REVIEWS

*Purposive Behavior in Animals and Men.* By Edward Chace Tolman. New York: Century Co. 1932. xiv + 463 pp. $5.00.

Professor Tolman’s book is an interesting sign of the times. From it those who for one reason or another, whether out of purely disinterested curiosity or merely their own innate perversity, are interested up to the hilt in the present and future of psychology may get an unusually clear suggestion as to where between the two poles of behaviorism and structuralism they will finally see their science find its place. It has become ever more evident that psychology after all is one; that structuralism has long since been at its most structuralistic, and that behaviorism, born more than full-grown, has been rapidly progressing from senescence toward a more normal adolescence. This is hopeful, and one is tempted to try to predict psychologists’ ultimate meeting-point relative to these extremes by the rate at which they are approaching each other from them. Hence it is interesting to find Dr. Tolman intimating that in his own case he has arrived at his present position from an original point of departure very near the South Pole of “molecular behaviorism.”

The doctrine of “purposive behaviorism” is developed in this book by an alternation, first, of analysis and definition, and second, of presentation of the experimental evidence indicating the existence of the objects of the definitions. The marshalling of evidence, particularly in the realm of animal psychology, is expertly done; if we mention it little the reason is to be found in lack of space, not of enthusiasm. What seems to us most important is the system itself, as a completely objective one which nevertheless demands little sacrifice of the orthodox mentalist save that of his private incommunicable “raw feels” which were never any good to him anyway. It is about time that psychologists should be grown up enough to use concepts like purpose, cognition, and consciousness without trembling from fear of metaphysical bogeys of various kinds which, as a matter of psychological history, have chiefly terrorized those who were least acquainted with them.

For Tolman behavior is a “molar” phenomenon with “emergent” properties which, with our present knowledge, at any rate, “cannot be known even inferentially from a mere knowledge of the underlying, molecular facts of physics and physiology.” The identification of behavior, he insists, involves knowledge of its purposive and cognitive characteristics; let who will be frightened off by these terms. Purpose is defined by persistence and docility (teachableness); and an animal no more soulful than the paramecium can be shown experimentally to exhibit these attributes in its behavior. As to cognition, it can be asserted whenever actions are shown to be docile relative to a goal-object, its initial position relative to means-objects, and the characters of such means-objects. We cannot here consider in detail the evidence brought forth to support the meaningfulness of these definitions; suffice it to say that we are usually shown what experiments must be performed to fill in with actuality the definitional outlines.
From the point of view of this system the ultimate purpose of behavior is always the getting to some physiological quiescence or the getting from a physiological disturbance. This seems to be a specific theory, not a definition; and we feel that the evidence in support of it is not overwhelming. It suggests itself that if the phenomena of mind are defined as arising from differences in degree of success in fulfilling the ultimate purpose of life, self-maintenance, one need not open the possibility of error contained in so specific a theory. Is it not conceivable that behavior is directed toward physiological disturbance as well as quiescence? We eat, not only to bring about a cessation of the activity of one part of the gastric tract, but equally to induce activity in other parts (assimilation, elimination, etc.), and still further, in order that all other vital processes may continue to function. However, aside from this, we can agree with Professor Tolman in his treatment of behavior purposes subordinate to whatever final purpose there may be; the hierarchical classification of such purposes, each leading from a lower, or subordinate, end to a higher, or superordinate, end, seems to us to give insight into behavior which cannot fail of useful application.

Involved in these purposes are, naturally, various goal-objects, means-objects, and means-end relations. It is from the consideration of behavior relative to these that we have the analysis of the more specific mental processes and capacities. Such processes and capacities are understood to be inferred or abstracted from behavior, and are to be treated as inferences and abstractions. They are not, however, merely descriptive, but attain an explanatory status when shown to be prerequisite to a particular behavior-type. The author is not over-clear with regard to this distinction and some of his statements might lead to misinterpretation, but we believe his heart is in the right place in the matter. In their explanatory status the processes and capacities are regarded as determinants of behavior, intervening between the stimulus giving rise to the initial physiological state and the final response to that stimulus. Since the system considers both processes and capacities it is an attempt at a complete, as against a merely normative, or merely individual psychology.

Although, as he himself would undoubtedly concede, the author is obviously much more at home in the comparative field than in human psychology he is, as he whimsically puts it, under the "shameful necessity" of dealing with man's claim to consciousness as well as with the behavior of rats and apes. There seem in general to be two ways of handling this word consciousness if it is to be used at all; one may employ it as a convenient single term to cover all mental processes, or in a much more limited sense one may mean by it the reference one mental state has to another mental state—awareness of awareness. Tolman seems to fall between these two methods in asserting it to be a combination of delayed reaction with a certain "running-back-and-forth" in the environmental field for the purpose of sampling it. (The term "running-back-and-forth" is used continually with most barbarous effect.) This attitude saves consciousness for rats at the expense of clearness in the concept. Nothing described by the author as conscious behavior in the case of rats seems to require application of the term—his own concepts of the sign-gestalt-expectation and responsiveness to stimuli would seem to be adequate.

1 Cf. E. A. Singer, Jr. Mind as Behavior. 1924. Pp. 78 ff.
It is true that the reader is urged to put little weight upon this part of the story; but after all, to most of us it will seem a very crucial point in any system. Behaviorists have never been able or willing to stick with their animals and avoid the human question. As far as 'purposive behaviorism' is concerned, although we cannot agree with its specific definition of consciousness we are anxious to praise it for at any rate attempting to remain objective even with respect to this most difficult problem.

In setting forth the purposivistic and behavioristic nature of Tolman's doctrine its very intimate relation to the Gestalt psychology has been ignored. This aspect appears throughout, but especially in the theory of learning. The conditioned reflex and trial and error theories are criticized, though not completely discarded. In general, learning is treated as "an affair of sign-gestalt formation, refinement, selection, or invention," the sign-gestalt being (to sacrifice accuracy for brevity) a gestalt-like perception or memory. This theory, which the author seems to consider the most important part of his system, is developed in detail, with much experimental evidence; justice cannot be done it here, but we may say it is eclectic in taking the best of other theories and, we venture to say, points truly the direction any final theory will have to take.

This last statement goes for the whole system, and is all, or more than, Professor Tolman claims for it. He presents it very frankly as tentative and unfinished; but since much of the uncertainty is to be removed by experiments, many of which are definitely proposed by the author, we may expect it to have a very healthy influence upon research as well as upon theorizing. In our humble opinion, comparative psychology has made here its most significant contribution since Watson.

Francis W. Irwin

Secret Ways of the Mind. By W. M. Kranefeldt. With an introduction by C. G. Jung. Translated from the German with preface by Ralph M. Eaton. New York: Henry Holt and Company. 1932. xl + 188 pp. $1.60.

A review of this book must include reference, first, to the translator's preface, then, to the introduction by Jung, and finally to the book itself by Kranefeldt.

In his preface the translator undertakes to show the significance of psycho-analysis in modern psychology. When psychology was elevated to the dignity of a science during the latter half of the 19th century, he says, it became so anxious to imitate the quantitative methods of the other sciences, particularly the physical sciences, that the real subject matter of psychology was lost, and the new science failed in achieving its purpose. To quote: 'The layman who childishly believes that he will learn something from the ordinary books on psychology about human nature as he sees it in the sufferings, deceptions, joys, ambitions, loves, and aversions of everyday life, will be bitterly disappointed as he plows through the pages on sensation, perception, and representation, the statistics of learning curves and intelligence tests, the hypothetical physiology of nerve impulses and brain structure.'