

Introduction to Elliptic Functions, with Applications
By F. Bowman. Pp. 115. (London: English Universities Press, Ltd., 1953.) 12s. 6d. net.

THIS book is for the use of physicists or engineers who desire a knowledge of those properties of elliptic functions which are useful in applications. It deals only with the Jacobian functions; the Weierstrassian functions are excluded. The first chapter shows how ordinary trigonometrical functions can be derived from the inversion of a definite integral, and how a similar procedure leads to the Jacobian elliptic functions, the properties of which for a real variable are then deduced. The second chapter deals with elliptic integrals of the first, second and third kind. The third chapter gives applications to geometry, dynamics, spherical trigonometry and potential. The fourth chapter again uses the analogy with trigonometry to deal with the case of complex variables.

Then follow no less than four chapters on the theory and applications of conformal transformation of elliptic functions and integrals. The applications include hydrodynamics, using the Schwarz-Christoffel transformation, electricity and magnetism. It is rather surprising to see Landen's transformation, a purely mathematical result, deduced from a physical problem. The ninth chapter shows how an integral, the integrand of which is the reciprocal of the square root of a quartic, can be reduced to the standard forms discussed in the second chapter. The tenth and last chapter is more difficult than the rest of the book; it deals with the rather heavy reduction of a certain degenerate hyperelliptic integral, and applies the result to a problem concerning an electric condenser.

The book concludes with a bibliography of textbooks and numerical tables, lists of formulæ and an index. A valuable feature is the large number of examples. The book should be found very useful.

H. T. H. PIAGGIO

Jiří Procházka: Úvaho o Funkcích Nervové Soustavy

(Georgius Prochaska: De Functionibus Systematis Nervosi Commentatio). Edited by M. Petrán and E. Gutmann. (Prague: Academia Scientiarum Bohemoslovenica, 1954.)

GEORGE PROCHASKA (1749-1820), successively professor of physiology at Prague and Vienna, is now recognized as one of the most important pioneers of our knowledge of reflex action. He introduced the concept of the *sensorium commune* within the central nervous system, impressions conveyed in the sensory nerves being 'reflected' there upon the motor nerves. He was also the discoverer of the olivary bodies and foreshadowed several later neurological generalizations. His great work on the functions of the nervous system, written in Latin, "De Functionibus Systematis Nervosi Commentatio" (Prague, 1784), has now been reproduced in facsimile by Dr. M. Petrán and Dr. E. Gutmann, together with a Czech translation and introduction, and abundant notes. Their book is in typography and lay-out of high standard, and quite worthy of the historical achievements which it commemorates and expounds. Indeed, it constitutes a model for such productions, for it is equipped with an exhaustive index and an admirable biographical glossary of the outstanding physiological writers and research workers of Prochaska's own time and the preceding period. The only regret that can be voiced is that the excellent introduction was not given in one of the Western 'congress' languages as well as in the Bohemian

tongue. But it is good to see such honour paid to one of the greatest forerunners of Setchenov, Pavlov and Sherrington.

JOSEPH NEEDHAM

An Introduction to Pathology

By Prof. G. Payling Wright. Second edition. Pp. xii+636. (London: Longmans, Green and Co., Ltd., 1954.) 40s. net.

THE period following the outbreak of the Second World War was marked by a gradual change in the approach to several of the basic medical sciences. Pathology ceased to be based largely on morphology, and it came increasingly to be regarded as a subject which should be approached from the functional point of view. Many years ago Sir Michael Foster said that the science of meteorology could not be divided into the science of good weather and the science of bad weather, but the full significance of his remark was long unheeded by pathologists. This excellent work by Prof. G. Payling Wright was perhaps the first book on general pathology to follow this method to its logical conclusion. First published in 1950, it was reprinted twice. The new second edition includes additional chapters on the general manifestations of allergy and on the effects of ionizing radiations.

This work is an ideal introduction to clinical work, since it is based throughout on the etiological and functional approach. A third of the book is devoted to tumours, and the large sections on the causation of new growths is a masterly discussion of an enormous field. The usefulness of the book is enhanced by the historical treatment of the subjects, and the references which were given in the first edition have been increased. This popular work is a real inducement to the student to carry his reading further.

Science and its Background

By Dr. H. D. Anthony. Second edition. Pp. ix+337. (London: Macmillan and Co., Ltd.; New York: St. Martin's Press, 1954.) 20s. net.

A SECOND edition of Dr. Anthony's useful book is welcomed, and it is pleasing to know that the work has had such a wide vogue already. To his short and readable account of the history of human affairs as they have been modified by man's increasing knowledge and use of natural phenomena, the author has added two additional chapters. In the first he discusses the post-war utilization of scientific developments, and in the second, the pursuit of science for its own sake.

Clerk Maxwell's optimistic inaugural address as Cavendish professor, in 1871, is more than ever in need of fulfilment—"the popularization of scientific doctrines is producing as great an alteration in the mental state of society as the material applications of science are effecting in its outward mental life". For this Dr. Anthony's book, which is free from the political bias which has marred more pretentious works, is a good introduction.

It is a pity that the second edition had to go to press before the Piltdown hoax had been fully exposed, and another dawn had broken upon *Eoanthropus*! But if the very elect were deceived for so long a time, the interpreter of their works and ideas can scarcely be blamed.

There is a photograph of the Leaning Tower of Pisa to illustrate the account of Galileo's weight-dropping experiment. It would be interesting to try to find the origin of the Leaning Tower legend.

W. L. SUMNER