers, and the main areas in which they advised me, are as follows:

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## **PREFACE**

McCloskey, Johns Hopkins University; Douglas Medin, University of Illinois; Morris Moscovitch, University of Toronto; Daniel Reisberg, Reed College.

## **LANGUAGE**

■ Barbara Landau, Columbia University; Anne Lederer, University of Pennsylvania; Elissa Newport, University of Rochester; Ruth Ostrin, Medical Research Council, Cambridge, England; Ted Suppala, University of Rochester.

## **SOCIAL PSYCHOLOGY**

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## **INTELLIGENCE**

■ Jonathan Baron, University of Pennsylvania.

## **PERSONALITY**

■ Hal Bertelson, Saint Joseph's University; Nathan Brody, Wesleyan University; Peter Gay, Yale University; Lewis R. Goldberg, University of Oregon, Eugene.

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## **GENERAL ADVICE ON TOPIC COVERAGE**

■ Thomas Critchfield, Illinois State University; Mark Fineman, Southern Connecticut State University; Murray Goddard, University of New Brunswick, St. John; Robert Stern, Pennsylvania State University; Toni Strand,



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To state in detail how each of these people helped me is impossible. But I do want to express special thanks to a few whose comments helped me to see whole topics in a new light for this edition. I owe special thanks to Charles R. Gallistel of the University of California at Los Angeles, for enormously helpful comments on the entire book, especially the sensory and physiological chapters; to Doug Mook of the University of Virginia, who continued to give wise counsel on problems in the field of motivation; to Jeremy Wolfe of the Massachusetts Institute of Technology, who helped me to understand some important modern developments in the fields of sensation and perception; to Douglas L. Hintzman of the University of Oregon, whose sharp and incisive critique of my old chapter on memory forced me to see that entire area in a new light; to Ed Kako, who gave me some important insights into the nature of sexual orientation; and to Lisa Zorilla, who made me aware of some recent changes in the understanding of the biological basis of schizophrenia.

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Three persons contributed in a special way: Alan Fridlund, Daniel Reisberg, and Paul Rozin. All three are distinguished scientists as well as dedicated teachers with considerable experience in the introductory course. They served as an editorial advisory group, counseling me on all aspects of this edition and sharing their knowledge of the subject matter as well as their experience in communicating it to beginning students. Alan Fridlund was particularly helpful in the areas of social processes, the emotions, and psychopathology. He also deserves warm thanks for writing all of the Focus Questions and Questions for Critical Thinking. Daniel Reisberg provided sharp criticisms and new perspectives, especially in the area of cognition. And as always, my old friend Paul Rozin helped me see many facets of the field in a new way, especially those that involve issues of evolutionary and cultural development.

In thanking all of these many people I take particular pleasure from the fact that a good number of them were once undergraduate or graduate students of mine. I find something reassuring in the reflection that those I once taught are now teaching me, though it's almost certain that I have learned much more from them than they ever learned from me.

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## PREFACE

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Merion, Pennsylvania

July 1995

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