GENERAL PSYCHOLOGY

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PREFACE

Psychology has grown, broadened, and diversified so considerably over the last few decades that it is no longer possible to include in one volume all the areas and specific topics of interest to workers in the various branches of the field. Somewhat as a result of this vast development, general psychology texts have appeared to dichotomize into weighty volumes with exquisite content, highly technical terminology, and rich experimental documentation, or into volumes containing light, frothy, and appealing reading which only glosses the surface. The former group appears to be difficult for the expanded range of students who are today enrolling in their first (and possibly only) psychology course, and the latter usually imparts too few facts and theoretical considerations to acquaint novices with topics commonly encountered in the subject field. It would seem, then, that a text is needed which will be suitable for the needs of a larger number of students and which will present a brief but adequate and truly representative view of the field of psychology.

In spite of the wide public interest in psychological topics, the number of students who go on to major in psychology after having been enrolled in one course is surprisingly small. Of those studying one to three semesters of introductory courses, probably no more than 2 percent ever concentrate in this field. The more serious purposes of the larger group may be the broadening of cultural outlook, satisfaction of exploratory drive, and association with daily life activities. Thus, a text is needed which will cover a broad but simple and life-related sequence of ideas, one which will explain psychology in its own language, together with related facts from the sciences on which psychology leans most heavily. Many of the students in introductory psychology are not well versed in the informational areas which lead into a science of human behavior.

Beyond the needs of its students, how may psychology profit from such a simplified text? First, it may be better understood and appreciated by a larger number of persons, thus bridging a gap between the highly objective scientist and those outside looking in. There is some measure of public relations value in displaying one's wares with simple description and honest statement of limitations. There is also some promotional effort required for psychology to attract and interest a sufficient number of persons to supply current professional demands.

My intent, then, is to include what is basic to the study of psychology along with pertinent data and inferences. There will be only enough applications to point up the need for, and the result of, preliminary empirical study and to show the importance of experimental research.

While attempting to include essentials, it is desirable to phrase this content in language readily understood, which adequately explains newly introduced items, and which may be associated with prior learning. This book attempts to impart knowledge in the same explanatory manner as that of an instructor in the classroom.

Primarily, this text is intended for a one-term psychology course which may be compressed into 10 weeks or expanded into 16. The material herein has been employed, with satisfactory results, in the instruction of individuals from sixteen to sixty, in colleges, secondary schools, business firms, and community social groups. For those persons with a marginal interest in psychology, the text is concentrated enough to afford many ideas without lengthy study. The more concerned individual is invited to explore more intensively these briefly described elements of psychology. The glimpse of each function of a psychologist, methods and equipment employed, outstanding contributors in the field, and theories of human behavior may be augmented through the suggested readings at the end of each chapter. These references have been selected carefully with the purpose of expanding each subject introduced. The large number of references, including paperbound publications, is necessary both to supplement chapter material and to provide wider opportunity for students with limited library facilities.

The organization of the text was suggested by experience in the teaching of psychology, my own and that of several friends and colleagues. The varied approaches of different instructors are appreciated, and, though the order as printed appeals most to us, the manuscript is flexible in the sequence of chapters and offers the possibility of addition or deletion according to local needs. I often feel the futility of attempting to explain a single behavioral function without integrating the total aspects of man and, therefore, tend to interrelate each chapter for more comprehensive appreciation. Materials, such as questions, glossary, and references, are placed at the end of each chapter rather than at the end of the book, following our observation of student habits. Without losing the continuity of their reading, they now have ready access to all related materials, and there is greater assurance that all pages will be cut.

Though some of the information disclosed is not of prime value to the seasoned psychologist, it has been included to satisfy the questions of a large range of students. In many years of classroom instruction, I have found that these questions are asked repeatedly, and I predict their appearance in many future classes. Also, I appreciate that some of this material exceeds the area of human behavior, but a realization of the minimal preparation of many students in related areas justifies its inclusion. I feel that this text contains the maximal amount of information within its limited size, that the content may be easily understood by a wider

variety of persons, and that the picture of psychology as a science is fairly presented.

I am grateful for the suggestions given from manuscript reading by Corwin Bennett, Rensselaer Polytechnic Institute; George P. Ferrari and Frank M. Mrykalo, Broome Technical Community College; Thomas P. Makres, Broome County Mental Health Clinic; Louis Adams, International Business Machines, Inc.; John J. Hanitchak, University of Indiana; and Edwin Cohen, Link Division of General Precision Instruments, Inc. Appreciation for assistance in art work, photography, and collation of materials is extended to Robert A. Keller, John J. Young, and J. Beth Weierich of Broome County Community College; and to John Moore and Kathleen Reynolds, State University of New York at Binghamton. Illustrations from the cartoon strip "B. C." were loaned by their author and my friend, John Hart, to whom I am deeply grateful.

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HOW PSYCHOLOGY BECAME A SCIENCE

WHY PSYCHOLOGY?

Anyone entering a new area of study is likely to question what is to be studied and why it is of sufficient importance to learn. The novelty of delving into a new subject may be a bit thrilling or it may give rise to apprehension. We question how this learning may satisfy our needs and in what manner this satisfaction is to be produced. Can this learning be used? Is it practical? Will it transfer into real life situations? The student is bound to ask such questions, for psychology, unlike English or history, has not been studied throughout his earlier years.

We are all sufficiently curious about ourselves that we want to know who we are in relation to our world. In studying psychology, it is possible to compare ourselves with others in ideas, abilities, and behavior. We can learn more about ourselves and can better understand our friends. The activities of both individuals and groups become more comprehensible. Thus, each person may prepare himself for easier interaction with others and may develop greater tolerance of their behavior.

The world and all its people are constantly changing. We cannot stop the world when we want to get off. Everyone needs to appreciate that changes occur in a developing individual and a dynamic society; each has to continue to learn in order to cope with change. Many people are likely to question whether they can keep up with it, whether they really understand what is happening, and whether they can hope for better understanding tomorrow. How are the skills and abilities necessary to cope with this world developed? Each person seeks greater adjustment by better understanding of himself and his surroundings. We become highly anxious about things unknown, and anxiety makes for uncomfortable feelings and vague fears. Our living closer and closer together requires more intimate knowledge about people and their modes of behavior. Greater learning about ourselves and others can assist in making more adequate adjustments in daily living.

It is necessary to investigate most thoroughly how behavior occurs, for much of what we casually observe is not so simple as it appears. Scientific study is required to determine causation. There are one or more reasons for everything, but all reasons must be proven. Often, the proof requires considerable research with controlled experiments and exacting observations. Observers must be trained to use the most objective procedures in seeking proof of the origins of behavior. We cannot determine what makes people tick merely by drawing our own personalized conclusions.

Psychology not only helps in explaining how behavior originates and develops but also provides some means for predicting future behavior. Measurement, statistics, and social research help us to arrive at prob-

abilities of how individuals and groups will respond over reasonably long periods. Thus, organization and planning may be effected for segments of society, and man may look forward to a more stable future.

Countless applications of psychological studies are made in everyday life, and each of us is continuously benefited by the contributions of many different psychologists. The growth and development of children are better understood, learning and its essential motivation are more wisely guided, and man's operation of machines and equipment has become more efficient. The mentally ill are more effectively treated, employees are more exactly selected and placed, and we have derived scientifically better means of living together in harmony.

WHAT IS PSYCHOLOGY?

The American psychologist William James once described psychology as "the science of mental life." It has also been referred to as the descriptions of functions of the mind; research for the promotion of human welfare; and the explanation of why people act, think, and feel as they do. Present-day emphasis is on the scientific investigation of human and animal behavior. Animal behavior is studied because of certain basic similarities to the activities of man. Some limitation in applying animal research to human behavior is offset by several advantages: It is more humane, more convenient, and more easily controlled. When we come to study that behavior of man which is superior to that of animals, we must perform with human subjects. All this research is carefully conducted so as not to injure or adversely influence the participants.

Psychology considers every person as an individual. Even though our research leads to certain generalizations about all men, the exact behavior of a person is unique. The total interaction of one individual with his surroundings is different, in some respects, from the behavior of another. We must predict his behavior in relation to the group. We hope for reasonable prediction but realize our accuracy will not be perfect.

A person must be studied as a whole. We cannot entirely separate one phase of behavior from another. Whatever happens to the individual affects the whole individual. He is an integrated unit. We refer to this approach in the study of the individual as *unitary,* or *holistic.*

Psychology is the science of human behavior. Any science depends on proven facts. Research which proves facts in an objective manner, by means of well-designed and controlled experiments, is scientific. Conclusions drawn from such research must be limited to those facts which have been definitely proven. As man is an intricate being, capable of complex behavior, our research is divided into numerous experiments. Each experiment must be carefully designed. Each is planned so that only

one thing is studied at a time. This means that all other things pertinent to behavior must be controlled. We still consider the individual as a unit but study only one factor at one time. If more than one thing were studied at a time, we would not be sure how to analyze the proportional results. Thus, there are many facets of human behavior to be studied separately, but it must always be kept in mind that each individual is an integrated unit. Each phase of behavior is related to another and to the varied effects on the individual.

WHAT PSYCHOLOGISTS DO

Psychology has been thus far described in a general way as the scientific study of human behavior. What follows is a more specific description of how psychologists function and an enumeration of the many areas in which they occupy themselves. The specific jobs psychologists perform are often unknown outside of professional circles, and the brief knowledge of their varied activities is confusing to the general public. Many people think of all psychologists as "head-shrinkers" and look upon couch and inkblots as their coat of arms. Actually, there is a great variety of psychologists working toward numerous efficiencies in human behavior.

Psychology, like other sciences, may be roughly divided into what is called pure science and applied science. *Pure science* is comprised chiefly of experimental research on the basic functions of a human being or animal and the study of development, causation, and means of human behavior. *Applied* science takes the results of pure science and applies them to human endeavors and problems. Pure science, for example, examines and tests the elements and possibilities of motivation, most likely in a laboratory setting. Applied science would put to use this research knowledge, as in developing incentives for greater production in industry or in improving the rate of learning within a classroom.

The largest number of psychologists are employed in educational institutions where part or all of their duties may relate to instruction. However, the pure scientists, such as experimental and physiological psychologists, may devote part or all of their time to laboratory research within these same institutions. The applied psychologists in colleges may divide their time between teaching, applied research, and professional services for individuals or groups. For example, the industrial psychologist on the campus might teach part of the time, do research on the selection of industrial managers, and consult with business on their selection and placement of employees. The clinical or counseling psychologist might be training graduate students and also serving in the college clinic or testing center. Educational and developmental psychologists are chiefly connected with colleges and universities, where they instruct and participate

in research on problems of growth, maturation, learning, and motivation of children and adults.

Clinical and counseling psychologists, who comprise better than half of the present population of psychologists, are employed in many areas. Though nearly 50 percent of them have college or university affiliation, a great number are engaged in the diagnosis and therapy of individuals with problems, in many settings. Some are found in hospitals and clinics, some in private practice, and others in industry and governmental offices.

Thus, a psychologist, according to his training and interests, may choose to work directly in a laboratory, a classroom, a private practice, or in government or industry. He may prefer to devote his career to basic experimental research, to train others in one or more areas of psychology, or to serve as a professional applying basic research to the resolution of human problems.

THE TRAINING OF PSYCHOLOGISTS

The shaping of a psychologist's career is much more exactly structured today than in earlier years. This is caused by both the growth and necessary specialization of science and the trend toward recognized professionalism. Whereas it was once rather easy to turn from another science, education, or philosophy into psychological occupations, the greater amounts of specific learning now required necessitate greater guidance of the training program. Thus, more attention is presently paid to the training of psychologists by the professional associations, state education departments, and college administrators.

A basic undergraduate program in psychology shows considerable similarity from college to college. Starting with the course in general psychology, the student goes on into statistics and experimental work, and then into courses in theory, history, methods, and areas of study in basic human behavior. This undergraduate program involves much laboratory work but a minimal amount of applied psychology. As few opportunities are afforded the individual with only an undergraduate degree, he must continue his study at the graduate level. Here he may obtain a master's degrees or a Ph.D. in experimental work or in one of the applied fields, such as clinical, counseling, school, or industrial psychology.

Often, a student may inquire about the difference between a psychiatrist and a psychologist, so let us note here the differences in training. The *clinical psychologist* at the Ph.D. level is the only one who can be closely compared with the psychiatrist. He has had a combination of seven or eight years of college courses and internships which include methods of diagnosis and therapy which are nevertheless in some ways different

from those studied in psychiatry. For instance, the clinical psychologist learns many techniques of testing and measurement not usually within the scope of the psychiatrist.

A *psychiatrist* is a medical school graduate with one or more internships. He must take state and national board examinations and must secure a license in whatever state he chooses to practice. As a medical doctor, he is able to prescribe drugs and to engage in medical therapies not permitted the psychologist, and he is more likely to treat severe forms of mental illness than the psychologist. Frequently, psychiatrists and psychologists work together in hospitals and clinics.

THE BACKGROUND OF PSYCHOLOGY

For as long as records have been set down in written form, men have wondered about human behavior. They have theorized, conjectured, and written philosophical treatises on the nature of man. The origin of psychology as a *science,* however, is usually considered within the age of modern scientific investigation. The earlier philosophies and speculations could be regarded as scientific only in relation to the sum of man's knowledge and the available methodology in those times. Today, we expect systematic investigation comparable to that of other modern sciences and appropriate to man's total knowledge within current times. Thus, it is more acceptable to attribute the beginnings of modern psychological science to those men who, embracing many scientific fields, were able to initiate distinctive, controllable methods for the observation and study of human behavior.

The progress of psychological science requires countless experiments, and today we are well equipped to carry on needed research. We have electrical and electronic devices, mechanical models, and vast statistical resources. The scientists of earlier times had fewer facts to work from; they were limited in equipment, procedures, and methods; and they had access to a less highly organized interchange of knowledge. We have numerous journals, microfilms, libraries, and huge computers to assist us in research. From World War II until the present, a larger number of individual research studies in psychology have been completed than in all of previous history. However, we are deeply indebted to the men of many sciences whose earlier contributions encouraged the development of psychology.

In a more thorough study of the history of psychology, we could trace some of its origins to the early Greek philosophers and scientists, and we would find that some knowledge had been added throughout a 2,000-year period; however, psychology as a science is still very young.

From the middle of the nineteenth century onward, scientists in

many disciplines contributed exacting research which fostered the growth of what was to become psychology. These scientists represented many fields, and some of them were competent in several areas. Physics, physiology, neurology, and chemistry yielded basic research on the human organism, the brain, the nervous system, and the senses. Johannes Müller, Ewald Hering, Gustav Fechner, Hermann von Helmholtz, and Ernst Weber were some of the prominent men who linked physical science and physiology to the study of human behavior. Their experiments with the senses and the nervous system yielded better theory, compiled new data, and led to better measurement of stimuli. This improved our understanding of how each human receives stimuli and how he is able to respond. The total research of so many brilliant scientists paved the way for Wilhelm Wundt to establish the first experimental laboratory for psychology at Leipzig, Germany, in 1879.

TOWARD MODERN PSYCHOLOGY

Wundt is thought of as the first modern-day psychologist, for he organized psychological experimentation as a separate science and influenced the field for years through his writings and his numerous students. Robert I. Watson (1963) says of him, "Wilhelm Wundt is the first man who can be called a psychologist without qualifying the statement by reference to another stronger interest." He was concerned with the study of thinking, feeling, and imagery, which he denoted as the structure of human consciousness. His concept of psychology, called *structuralism,* sharply delimited the total scope of the study of human behavior. He believed it most essential to direct the full force of research on the structural makeup of man's conscious state. Also, he insisted on trained observers using the method of introspection in nearly all experiments. *Introspection* is the observational method by which one appraises his own sensations, thoughts, and feelings as reactions to stimuli.

We recall a famous psychologist at Cornell University once employing this method as he repaired a broken window glass. His wife came upon him standing by the broken window, with blood flowing freely from a lacerated hand. When she suggested first aid, he waved her aside saying, "Quiet, I am trying to study the effect and timing of the pain stimulus." This type of analysis of consciousness did not prove sufficient for many psychologists of the late nineteenth century. They gravitated toward new theories and devised other methods of exploring the behavior of man.

As the study of psychology became more popular, not only were more scientists involved but new techniques were initiated to attack behavioral problems long puzzling to mankind. How do we learn, how do we remember, why do we forget—these have ever been nettlesome ques-