

probability of cosmical life, of a form outwith our conception, might be envisaged.

A survey of the sky as seen from Mercury concludes the memoir, which is embellished by three plates and many fine drawings and diagrams.

H. MCEWEN.

French Psychology

Nouveau traité de psychologie. Par Prof. Georges Dumas. Tome 2: *Les fondements de la vie mentale.* Pp. vi+612. Tome 3: *Les associations sensitivo-motrices; l'équilibre et l'orientation, l'expression des émotions, les mimiques, le langage.* Pp. vi+462. (Paris: Félix Alcan, 1932-1933.) 100 francs each.

THE French school of psychologists, led by Dumas and Piéron, have many important investigations to their credit. In their work, the refinement of detail is happily harmonised with those broad synthetic views which connote the classical character of the French mind. The collective treatise on psychology which will be completed in nine volumes, and of which vols. 2 and 3 are under review, is an outstanding result of team work relating to one of the most exacting of sciences. While the first volume, published some time ago, dealt mainly with questions of method, the second volume is devoted to the foundations of mental life. Here we find a detailed analysis of the relations between various kinds of stimuli and the reflexes, movements and secretions of the body; also of the sensitive and affective elements of mental life, such as the various types of sensations, pleasure and pain, emotions and tendencies; and finally of imagery and the relations between image and thought. All these questions are well treated by G. Dumas, H. Piéron, A. Mayer, B. Bourdon, J. Languier des Bancels and I. Meyerson. The study of the affective states (especially of emotion and of pleasure and pain) by Prof. G. Dumas and the monograph on images by I. Meyerson are remarkable examples of orderly exposition and unbiased discussion of results.

The third volume deals specifically with the major sensory-motor functions, such as orientation and bodily equilibrium, the expression of emotions, mimicry and language. Prof. Dumas rightly holds that no psychological functions are purely sensory or purely motor; though, of course, when analysing them one of these aspects may be stressed to the exclusion of the other. The study of vision, for example, which is generally considered as a purely sensory function, involves an important background of motor responses and muscular reflexes. The chapters on the expression of emotions are most interesting in their details, both in regard to the methods adopted and to the cases observed or

quoted. Attention, surprise, astonishment, joy, sadness, fear and anger are analysed not only as mere expressions of emotions, but also as results of physiological stimuli. Indeed what adds to the value of this volume is the fact that all experiments and observations are explained or discussed with due consideration of the physiological changes involved in each case. The two monographs by A. Ombredane on orientation and on language show the same qualities.

The value of the first three volumes of the "Nouveau Traité de Psychologie" causes one to await with eagerness the publication of the rest of this great work. It cannot be said that the French psychologists form a distinct and original school of thought. But their work is important precisely because of their detachment from any labelled group of scientific workers. Prof. Piéron might perhaps be counted as a behaviourist, since he was led by his animal studies to define psychology as the study of behaviour before Watson used that formula. But Prof. Piéron is more clear-headed than the American behaviourists, as Prof. Wordworth pertinently pointed out, for he sees no necessity for calling into question the individual's testimony to his own consciousness. Prof. Dumas, too, gives much weight to introspection. In spite of its difficulties, this method is really indispensable in psychology, since it has furnished the suggestion even for the objective studies that have been carried on, and since it supplies the personal interest which one finds in psychological results.

The main characteristics of French psychology, however, are its emphasis on the biological basis and the social setting of the individual's activities, and also its interest in psychopathology. These characteristics are very prominent in the volumes under review and enable their authors to steer a middle course among the growing complexities of psychological research. T. GREENWOOD.

Teaching of Elementary Physics

A Textbook of Physics. By E. Grimsehl. Edited by Prof. R. Tomaschek. Vol. 2: *Heat and Sound.* Pp. xi+312. 12s. 6d. net. Vol. 3: *Electricity and Magnetism.* Pp. xiv+685. 25s. net. Vol. 4: *Optics.* Pp. xii+301+17 plates. 15s. net. (London, Glasgow and Bombay: Blackie and Son, Ltd., 1933.)

THE teaching of elementary physics in British schools and universities will be materially assisted by the appearance of these three volumes of Dr. Grimsehl's "Textbook". The high standard set in the first volume has been maintained throughout in the present volumes, and in certain respects the English edition may be said to be an improvement on the German original.