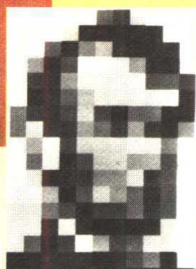
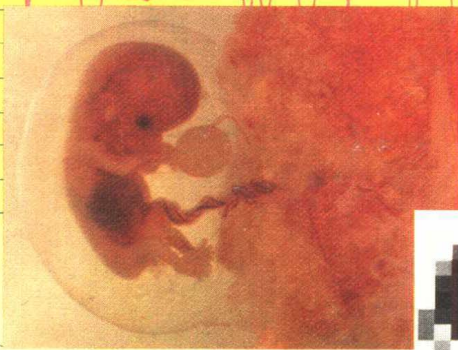
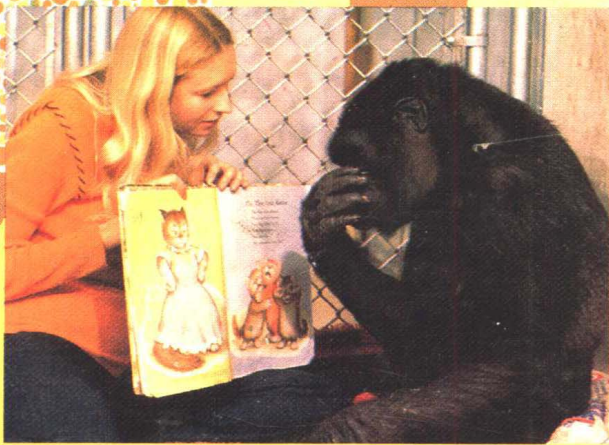
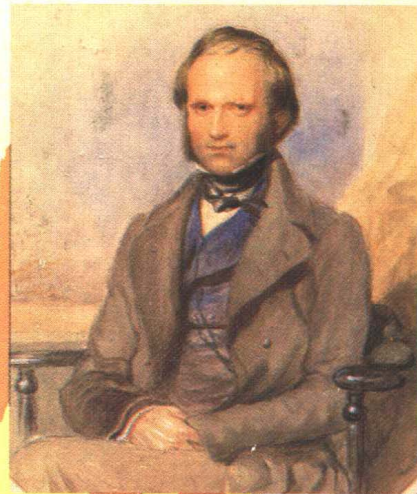
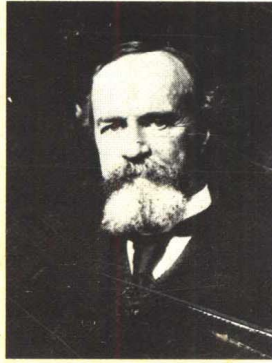


Psychology

The Personal Science



John C. Ruch

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My goal in writing this text has been to direct the interest students have in their own behavior and in the behavior of others into the scientific discipline of psychology. I see psychology as a quantitative experimental science. It is a particular kind of science, however, because most of the topics psychology studies are of personal interest or concern to all of us: why as individuals we eat, sleep, and think, why in interaction with others we talk, fight, and make love, why in social groups we support our friends and confront our enemies. I have tried throughout the book to present the science of psychology without sacrificing its *personal* meaning. In seeking to achieve that goal, I have sought to make the book *comprehensive, scholarly, integrative, thematic, current, and teachable.*

To make it *comprehensive*, I have included a broad range of concepts and terms—but not so many as to overwhelm students. I have tried to cover all major topics in a consistent fashion, with an appropriate level of detail, avoiding both superficial coverage and excessive details that can obscure meaning.

To make the book *scholarly* and *integrative*, I have provided more historical background and more thematic unity than the usual “eclectic” introductory text. For example, Chapter 1 includes the work of Wundt, Fechner, and James and the role of structuralism and functionalism in the development of psychology. I describe five major questions with both historical and contemporary implications, including the nature/nurture and mind/body questions. And seven major psychological perspectives are introduced, including their founders as well as their major views. I note the *attempts of theorists to combine perspectives as well as the relationship of psychology to other sciences.* I thus try to present psychology as a particular way of thinking, *with a substantial past, a multi-faceted present, and future goals.*

To further the *thematic* integration, I use both the classic questions and the major perspectives throughout the book. The “human-as-animal” question and the ethological perspective, for example, are further elaborated in the discussion of evolution in Chapter 3, then picked up in the contexts of motivation, sensory sampling of information, consciousness, language, and elsewhere. The cognitive perspective is covered both in Chapters 10 and 11 on language and thinking and within other chapters, such as the social cognition discussion of Chapter 17. Some themes are developed primarily within a single chapter (for example, the theme of survival in Chapter 4), and others span several chapters. Hemisphere-differences research is described in Chapter 2, then further noted in several later chapters, including those on consciousness, language, and thinking.

Preface

The text is *current* in its overall orientation, its topic coverage, and the research it draws on, based on a variety of journals, periodicals, and books. The emphasis on cognitive approaches in many chapters, for example, reflects a major trend in the field. Particular developments noted include not only those of psychology itself—such as new approaches in learning theory, recent arguments about ape language, the Kaufman Assessment Battery, DSM-III, and research on loneliness—but also developments relevant to psychological research, such as the nuclear magnetic resonance technique for exploring brain function. (I have not, however, included some topics that I feel are faddish or not yet well supported by evidence, such as near-death experiences or ESP.)

In keeping with psychology's ongoing concern with gender roles, the entire text is gender-balanced in language use and choice of examples, and it consistently identifies female researchers as such.

To enhance *teachability*, I have set formal concepts in a context of student interest and relevance. The chapter-opening vignettes, for example, are based on real experiences and are further developed in the body of the chapter. Topics of particular interest are included throughout, not merely for interest but as integrated parts of the chapter—Chapter 10, for example, includes discussions of animal language research, black English, bilingualism, sex differences in speech patterns, spoonerisms, and fortune tellers. Examples and applications include the Personal Application boxes, which focus on particular applications of the chapter's content; other applications occur throughout the prose. The Notable Quotes, the Patient Quotes of Chapter 15, and the quotations included with illustrations of famous psychologists all provide a first-person immediacy. Even the statistics appendix emphasizes thought processes, not computations.

Various structural features are also designed to aid the teaching of this text. In addition to standard features such as boldfacing of key terms, boxed examples, chapter summaries, further readings, and an extensive bibliography, the book has a combined glossary/index, so that students can get both page references and key definitions in one place. I have tied all illustrations and boxes to the relevant text discussion by means of square "bullets" (■), thus enabling students to easily relate prose and illustrative materials; illustration references always occur at the ends of paragraphs.

The ancillaries include a study guide, prepared by Jay Braun of Arizona State University, and a detailed instructor's manual, prepared by David Volckmann of Whittier College and Jean Volckmann of Pasadena City College. Almost 2000 multiple-choice test items, a large percentage of which are conceptual in nature, are

available both in printed form and through Wadsworth's testing program for mainframe and micro computers, including the testing services offered through its area-code-800 testing service.

ACKNOWLEDGMENTS

No text is the work of just one person. I feel genuinely indebted to a number of people; without their help this text either would not exist or would not be what it is.

First, I thank my wife Connie for her unending support and good humor, even when the pressure of deadlines turned me into something of a grouch and despite the demands of her own work. I could not have written this book without her help.

Second, I thank two professors for my inspiration and training in psychology: Dr. B. F. Skinner and Dr. E. R. ("Jack") Hilgard. Of all the courses I took as an undergraduate, Dr. Skinner's course still seems the most interesting and significant. When I finally attended graduate school after ten years in another career, I had the good fortune to become one of Jack Hilgard's students. I thank Dr. Skinner for his inspiration, even though it took some years to reach fruition. And I thank Dr. Hilgard not only for all that he has helped me to do but even more for being an inspiring role model.

I am also grateful to many people at Wadsworth; they include Ken King, the psychology editor. He offered me the chance to write this book and stood by me through the travails of turning my ideas into a finished manuscript. Once the project began, Mary Arbogast showed me how much I still had to learn about writing. Her unique combination of editorial skills and insight into what I was trying to say were invaluable in trimming and polishing the manuscript through repeated rewrites. Judith Hibbard's keen editorial eye helped keep all the many details consistent. Mollie Hughes and Jean O'Korn's search for photos and Marion Hansen's pursuit of permissions were both persistent and inspired. Wendy Calmenson skillfully oversaw the extensive art program. MaryEllen Podgorski's design for the book brought everything together into a beautiful package. And Sally Schuman coordinated the complex and difficult production of the book.

My thanks also to David and Jean Volckmann for their fine instructor's manual and to Jay Braun for his outstanding study guide.

I also owe a considerable debt to those professors and researchers who took time out of their busy schedules to read various drafts and to point out where what I was saying was too much or too little, or where I was

in error. For their help, I am grateful; any errors that may remain are, of course, my responsibility. Those reviewers include:

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Patricia Walsh, Loyola Marymount University

Writing this text has been thoroughly enjoyable, but it has also been an effort that only other authors can truly appreciate. Now that it is finished, I present it to you as a parent presents a child: I am certainly proud of it, but you must decide what you think of it. If you have any comments on my progeny that you would like to share with me, please do—at Mills College, Oakland, Calif. 94613.

John C. Ruch

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Appendix: Statistics in Psychology

Brief Contents

Part I

T*he Science
of Psychology*

You go to a party given by some friends, where you are introduced to someone described to you as a “psychologist.” What are your immediate expectations about this person? Do you have any idea what he or she studied to become a psychologist, or what he or she is likely to do every day to earn a living? Do you assume that this person is a therapist, spending each day trying to understand and help disturbed people? Are you just a little concerned as to what you say, and a little uncomfortable lest such daily practice at uncovering unconscious motives allow this psychologist somehow to uncover your innermost thoughts? If you don’t, you’re unusual. If you do know that most psychologists are *not* therapists, do you know what else they do? What would you expect this person to be interested in? Our first task in studying psychology is to answer some of these questions, to examine just what psychology is and what psychologists do.

Many people think of psychology primarily as a profession that helps mentally disturbed people. Many practicing psychologists *are* therapists, but most are not; psychologists work in industry, in schools, and elsewhere, and perform a wide variety of tasks. Psychology is also the scientific discipline behind these applications. Research psychologists seek to add to the basic understanding that practicing psychologists can apply.

Psychologists often find that issues they confront are variants of a few very old philosophical questions, and most must take some position on these questions to carry out their work effectively; we will note five such classic questions. As psychology developed in the late 19th century, the approach taken to these classic problems by the early psychologists helped determine the form and content of contemporary psychology, so we will briefly consider these historical approaches.

Since its inception, psychology has grown and changed, so an overview of seven current perspectives will help lay the groundwork for the rest of the text. Finally, psychology as a science utilizes several accepted methods of gathering its basic data; some understanding of these methods is also necessary for the chapters to follow.

PSYCHOLOGY AS SCIENCE AND PROFESSION

The psychology we will focus on is a scientific discipline that seeks to understand human behavior (Monte, 1975; Schultz, 1970). But psychology is also a profession aimed at improving the quality of life (Miller, 1969, 1980). Applied psychology may involve therapy, but more frequently involves quite different

Chapter 1

What Is *Psychology?*

Psychology as Science and Profession

Psychology as a Science

Personal Application: Did Your Society Tell You the Truth About Behavior?

Psychology as a Profession

The Questions

1. Free Will or Determinism?
2. Are Humans Merely Animals?
3. The Nature/Nurture Problem
4. The Mind/Body Problem
5. Developmental or Situational Causes?

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The Zeitgeist of the 19th Century

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Methods

Observational Techniques

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Research Controversy: Do Goldfish Learn Better in the Winter?

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Chapter Summary

Further Readings

activities: the arrangement of job rules or the design of aircraft cockpits, for example, to make the activities carried out within them easier, more efficient, and safer (Chapanis, 1953). Although most of our emphasis will be on the science of psychology, we will occasionally look at some of the applied professional uses (Fox et al., 1982).

Psychology as a Science

A **science** is a structured form of study of some range of phenomena (Goldstein, 1980). Before looking at that structure, which is called the *scientific method*, let us examine the general content of psychology, its classic questions, and the historical and contemporary approaches to them.

Defining Psychology The word *psychology* combines the Greek words for mind (*psyche*) and study (*logos*) and thus means "the study of the mind." It has also been frequently defined as the science of behavior. But psychologists who use this definition include mental activities as a kind of behavior; to them, if you "think" of something, you are still behaving, even though you may show little activity on the outside. Other psychologists, however, wish to give hidden behavior more specific emphasis. To emphasize that both are included, we define **psychology** as the science of behavior and mental activity.

The goals of psychology are the goals of any science: to describe, explain, predict, and control the phenomena that are its subject matter. The case of John W. Hinckley, Jr., for example, demonstrates some of the problems faced by psychology as well as the society of which it is a part. ■ Figure 1.1

How can psychologists (or judges, or jurors) describe Hinckley: as misguided, psychotic, a cunning liar, or . . . ? How can we explain how he came to be this way? Could we have predicted his attack on the president or can we predict if he would kill again if released? How could we have controlled Hinckley so that whatever led him to kill was prevented, and how can we best control him now so that he is not a continuing danger?

Most psychologists would accept our definition and goals of psychology, though each would no doubt wish to add qualifiers. Perhaps the most controversial part is the meaning of the word *control*, largely because of its complex moral and ethical implications. Note, however, that control simply means "make effective change"; this is the sense in which most practicing psychologists seek to control behavior, whether they are therapists, teachers, or industrial consultants. All seek to make some effective change in behavior; if no one's behavior changed as a result of what psy-

chologists did, their work would be ineffective. In a similar sense, we all seek to make effective changes in our own behavior: this is *self-control*.

Psychology and Other Sciences Psychology is one of several disciplines that focus on human behavior. It is usually grouped with the behavioral sciences or social sciences, which include disciplines closely related to psychology, such as sociology and anthropology, along with others such as economics, linguistics, and political science (Prewitt, 1981; Simon, 1980). Psychology is also sometimes considered one of the natural sciences, which also include biology. Since psychologists approach questions in such varied ways, they sometimes seem closer to these other disciplines than they do to other psychologists. A social psychologist may seem more like a sociologist, for example, and a physiological psychologist may seem more like a biologist than they seem like each other.

But psychologists share many commonalities, including assumptions, training, and language, that help to define them. Psychologists, for example, share a focus on the *individual* and on *behavior*. A social psychologist thus focuses on the individual within a social context, whereas a sociologist focuses on the social group as a whole. A physiological psychologist concentrates on physiological explanations of behavior, whereas a biologist studies all aspects of physiology.

Basic and Applied Research Whatever their area of interest, some psychologists focus on **basic research**, seeking to understand underlying rules or mechanisms (Handler, 1979). These psychologists may choose simplified or specialized problems with little obvious practical significance. Other psychologists are more interested in **applied research**; they study very realistic problems, seeking to develop appropriate applications of what has been understood through basic research.

Both basic and applied researchers may be interested in memory, for example. Basic researchers might study how people memorize lists of words, something few of us do in daily life, or even how memory works in a species remote to us, such as flatworms. Applied researchers would be more likely to study problems such as those children have in remembering schoolwork.

A Technology of Behavior? The set of rules for carrying out some procedure may be called a *technology*. Although technologies can develop out of direct experience, they are more efficiently developed from scientific understanding. The technology of cannon building grew up through trial and error, for example, but modern physics and metallurgy allow much more

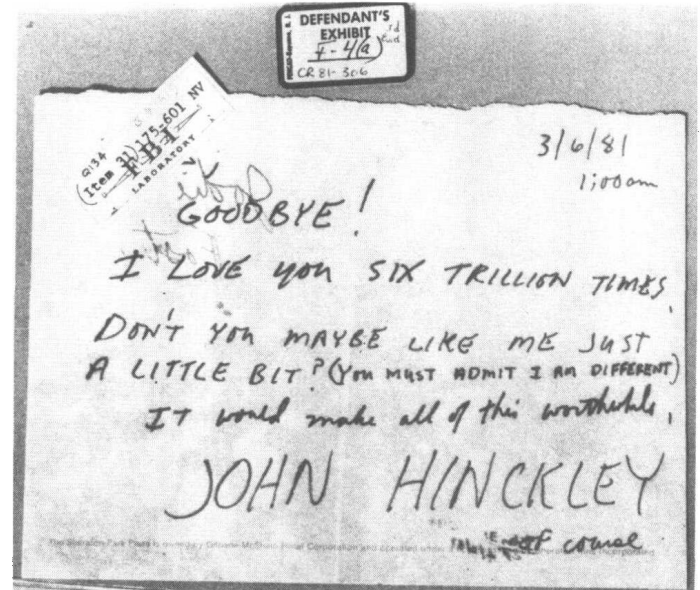
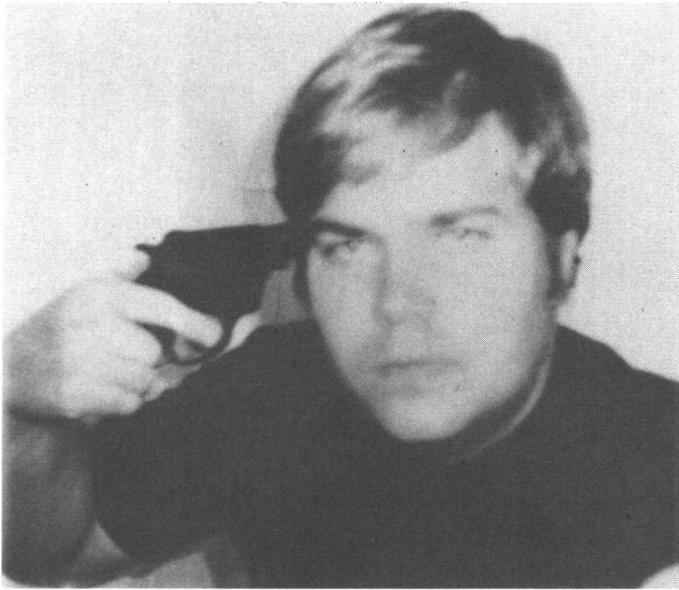


Figure 1.1 ■ John W. Hinckley, Jr., in a self-portrait, and one of his letters to Jodie Foster. Obsessed with Foster after seeing her in the movie *Taxi Driver*, Hinckley sought to demonstrate his love by trying to assassinate President Reagan. In one of the most publicized and controversial uses of the insanity defense, he was declared not guilty by reason of insanity and sent to a mental institution—from which he sends letters to the media discussing his case. Hinckley's case is unusual, but it poses the same questions psychology asks about all of us: Who are we? Why do we do what we do?

(Wide World Photos)

efficient design of any metal device. In the biological sciences, understanding of how organisms reproduce and grow has led to striking technological advances, from laboratory manipulation of DNA (the molecular basis of heredity) to surgery on fetuses.

Psychology has not yet provided the kinds of technological applications that the physical sciences have. Technological offerings from the behavioral sciences are not likely to be new machines or laboratory techniques. Instead, they will be more subtle: a **technology of behavior**. This phrase may seem a bit bizarre if you think of technology in terms of products, but remember that technology refers not to products, but to the rules for building them. Any technology, including a technology of behavior, offers a set of practical rules that may be easily applied to concrete problems; these may derive from scientific principles, but can be applied by almost anyone.

Some psychologists have offered the beginnings of such a technology (Skinner, 1968), but a broad and effective technology for application to human behavior is yet to be developed. The relative newness of the behavioral sciences, the complexity of their subject matter, ethical questions, and other reasons have kept this from occurring—at least for now. The technology that therapists and other professional psychologists now use is a mixture of scientific findings and methods developed through trial and error. Their work is as much art as technology.

However, psychology *has* demonstrated that some of the rules that everyone learns from society are, in fact, true—and perhaps more importantly, that some others are false. ■ **Personal Application: Did Your Society Tell You the Truth About Behavior?**

Although there might be some disagreement on detail interpretations, psychologists consider *all* of the statements listed in the box on p. 6 to be false. Even after taking introductory psychology, most students continue to believe these myths, which are very resistant to change. (As we study the relevant topics, the reasons why these statements are false should be evident.)

Psychology as a Profession

Soon after the formal founding of psychology in 1879, psychologists began to get together to share their interests. When the American Psychological Association (APA) was founded in 1892, it had fewer than 20 members, but progress thereafter was increasingly rapid; as of 1978, there were over 47,000 members (Dorken & Webb, 1981; McKinney, 1976).

This explosion in numbers occurred for practitioners of all sciences and in all countries in the 20th century, and both psychology and the United States have been strong participants. It is often said that 90% of all scientists who ever lived are alive today; for psychology, the percentage is at least 90%. Although psychology began in Germany, the center of the discipline

PERSONAL APPLICATION

Did your society tell you the truth about behavior?

More than 50% of beginning psychology students believed the following statements to be true (Vaughan, 1977). Do you agree?

- 1 To change people's behavior toward members of ethnic minority groups, we must first change their attitudes.
- 2 Memory can be likened to a storage chest in the brain into which we deposit material and from which we can withdraw it later if needed. Occasionally, something gets lost from the "chest" and then we say we have forgotten.
- 3 Personality tests reveal your basic motives, including those you may not be aware of.
- 4 The basis of the baby's love for his mother is the fact that his mother fills his physiological needs for food, etc.
- 5 By feeling people's faces, blind people can visualize how they look in their minds.
- 6 The more highly motivated you are, the better you will do at solving a complex problem.
- 7 The best way to ensure that a desired behavior will persist after training is completed is to reward the behavior every single time it occurs throughout training (rather than intermittently).
- 8 A schizophrenic is someone with a split personality.
- 9 Blind people have unusually sensitive organs of touch.
- 10 Fortunately for babies, human beings have a strong maternal instinct.
- 11 Biologists study the body; psychologists study the mind.
- 12 Unlike man, the lower animals are motivated only by their bodily needs—hunger, thirst, sex, etc.
- 13 Psychiatrists are defined as medical people who use psychoanalysis.
- 14 Children memorize much more easily than adults.
- 15 The ability of blind people to avoid obstacles is due to a special sense which develops in compensation for their absence of vision.
- 16 Boys and girls exhibit no behavioral differences until environmental influences begin to produce such differences.
- 17 "The study of the mind" is the best brief definition of psychology today.
- 18 Genius is closely akin to insanity.
- 19 The weight of evidence suggests that the major factor in forgetting is the decay of memory traces with time.
- 20 The unstructured interview is the most valid method for assessing someone's personality.
- 21 Under hypnosis, people can perform feats of physical strength which they could never do otherwise.
- 22 The more you memorize by rote (for example, poems) the better you will become at memorizing.
- 23 Children's IQ scores have very little relationship with how well they do in school.

(Eva D. Vaughn, *Teaching of Psychology*, 4, No. 3, Oct. 1977, 138–141.)

soon shifted to the United States, where it remains: Two-thirds of the world's psychologists are American.

Working in Psychology To be a psychologist, a person must earn an appropriate higher degree, perhaps be certified, and then get a job using these credentials. Two critical steps thus are training and occupation; a third way of categorizing psychologists is by their continuing interests.

A psychologist usually is the holder of a Ph.D. degree in psychology. Many schools offer M.A.'s, but there is substantial argument within the field as to whether holders of these ought to be regarded as full-fledged psychologists—whether they should be licensed for independent practice, for example, or be eligible for medical insurance payments for therapy. For research or teaching, the Ph.D. is virtually a necessity. For some applied fields, however, especially therapy, there are other acceptable specialized degrees. A Doctor of Psychology degree (Psy.D.), for example, qualifies a person to be a therapist, but is not as appro-

priate a degree for teaching or research as the Ph.D. Whatever the degree, however, a psychologist must specialize in some area. ■ Figure 1.2

The largest single area of specialization in training (Figure 1.2a) is clinical psychology, or therapy, but this area still accounts for less than one-third of the total. Its relative popularity may account, however, for the general impression that all psychologists are clinicians.

Psychologists may also be categorized in terms of what they do and for whom (Stapp et al., 1981). Figure 1.2b summarizes what they do. Note that an even smaller percentage of psychologists earn their living as clinicians (15%) than were trained as clinicians (29%) (Schneider, 1981). Not shown is for whom psychologists work—for example, whether the clinical work is an independent practice or for a state mental hospital.

Psychologists also differ in their interests; one way of representing these is by the Divisions of the APA. APA divisions sponsor meetings, publish specialized journals, and in other ways represent different interest groups; many psychologists belong to several divisions