

Prologue: The Story of Psychology

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- **Contemporary Psychology**

Psychology's Big Debate
Psychology's Three Main Levels of Analysis
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Close-Up: Your Study of Psychology

"I have made a ceaseless effort not to ridicule, not to bewail, not to scorn human actions, but to understand them."

Benedict Spinoza, *A Political Treatise*, 1677

W"What's it like being married to a psychologist?" people occasionally ask my wife. "Does he use his psychology on you?"

"So, does your Dad, like, analyze you?" my children have been asked many times by friends.

"What do you think of me?" asked one barber, hoping for an instant personality analysis after learning that I was a psychologist.

For these questioners, as for most people whose exposure to psychology comes from popular books, magazines, and TV, psychologists analyze personality, offer counseling, and dispense child-rearing advice.

Do they? Yes, and much more. Consider some of psychology's questions that from time to time you may wonder about:

Have you ever found yourself reacting to something just as one of your biological parents would—perhaps in a way you vowed you never would—and then wondered how much of your personality you inherited? *To what extent are person-to-person differences in personality predisposed by one's genes? To what extent by the home and neighborhood environments?*

Have you ever played peekaboo with a 6-month-old and wondered why the baby finds the game so delightful? The infant reacts as though, when you momentarily move behind a door, you actually disappear—only to reappear later out of thin air. *What do babies actually perceive and think?*

Have you ever awakened from a nightmare and, with a wave of relief, wondered why you had such a crazy dream? *How often, and why, do we dream?*

Have you ever wondered what leads to school and work success? Are some people just born smarter? *Does sheer intelligence explain why some people get richer, think more creatively, or relate more sensitively?*

Have you ever become depressed or anxious and wondered whether you'll ever feel "normal"? *What triggers our bad moods—and our good ones?*

Have you ever worried about how to act among people of a different culture, race, or gender? *In what ways are we alike as members of the human family? How do we differ?*

Such questions provide grist for psychology's mill because psychology is a science that seeks to answer all sorts of questions about us all: how we think, feel, and act.

A smile is a smile the world around

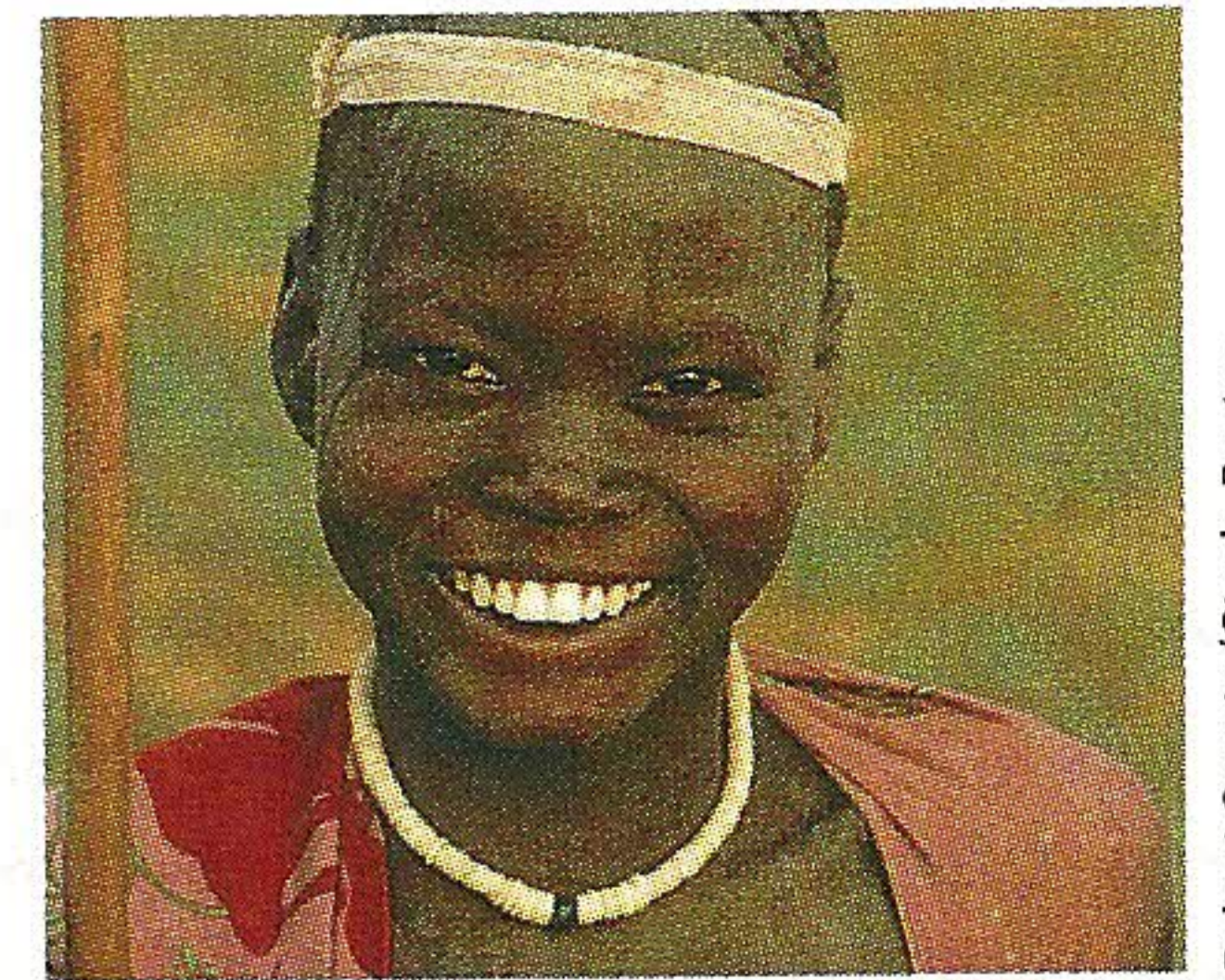
Throughout this book, you will see examples not only of our cultural and gender diversity but also of the similarities that define our shared human nature. People in different cultures vary in when and how often they smile, but a smile *means* the same thing anywhere in the world.



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Robert Caputo/Stock, Boston

Throughout the text you will find Objectives to help focus your reading, and at the end of each major section, the Learning Outcomes will help you review what you've read.

Throughout the text, important concepts are boldfaced. As you study, you can find these terms with their definitions in a nearby margin and in the Glossary at the end of the book.

Psychology's Roots

OBJECTIVE 1 | Define *psychology*.

Once upon a time, on a planet in your neighborhood of the universe, there came to be people. Soon thereafter, these creatures became intensely interested in themselves and in one another. They wondered, “Who are we? From where come our thoughts? Our feelings? Our actions? And how are we to understand—and to master or manage—those around us?” Psychology’s answers to these wonderings have developed from international roots in philosophy and biology into a science that aims to describe and explain how we think, feel, and act. Today we define **psychology** as *the scientific study of behavior and mental processes*. Let’s unpack this definition. *Behavior* is anything an organism *does*—any action we can observe and record. Yelling, smiling, blinking, sweating, talking, and questionnaire marking are all observable behaviors. *Mental processes* are the internal, subjective experiences we infer from behavior—sensations, perceptions, dreams, thoughts, beliefs, and feelings.

The key word in psychology’s definition is *science*. Psychology, as I will emphasize in Chapter 1 and throughout this book, is less a set of findings than a way of asking and answering questions. As a science, psychology evaluates competing ideas with careful observation and rigorous analysis. In its attempt to describe and explain human nature, psychological science welcomes hunches and plausible-sounding theories. And it puts them to the test. If a theory works—if the data support its predictions—so much the better for that theory. If the predictions fail, the theory will be revised or rejected.

My aim in this text, then, is not merely to report results but also to show you how psychologists play their game. You will see how researchers evaluate conflicting opinions and ideas. And you will learn how all of us, whether scientists or simply curious people, can think smarter when describing and explaining the events of our lives.

But first, let’s consider the roots of today’s psychology to help us appreciate psychologists’ varied perspectives.

Prescientific Psychology

OBJECTIVE 2 | Trace psychology’s prescientific roots, from early understandings of mind and body to the beginnings of modern science.

We can trace many of psychology’s current questions back through human history. These early thinkers wondered: How do our minds work? How do our bodies relate to our minds? How much of what we know comes built in? How much is acquired through experience? In India, for example, Buddha pondered how sensations and perceptions combine to form ideas. In China, Confucius stressed the power of ideas and of an educated mind. In ancient Israel, Hebrew scholars anticipated today’s psychology by linking mind and emotion to the body; people were said to think with their hearts and feel with their bowels.

In ancient Greece, the philosopher-teacher Socrates (469–399 B.C.) and his student Plato (428–348 B.C.) concluded that mind is separable from body and continues after the body dies, and that knowledge is innate—born within us. As Socrates lay dying, Plato’s future student, a teenager named Aristotle (384–322 B.C.), was developing a sharp mind in another part of Greece. Aristotle’s love of data distinguished him from Socrates and Plato, who derived principles by logic. An intellectual ancestor of today’s scientists, Aristotle derived principles from careful observations. His observations told him that “the soul is not separable from the body, and the same holds good of particular parts of the soul” (*De Anima*). Moreover, he said knowledge is *not* preexisting (sorry, Socrates and Plato); instead, it grows from the experiences stored in our memories.

■ **psychology** the scientific study of behavior and mental processes.

■ **empiricism** the view that (a) knowledge comes from experience via the senses, and (b) science flourishes through observation and experiment.

The next 2000 years brought few enduring new insights into human nature, but that changed in the 1600s, when modern science began to flourish. With it came new theories of human behavior, and new versions of the ancient debates. A frail but brilliant Frenchman named René Descartes (1595–1650) agreed with Socrates and Plato about the existence of innate ideas and the mind’s being “entirely distinct from the body” and able to survive its death. Descartes’ concept of mind forced him to conjecture, as people have ever since, how the immaterial mind and physical body communicate. A scientist as well as a philosopher, Descartes dissected animals and concluded that the fluid in the brain’s cavities contained “animal spirits.” These spirits, he surmised, flowed from the brain through what we call the nerves (which he thought were hollow) to the muscles, provoking movement. Memories formed as experiences opened pores in the brain, into which the animal spirits also flowed.

Descartes was right that nerve paths are important and that they enable reflexes. Yet, genius though he was, and standing upon the knowledge accumulated from 99+ percent of our human history, he hardly had a clue of what today’s average 12-year-old knows. Indeed, most of the scientific story of our self-exploration—the story told in this book’s chapters—has been written in but the last historical eye blink of human time.

Meanwhile, across the English channel in Britain, science was taking a more down-to-earth form, centered on experiment, experience, and common-sense judgment. Francis Bacon (1561–1626) became one of the founders of modern science, and his influence lingers in the experiments of today’s psychological science. Bacon also was fascinated by the human mind and its failings. Anticipating what we have come to appreciate about our mind’s hunger to perceive patterns even in random events, he wrote that “the human understanding, from its peculiar nature, easily supposes a greater degree of order and equality in things than it really finds” (*Novum Organum*). He also foresaw research findings on our noticing and remembering events that confirm our beliefs: “All superstition is much the same whether it be that of astrology, dreams, omens . . . in all of which the deluded believers observe events which are fulfilled, but neglect and pass over their failure, though it be much more common.”

Some 50 years after Bacon’s death, John Locke (1632–1704), a British political philosopher, sat down to write a one-page essay on “our own abilities” for an upcoming discussion with friends. After 20 years and hundreds of pages, Locke had completed one of history’s latest and greatest late papers (*An Essay Concerning Human Understanding*), in which he famously argued that the mind at birth is a blank slate—a “white paper”—on which experience writes. This idea, adding to Bacon’s ideas, helped form modern **empiricism**, the view that knowledge originates in experience and that science should, therefore, rely on observation and experimentation.

Psychological Science Is Born

OBJECTIVE 3 | Explain how the early psychologists sought to understand the mind’s structure and functions, and identify some of the leading psychologists who worked in these areas.

Philosophers’ thinking about thinking continued until the birth of psychology as we know it, on a December day in 1879, in a small room on the third floor of a shabby building at Germany’s University of Leipzig. There, two young men were helping an austere, middle-aged professor, Wilhelm Wundt, create an experimental apparatus. Their machine measured the time lag between people’s hearing a ball hit a platform and their pressing a telegraph key (Hunt, 1993). Later, the researchers compared this lag with the time required for slightly more complex tasks. Curiously, people responded in about one-tenth of a second when asked to press the key as soon as the sound occurred—and in about two-tenths of a second when asked to press the key as soon as they were consciously aware of perceiving the sound. (To be aware of one’s awareness



Bettmann/Corbis

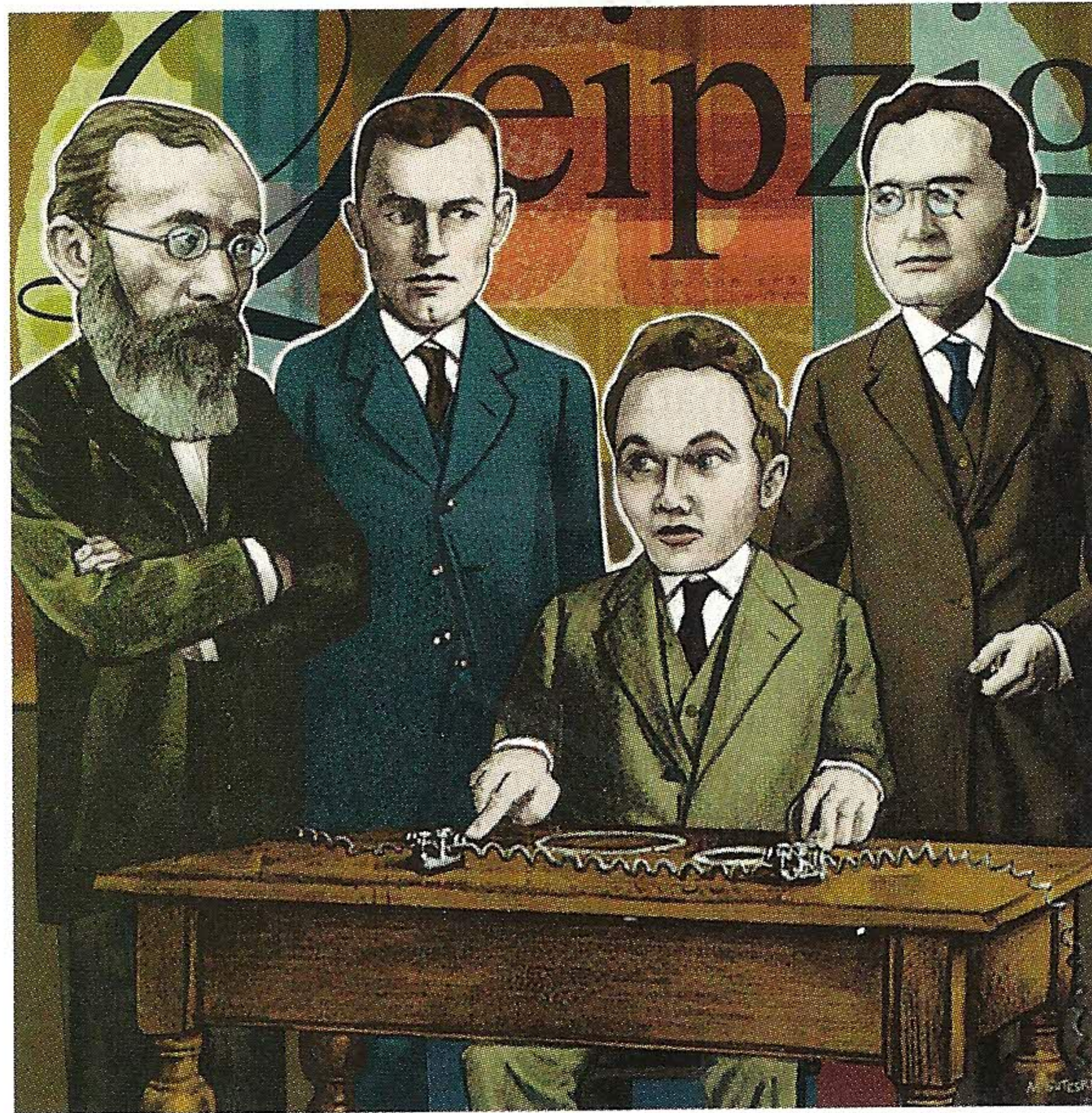
A seventeenth-century view of nerves

In his *Treatise of Man*, Descartes proposed the hydraulics of a simple reflex.

Information sources are cited in parentheses, with name and date, then provided fully in the References section at the book’s end.

Wilhelm Wundt

Wundt (far left) established the first psychology laboratory at the University of Leipzig, Germany.



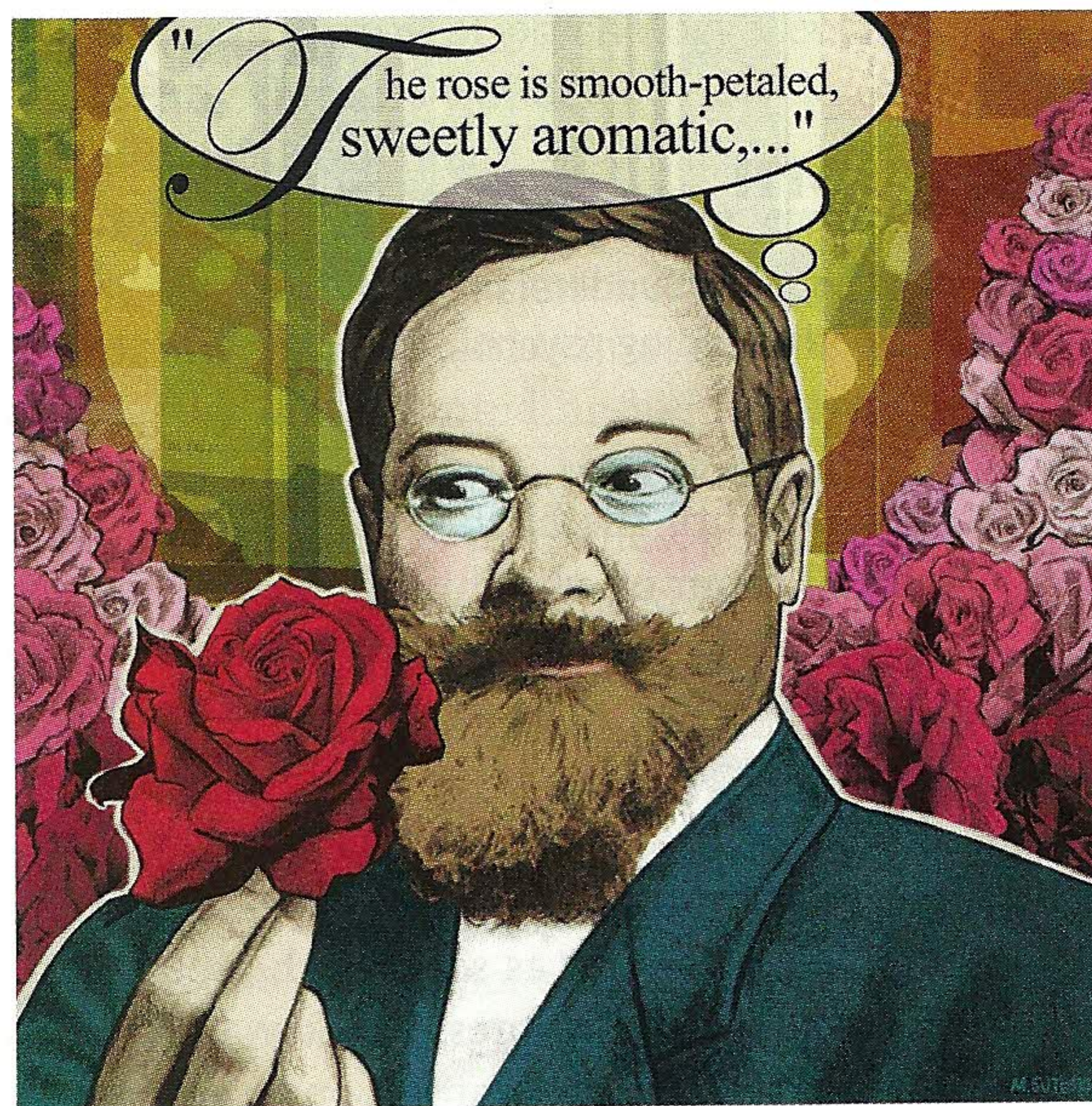
takes a little longer.) Wundt was seeking to measure “atoms of the mind”—the fastest and simplest mental processes. Thus began what many consider psychology’s first experiment, launching the first psychological laboratory, staffed by Wundt and psychology’s first graduate students.

Before long this new science of psychology became organized into different branches, or schools of thought, each promoted by pioneering thinkers. These early schools included *structuralism* and *functionalism*, described here, and Gestalt psychology, behaviorism, and psychoanalysis, described in later chapters.

Thinking About the Mind’s Structure

Soon after receiving his Ph.D. in 1892, Wundt’s student Edward Bradford Titchener joined the Cornell University faculty and introduced **structuralism**. As physicists and chemists discerned the structure of matter, so Titchener aimed to discover the elements of mind. His method was to engage people in self-reflective *introspection* (looking inward), training them to report elements of their experience as they looked at a rose, listened to a metronome, smelled a scent, or tasted a substance. What were

■ **structuralism** an early school of psychology that used introspection to explore the elemental structure of the human mind.



Edward Bradford Titchener

Used introspection to search for the mind’s structural elements.

their immediate sensations, their images, their feelings? And how did these relate to one another? Titchener shared with the English essayist C. S. Lewis (1960, pp. 18–19) the view that “there is one thing, and only one in the whole universe which we know more about than we could learn from external observation.” That one thing, Lewis said, is ourselves. “We have, so to speak, inside information.”

Alas, structuralism waned as introspection waned. Introspection required smart, verbal people. It also proved somewhat unreliable, its results varying from person to person and experience to experience. Moreover, recent studies indicate that people’s recollections frequently err. So do their self-reports about what, for example, has caused them to help or hurt another (Myers, 2002). Often we just don’t know why we feel what we feel and do what we do.

Thinking About the Mind’s Functions

Unlike those hoping to assemble the structure of mind from simple elements—which was rather like trying to understand a car by examining its disconnected parts—philosopher-psychologist William James thought it more fruitful to consider the evolved *functions* of our thoughts and feelings. Smelling is what the nose does; thinking is what the brain does. But why do the nose and brain do these things? Under the influence of evolutionary theorist Charles Darwin, James assumed that thinking, like smelling, developed because it was adaptive—it contributed to our ancestors’ survival. Consciousness serves a function. It enables us to consider our past, adjust to our present circumstances, and plan our future. As a **functionalist**, James encouraged explorations of down-to-earth emotions, memories, will power, habits, and moment-to-moment streams of consciousness.

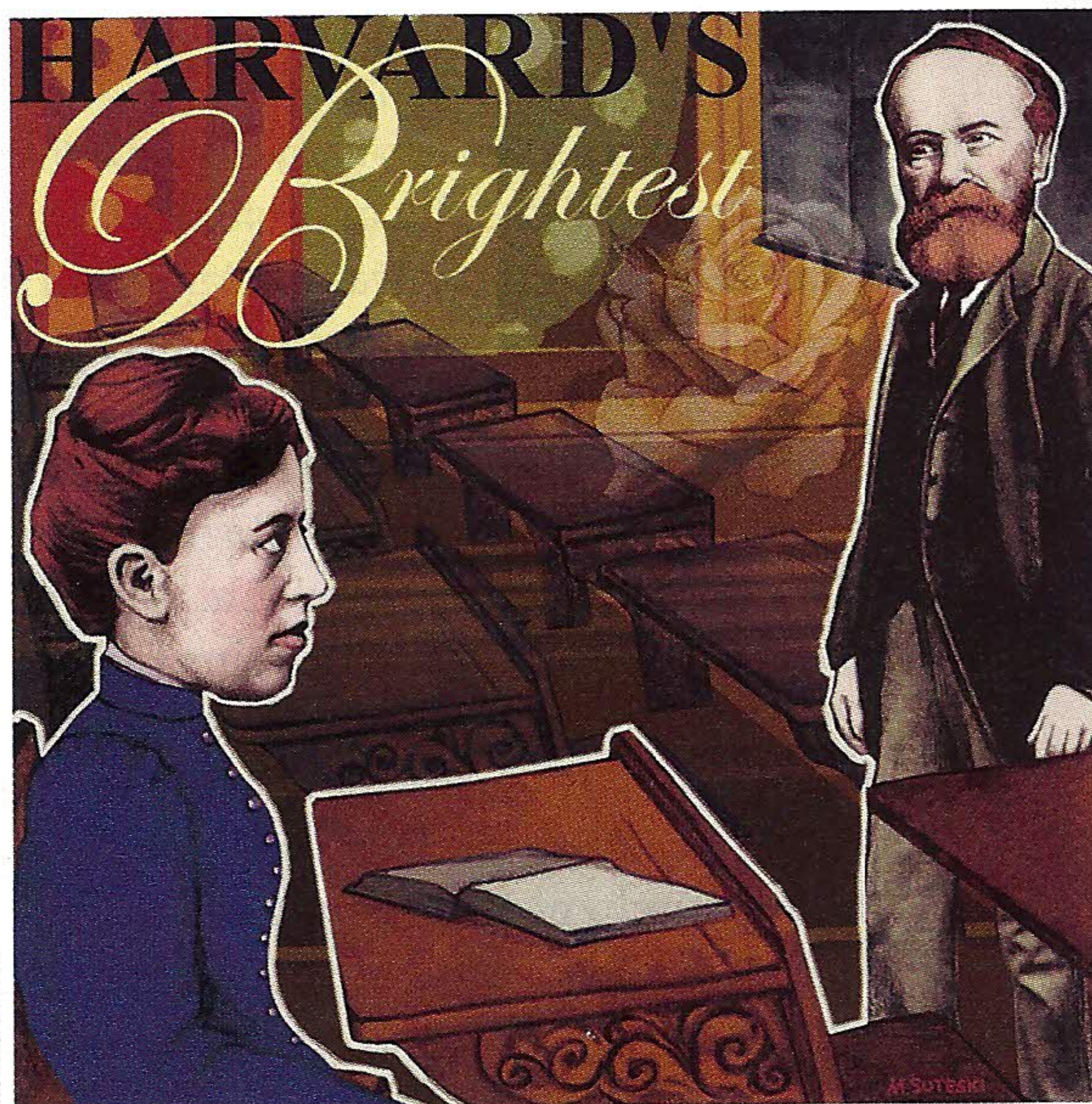
James’ greatest legacy, however, came less from his laboratory than from his Harvard teaching and his writing. When not plagued by ill health and depression, James was an impish, outgoing, and joyous man, who once recalled that “the first lecture on psychology I ever heard was the first I ever gave.” During one of his wise-cracking lectures, a student interrupted and asked him to get serious (Hunt, 1993). He was reportedly one of the first American professors to solicit end-of-course student evaluations of his teaching. He loved his students, his family, and the world of ideas, but tired of painstaking chores such as proofreading. “Send me no proofs!” he once told an editor. “I will return them unopened and never speak to you again” (Hunt, 1993, p. 145).

James displayed the same spunk in 1890, when—over the objections of Harvard’s president—he admitted Mary Calkins into his graduate seminar (Scarborough &

■ **functionalism** a school of psychology that focused on how mental and behavioral processes function—how they enable the organism to adapt, survive, and flourish.

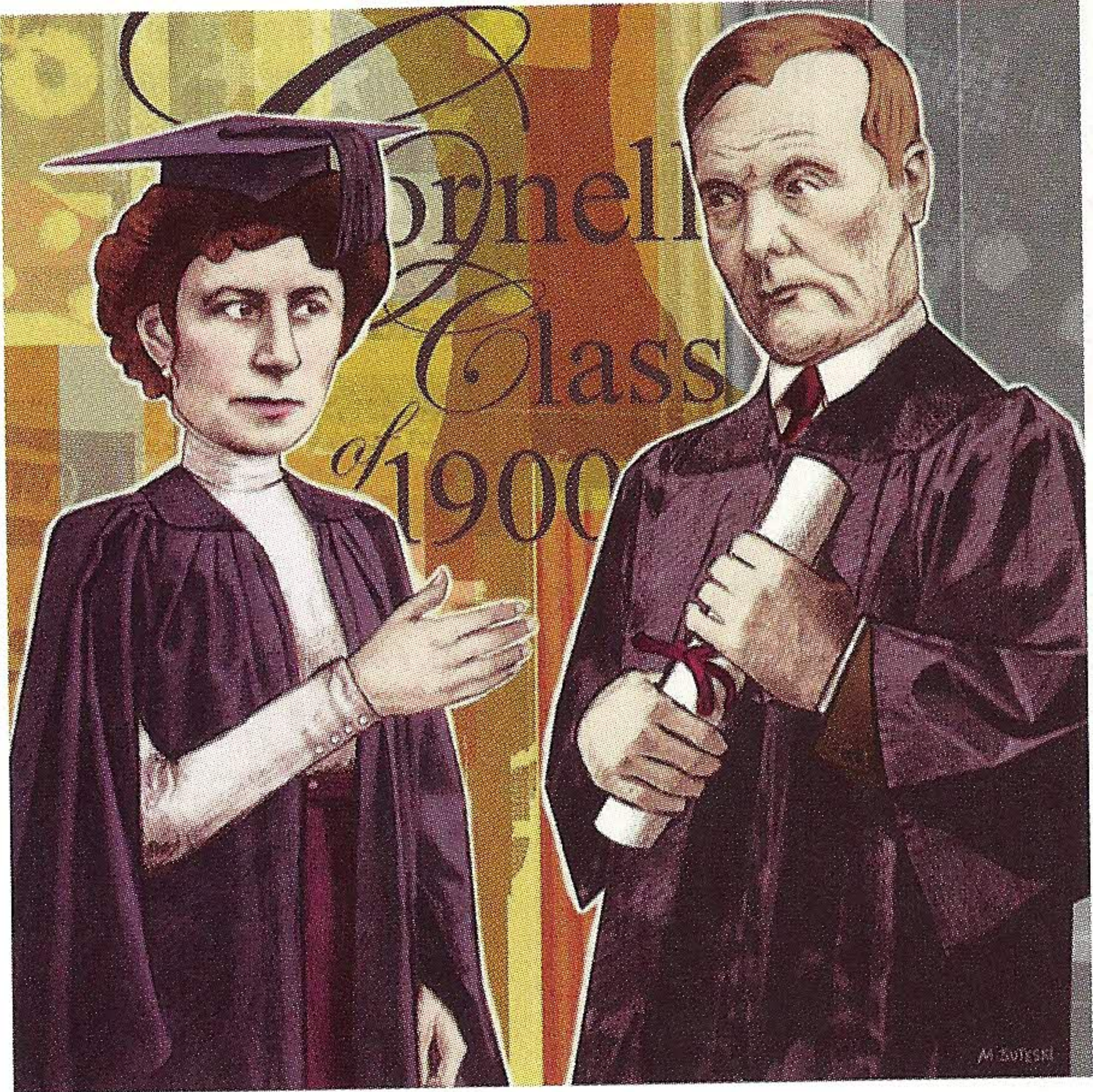
“You don’t know your own mind.”

Jonathan Swift, *Polite Conversation*, 1738



William James and Mary Whiton Calkins

James, legendary teacher-writer, mentored Calkins, who became a pioneering memory researcher and American Psychological Association president.



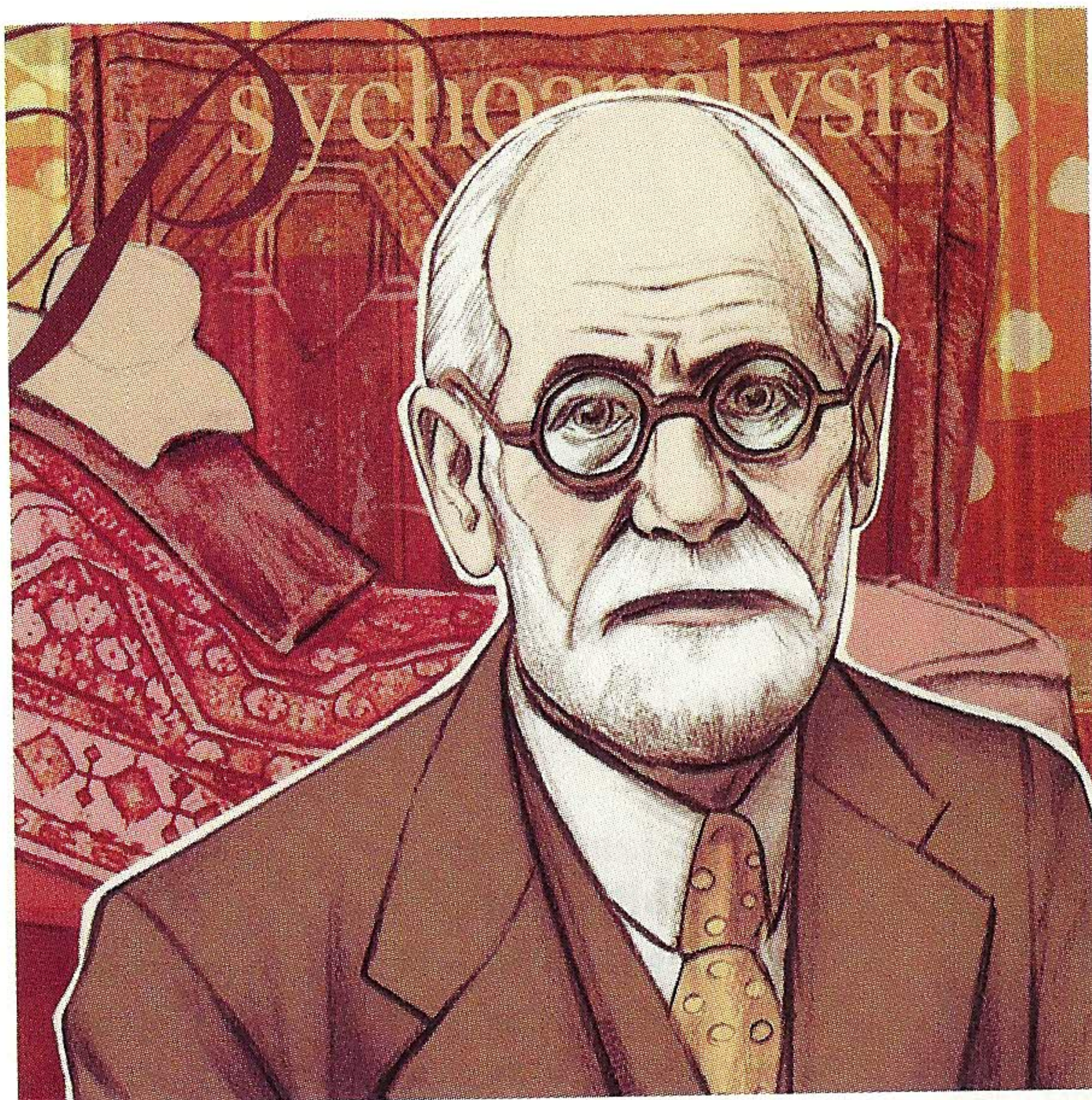
Margaret Floy Washburn

The first woman to receive a psychology Ph.D.; synthesized animal behavior research in *The Animal Mind*.

■ **humanistic psychology** historically significant perspective that emphasized the growth potential of healthy people; used personalized methods to study personality in hopes of fostering personal growth.

Sigmund Freud

Famed personality theorist and therapist, whose controversial ideas influenced humanity's self-understanding.



Furumoto, 1987). When Calkins joined, all the other students dropped. (In those years women lacked even the right to vote.) So James tutored her alone. Later she finished all the requirements for a Harvard Ph.D., outscoring all the male students on the qualifying exams. Alas, Harvard denied her the degree she had earned, offering her instead a degree from Radcliffe College, its undergraduate sister school for women. Calkins resisted the unequal treatment and refused the degree. More than a century later, psychologists and psychology students were lobbying Harvard to posthumously award the Ph.D. she earned (*Feminist Psychologist*, 2002).

Calkins nevertheless became a distinguished memory researcher and the American Psychological Association's (APA's) first female president in 1905. What a different world from the recent past—1996 to 2005—when women claimed two-thirds or more of new psychology Ph.D.s and were 5 of the 10 elected presidents of the science-oriented American Psychological Society. In Canada and Europe, too, most recent psychology doctorates have been earned by women.

When Harvard denied Calkins the claim to being psychology's first female psychology Ph.D., that honor fell to Margaret Floy Washburn, who later wrote an influential book, *The Animal Mind*, and became the second female APA president in 1921. Although Washburn's thesis was the first foreign study Wundt published in his journal, her gender meant she was barred from joining the organization of experimental psychologists founded by Titchener, her own graduate adviser (Johnson, 1997).

James' influence reached even further through his dozens of well-received articles, which moved the publisher Henry Holt to offer a contract for a textbook of the new science of psychology. James agreed and began work in 1878, with an apology for requesting two years to finish his writing. The work proved an unexpected chore and actually took him 12 years. (Why am I not surprised?) More than a century later, people still read the resulting *Principles of Psychology* and marvel at the brilliance and elegance with which James introduced psychology to the educated public.

Psychological Science Develops

OBJECTIVE 4 | Describe the evolution of psychology as defined from the 1920s through today.

This young science of psychology developed from the more established fields of philosophy and biology. Wundt was both a philosopher and a physiologist. James was an American philosopher. Ivan Pavlov, who pioneered the study of learning, was a Russian physiologist. Sigmund Freud, who developed an influential theory of personality, was an Austrian physician. Jean Piaget, the last century's most influential observer of children, was a Swiss biologist. This list of pioneering psychologists—"Magellans of the mind," as Morton Hunt (1993) has called them—illustrates psychology's origins in many disciplines and countries.

The rest of the story of psychology—the subject of this book—develops at many levels. With activities ranging from psychotherapy to the study of nerve cell activity, *psychology* is not easily defined. Wundt and Titchener focused on *inner* sensations, images, and feelings. James, too, engaged in introspective examination of the stream of consciousness and of emotion. Freud emphasized the ways emotional



John B. Watson and Rosalie Rayner
Working with Rayner, Watson championed psychology as the science of behavior and demonstrated conditioned responses on a baby who became famous as “Little Albert.”



B. F. Skinner
A leading behaviorist, who rejected introspection and studied how consequences shape behavior.

responses to childhood experiences and our unconscious thought processes affect our behavior. Thus, until the 1920s, *psychology* was defined as “the science of mental life.”

From the 1920s into the 1960s, American psychologists, initially led by flamboyant and provocative John B. Watson and later by the equally provocative B. F. Skinner, dismissed introspection and redefined *psychology* as “the scientific study of observable behavior.” After all, said these *behaviorists*, science is rooted in observation. You cannot observe a sensation, a feeling, or a thought, but you *can* observe and record people’s *behavior* as they respond to different situations.

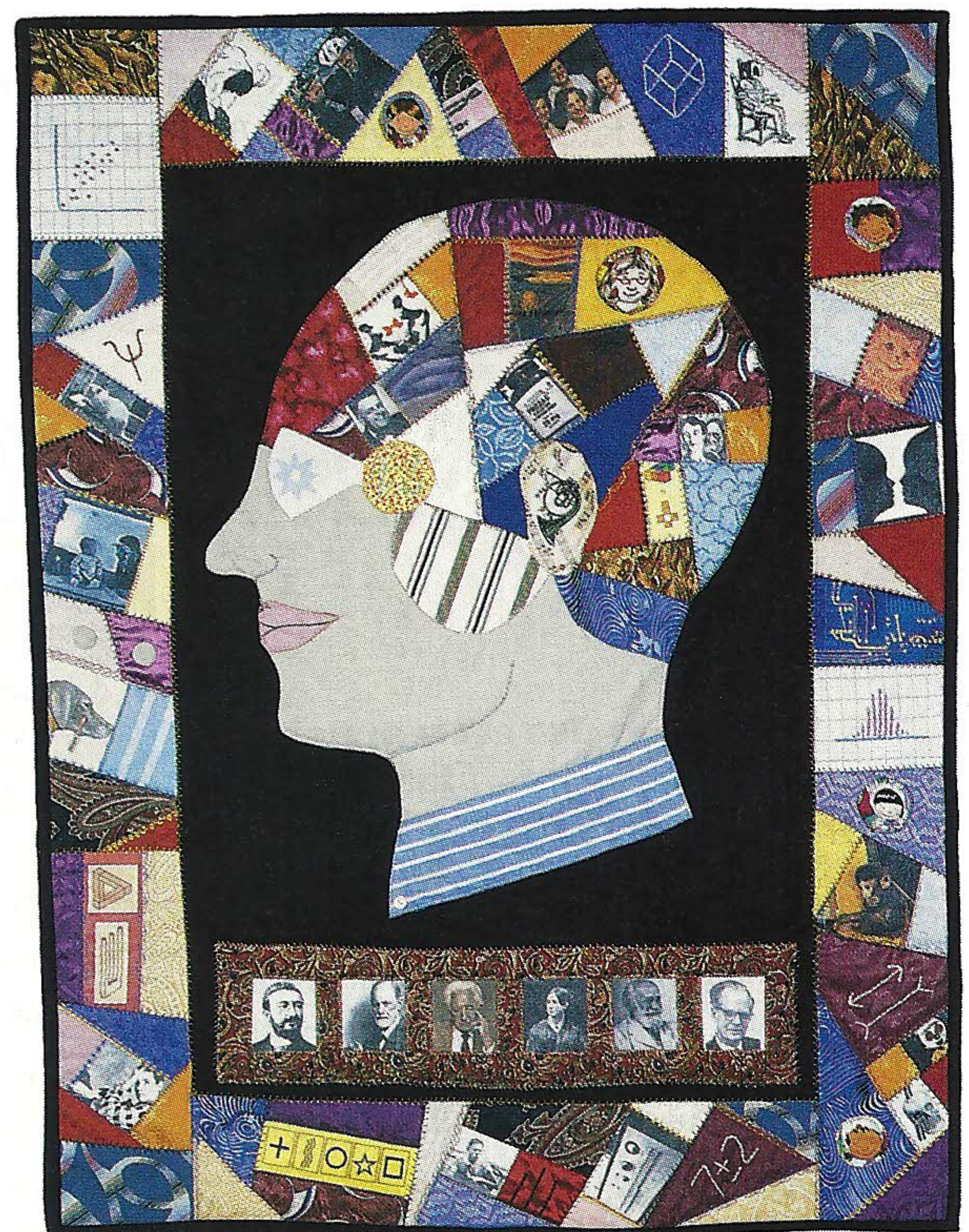
Humanistic psychology was a softer, 1960s response to Freudian psychology and to behaviorism, which pioneers Carl Rogers and Abraham Maslow found too mechanistic. Rather than calling up childhood memories or focusing on learned behaviors, Rogers and Maslow both emphasized the importance of current environmental influences on our growth potential, and the importance of meeting our needs for love and acceptance.

In the 1960s, psychology began to recapture its initial interest in mental processes through studies of how our mind processes and retains information. This *cognitive revolution* supported ideas developed by earlier psychologists, such as the importance of considering internal thought processes, but it expanded upon those ideas to explore scientifically the ways we perceive, process, and remember information. Cognitive psychology and more recently *cognitive neuroscience* (the study of the interaction of thought processes and brain function) have been especially beneficial in helping to develop new ways to understand and treat disorders such as depression, as we shall see in Chapter 16.

To encompass psychology’s concern with observable behavior *and* with inner thoughts and feelings, we define *psychology* today as the scientific study of behavior *and* mental processes.

Psychology’s scope and history

In her quilt, “Crazy About Psychology,” Nancy S. Breland, a psychology professor at the College of New Jersey, captures images and people from psychology’s first century.



Courtesy Nancy S. Breland

>> LEARNING OUTCOMES

Psychology's Roots

OBJECTIVE 1 | Define *psychology*.

Psychology is the scientific study of behavior (anything an organism does) and mental processes (subjective experiences inferred from behavior). The key word in this definition is *science*.

OBJECTIVE 2 | Trace psychology's prescientific roots, from early understandings of mind and body to the beginnings of modern science.

Psychology traces its roots back through recorded history to India, China, the Middle East, and Europe, where many scholars spent their lives wondering about people. In their attempt to understand human nature, they looked carefully at how our minds work and how our bodies relate to our minds.

More than 2000 years ago, Buddha and Confucius focused on the power and origin of ideas. In other parts of the world, the ancient Hebrews, Socrates, his student Plato, and Plato's student Aristotle pondered whether mind and body are connected or distinct, and whether human ideas are innate or result from experience. In the 1600s, René Descartes and John Locke reengaged aspects of those ancient debates, and Locke coined his famous description of the mind as a "white paper." The ideas of Francis Bacon and John Locke were important ingredients in the development of modern empiricism, the view that knowledge comes from experience through the senses and that science should rely on observation and experimentation.

OBJECTIVE 3 | Explain how the early psychologists sought to understand the mind's structure and functions, and identify some of the leading psychologists who worked in these areas.

Psychology as we know it today was born in a laboratory in Germany in the late 1800s, when Wilhelm Wundt ran the

first true experiments in psychology's first lab. Soon, the new discipline formed branches. Edward Bradford Titchener and other structuralists searched for the basic elements of the mind by training people to look inward and describe the smallest units of their experiences. In an attempt to understand how mental and behavioral processes help us to adapt, survive, and flourish, William James and other functionalists tried to explain why we do what we do. James also wrote a popular text for the new discipline.

OBJECTIVE 4 | Describe the evolution of psychology as defined from the 1920s through today.

Until the 1920s, psychology was a "science of mental life" studied through introspection. Then American behaviorists, led by John B. Watson and later by B. F. Skinner, changed psychology's focus to the study of observable behavior. In the 1960s, humanistic psychologists drew attention to the importance of environmental influences, personal growth, and the needs for love and acceptance. Also in the 1960s, the cognitive revolution began to refocus psychology's interest in mental processes, with special attention to perception, information processing, and memory. Cognitive neuroscientists are broadening our understanding of these and other processes in today's psychology, which views itself as a "science of behavior and mental processes."

ASK YOURSELF: How do you think psychology might change as more people from non-Western countries contribute their ideas to the field?*

*The Ask Yourself questions will help you reflect on the key issues and connect them to your own life. Making these issues personally meaningful will make them memorable.

■ **nature-nurture issue** the longstanding controversy over the relative contributions that genes and experience make to the development of psychological traits and behaviors.

■ **natural selection** the principle that, among the range of inherited trait variations, those contributing to reproduction and survival will most likely be passed on to succeeding generations.

Contemporary Psychology

Like its pioneers, today's psychologists are citizens of many lands. The International Union of Psychological Science has 69 member nations, from Albania to Zimbabwe. Nearly everywhere, membership in psychological societies is mushrooming—from 4183 American Psychological Association members and affiliates in 1945 to more than 160,000 today, with similarly rapid growth in Britain (from 1100 to 34,000). In China, five universities had psychology departments in 1985; by the century's end, there were 50 (Jing, 1999). Worldwide, some 500,000 people have been trained as psychologists, and 130,000 of them belong to European psychological organizations (Tikkanen, 2001). Moreover, thanks to international publications, joint meetings, and the Internet, collaboration and communication cross borders more now than ever: "We are moving rapidly towards a single world of psychological science," reports Robert Bjork (2000). Psychology is *growing* and it is *globalizing*.

Today's psychologists debate some enduring issues and view behavior from differing perspectives. They also teach, work, and do research in many different subfields.