

doctrine of evolution is, until he has had an objective study in at least some narrow field of research.

The new questions and accessory principles which are rapidly springing up about the central doctrines of evolution are pretty well set forth in the seventh chapter, entitled 'More recent attempts to explain evolution.'

The last chapter is on the evolution of man, and it is altogether unsatisfactory. It seems to have been written as a logical complement to a work on animal evolution, but it deals rather more with moral and metaphysical speculations than with the facts of the science. So far as it treats of human evolution, aside from its speculations, it refers simply to the animal man in his zoölogic relations. Human evolution, that is, the development of those characteristics which make man *man*, — the growth of human activities, — is ignored, and yet this is the largest subject in the literature of the world, embracing, as it does, the evolution of arts, the origin and development of institutions, languages, philosophies, or opinions, and all modern scientific psychology.

But a very small part of human evolution is embraced in theories of man and monkey kinship. The origin and growth of the humanities, i.e., those things which characterize humanity, have always been the subject of history; and all history is now in process of reconstruction upon a sounder theory than any which has hitherto obtained, and every writer in his own field postulates evolution by discussing the origin and development of the art, the institution, the language, the philosophy, or the psychic operation of which he treats.

J. W. POWELL.

SIDGWICK'S HISTORY OF ETHICS.

THIS little book by Professor Sidgwick is a reprint of his article on ethics in the 'Encyclopaedia Britannica,' with considerable alterations and additions. As originally published in the encyclopaedia, it was necessarily quite condensed in style, and it still retains that character to a great extent, thus presenting a much greater quantity of matter than is usually found in books of the same size.

The work is designed especially for students, and it seems to us admirably adapted to its purpose. The compression of the style is perhaps a defect from a literary point of view, but this is of little consequence in a text-book. The work is divided into three parts, treating of Greco-Roman, Christian, and modern ethics respectively. It is evidently based, as the author himself says, on

Outlines of the history of ethics for English readers. By HENRY SIDGWICK. London, Macmillan, 1886. 12°.

a thorough study of the original authors, only certain small portions, chiefly in part ii., being written at second-hand. It is marked, too, by almost perfect impartiality, — a merit of the first order in an historical work, but at the same time one seldom found in so high a degree. The author has been engaged in controversy with many ethical writers, and it might have been thought that a history of ethics from his pen would partake of the same character. On the contrary, it is devoted almost exclusively to the work of exposition, with only occasional criticisms when they seemed really required to point out serious defects in the systems described.

In the first part, attention is mainly directed to the three great ethical philosophers of ancient Greece, — Socrates, Plato, and Aristotle; and, though less than fifty pages are devoted to them, their modes of thought, their leading doctrines, and their relations to each other, are very clearly brought out. The author also traces the connection between all the Greek ethical systems, and shows in an interesting way "how, from the spring of Socratic conversation, flowed the divergent streams of Greek ethical thought." The second part of the book is much shorter than either of the others, as it should be; for, whatever may have been the influence of Christianity on practical morality, it can hardly be said to have contributed much to ethical philosophy. In treating of modern ethics, Professor Sidgwick confines himself in the main to English philosophers, on the ground that his work is intended for English readers, and that English ethical thought has developed itself, for the most part, independently of foreign influence; to which he might have added, that English ethical philosophy is by far the most important that has appeared in the world in modern times. The doctrines of the various English philosophers are briefly but clearly outlined, and special care is taken to point out the positive contributions of each thinker to the ethical thought of the world. Professor Sidgwick's book can be heartily commended to all who wish for information on the important and fascinating subject of which it treats.

THE PSYCHOLOGY OF REASONING.

M. BINET, a prominent member of the Society of physiological psychology in Paris, has been busy for many years in experimenting upon hypnotic subjects, who seem to be so abundant and interesting in France. He has formed one of a small band of workers, with Charcot as their

La psychologie du raisonnement, recherches expérimentales par l'hypnotisme. Par ALFRED BINET. Paris, Baillière, 1886. 12°.

head, who have brought to light many striking and remarkable facts about these abnormal conditions. This work suggested to M. Binet that some light might be shed on the nature of the reasoning process by observing the half-conscious actions of hypnotics; and the book before us is the result of this suggestion. The volume has been called out upon a slight provocation, and its argument in brief is as follows. A perception may be compared to the reading of a book: we attend to the sense, and not to the letters; we read something into these black marks. So, too, our sensations are taken, not for what they are, but for what they stand for, for what they tell.

By means of these perceptions the mind forms images, which are its fundamental elements. It is these images that form our stock in trade, and their prevalent nature determines many of our peculiarities of mind. They constitute one's mental background, one's apperceptive bent. These images come into combination and suggest each other as well as fuse together. The laws that condition this process are the laws of association of ideas, on which the English psychologists lay such stress. A close analogy can be traced between a syllogism and the process of perception: the perception is the conclusion; it expresses a judgment; it says, for example, this is an orange. The remembered images which enable me to recognize this as an orange play the part of the major premise, for this too expresses the results of past experience; and the minor premise which is brought into relation with the major by a certain similarity is the sensation itself. The analogy is closer than this crude outline indicates, and is really a highly suggestive view of the matter. It makes the syllogism the fundamental process of the human mind. It makes the triad, in which a middle term acts as the go-between for two others, of the utmost importance. This is the mechanism of reasoning, the general formula for getting valid deductions, as well as a fundamental natural process of the human mind. Man is thus in a new sense a rational animal; reasoning is a sort of new sense.

In the course of the development of this argument many interesting and valuable facts are brought out. It is only just to the author to notice a few of these. One result of his experimentation on hypnotics, and one physiological point, will serve as samples.

The subject, an hysterical young girl, was told that M. Féré (an associate of M. Binet) would be invisible to her. From that moment on, she ran against him, and thought it a miracle that she should be opposed by something she could not see: a hat on his head seemed suspended mysteri-

ously in the air. At the close of the session they forgot to disabuse her of this forced idea, and three days later M. Féré was still invisible; and, what was more remarkable, it was found that she had lost all remembrance of him: she knew neither his name nor his person, although he had been her friend for ten years. When he was made visible, she did not recognize him. At this period she had an hysterico-epileptic attack, and from then on, M. Féré was her old friend as before. This case is used to illustrate the law of regression, which requires the most unstable and latest acquired knowledge to go first in dissolution, and to be re-acquired last in evolution. The patient, in recovering, first recognized M. Féré as an object, then generally as a man, and lastly particularly as her old friend.

In discussing the topic of the criterion of the difference of two sensations, the point is made that two sensations are distinct when they have a different local sign, a differently arranged group of accessory, secondary sensations. Two compass-points are felt as two when they have sufficiently different local signs. This local sign means that they can be localized. M. Binet tries the experiment, and finds that when two points are at such a distance apart as always to seem distinct when simultaneously touched, then, when either is touched separately, one can decide with confidence whether the touched spot is to the right or to the left, i.e., one can localize the sensation; but when the distance between the compass-points is less than this, the points are localized correctly only half the time, i.e., as often as the action of mere guessing would bring about. This point is a really valuable contribution to the psychology of touch. M. Binet's study can be recommended for its suggestiveness and the facts incidentally noticed, as well as for his ingenious analogies between psychology and logic. J. J.

THE *Medical and surgical reporter* gives the following interesting facts concerning the water-supply of the European capitals: Rome heads the list with her 204,000,000 litres of pure water every twenty-four hours (her population being 345,036, every inhabitant can dispose of 591 litres per diem); London comes next, for every one of whose 4,085,040 inhabitants there are 300 litres daily; Paris takes the third place, her population amounting to 2,240,124, and each inhabitant having for alimentary uses 58 litres per diem, and for secondary purposes 169,—a total of 227 litres; Berlin has 1,302,283 inhabitants, with 140 litres daily to each; Vienna, 770,172, 100 litres each; Naples, 463,172, with 200 litres; and Turin, 278,598, with 98 litres a head every twenty-four hours.