thought about the relation between man and the matter amid which he lives and moves.

Few young students of science, and as few clergy, have any clear view of the history of the philosophic thought that bears on their work. We would suggest that the time spent in reading this little book would bring them lasting gain. It is so simple that it will interest those quite untrained in philosophy. It is not technical; it is neither dogmatic nor aggressive; it does not moralise or urge a doctrinal point of view. Furthermore, it is redeemed from the deadliness of most summaries by its admirable clarity and its firm adherence to one path where tempting by-ways cross it. The layman in science and theology will be almost equally attracted, and will rise with whetted appetite; for the defect, or merit, of the book is that one wishes it were longer and fuller. Nevertheless, we believe that Mr. Hardwick has done wisely in keeping his limits so narrow. He might have written a much bigger book, done it equally well, and yet have missed his mark. As it is, we believe that his shot will go home.

S. A. McDOWALL.

Our Bookshelf.

Mrs. Warren's Daughter: A Story of the Woman's Movement. By Sir Harry Johnston. Pp. xi+402. (London: Chatto and Windus, 1920.) Price 7*s.* 6*d.* net.

IN writing "Mrs. Warren's Daughter," and more particularly in his first and very successful novel, "The Gay Dombeys," Sir Harry Johnston has sought to reproduce some aspects of the life led by men of science in London during the decades which stretch from last century into the present. Both novels are speculations regarding the influence of environment on human character and action; in "The Gay Dombeys" the author seeks to depict the influence of the post-Darwinian period on the descendants of the Dombey family created by Dickens, and in "Mrs. Warren's Daughter" he gauges the effect of the feminist movement of recent years on the daughter of that rather tarnished lady, Mrs. Warren, placed first on the stage of literature by Mr. George Bernard Shaw. Those, however, who knew the Zoological, Geographical, Anthropological, and other learned London societies some thirty or forty years ago will read these books with a double interest, for they will find that Sir Harry's characters resuscitate past chapters in the history of scientific life in London. The author, it is needless to say, uses a light and nimble pen to draw word-pictures seen from a highly individualistic Harry Johnstonian angle.

In "Mrs. Warren's Daughter" we are introduced to Prof. Michael Rossiter, F.R.S., "a really admirable and fluent lecturer on anthropology, chemistry, ethnology, hygiene, geography, economic botany, regional zoology, germ diseases, agriculture, etc., etc." Prof. Rossiter, whom we should suppose to be a character compounded from the late very distinguished surgeon, Sir Victor Horsley, and from the pioneer of modern physiology in England, the late Sir Michael Foster, is given qualifications as a lecturer beyond the wide capabilities of the combined originals. Even Sir Harry Johnston himself, who has first-hand acquaintance of more branches of knowledge than almost any man living, would hesitate to carry out the programme he assigns to Prof. Rossiter.

Der Aufbau der Materie: Drei Aufsätze über moderne Atomistik und Elektronentheorie. By Max Born. Pp. v+81. (Berlin: Julius Springer, 1920.) Price 8.60 marks.

IN the form of three essays the author has given a clear and simple summary of the advances which have been made during the last few years in our knowledge of atomic structure. The first essay consists of a survey of the results obtained by purely physical investigations. It describes the measurement of the charge and mass of the electron, the Kelvin-Thomson model of the atom and the Rutherford-Bohr model which succeeded it, the discovery of the diffraction of X-rays by crystals, and Moseley's work on X-ray spectra and atomic number. A short account is given of Bohr's theory and its development by Sommerfelt, of the general relationships between the spectra of the elements, and of Kossel's work on electrovalency, which determines the number of electrons in the several shells surrounding the positively charged nucleus. In the second essay, the former attempts to obtain a mechanical model of the æther are contrasted with the modern conception of all mechanical forces as being electrical in their origin. Our knowledge of crystal structures has made possible a closer examination of the inter-atomic forces in solid bodies; quantitative relationships can be obtained—for instance, in the case of sodium chloride—between purely physical constants, such as the distances between the atoms, the ionic charges, and the compressibility of the solid on one hand and the heat of formation of the compound on the other. This is amplified in the third essay. Both chemistry and physics deal ultimately with the structure of the atom, for the constants which govern chemical reactions are to be explained in terms of the forces between electrons and nucleus in the atomic structure.

In so small a volume, the author cannot do more than indicate the results which have been obtained in each line of investigation, but very complete references are given to the original papers on the subject. So much work of fundamental importance has been done in the last three or four years that this book will be welcome, both as an introduction to the most recent researches, and for the useful references which it contains.