The World in Modern Science: Matter and Quanta. By Leopold Infeld. Translated by Louis Infeld. Pp. 287. (London: Victor Gollancz, Ltd., 1934.) 5*s*. net.

"IF we ignore the mathematics of physics, is there anything that remains?" So asks Prof. Einstein in his introduction to this brilliant little work, which supplies a convincing answer to the question. The introduction states that the book is neither a treatise nor a textbook, and gives no mathematical formulæ or experimental details, but treats methodically and philosophically a restricted range of facts to enable the reader to appreciate and understand the limitless perspective and beauty of modern science. Actually the fundamental principles of physics are expounded in the simplest possible language with a wealth of apposite analogies and illustrations, so that the reader feels as if engaged in an absorbing novel. Under the chapter headings of methods of thought in physics—radiation, matter, the nuclei of atoms, matter and radiation, and modern quantum mechanics—all the main features of the picture of modern physics are presented in a co-ordinated and most up-to-date manner. The neutron and positron are treated as integral features in the exposition, and not as matter "received too late for classification". One is, as it were, taken behind the scenes, and shown with the liberal help of genealogical type diagrams how theories have arisen, the contributions which they made, and how and why their limitations have caused them to be superseded by newer ideas. The more advanced reader will appreciate especially the final chapter in which separate but co-ordinated accounts of the lines of reasoning of de Broglie, Schrödinger, Heisenberg and Dirac are described with a simplicity of style which, under the restriction of excluding mathematics, could scarcely be excelled.

Though it would perhaps be unduly optimistic to endorse the statement that no prior knowledge is demanded, Prof. Infeld's admirable survey can be recommended unreservedly to everyone interested in, engaged in, or instructing on modern theoretical physics. An unusual feature of a book of this type is the really good index. N. M. B.

Late Tudor and Early Stuart Geography, 1583–1650: a Sequel to Tudor Geography, 1485–1583. By Prof. E. G. R. Taylor. Pp. xi+322+8 plates. (London: Methuen and Co., Ltd., 1934.) 15*s*. net.

IN her previous volume, Dr. Taylor set out the background of geographical thought and nautical theory between 1485 and 1583. The present volume deals with a period in which the chief note is transition. The Hakluyts, more farseeing than most men of their age, thought of the new lands across the seas, not as sources of immediate wealth for spoliation, but as possible colonies which by the slower process of plantation and settlement might become more truly valuable. Ideas of control and planning appear in studies of economic geography, and gratitude is due to the author for the insertion of Plate VII, which shows contemporary cartoons dealing with those still vital questions, the beginning of capitalism and the traffic problem.

The latter half of the book consists of a very full bibliography, arranged under year of publication. This method illustrates the change in type from astronomical works and pilgrim literature to the increasing output of works on colonial geography and trade and agricultural improvements which characterise the end of the period. The first fifteen pages are addenda to the bibliography given in "Tudor Geography".

Students of historical geography will welcome this serious and fully documented account of a period when for the first time a large body of specifically English geographical literature made its appearance. But the book should appeal to a wider public; for Dr. Taylor's clear style, and her wide background of sources, combined with a flair for seizing on relevant and interesting detail, make the book well worth reading.

Die kosmologischen Probleme der Physik. Von Prof. Dr. Arthur Haas. Pp. vii+124. (Leipzig: Akademische Verlagsgesellschaft m.b.H., 1934.) 3.80 gold marks.

AT a time when the struggle between rival theories of the phenomenon of the recession of the nebulæ is still in progress, Prof. Haas's excellent summary of the whole position will be welcome to both experts and non-experts. Prof. Haas has divided his book into two parts. In the more popular first portion, he deals with the observational material regarding the recession phenomenon and describes the methods of determining the distances, distribution in space, and red-shifts of the spectral lines of the nebulæ. He shows how puzzling is the short time-scale permitted by the rapid rate of expansion and refers to the problem of the cosmic rays. Prof. Haas has succeeded in presenting the results of the observations objectively whilst evidently favouring the relativistic theory for accounting for them.

The second half of the book contains a short account of the work of Einstein, de Sitter, Lemaître and Eddington on the theory of expanding curved space, which will be found a useful introduction to more exhaustive expositions. A critic would find only two small points to object to, first, the statement that the de Sitter universe gives only a quadratic, and not a linear, law for the recession of distant objects, and, secondly, the fact that Milne's "kinematical" theory is presented rather as being what its author hoped at first to make it than what it has since turned out to be. A concluding chapter is devoted to Eddington's and Prof. Haas's own speculations on the connexion between the cosmical constant and the constants of atomic physics.

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