laid in the first eight years of a child's life. The author might have made use here of the discoveries of psychoanalysis to reinforce the importance of juvenile ethics.

As to topics, problems, and literature, the book is suggestive and directive. The appendices contain suggestive blank forms for collecting child statistics, and tables of "norms" in height, weight, strength, tapping rate, and vital capacity.

LINUS W. KLINE.

MOTIVE FORCE AND MOTIVATION-TRACKS. *E. Boyd Barrett, S. J.*, Doctor of Philosophy, Superior Institute, Louvain; Honours Graduate, National University, Ireland. Longmans, Green and Company, London, 1911; pp. xiv, 225.

The worst part of this important research into the psychology of the will is its misleading title: there is present in it little or nothing about the energy that underlies our motives and nothing at all about tracks in the nervous system, this term being used in a purely metaphoric way for habits. The book discusses, in a new way and ably, the determinants of conscious motives to choose and their tendency to habituation. It is a research essay in volitional introspection.

There is a noteworthy introduction and then the eleven chapters concern themselves respectively with "Modern theories of the will, The object and method of the present research, Motives, Motive-force and its measurement, Motivation-tracks, The evolution of motivation, Automatism, Hesitation, Hedonism, The relativity of values, and The psychology of character." Obviously these topics are among the most important of those that might interest not only the therapist in mental derangement of all kinds, but the academic psychophysicist. Few recent investigations of the conditions underlying behavior have produced more product of use to delvers into the subconscious than this research; on the other hand the actual results are perhaps of less consequence than its additions to methodology, inciting to many future homologous labors.

Five subjects were employed: a graduate in Arts of Cambridge University, a medical doctor and three philosophical doctors, including the author, of Louvain University, Belgium. The motives to choose were concerned with selection out of eight colorless and harmless liquids representing to a degree a scale of values from unpleasant to pleasant. The mechanism of research was properly adapted to the requirements of scientific work, all precautions having been taken apparently to assure results beyond

reproach. "There were three stages in our method: 1. The tastes just now described, were learned, associations between the names and the tastes being formed. 2. The strength of these associations was tested by means of the Recognition Experiments. 3. The Choice Experiments began." These latter were of four stages: (a) the perception of the stimulus (cards each bearing two of the nonsense names respectively connected with the liquids); (b) the motivation (evaluation of the differences between the tastes of the stimuli); (c) the choice or decision proper; and (d) the realization of the choice (drinking of the liquid chosen as the better alternative, making the motive a real event, comparable to the consequential choices of everyday life). The steps in the volition were measured with chronoscopes so far as was deemed necessary. At each sitting only seven choices were made, and a careful introspective report was recorded after each; the total number of volitions thus described by these trained subjects was 1063.

This monograph is a difficult one to accurately summarize and, therefore, even at the cost of omitting valuable details, it is expedient to quote its results in the author's own language. "The analysis of the choice-process brings to light the following facts: (1) the 'structural' phenomena [psychomotor processes of attention, alternation, adaptation, etc.] tend to persist; (2) the 'psychical' phenomena tend to disappear; (3) the reaction-time naturally tends to diminish; (4) the same choices repeat themselves in practically the same manner [forming motivation-'tracks']."

"Choices, when of the same kind, normally run along fixed lines. The general structure of the choice act, and the psychical contents remain the same, save for the inevitable evolution and shortening in point of time and content. The motives which recur are usually the same, though in a gradually modified form — they evolve. These motives and the whole choice act, so to speak, pass along beaten tracks. We speak figuratively, to make the matter clearer, not to tinge it with materialism or a determinism for which we see no shred of evidence" (p. 118ff.).

"The choice-process, with which we are here concerned, is not something purely psychical, nor yet purely physical. It is not like an abstract thought, nor is it like a sensation or a memory image. It is structural, that is to say, it holds together in parts; and these parts constitute the whole. The choice process too has feeling-tone; it is pleasant or painful; it is smooth and continuous, or jerky; it is swift and easy, or slow; it varies too in degree, sometimes being 'a typical choice, a real choice,' and at other times 'hardly a choice at all'" (subjects' words) (p. 103). [Compare the present reviewer's "Notes on the Neurology of Voluntary

Movement," *Med. Rec.*, 81, 20, 18 May, 1912, pp. 727-739, where some literal motivation-tracks are suggested along just about these lines.]

"We see that the natural tendency is towards automatic choosing. The times grow shorter, the number of phenomena grows less, only one alternative is considered, there is economy in every sense, and finally, the motivation reaches such a point, that it never, or practically never deviates from a certain curve or 'motivation track.' . . . Automatism, which we shall now consider in detail, is thus the natural issue of normal motivation. . . . Automatism should not then be considered as an evil, but on the contrary as a manifestation of the protective, and economizing tendency of volitional functioning." Here obviously is an orthodox and experimental sanction of the co-conscious or sub-conscious majority of our mental process.

In the chapter on hesitation, Doctor Barrett contributes ideas to the already considerable literature on abulic conditions; and in that on hedonism the sthenic nature of euphoric volitions is plainly demonstrated by the Hipp's reaction-times.

"The feet that, creeping slow to school,
Went storming out to playing!"

The relations of the development of automatisms to the rapidity of the choices is brought out. The "law of total relativity" is finely illustrated in these choices, simple though they were, and the chapter devoted to this subject is one of the most interesting in the book. Its practical bearings, like that of the preceding chapter on hedonism, cannot fail to be found of moment in the evaluation of motives by the psychiatrist as by the jurist and by the psychologist in general. Human motives constitute the effective basis of human behavior which is, in turn, the practical final purpose of all psychology and physiology. Books like this and that of Max Meyer are laying, slowly but permanently, a stable foundation for the real explanation of the will.

To students of the technical psychology of conation in its broadest denotation, the present volume cannot fail to be of interest, and its results and implications are timely contributions to the mysteries of the more hidden chambers of the soul, vital to every present reader.

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