



# The Psychology of Consciousness

SECOND EDITION

ROBERT E. ORNSTEIN

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ROBERT E. ORNSTEIN

THE LANGLEY PORTER NEUROPSYCHIATRIC INSTITUTE

THE INSTITUTE FOR THE STUDY OF HUMAN KNOWLEDGE



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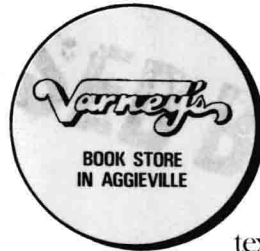
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To the students who have developed a true psychology,  
of consciousness

# PREFACE

This is a textbook about consciousness, written for students of the human sciences. It is intended as a first book, requiring few or no prerequisites, to introduce the beginning student to research work and theories that bear on his or her own experience of the world. Psychology is, primarily, the science of human experience. Its researchers study secondary phenomena—such as behavior, physiology, and “verbal report”—as they relate to the central questions of consciousness. Too often psychologists have been guilty of becoming trapped by the ease of answering secondary questions and have turned away from the central questions of the discipline for the sake of convenience; for consciousness is difficult to study, since one’s experience is not as observable to others as is one’s behavior, physiology, or speech.

I suppose many who read this book have asked, “What is consciousness?” but still remain somewhat confused about the answer. In my own questioning I began to read contemporary psychology and philosophy, hoping to find an answer there. Instead I found a bewildering array of unconnected ideas, beginning with a definition of consciousness as “awareness of awareness,” continuing with bizarre and facile cosmic blather, and ending with the conviction that the question is not meaningful. To ask “What is consciousness?” is not unreasonable, yet the question does not seem to be fully answerable in reasonable terms. So along with questions such as “What is life?” and “What is humanness?” it tends to be ignored among “hard-nosed” scientists.

After long study in many areas, I feel that this question *can* be answered, yet, unfortunately, not fully within the mode of reason. There is no way to simply write down the answer, as we might give a textbook definition. There is no place where the meaning of one’s life is “written up.” The answer is, at least in part, experiential and personal.

Then what is the purpose of *The Psychology of Consciousness*? I have tried to do two things at once in this book—to present what can be discussed scientifically, without pretending that such an approach is

a complete answer, just as a biologist does not really answer the question, "What is life?" while studying life; and to point to a stream of knowledge directed to considering those questions of humanness, life, and consciousness that scientific method excludes, the esoteric traditions of the Middle and Far East. Seven hundred years ago Roger Bacon wrote, "There are two modes of knowing, those of argument and experience." They are complementary; neither is reducible to the other; and their simultaneous working may sometimes even be incompatible. One mode is rational and verbal—sequential in operation—the other is intuitive and spatial—diffuse in operation, less orderly than that of reason. The intuitive mode is one we often overlook in science as well as in society, education, and even in ourselves.

*The Psychology of Consciousness* is a look at a psychology that is in the process of formation, so its content is advanced but its writing is not. I present here a convergence of evidence from many sources: research on the functions of the two cerebral hemispheres in humans, and Eastern teaching stories that introduce each chapter; current scientific analyses of perception and cognition, and esoteric texts; research on control of involuntary functions in humans and animals, and reports on yoga. This is not a problem-solving, advanced scientific treatise, nor is it a step-by-step manual on how to get high or an apologia for such phenomena as astrology or witchcraft. The emphasis is on a synthesis of two major streams of knowledge, not on individual, unconnected states or techniques. This book is intended to redress an imbalance in textbooks, in that it attempts to treat responsibly many areas of concern not usually considered in psychology courses. A consideration of what lies behind "states of consciousness," meditation, techniques of mysticism and scientific investigation is what is most important and most needed at the moment, and will be of interest to the student as well as to the instructor.

This second edition of *The Psychology of Consciousness* is for the student and for the teaching situation. It has been developed with the cooperation of many instructors and students who used the first edition in classes and who have suggested useful changes.

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# The Psychology of Consciousness

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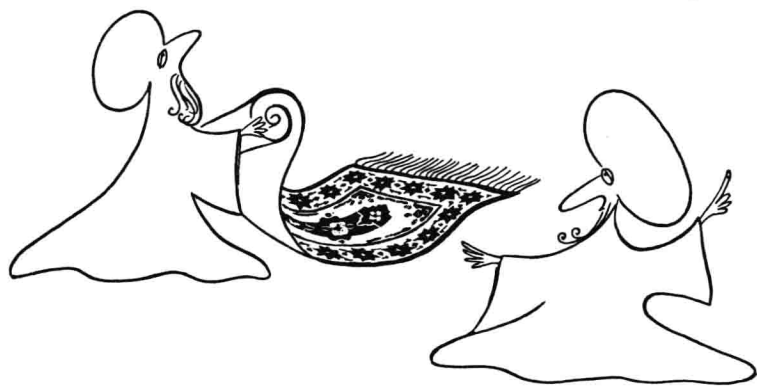
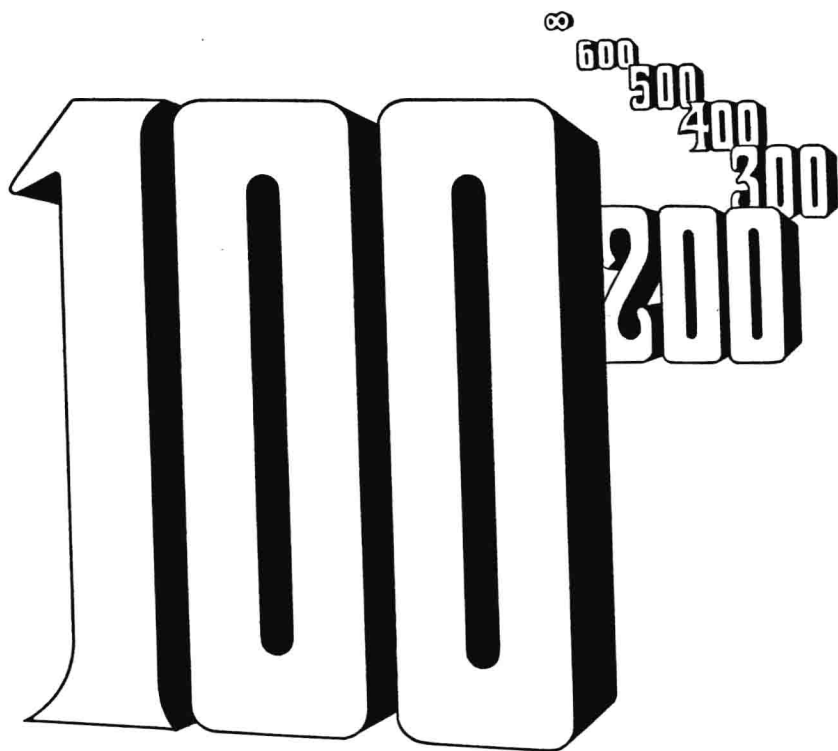
# 1 Toward a Complete Psychology

## Is There Any Number Higher Than 100?

A man, having looted a city, was trying to sell an exquisite rug, one of the spoils. "Who will give me 100 pieces of gold for this rug?" he cried throughout the town.

After the sale was completed, a comrade approached the seller, and asked, "Why did you not ask more for that priceless rug?"

"Is there any number higher than 100?" asked the seller.<sup>1</sup>



It is easy to smile at the mistake of our friend the rugseller. Yet, we too are like him, for each day our own conceptions of what is possible limit awareness and action. This story reflects a process common both to everyday life and to scientific endeavor. Conceptions often act as barriers to understanding; they may conceal other possibilities, as the number 100 blocks higher numbers from view. To give an example: Once it was considered impossible for a man to run a mile in less than four minutes. The four-minute mile became a real barrier to many, as if effort of another order were required to run a mile in 3:59:99 instead of four minutes. Then one man broke this barrier, and quite soon many others were able to perform something once considered impossible. We seem to set limits on possibility and to work within these assumed limits.

A similar process limits ordinary consciousness. We screen out much of our surroundings because we do not believe that certain events occur. Once a friend unwittingly emphasized this to me by reversing an ordinary saying: "I'll see it when I believe it!" If an object or sensory input appears that does not fit our set of categories, we may ignore it. The psychologist Jerome Bruner and his associates carried out the following experiment, which demonstrated this phenomenon.

One assumption of our society concerns the suits of playing cards. Through years of experience, we have learned that spades and clubs are black, hearts and diamonds are red. Normally, each deck of cards we see confirms this assumption. Bruner asked his observers to look at some cards through a tachistoscope—a device that flashes visual materials on a screen for a brief period of time. Intermixed with the ordinary cards were several "anomalous" ones—a red ace of spades, a black four of hearts, for instance. Many of the observers in this experiment did not "see" the unusual cards as they were but "corrected" them, reporting a red six of spades as a six of hearts. Assumptions can limit the scope of awareness. At one point in the experiment, it was suggested to the observers that although hearts are usually red, this does not logically imply that they will *always* be red. With this new idea extending their category system, some observers were quickly able to see what was in front of them.<sup>2</sup>

Our ordinary assumptions about the nature of the world are generally useful to us. As we attempt to achieve stability in con-

sciousness, we continuously “bet” about the nature of reality. We immediately assume that our rooms are “really” rectilinear, that a piece of coal is “really” black, that one person is intelligent, another aggressive. As Bruner’s experiment and these examples suggest, our “assumptive world” is conservative. It is quite difficult to alter our assumptions even in the face of compelling new evidence. We pay the price of a certain conservatism and resistance to new information or knowledge in order to gain a measure of stability in personal consciousness.

Any organized community of people holds in common certain assumptions about reality. The structure of a given language is a set of common assumptions, shared for the convenience of transmitting information. The “four-minute mile” was another common assumption. In addition, each scientific community of physicists, mathematicians, psychologists, and others, shares an additional set of both implicit and explicit assumptions, termed a *paradigm* by Thomas Kuhn. The paradigm is the shared conceptions of what is possible, the boundaries of acceptable inquiry, the limiting cases.<sup>3</sup> It is the framework within which ideas are acceptable or not.

The scientific paradigm is analogous to the individual’s assumptions about reality. Personal categories are by their nature conservative of effort. Given a stable category system, we need not measure the walls of every new room we enter to determine whether they are really rectilinear, or to inspect our friends at each meeting to determine whether they are really the same people we saw yesterday. In science, a paradigm allows a similar stability of knowledge, again, at the price of sensitivity to new input. If several researchers share a paradigm, it enables them to explore jointly one well-delimited area of inquiry and to coordinate effort. A shared paradigm allows them to communicate about an area in a specialized language as the residents of a particular town may have their own local phrases and jokes.

The development of a successful paradigm, then, enables a scientific community to maintain and share criteria for the selection of problems that might be amenable to solution. It allows a number of “local road maps” to be drawn up, tested, and validated by many independent researchers. But there is also a danger of parochialism. Just as the residents of a certain community may become smug about their town and consider it the “only” place in the world, so the

scientists working within a successful paradigm may begin to lose sight of any possibilities beyond their own particular set of assumptions.

Psychology began as the science of consciousness and developed as a synthesis of natural philosophy and nineteenth-century science. One of its earliest practitioners, Gustav Fechner, invented the method of "psychophysics" in an attempt to correlate mental and physical events. Research on consciousness proceeded in the nineteenth century, spearheaded by a group at Cornell University under E.B. Titchener. This group sought evidence on consciousness through "introspection." Their research strategy was to have the observers attempt to analyze the contents of personal consciousness and to compare their analyses with that of others. But the observers did not often agree. Individual differences, and difficulties with verbal reporting of experience, were not taken into account. To remedy this lack of common ground, the introspectionists found it necessary to limit their field of inquiry. An observer in the act of introspection was "forbidden" to report seeing a book, for example. He or she was only allowed to report, say, a brown object, of a certain size and shape.

This and other limitations of the early mentalist approach soon led to a sterility in psychology. Controversies of only academic import (in the worst sense of the term) arose, due to these limitations on inquiry. One controversy, for instance, dealt with whether or not thoughts could occur without images. Psychologists drifted further and further away from their original concerns, until soon their questions were of interest only to them, and it was evident that the mentalist paradigm was more of a restriction than an aid.

John Watson opened the gates once again with his suggestion that psychology could study action, which was, after all, publically verifiable and testable by objective, impartial methods. This paradigm change allowed psychologists to study questions relevant to a wide range of mental and personal phenomena. For instance, Watson could include such phenomena as personality in his textbook, while Titchener could not.<sup>4</sup> This movement, called *behaviorism*, soon swept academic psychology. It was "objective" and "scientific" and encouraged the study of major problems that had been left out of the introspective paradigm.

Behaviorism stimulated an unusual amount of productive research, especially in the areas of learning and the motivation of

behavior. But a problem arose that was similar to that of the mentalist approach: the scope of inquiry soon became unduly narrowed to processes that were amenable to ready solution by behavioristic methods. Psychologists began to ignore, and even to deny, the existence of phenomena that did not fit into the dominant scheme. Consciousness itself was ignored in research for many years; some even denied that it existed.\* There was an almost fatal confusion of "behaviorism as a useful tool" with "behaviorism as the total extent of knowledge." "Objective," factual knowledge was emphasized, to the exclusion of any question not subject to a verbal, logical answer. The *reductio ad absurdum* of this position was that of *logical positivism*, which maintained that any question not amenable to a perfectly logical answer should *not even be asked*.

At about the same time, many disaffected psychologists found faith in a system called *psychoanalysis*, developed by Sigmund Freud in Vienna. Freud's work became a rallying point for many who were interested in "understanding" man, and as did behaviorism, it stimulated inquiry into new areas, such as the early determinants of behavior and the interpretation of dreams. But since this movement was dominated by a single authoritarian personality and its followers exhibited an almost religious zeal, the disadvantages of psychoanalysis were quickly in evidence: consciousness became identified with what could be verbalized, religious experience was reduced to neurosis, and the motivation for almost all behavior was analyzed to another *reductio ad absurdum*—the sexual etiology of action.

Much later, in the late 1950s and early 1960s, there was an attempt to correct the distortions of both behaviorism and psychoanalysis. This approach, known as *humanistic psychology*, focused on "growth," interpersonal processes, and new therapies. The early promise of this approach, as emphasized by Abraham Maslow and Carl Rogers, was never realized in the mainstream of psychology. Humanistic psychology became, unfortunately, a divisive force, for its practitioners often tended to degrade the usefulness of science and hence performed little research to support their ideas. A new dichotomy appeared—one that was less useful than most. In effect, psychologists were asked whether they were "humanistic" or "scientific." Psychologists failed to recognize that their discipline is *by definition* a

\* It was sometimes jokingly said of John Watson that he thought no one conscious save himself.

scientific study of human concerns, and needs embrace both positions. The influence, then, of the humanists has not been as great as it might, had they contributed more to science.

The history of psychology parallels the workings of ordinary consciousness. We stabilize around a set of concepts (about cards, friends, the speed one can run) and hold them dear until we are overwhelmed by new evidence. Then our conceptions change once more to include new possibilities (a red ace of spades, for instance). Similarly, scientific knowledge progresses by a complementary functioning of paradigm build-up and paradigm change. A successful paradigm serves to create stable, conservative knowledge within the scientific community, until the restrictions of the paradigm become too great and it proves to limit research unduly.

Science as a mode of knowledge involves a *limitation* on inquiry. The essence of a good experiment is successful exclusion. One factor may be manipulated while a very few other processes are measured. If, for example, we wished to study the response of brain cells to visual stimuli, we would be considered slightly loony if we also monitored the blood flow to the feet, the temperature of the room, the phase of the moon, the current growth rate of mushrooms in Malaya, or any one of the millions of other available possibilities. But until recently in academic psychology, the limitations of the successful behavioristic paradigm outweighed the advances. For example, psychologists once tended to ignore some evidence (from sources as diverse as yoga and animal experiments) that man is capable of a high degree of self-mastery of his internal physiology. Further, we have not incorporated evidence that the linear, verbal-intellectual mode of knowing is not the only mode available to man.

The belief that all human knowledge is exclusively rational is incomplete. Even scientific inquiry, the most rational and logical of our pursuits, could not proceed without the presence of another type of knowledge. As an example: Two scientific researchers may meet and discuss their ideas. Perhaps an experiment will emerge, to be written up in a journal and still later in a textbook. Those writings are generally as orderly and well-reasoned as the scientist can make them. The *entire process*, however, is not exclusively linear and rational. Scientific investigators often act on personal knowledge, biases, hunches, and intuition. It is the genius of the scientific method



that it translates the original, perhaps arational, idea into the rational mode and makes it explicit, so that other investigators can follow it.

The rational, verbal mode is primarily a method of analysis, testing, and communication. Experimental reports are made as explicit and logical as possible, so that any qualified reader can repeat the procedure. But this method of communication should not be misunderstood as implying that any given experiment was *conceived* in a linear and rational manner. We leave the scruffy aspects of our thought—the hunches, the insights—out of public scientific writing. And yet without these wonderings, these “nighttime” questions, many of us probably would not work in science at all. A researcher may spend time thinking, “What is the most important experiment to do?” or “How does this damn thing work?” and after much more of such scratching about, may try to perform an experiment that will aid his or her understanding. But the reliance on verbal rationality has caused many to feel that this method is the *only* way in which knowledge is gained, a conception that writers of textbooks often reinforce.

The scope of psychology as it has been defined in texts, in the teaching of psychology, and in the bulk of research reports has often been unduly limited to one *special* case of human abilities, one *special* method of study, one *special* manner in which consciousness can operate. Just as John Watson found it necessary to alter the paradigm of the introspectionists in order to open up inquiry, so we are faced with a similar situation today—a need to return to a psychology whose scope was well stated by William James: “Our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different.”<sup>5</sup>

In performing scientific research, we are often unaware of the full effect of our tools, be they physical instruments or doctrines such as behaviorism. We often imagine that tools, like sensory organs, serve exclusively to extend awareness, but in fact we are wrong. Both serve to limit as well as extend. Abraham Maslow, commenting on the effect that strict behaviorism has had on psychology, wrote, “If the only tool you have is a hammer, you tend to treat everything as if it