

The Revolution in Physics

By Ernst Zimmer. Translated, and with a Preface, by H. Stafford Hatfield. Pp. xv+240. (London: The Scientific Book Club, 1941.) 2s. 6d.

THERE are almost numberless little books written to help the layman to understand modern physics. At first sight this modest volume is yet another. But not quite. It deals, as they all do, with the rapid development of physics, indicating how it is that our concepts have become less and less mechanical. But here the similarity ends. The usual course is to make up for so much hard going by generous quantities of applied science, wireless, television, and other 'benefits'. In this book the author, however, decides otherwise. He makes a moving, almost passionate, appeal for pure knowledge, without thought of application, still less of reward. The whole outlook is remarkably unselfconscious, and, for that reason alone, most refreshing. Prof. Max Planck's short introduction is characteristic and charming.

Naturally enough, the writer is a little pedestrian in his dealings with the classical quantum theory, but very much the reverse in his discussion of positivism, determinism and Heisenberg's Uncertainty Principle.

There are a few typically Teutonic lapses; for example, Clerk Maxwell is described as "English"—more than sufficient to cause the first Cavendish professor to rotate in his grave. It is hard to judge of the translation without access to the original: on the whole it seems well done. Certainly it is faithfully done, since one gets glimpses both of the author's occasional touches of *Lehrkörperheit*, and yet of his natural facility as an essayist.

F. I. G. R.

The Observer's Book on Meteorology

By William Alexander and W. J. D. Allan. (The Observer's Books, No. 6.) Pp. 110. (London: George Allen and Unwin, Ltd., 1941.) 2s. 6d. net.

THIS book is written for pilots and observers in the R.A.F., who will find in it much useful information. It is marred by some inaccuracies, over-sweeping generalizations and dubious explanations of phenomena that meteorologists have not yet succeeded in explaining. One of the inaccuracies is probably a misprint—the reference on page 77 to a shallow depression as one above 1,100 millibars. Minor ones that might confuse a student of elementary meteorology include the statement (p. 36) that pressure gradient is usually expressed as the distance in miles between two isobars of two millibars difference in pressure, a quantity that is in fact proportional to the reciprocal of the gradient, and (p. 52) that in the British Isles it is customary to refer to northerly winds as polar winds and southerly winds as equatorial winds; apart from the absence of any necessary connexion between the direction of the wind and its past history there is the contradictory statement (p. 66) that polar air has a tendency to flow in a westerly direction and equatorial air in an easterly direction. In the paragraph on snow (p. 97)

the explanation of the formation of snowflakes is unorthodox and unlikely, nor is it inevitable to have rain on the ground when snowflakes fall through a layer of air above 32° F. (Why not sleet?). One would like to know the grounds for attributing (p. 78) tropical cyclones and temperate tornadoes to the same cause. Weather forecasting with the aid of isallobaric charts is not as simple as the account on p. 110 implies, although the changes described sometimes take place.

Our Wonderful Universe

An Easy Introduction to the Study of the Heavens. By Dr. Clarence Augustus Chant. New edition, revised and enlarged. Pp. 281. (London, Bombay and Sydney: George G. Harrap and Co., Ltd.; Toronto: The Ryerson Press, 1940.) 5s.

THIS work is written specially for young people and the subject is approached from the observational side: mathematics are completely absent from the text. The copious illustrations will prove very helpful to the tyro as will also some of the simple experiments which have been suggested, for example, the camera and flash-lamp apparatus, described in Chapter 1, to illustrate the rotation of the earth. Part 1 gives a brief outline of the general structure of the universe and Part 2 deals with the solar system, concluding with a short account of the origin of the sun and planets. Reference is merely made to the nebular hypothesis and the tidal theory; in the limited space the author finds it impossible to state any of the objections to either of these theories. In Part 3 the reader will find an excellent account of the stellar systems, proper motions, variable stars, double stars, star clusters, nebulae, etc. Detailed descriptions are impossible in dealing with such a vast programme in a single volume, but Prof. Chant has succeeded in condensing an enormous amount of useful information into the work, which will stimulate young readers to pursue the subject further in more advanced text-books. The value of the book is enhanced by the illustrations and photographs—210 altogether—which greatly increase the interest in the various sections.

M. D.

The Promise of Scientific Humanism Toward a Unification of Scientific, Religious, Social and Economic Thought

By Prof. Oliver L. Reiser. Pp. xviii+364. (New York: Oscar Piest, 1940.) 4 dollars.

THE author advocates the use of non-Aristotelian logic. This would mean abandoning the laws of identity, contradiction and excluded middle. He claims that such a revolution in thought would eliminate many ancient and modern fallacies, and introduce a new and better era in science, philosophy and social relations. In spite of some good points he fails to make out a case. His exposition is often rhetorical and cloudy; he uses indiscriminately all sorts of opinions, sober and speculative, good and bad; he shows no capacity for critical judgment. Altogether the new non-Aristotelian logic sounds very like the old sophistry that Aristotle's logic was designed to expose.

A. D. RITCHIE.