
E. B. TITCHENER AND STRUCTURALISM

The previous chapter noted that nearly a quarter of Wundt's doctoral students in psychology were from North America. These psychologists returned to transform American psychology from philosophical discourse to an experimental science, and they did so by founding psychology laboratories at the University of Pennsylvania (1887), University of Nebraska (1889), Columbia University (1890), Catholic University (1891), Cornell University (1891), Harvard University (1891), Yale University (1892), Stanford University (1893), University of Minnesota (1894), Smith College (1895), University of California (1896), Wesleyan University (1897), New York University (1900), and Northwestern University (1900). Although these new laboratories were founded by Wundt's students, who used the various scientific methods they had learned in their study at Leipzig, the brand of psychology practiced at those universities was not readily identified with Wundt's conceptual position. Instead, a very narrow version of Wundtian psychology in the United States was largely, but not exclusively, represented in the psychology of his British student, Edward Bradford Titchener (1867–1927), who arrived at Cornell University in Ithaca, New York, in 1893.

The laboratory at Cornell had been founded two years earlier, as noted above, by another of Wundt's students, Frank Angell, who left after a year to begin a similar laboratory at Stanford University. Titchener began to build his laboratory in the Leipzig tradition and soon established himself as one of the foremost psychologists in the United States. In the thirty-five years of his professional career he wrote more than two hundred articles and books and trained more than fifty doctoral students in his brand of psychology. Many of those students would found laboratories of their own (for example, Margaret Floy

Washburn at Vassar College, and Walter B. Pillsbury at the University of Michigan).

Titchener would name his system of psychology *structuralism* because of its emphasis on discovering the elemental structure of consciousness. Conceptually, that focus of his system was similar to one of the goals of Wundtian psychology, although Wundt never used the label *structuralism* to refer to his psychology. Indeed, Wundt was not the atomist that most histories of psychology have described him to be (recall the selection from Wundt in the previous chapter and the article by Blumenthal in that same chapter). For the past sixty years, textbooks on the history of psychology have been treating the psychological systems of Wundt and Titchener as if they were the same (see Leahey, 1981), often discussing them together in a chapter entitled "Structuralism." Titchener may have contributed to that confusion, as some authors have suggested, by his selective translations of Wundt's writings. Indeed, most of the Wundt read by American psychologists in the early part of the twentieth century was the Wundt that was translated by Titchener and his colleagues.

Before he went to Leipzig, Titchener was schooled at Oxford University in the traditions of British associationism. His extremely reductionistic approach to the study of consciousness can be traced to those influences. In essence, his system of psychology represented only the bottom level of Wundtian psychology in a hierarchy that sought to explain mental processes fully. For Wundt, such explanation required an understanding of the processes of apperception and creative synthesis. He recognized that there was more to consciousness than an aggregate of sensory and emotional elements. The previous chapter includes some of Wundt's (1896) thoughts on these issues:

The actual contents of psychical experience always consist of various combinations of sensational and affective elements, so that the specific character of a given psychical process depends for the most part, not on the nature of its elements, so much as on their union into a composite psychical compound. (p. 33)

Wundt studied psychical elements as part of his systematic approach to psychology, but he recognized the importance of higher-order processes and wrote much about their role in understanding consciousness. There is a more holistic nature to his system, a fact recognized by his students who succeeded him at Leipzig, who named their psychology *Ganzheit psychology*, roughly translated as holistic psychology. Do not misread these comments to mean that Wundt was a Gestalt psychologist (see Chapter 16). He was not; but his system had more in common with the Gestalt approach than has been traditionally believed.

As indicated earlier, Titchener defined his psychology in the narrowest of terms. He rejected child psychology, abnormal psychology, and any studies on animals. His experimental science was built largely on *introspection*, a technique that proved to be of little use in those areas of study. It was narrower still, in comparison to Wundt, because of Titchener's adherence to positivism, for he agreed with Auguste Comte that unobservable processes had no place in science. Whereas Wundt sought to explain consciousness by invoking some

hypothetical mental processes, Titchener avoided the mentalistic dilemma by focusing his efforts on a purely descriptive science.

But American psychology was not satisfied with description. Influenced by the pragmatism of Charles S. Peirce and John Dewey, and the evolutionary ideas of Charles Darwin, many American psychologists were asking questions about the why of consciousness. As Rand B. Evans (1972) has described it, these other psychologists were interested in the questions of what consciousness *is for*, whereas Titchener was interested in what conscious *is*. It was this difference in approach that led Titchener to label the opposition's views as *functionalism* (see Chapter 11) because of its emphasis on the functions of consciousness, as contrasted to his emphasis on the structure of consciousness.

Cornell became the stronghold for this descriptive psychology, protecting its purity from the infidels that made up most of American psychology. Titchener's disagreements led him to abandon the American Psychological Association (founded in 1892), to which most of his colleagues belonged, and to form his own organization in 1904, usually referred to as "The Experimentalists" or "Titchener's Experimentalists" (see Boring, 1967). The annual meetings of this group were essentially by invitation only. It was another attempt by Titchener to deal with psychology exclusively on his own terms.

Few of Titchener's students became disciples, although many continued to espouse the appropriate ideas in his presence (E. G. Boring may have been his most loyal student.) When Titchener died of a brain tumor at age 60, structuralism died with him. His system of psychology is not a part of contemporary psychology; his many research articles, so carefully conceived and executed, are no longer cited in the literature. Current references to him are almost always of a historical nature. But these statements are not meant to imply that his legacy is nonexistent. He was a model scientist when psychology needed such models to break its bonds with philosophy. That contribution was manifested in several ways, but is nowhere more evident than in the success of Titchener's four volumes of *Experimental Psychology*.

Those books were published between 1901 and 1905. Two were for the psychology instructor and two for the student. Two volumes dealt with quantitative studies, and two focused on qualitative studies. Collectively they were known as "The Manuals" or "Titchener's Manuals." And they were used to train an entire generation of American psychology students, not just those at Cornell, in the methods of this new science. Titchener was an excellent scientist who modeled and communicated the integrity of scientific investigation better than any psychologist of his day. His manuals certainly rank among the most important books in the history of psychology. Oswald Külpe, a psychologist who frequently battled Titchener on theoretical grounds, called Titchener's *Experimental Psychology* "the most erudite psychological work in the English language" (Boring, 1950, p. 413).

The initial selection in this chapter is from Titchener's *Text-book of Psychology*, which he published in 1910. It begins with a discussion of Titchener's dis-

inction between mind and consciousness and continues with a discussion of the method of psychology (introspection) and the scope of psychology.

The second selection is by Mary Henle, a historian of psychology and an authority on Gestalt psychology. It asks the question, "Did Titchener commit the stimulus error?" and analyzes the inconsistencies in Titchener's system related to his use of introspection. This article also speculates on some of the changes in Titchener as a psychologist in the last decade of his life—a period in which significant theoretical changes were under way in Titchener's thinking.

Those changes are described in the third selection by the historian of psychology Rand B. Evans, the acknowledged authority on Titchener. Drawing from correspondence and unpublished manuscripts, as well as from published sources, Evans builds a convincing case for Titchener's "lost system" that represented both conceptual and methodological changes from his earlier views.

There is much in the way of new scholarship in the history of psychology to help us recognize the similarities and differences in the systems of Titchener and Wundt. This chapter and the previous one are intended to portray this new knowledge.

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The Method and Scope of Psychology

Edward Bradford Titchener

§ 5. MENTAL PROCESS, CONSCIOUSNESS AND MIND

The most striking fact about the world of human experience is the fact of change. Nothing stands still; everything goes on. The sun will someday lose its heat; the eternal hills are, little by little, breaking up and wearing away. Whatever we observe, and from whatever standpoint we observe it, we find process, occurrence; nowhere is there permanence or stability. Mankind, it is true, has sought to arrest this flux, and to give stability to the world of experience, by assuming two permanent substances, matter and mind: the occurrences of the physical world are then supposed to be manifestations of matter, and the occurrences of the mental world to be manifestations of mind. Such an hypothesis may be of value at a certain stage of human thought; but every hypothesis that does not accord with the facts must, sooner or later, be given up. Physicists are therefore giving up the hypothesis of an unchanging, substantial matter, and psychologists are giving up the hypothesis of an unchanging, substantial mind. Stable objects and substantial things belong, not to the world of science, physical or psychological, but only to the world of common sense.

We have defined mind as the sum-total of human experience considered as dependent upon the experiencing person. We have said, further, that the phrase 'experiencing person' means the living body, the organised individual; and we have hinted that, for psychological purposes, the living body may be reduced to the nervous system and its attachments. Mind thus becomes the sum-total of human experience considered as dependent upon a nervous system. And since hu-

man experience is always process, occurrence, and the dependent aspect of human experience is its mental aspect, we may say, more shortly, that mind is the sum-total of mental processes. All these words are significant. 'Sum total' implies that we are concerned with the whole world of experience, not with a limited portion of it; 'mental' implies that we are concerned with experience under its dependent aspect, as conditioned by a nervous system; and 'processes' implies that our subject-matter is a stream, a perpetual flux, and not a collection of unchanging objects.

It is not easy, even with the best will possible, to shift from the common-sense to the scientific view of mind; the change cannot be made all in a moment. We are to regard mind as a stream of processes? But mind is personal, my mind; and my personality continues throughout my life. The experiencing person is only the bodily organism? But, again, experience is personal, the experience of a permanent self. Mind is spatial, just as matter is? But mind is invisible, intangible; it is not here or there, square or round.

These objections cannot be finally met until we have gone some distance into psychology, and can see how the scientific view of mind works out. Even now, however, they will weaken as you look at them. Face that question of personality. Is your life, as a matter of fact, always personal? Do you not, time and again, forget yourself, lose yourself, disregard yourself, neglect yourself, contradict yourself, in a very literal sense? Surely, the mental life is only intermittently personal. And is your personality, when it is realised, unchanging? Are you the same self in childhood and manhood, in your working and in your playing moods, when you are on your best behaviour and when you are freed from restraint? Surely, the self-experience is not only intermittent, but also composed, at different times, of very different factors. As to the other question: mind is, of course, invisible, because sight is mind; and mind is intangible, because touch

From Titchener, E. B. (1910). *A textbook of psychology*. New York: Macmillan, pp. 15-30. Copyright © 1910 by Macmillan Publishing Company. Reprinted by permission of the publisher.

is mind. Sight-experience and touch-experience are dependent upon the experiencing person. But common sense itself bears witness, against its own belief, to the fact that mind is spatial: we speak, and speak correctly, of an idea in our head, a pain in our foot. And if the idea is the idea of a circle seen in the mind's eye, it is round; and if it is the visual idea of a square, it is square.

Consciousness, as reference to any dictionary will show, is a term that has many meanings. Here it is, perhaps, enough to distinguish two principal uses of the word.

In its first sense, consciousness means the mind's awareness of its own processes. Just as, from the common-sense point of view, mind is that inner self which thinks, remembers, chooses, reasons, directs the movements of the body, so is consciousness the inner knowledge of this thought and government. You are conscious of the correctness of your answer to an examination question, of the awkwardness of your movements, of the purity of your motives. Consciousness is thus something more than mind; it is "the perception of what passes in a man's own mind";¹ it is "the immediate knowledge which the mind has of its sensations and thoughts."²

In its second sense, consciousness is identified with mind, and 'conscious' with 'mental.' So long as mental processes are going on, consciousness is present; as soon as mental processes are in abeyance, unconsciousness sets in. "To say I am conscious of a feeling, is merely to say that I feel it. To have a feeling is to be conscious; and to be conscious is to have a feeling. To be conscious of the prick of the pin, is merely to have the sensation. And though I have these various modes of naming my sensation, by saying, I feel the prick of a pin, I feel the pain of a prick, I have the sensation of a prick, I have the feeling of a prick, I am conscious of the feeling; the thing named in all these various ways is one and the same."³

The first of these definitions we must reject. It is not only unnecessary, but it is also misleading, to speak of consciousness as the mind's

awareness of itself. The usage is unnecessary, because, as we shall see later, this awareness is a matter of observation of the same general kind as observation of the external world; it is misleading, because it suggests that mind is a personal being, instead of a stream of processes. We shall therefore take mind and consciousness to mean the same thing. But as we have the two different words, and it is convenient to make some distinction between them, we shall speak of mind when we mean the sum-total of mental processes occurring in the life-time of an individual, and we shall speak of consciousness when we mean the sum-total of mental processes occurring *now*, at any given 'present' time. Consciousness will thus be a section, a division, of the mind-stream. This distinction is, indeed, already made in common speech: when we say that a man has 'lost consciousness,' we mean that the lapse is temporary, that the mental life will shortly be resumed; when we say that a man has 'lost his mind,' we mean—not, it is true, that mind has altogether disappeared, but certainly that the derangement is permanent and chronic.

While, therefore, the subject-matter of psychology is mind, the direct object of psychological study is always a consciousness. In strictness, we can never observe the same consciousness twice over; the stream of mind flows on, never to return. Practically, we can observe a particular consciousness as often as we wish, since mental processes group themselves in the same way, show the same pattern of arrangement, whenever the organism is placed under the same circumstances. Yesterday's high tide will never recur, and yesterday's consciousness will never recur; but we have a science of psychology, as we have a science of oceanography.

§ 6. THE METHOD OF PSYCHOLOGY

Scientific method may be summed up in the single word 'observation'; the only way to work in science is to observe those phenomena which form the subject-matter of science. And obser-

vation implies two things: attention to the phenomena, and record of the phenomena; that is, clear and vivid experience, and an account of the experience in words or formulas.

In order to secure clear experience and accurate report, science has recourse to experiment. An experiment is an observation that can be repeated, isolated and varied. The more frequently you can *repeat* an observation, the more likely are you to see clearly what is there and to describe accurately what you have seen. The more strictly you can *isolate* an observation, the easier does your task of observation become, and the less danger is there of your being led astray by irrelevant circumstances, or of placing emphasis on the wrong point. The more widely you can *vary* an observation, the more clearly will the uniformity of experience stand out, and the better is your chance of discovering laws. All experimental appliances, all laboratories and instruments, are provided and devised with this one end in view: that the student shall be able to repeat, isolate and vary his observations.

The method of psychology, then, is observation. To distinguish it from the observation of physical science, which is inspection, a looking-at, psychological observation has been termed introspection, a looking-within. But this difference of name must not blind us to the essential likeness of the methods. Let us take some typical instances.

We may begin with two very simple cases. (1) Suppose that you are shown two paper discs: the one of an uniform violet, the other composed half of red and half of blue. If this second disc is rapidly rotated, the red and blue will mix, as we say, and you will see a certain blue-red, that is, a kind of violet. Your problem is, so to adjust the proportions of red and blue in the second disc that the resulting violet exactly matches the violet of the first disc. You may repeat this set of observations as often as you like; you may isolate the observations by working in a room that is free from other, possibly disturbing colours; you may

vary the observations by working to equality of the violets first from a two-colour disc that is distinctly too blue, and secondly from a disc that is distinctly too red. (2) Suppose, again, that the chord *c-e-g* is struck, and that you are asked to say how many tones it contains. You may repeat this observation; you may isolate it, by working in a quiet room; you may vary it, by having the chord struck at different parts of the scale, in different octaves.

It is clear that, in these instances, there is practically no difference between introspection and inspection. You are using the same method that you would use for counting the swings of a pendulum, or taking readings from a galvanometer scale, in the physical laboratory. There is a difference in subject-matter: the colours and the tones are dependent, not independent experiences: but the method is essentially the same.

Now let us take some cases in which the material of introspection is more complex. (1) Suppose that a word is called out to you, and that you are asked to observe the effect which this stimulus produces upon consciousness: how the word affects you, what ideas it calls up, and so forth. The observation may be repeated; it may be isolated,—you may be seated in a dark and silent room, free from disturbances; and it may be varied,—different words may be called out, the word may be flashed upon a screen instead of spoken, etc. Here, however, there seems to be a difference between introspection and inspection. The observer who is watching the course of a chemical reaction, or the movements of some microscopical creature, can jot down from moment to moment the different phases of the observed phenomenon. But if you try to report the changes in consciousness, while these changes are in progress, you interfere with consciousness; your translation of the mental experience into words introduces new factors into that experience itself. (2) Suppose, again, that you are observing a feeling or an emotion: a feeling of disappointment or annoyance, an emotion

of anger or chagrin. Experimental control is still possible; situations may be arranged, in the psychological laboratory, such that these feelings may be repeated, isolated and varied. But your observation of them interferes, even more seriously than before, with the course of consciousness. Cool consideration of an emotion is fatal to its very existence; your anger disappears, your disappointment evaporates, as you examine it.

To overcome this difficulty of the introspective method, students of psychology are usually recommended to delay their observation until the process to be described has run its course, and then to call it back and describe it from memory. Introspection thus becomes retrospection; introspective examination becomes *post mortem* examination. The rule is, no doubt, a good one for the beginner; and there are cases in which even the experienced psychologist will be wise to follow it. But it is by no means universal. For we must remember (*a*) that the observations in question may be repeated. There is, then, no reason why the observer to whom the word is called out, or in whom the emotion is set up, should not report at once upon the first stage of his experience: upon the immediate effect of the word, upon the beginnings of the emotive process. It is true that this report interrupts the observation. But, after the first stage has been accurately described, further observations may be taken, and the second, third and following stages similarly described; so that presently a complete report upon the whole experience is obtained. There is, in theory, some danger that the stages become artificially separated; consciousness is a flow, a process, and if we divide it up we run the risk of missing certain intermediate links. In practice, however, this danger has proved to be very small; and we may always have recourse to retrospection, and compare our partial results with our memory of the unbroken experience. Moreover, (*b*) the practised observer gets into an introspective habit, has the introspective attitude ingrained in his system; so that it is possible for

him, not only to take mental notes while the observation is in progress, without interfering with consciousness, but even to jot down written notes, as the histologist does while his eye is still held to the ocular of the microscope.

In principle, then, introspection is very like inspection. The objects of observation are different; they are objects of dependent, not of independent experience; they are likely to be transient, elusive, slippery. Sometimes they refuse to be observed while they are in passage; they must be preserved in memory, as a delicate tissue is preserved in hardening fluid, before they can be examined. And the standpoint of the observer is different; it is the standpoint of human life and of human interest, not of detachment and aloofness. But, in general, the method of psychology is much the same as the method of physics.

It must not be forgotten that, while the method of the physical and the psychological sciences is substantially the same, the subject-matter of these sciences is as different as it can well be. Ultimately, as we have seen, the subject-matter of all the sciences is the world of human experience; but we have also seen that the aspect of experience treated by physics is radically different from the aspect treated by psychology. The likeness of method may tempt us to slip from the one aspect to the other, as when a textbook of physics contains a chapter on vision and the sense of colour, or a text-book of physiology contains paragraphs on delusions of judgment; but this confusion of subject-matter must inevitably lead to confusion of thought. Since all the sciences are concerned with the one world of human experience, it is natural that scientific method, to whatever aspect of experience it is applied, should be in principle the same. On the other hand, when we have decided to examine some particular aspect of experience, it is necessary that we hold fast to that aspect, and do not shift our point of view as the enquiry proceeds. Hence it is a great advantage that we have the two terms, introspection and inspection, to denote observation taken from the different standpoints of psychology and of physics.

The use of the word introspection is a constant reminder that we are working in psychology, that we are observing the dependent aspect of the world of experience.

Observation, as we said above, implies two things: attention to the phenomena, and record of the phenomena. The attention must be held at the highest possible degree of concentration; the record must be photographically accurate. Observation is, therefore, both difficult and fatiguing; and introspection is, on the whole, more difficult and more fatiguing than inspection. To secure reliable results, we must be strictly impartial and unprejudiced, facing the facts as they come, ready to accept them as they are, not trying to fit them to any preconceived theory; and we must work only when our general disposition is favourable, when we are fresh and in good health, at ease in our surroundings, free from outside worry and anxiety. If these rules are not followed, no amount of experimenting will help us. The observer in the psychological laboratory is placed under the best possible external conditions; the room in which he works is fitted up and arranged in such a way that the observation may be repeated, that the process to be observed may stand out clearly upon the background of consciousness, and that the factors in the process may be separately varied. But all this care is of no avail, unless the observer himself comes to the work in an even frame of mind, gives it his full attention, and is able adequately to translate his experience into words.

§ 7. THE SCOPE OF PSYCHOLOGY

If mind is the sum-total of human experience considered as dependent upon the experiencing person, it follows that each one of us can have direct acquaintance only with a single mind, namely, with his own. We are concerned in psychology with the whole world of human experience; but we are concerned with it solely under its dependent aspect, as conditioned by a nervous system; and a nervous system is a particular thing, possessed by a particular individual. In strictness, therefore, it is only his own mind, the

experience dependent upon his own nervous system, that each of us knows at first-hand; it is only to this limited and individual subject-matter that the method of experimental introspection can be directly applied. How, then, is a scientific psychology possible? How can psychology be anything more than a body of personal beliefs and individual opinions?

The difficulty is more apparent than real. We have every reason to believe, not only in general that our neighbours have minds like our own, that is, are able like ourselves to view experience in its dependent aspect, but also in detail that human minds resemble one another precisely as human bodies do. Within a given race there is much apparent diversity of outward form: differences in height and figure, in colour of hair and eyes, in shape of nose and mouth. We notice these differences, because we are obliged in everyday life to distinguish the persons with whom we come in contact. But the resemblances are more fundamental than the differences. If we have recourse to exact measurements, we find that there is in every case a certain standard or type to which the individual more or less closely conforms and about which all the individuals are more or less closely grouped. And even without measurement we have evidence to the same effect: strangers see family likenesses which the members of the family cannot themselves detect, and the units in a crowd of aliens, Chinese or Negroes, look bewilderingly alike.

Now all of our main social institutions rest upon the assumption that the individuals of whom society is composed possess minds, and possess minds that are of the same sort. Language, religion, law and custom,—they one and all rest upon this assumption, and they one and all bear testimony that the assumption is well grounded. Would a man invent language in order to talk to himself? Language implies that there are more minds than one. And would the use of a common speech be possible if minds were not essentially alike? Men differ in their

command of language, as they differ in complexion, or in liability to disease; but the general use of language testifies to a fundamental likeness of mental constitution in us all.

Hence the psychologist is fully justified in believing that other men have minds of the same kind as his own, and in basing psychology upon the introspective reports furnished by a number of different observers. These reports show, in point of fact, just what we should expect them to show: a fundamental agreement, and a great variety of detail,—the mental differences grouping themselves, as we have seen that physical differences group themselves, about a central type or standard.

If, however, we attribute minds to other human beings, we have no right to deny them to the higher animals. These animals are provided with a nervous system of the same pattern as ours, and their conduct or behaviour, under circumstances that would arouse certain feelings in us, often seems to express, quite definitely, similar feelings in them. Surely we must grant that the highest vertebrates, mammals and birds, have minds. But the lower vertebrates, fishes and reptiles and amphibia, possess a nervous system of the same order, although of simpler construction. And many of the invertebrates, insects and spiders and crustaceans, show a fairly high degree of nervous development. Indeed, it is difficult to limit mind to the animals that possess even a rudimentary nervous system; for the creatures that rank still lower in the scale of life manage to do, without a nervous system, practically everything that their superiors do by its assistance. The range of mind thus appears to be as wide as the range of animal life.

The plants, on the other hand, appear to be mindless. Many of them are endowed with what we may term sense-organs, that is, organs differentiated to receive certain forms of stimulus, pressure, impact, light, etc. These organs are analogous in structure to the sense-organs of the lower animal organisms: thus, plant "eyes" have been found, which closely

resemble rudimentary animal eyes, and which—if they belonged to animals—might mediate the perception of light: so that the development of the plant-world has evidently been governed by the same general laws of adaptation to environment that have been at work in the animal kingdom. But we have no evidence of a plant-consciousness.

Just as the scope of psychology extends beyond man to the animals, so does it extend from the individual man to groups of men, to societies. The subject-matter of psychology is human experience considered as dependent upon the individual. But since the individuals of the same race and epoch are organised in much the same way, and since they live together in a society where their conduct affects and is affected by the conduct of others, their view of experience under its dependent aspect naturally becomes, in certain main features, a common or general view; and this common view is embodied in those social institutions to which we have referred above,—in language, religion, law and custom. There is no such thing as a collective mind, or a national mind, or a social mind, if we mean by mind some immaterial being; but there is a collective mind, if we mean by it the sum-total of human experience considered as dependent upon a social group of similar individuals. The study of the collective mind gives us a psychology of language, a psychology of myth, a psychology of custom, etc.; it also gives us a differential psychology of the Latin mind, of the Anglo-Saxon mind, of the Oriental mind, etc.

And this is not all: the scope of psychology extends, still further, from the normal to the abnormal mind. Life, as we know, need not be either complete or completely healthy life. The living organism may show defect, the lack of a limb or of a sense-organ; and it may show disorder and disease, a temporary or a permanent lapse from health. So it is with mind. The consciousnesses of those who are born deaf or blind are defective; they lack certain sensations and images that are normally present. In dreaming and the hyp-

notic state, during intoxication, after prolonged sleeplessness or severe strain of any kind, we have illustrations of temporary mental derangement. And the various forms of insanity—mania, melancholia, dementia—are forms of permanent mental disorder.

Derangement of the social mind may be studied in the various panics, fads, epidemics of speculation, of false belief, etc., which occur from time to time even in the most highly civilised societies. The mob consciousness stands to a healthy social consciousness very much as dreaming to the waking life. Permanent disorder of the social mind means the downfall of society.

All these various fields of psychology may be cultivated for their own sake, on account of their intrinsic interest and value; they must, indeed, be so cultivated, if psychology is to progress. At the same time, their facts and laws often throw light upon the problems of normal human psychology. Suppose, for instance, that a man, blind from his birth, is rendered able to see by a surgical operation. He must learn to use his eyes, as a child learns to walk. And the gradual perfecting of his vision, the mistakes and confusions to which he is liable, all the details of his visual education, form a storehouse of facts upon which the psychologist can draw when he seeks to illustrate the development of the perception of space in the normal mind,—the manner in which we come to judge of the distance of objects from ourselves and from one another, of

their direction, and of their size and shape. Instructive, also, are those forms of mental unsoundness which consist in the derangement of a single group of processes. The various types of morbid fear—agoraphobia, the fear of being alone in open spaces; neophobia, the fear of everything that is new; phobophobia, the nervous dread of being afraid—are only exaggerated forms of experiences that most of us have had. The sanest man will feel lost when he passes, suddenly, from a quiet country life to the bustle of a large town; we are all a little timid when we enter a strange community; we have all been afraid that on such-and-such an occasion we shall show our nervousness. Similarly, the self-importance of paranoia is merely an exaggeration of the pleased self-consciousness, the self-complacency, that we often observe in others and, if we are honest, must often detect in ourselves. In all these instances, the strong lines of the caricature may help us to a more correct picture of the normal consciousness.

NOTES

- 1 John Locke, *An Essay Concerning Human Understanding*, [1690] Bk. II., Ch. i., §19.
- 2 Dugald Stewart, *Outlines of Moral Philosophy*, [1793]. Pt. I., Section i., §7.
- 3 James Mill, *Analysis of the Phenomena of the Human Mind*, [1829] Vol. I., Ch. v. Mill uses the word "feeling" to denote what we have called "mental process."