SCIENTIFIC BOOKS

Handbuch der Vergleichenden Psychologie. Edited by GUSTAV KAFKA. Band I: Die Entwicklungsstufen des Seelenlebens, 526 pp. Band II: Die Funktionen des normalen Seelenlebens, 513 pp. Band III: Die Funktionen des abnormen Seelenlebens, 515 pp. Ernest Reinhardt, München, 1922.

COMPARATIVE psychology in this case is serviceably defined as a general method of inquiry. Too often the term has been used in this country for the study of the mental life of infra-human organisms.

Kafka's handbook, the most extensive work on comparative psychology ever published, consists of three volumes which represent and sample the abundant materials of the subject instead of exhausting them. The three volumes deal respectively with mental development, functions of the normal mind, and functions of the abnormal mind.

Volume I comprehends three parts: (1) Animal psychology, by Gustav Kafka; (2) Psychology of primitive man, by Richard Thurnwald, and (3) Child psychology, by Fritz Giese.

In Volume II there are five parts: (1) Psychology of speech, by Hermann Gutzmann; (2) Psychology of religion, by Georg Runze; (3) Psychology of art, by Richard Müller-Freienfels; (4) Social psychology, by Aloys Fischer, and (5) Vocational psychology, by Otto Lipmann.

The parts of Volume III are: (1) Psychology of the abnormal, by Hans W. Gruhle; (2) Criminal psychology, by M. H. Göring; (3) Psychology of dreams, by Sante de Sanctis, and (4) Psychology of sex, by Rudolf Allers.

The twelve parts of this important handbook differ extremely in method of treatment, inclusiveness and degree of adequacy. Each richly deserves special descriptive and critical comment, but in this brief review notice the work may be criticized only as a whole.

Each part is followed by selected bibliography. Naturally, and indeed inevitably, English and especially American contributions are less well represented than are European, in text and in bibliography. The handbook is the more valuable to American scientists because it presents in the main materials with which we are less familiar than with our own publications and which are relatively inaccessible because of language of publication or library deficiencies.

It is to be hoped that this admirable collection of special chapters in comparative psychology will encourage American teachers to extend their courses and to use more adequately, for instructional purposes as well as in supplementation of research, both the facts and the methods of such branches of the science as the psychology of primitive peoples, of children, of criminals, of social groups, of occupations, of defective and abnormal individuals, of speech, art—all these in addition to the data and methods of animal psychology which are so generally used as content of our courses in comparative psychology.

In the absence of any comprehensive English text on comparative psychology, a translation of this work is sure to be considered. Although its parts might with entire appropriateness be published separately in translation, it seems to the reviewer eminently desirable that the entire handbook be carefully rendered into English and published complete.

ROBERT M. YERKES

SPECIAL ARTICLES

AN INTERPRETATION OF ORTHOGENESIS

THERE is probably no evolutionary process about which more obscurity hovers than that of orthogenesis. The occurrence of "directive" evolution in characters that can not be supposed to be of selective value is often held to be incompatible with the view that evolution results from the action of natural selection on random variations. It is variously argued that the occurrence of orthogenetic series proves that variations do not occur in a random manner, that natural selection can not be the directive agent of evolution, or that the Lamarckian principle of the inheritance of acquired characters must be true. Weismann tried to account for the facts by the now discredited hypothesis of "germinal selection"—which at least had the merit of being an attempt at a mechanistic explanation.

One not familiar at first hand with the paleontological evidence may wonder if there is sufficient proof that orthogenetic series really occur, rather than being made up afterwards in the museum by the selection of just the appropriate specimens. But, if it be granted that some such series are genuine, there remains a simple method of accounting for them without making use of germinal selection, Lamarckianism, or any other primary factors than random variations and natural selection.

As was pointed out by Morgan[1] (1923), mutations in single genes usually produce changes in several characters. The geneticist commonly studies the obvious somatic variations, yet he knows that these are associated with physiological variations. Morgan

[1] Morgan, T. H., 1923. The bearing of Mendelism on the origin of species. *Scient. Mo.* 16: 237–247.