

which the author refers to as 'la crise', have not seriously abated the upward trend.

The knowledge shown of all the agencies at work, in what is usefully defined as 'la médecine sociale', is colossal. Every author, every society and every movement in the civilised world comes under review and yet there is no crowding and no tedium. The book is as easy and attractive to read as it is comprehensive and convincing. It is, of course, what would in a loose sense be called 'socialistic', and towards the end the author adopts the 'ought' tone rather more frequently

than is quite consistent with a strictly scientific point of view. One feels here and there that something might be said in defence of more individual liberty and in qualification of the all-embracing paternal rôle which is assigned to the State and the community. But this is no place to discuss a very large philosophic question. Let us be thankful for the indisputable evidence of vital progress which the book affords, and hopeful for the continued benefits which science, wholeheartedly applied, holds forth in the future.

F. S. MARVIN.

Short Notices

Collected Papers of Charles Sanders Peirce. Edited by Charles Hartshorne and Paul Weiss. Vol. 3: *Exact Logic.* Pp. xiv+433. 24s. 6d. net. Vol. 4: *The Simplest Mathematics.* Pp. x+601. 25s. net. Vol. 5: *Pragmatism and Pragmaticism.* Pp. xii+455. 21s. net. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1933-1934.)

It is difficult to deal adequately, even in a longer notice, with the extraordinary diversity of topics touched upon or discussed in these volumes. They fully support the editor's opinion that Peirce was "one of the most original and prolific logicians of the nineteenth century". Vol. 3 contains mainly papers on the algebra of logic and the logic of relatives, in which several improvements on Boole's method are suggested. There is also an excellent paper on the logic of number, and an essay on "The Regenerated Logic" which contains some pertinent remarks about the relations between mathematics, logic and philosophy. For example, Peirce draws a distinction between logic and mathematics, to which he denies the character of a positive science in so far as it does not deal with any aspect of reality; while philosophy does deal with reality, if not through special observations, yet by the study of the universal phenomena of experience.

Vol. 4 deals with the various aspects of the logic of quantity and with the use and interpretation of existential graphs as aids to logical theory. The remarkable chapter on the "Simplest Mathematics" begins with an interesting discussion about the essence of mathematics and its main divisions. There Peirce defines mathematics as "the study of what is true of hypothetical states of things" (p. 193).

Vol. 5 is perhaps the most important one for the history of thought, in view of the fact that it contains practically everything of importance which Peirce is known to have written concerning his famous theory of "how to make ideas clear". Half this volume is composed of hitherto unpublished papers. Some of his most striking conclusions are that logic is subsidiary to ethics and aesthetics; that pragmatism is a method of logic rather than a principle of metaphysics; and that pragmatism entails scholastic realism which, in its final pragmatic interpretation,

means the ascription of purposive habits to Nature. These main theses are supported by a wealth of arguments covering the various aspects of the theory of knowledge. A conscientious study of this volume would no doubt help the reader to discover a certain interpretation of pragmatism which is not generally current among the followers of this doctrine.

Anatomy of Animal Types: for Students of Zoology.

By Prof. E. A. Briggs. Pp. xix+250. (Sydney: Angus and Robertson, Ltd.; London: Australian Book Co., 1934.) 10s. 6d. net.

PRACTICAL courses dealing with animals are a strong feature in the teaching of elementary zoology such as is required for medical students. Many guides, dealing with suitable local animal types, have been published. Most of these are dry-as-dust 'anatomies', the use of which is preceded by lectures. These in the writer's student days dealt mainly with the forms of the different organs in a number of dead corpses, with notes on their evolution deduced from the same, whereas to-day the centre is the living animal in relation to its mode of life.

Here for Australia, especially Sydney, is a little textbook for the practical work. The animals chosen are Australian species, or cosmopolitan forms that have been introduced. Each is described as the student should examine it, proceeding from external features to internal anatomy, and suggestions are made as to drawings, dissections, microscopical examinations and so on. There are happily no illustrations in the book to distract the student's attention from the animal, the dissection of which is mainly of use in teaching observation and interpretation.

The author's views are sound; he wishes to approach his animal from two points, "firstly, that of structure, and, secondly, that of function", but we fear he has largely forgotten the latter—and such simple examinations of function as might be possible—in his maze of anatomical fact. His book is, nevertheless, an advance on most similar textbooks, but he should recast it on thoroughly modern lines so that Australian students may be freed from out-of-date manuals on practical zoology that are a curse not only to them but also render ineffective the best efforts of their teachers.