

with him an enthusiastic interest in the philosophy and psychology of religion—an interest that prompted his publication in 1872-3 of I. A. Dorner's "System of Theology" and that, persisting to the present time, has led him to establish a *Journal of Religious Psychology*, and to interpret the great philosophical systems as Freudian sublimations of religious conviction. It is significant that the names of Graf and Kuenen, to whom was due the renaissance of the higher criticism in the sixties, do not appear in his pages: yet he is catholic enough to appreciate Dorner and Zeller and Delitzsch, Pfeleiderer and Lazarus. So far, we may suppose, Germany continued and enriched a mode of thought which was already familiar. But there was surprise in store: the "narrow, formal, rather dry curriculum" of the college was to give way to "a great and sudden revelation of the magnitude of the field of science." And what a revelation! Those were the great days of Darwinism; the days of Haeckel, of the "Generelle Morphologie" and the "Natürliche Schöpfungsgeschichte" and the biogenetic law, of the "Descent of Man" itself! Biology was thinking in great sweeps of thought; evolution was the key to world-riddles; there was no cloud upon the horizon to warn men of the minute specialization and laborious experimentation that were to come. It is small wonder that Dr. Hall became the enthusiastic champion of a genetic psychology; and it is small wonder that his geneticism bears the indelible impress of its date of origin. This contemporary Darwinian enthusiasm is, indeed, the fount and source of most of the critical judgments passed in the book.

Along with the interest in religion and the possession by the genetic idea go two other marked characteristics: the zeal of the reformer, the exhorter, the practical educator, and a sort of perpetual youth, with an unsatiated appetite for intellectual novelties. The former is apparent throughout the work; the latter is seen in the writer's almost boyish absorption in new movements—in Freudianism, in Bergson, in the introspective de-

partures of the Würzburg school—and crops out in the oddest personal fashion, as when one great man is censured for a stay-at-home life, and another is credited with a habit of vacation-trips. Every chapter begins in this way with a biographical sketch, which in fact makes us acquainted with the author no less than with his subject. Then follows an analysis of the subject's principal works, with more or less of running commentary and criticism; the exposition seems to be taken, in the main, from lecture-notes of the seventies and eighties, while the comment represents the writer's more mature position. Finally, the sketch ends with a general appreciation and a selected bibliography. The first five portraits in Dr. Hall's gallery occupy some sixty pages apiece; Wundt, who evidently and quite naturally has given him the greatest trouble, fills no less than a hundred and fifty.

Dr. Hall delegated to an assistant "the burden of revising and correcting the entire manuscript of the book, and seeing it through the press." It is no blame to the assistant that the slips and inconsistencies of statement, inevitable in composition of this kind, have not been removed. But in regard to what are somewhat unfairly termed printer's errors, I am afraid that blame is deserved: the avoidable mistakes of word and phrase are both numerous and grotesque.

E. B. TITCHENER

Enzymes. Six lectures under the Herter Lectureship Foundation, at the University and Bellevue Hospital Medical College. By OTTO COHNHEIM. New York, John Wiley and Sons. 1912.

This publication brings before an enlarged audience the forceful lectures upon the subject of the enzymes, which delighted those who were privileged to hear them two years ago. The book is simply written and the views therein expressed, even as regards the author's own discoveries and beliefs, are conservatively stated. It is a trustworthy guide to modern knowledge, and will be of especial value to those who have no desire to master the larger monographs on the subject. The

author gives the historical development which finally leads to the establishment of the identity of the enzymes pepsin and rennin, and suggests that curdling of milk is best explained by supposing that the curd is formed by the precipitation of a proteose of casein which is insoluble in acids and in water containing calcium salts. Cohnheim sadly but humanly remarks, "We meet here with one of the unfortunate cases in which science in stepping forward obliterates and renders useless the hard and skilful work of a whole generation of prominent men."

Of interest are the oxidative enzymes laccase and tyrosinase, which convert the aromatic cleavage products of protein into coloring matters which gradually become black. Laccase, of the lac tree, gives rise to oxyurushic acid which gives the brilliant black luster to the lacquer manufactured in Japan and China. Tyrosinase causes the production of coloring matter in the hemolymph of certain butterflies, it also attacks the proteins of the dead or dying leaves in the autumn and causes the brilliant coloring of the Indian summer; it is found in the ink-bag of the sepia; and to it may be ascribed the transformation of tyrosin into homogentisic acid in the human disease of alcaptonuria.

Written primarily for medical students, the above selections are merely an indication of the breadth of view from which the subject is surveyed.

The country should be grateful to Professor Cohnheim that, through the means of the Herter Lectureship Foundation, he has been able to add to its literature a treatise such as is "The Enzymes."

GRAHAM LUSK

SPECIAL ARTICLES

SYMPTOMATIC DEVELOPMENT OF CANCER

So little is apparently known of the external symptoms of internal cancer in its early stages that any contribution of attentive observation would seem useful. The following personal case is fairly paralleled by another which need not be described; and the parallelism would seem to give some weight to the inferences.

During my second expedition to Seriland in the autumn of 1895 my party had occasion to climb Sierra Seri, the culminating range of the region. After leaving the wagon camp the party moved on foot (with two pack animals) over some 10 miles of gently upsloping plain to the foothills, where the real climb began; the pace taken was rather rapid and I was somewhat but not excessively tired on reaching the foothills, where the pack horses were to be sent back. Within a few minutes after starting the climb I observed a condition novel in my experience—*i. e.*, inability to lift the feet (especially the left) more than a few inches above the level at which I stood. There was no pain, scarcely any discomfort—merely the inability to raise the feet without help from the hands. Assuming it a manifestation of exhaustion, I halted the party for a time and ate lunch; but, on resuming, the condition almost immediately returned. Greatly puzzled, I abandoned the climb and started back with the Indian in charge of the pack horses, finding no difficulty in going down-slope. Within fifteen minutes I was startled by a call from one of the remainder of the party making the climb, "El Gringo es muerto [The American is dead]." Even without explanation I knew this referred to W. D. Johnson, topographer of the expedition; and stimulated by the apparent tragedy I immediately turned to resume the climb to the point of the disaster—but despite the intense excitement, I had not climbed fifty steps before the former inability to lift the feet returned. So I remained in virtually helpless condition (sending my Indian up to the climbing party with specific inquiries) for perhaps half an hour; when the Indian returned with the gratifying intelligence that "El Gringo" had come to life and had gone on up the mountain—for it appeared that he had merely swooned under the stress of the long walk and the early stages of a stiff climb, and, recovering, had gone on with his accustomed persistence. This episode marked the first observed abnormality in locomotory powers which had been above the average.