

**GENERAL
PSYCHOLOGY**

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BY

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PREFACE

Taken by and large there are three groups of students comprising the average class in introductory psychology: (1) a large group whose members will never take another course in the subject and who consequently desire a general, cultural orientation in the field; (2) a smaller group made up of students who require a background in psychology to facilitate their work in cognate subjects, particularly the social sciences; and (3) a very small group of those who plan to major in psychology either academically or professionally. There are numerous excellent texts available for the latter group, but relatively few for the first two groups. Possibly the chief merit of the present work is the fact that it represents an endeavor to cater to the needs of all three groups.

In accord with this endeavor I have not hesitated to devote more space than is customary to the consideration of psychological schools. The educated person desires and ought to have some enlightenment with respect to the diversity of psychological systems. Furthermore, consideration of systems may be made an excellent introduction to the facts of mental life.

I have tried to avoid polemics. No effort has been made to win support for one of the schools at the expense of ignoring valuable contributions of rival systems. In fact, paradoxical as it may seem, I have ventured to build up an introduction to psychology in the guise of a *systematic* eclecticism, as opposed to an uncritical, self-contradictory syncretism.

In order to care for the needs of those who regard psychology as propaedeutic to the social sciences, the issues of the

Dilthey-Ebbinghaus controversy have been woven into the pattern of the text in such a way as to bring out the possibility of reconciliation between psychology as *Naturwissenschaft* and psychology as *Geisteswissenschaft*. Such a broadening of the outlook of scientific psychology ought to make for enlarged scope of material as well as for greater flexibility of interpretation.

All too often adults look back upon their college course in psychology as a disappointingly sterile congeries of blurred references to synapses, dendrites, and similar terms. The fact that such neurological items stand out in retrospect suggests a distortion of their original initiation into psychology. To avoid such distortion the present work has deliberately refrained from elevating the physiological approach to a level of dominant importance. As a consequence, a separate chapter dealing with the nervous system has not been introduced. Instead, whenever an appeal to physiological *fact* is required for adequate comprehension of a psychological issue, the requisite information is interpolated as the occasion demands. In keeping with this policy, despite a personal predilection for brain physiology, I have sought to reduce speculation regarding cortical events to a minimum.

The organization of the book does not call for rigid adherence to the sequence of chapters as presented. After the first two chapters are read, the remaining ones may be used in almost any order or skipped entirely. Occasionally, this will necessitate referring back to an earlier page for the meaning of a given word, but usually the meaning of the technical term is brought out in the context in which it occurs. In any event, reference to the index will enable the student to track down a troublesome word referred to for the first time in some preceding chapter. In the hope of encouraging the student to develop a more sustained, integrated, and comprehensive view

of the interrelatedness of mental phenomena, most of the chapters are rather long so that two or more weeks of class work can be devoted to the topics included. The major captions used to describe the main themes discussed in the chapters will serve as convenient reference points in dividing unduly long chapters into manageable working units. Incidentally, it will also be noted that the mode of treating the various topics differs sufficiently from current texts so as to make for a minimum of duplication in those cases in which more than one book is used in the introductory course.

I am indebted to my colleagues at the University of Texas for giving me the benefit of their critical judgment of various portions of the manuscript. My publishers also merit my gratitude for their aid in helping me to secure many of the figures used in the chapter on perception. The following firms have been generous enough to permit me to embody material from their publications and my appreciation of their kindness must be recorded in this rather inadequate fashion:

Clark University Press, Harper & Brothers, J. B. Lippincott Co., Longmans, Green and Co., The Macmillan Co., Noble and Noble, Publishers, Inc., University of California Press, and D. Van Nostrand and Co.

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Prof. E. G. Boring, Prof. W. B. Cannon, Sir Henry Head, Prof. W. S. Taylor, and Prof. E. C. Tolman.

I am especially grateful to my friend, Prof. Frank Pattie of The Rice Institute, for his painstaking and invaluable assistance in the tedious task of correcting proof. Without the benefit of his critical acumen numerous errors of fact and

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D. B. K.

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CHAPTER I

PSYCHOLOGY AND SCIENTIFIC THOUGHT

In studying a new subject it is desirable to secure at least a provisional grasp of its general nature. Sometimes a formal definition of the subject suffices to orient the student. In the case of such a subject as psychology, however, a cut and dried definition is not apt to prove very enlightening. To say that psychology is the science of mind, or of consciousness, or of behavior is illuminating only to the extent that such words as mind, consciousness, or behavior possess definite meanings. Unfortunately, although we employ such terms in our daily speech, their precise meanings are not at all clear to most of us. Unless we already know something about the subject, we do not get much help even from consulting the dictionary. A person who has never studied trigonometry would have a difficult task learning the meaning of such a term as cosine by referring to the dictionary. He might memorize the definition given by Webster, but such parrot-like repetition of the words of the definition would not enhance his understanding of the term. Some of us are familiar with the child who says very glibly that "a noun is the name of a person, place, or thing" but who points to a verb or a preposition when asked to indicate the noun in a simple declarative sentence. The child can define the word *noun*, but nevertheless fails to understand its meaning. It would be better to familiarize such a child with definite instances of nouns *before* giving him a formal definition. And once he learns to recognize nouns in every conceivable type of sentence, the definition is almost super-

fluous. He understands the nature of nouns without being given a definition.

Accordingly, we shall endeavor to build up an understanding of psychology without immediately introducing a technical definition of the science. In some respects it might be more advantageous to introduce such a definition at the end of the book, for only after we master the essential features of scientific method as applied to psychological problems will a technical definition prove to be genuinely illuminating. By that time such illumination may no longer be required.

If several textbooks or journals of psychology are examined in casual fashion by reading the chapter headings or titles of articles, it will soon be noticed that psychology is concerned with such topics as emotion, memory, reason, skill, learning, perception, habit, personality, and imagination—to name a few at random. More detailed examination will show that the psychologist studies such topics with very definite questions in mind. A good way to understand the nature of a science is to find out what kinds of questions a particular science is asking. For the most part such questions are specific and clearly formulated. The ornithologist, or specialist in bird life, does not go out into the woods with the intention of “just studying the habits of birds.” With such an unspecific, general intention he is likely to return from his expedition knowing very little more about birds than when he started. He will learn something from such expeditions only when he has *definite* problems to guide his observations. When he asks himself whether robins build their nests near the trunk of the tree or far out on the branch or on no special part of the tree, he will start making fruitful observations. Every bit of ornithological information is the result of such a definite question. In a similar fashion the psychologist does not study habit in general, or perception in general, or intelligence in

general. His studies center on specific questions. To aid our task of becoming familiar with the nature of psychology, let us enumerate a few of such questions or problems.

Some examples of psychological questions. Many psychological questions have to do with our sense organs. For instance, we find psychologists asking how faint a sound can be heard, how dim a light can be seen, or how much different two lights must be with respect to brightness or color before we can detect the differences. Many questions pertain to memory. Here we find the psychologists interested in such problems as the amount remembered after a single presentation of a series of numbers or words, the speed with which memorized material is forgotten, how much time is saved in relearning such forgotten material as contrasted with the time required to learn it in the first place, and a host of similar measurable phases of memory.

Very frequently the psychologist investigates what he calls the physiological aspects of mental events. What happens in the stomach when we feel hungry? Does the heart beat more rapidly in fear than in anger? Does thinking of a name involve one part of the brain and spelling a word another part? Does blindness ever take place when the eyes and the nerves for seeing are not injured? What happens in the brain when we fall asleep or when we faint and lose consciousness? These are examples of questions asked by the psychologist interested in the physiology of the mind.

Questions of skill, action, and muscular control also arouse the professional curiosity of the psychologist. How quickly can a person move his finger when a signal like a flash of light or a sudden sound or a touch on the arm is given? If a person learns to draw with his right hand, will he be able to draw with his left as well? In learning to shoot at a target, will the people who make the best scores in the very beginning of the

target practice continue to be the best marksmen after months of training? How are such matters as strength, endurance, accuracy, speed, gracefulness, and complexity of dextrous action related to one another? In acquiring skill as a golfer, is it more efficient to practice each part in the total series of acts separately or would it be better to concentrate on driving the golf ball right from the start without first practicing the swing?

There are thousands of other questions dealing with many other aspects of our mental life, but these we have indicated are sufficient to show the *specific* nature of psychological problems. It will be noted that they are put in such a way as to make it possible to find the answer by getting the necessary facts. It is because of the methods he uses to get the facts that the psychologist regards himself as a scientist. Science is fundamentally a matter of careful search for the facts in the interests of finding out how our world—both mental and physical—is organized. Not the *result* makes a given investigation scientific, but the *method*. It will be instructive for us to consider this a little more carefully.

Scientific method in general. It might be well to point out that the use of apparatus, experiment, mathematical measurement, and technical language are not *essential* parts of scientific work in the sense of being indispensable for *all* kinds of investigation of a scientific character. They are necessary for certain types of scientific work and unnecessary for other types. Mathematics, for example, is a science which attains its results without the use of apparatus or experiment. Charles Darwin's biological researches were not experimental, but they were none the less scientific. Nor did Darwin employ mathematical measurement to any appreciable extent. Many medical quacks use apparatus and a medley of technical terms, but their work is not rendered scientific because of this. The