

of the Solvay Foundation and a dozen or so invited guests. Their joint efforts represent a scientific contribution by no means less valuable than the introductory reports, and Prof. J. Timmermans, the secretary of the scientific committee, and his helpers are to be congratulated especially on the excellent way in which the discussions of 1947 have been seen through the press—no easy task, since the speakers dispersed immediately after the Congress was over, and their scattered notes had to be co-ordinated. That the two official languages of the Congress, French and English, have been printed equally well is perhaps not more than most people are inclined to take for granted in a Brussels publication.

F. A. P.

ROCKET PROPULSION: PAST, PRESENT AND FUTURE

Rockets and Space Travel

The Future of Flight Beyond the Stratosphere. By Willy Ley. Pp. viii+174+14 plates. (London: Chapman and Hall, Ltd., 1948.) 18s. net.

SINCE the earliest times, man has dreamed of the possibility of leaving this planet to visit the heavenly bodies, and much has been written around this theme ranging from the satirical and fantastic to the serious and scientific. This book is an encyclopaedic survey in a readable and untechnical style of every aspect of the subject.

The author begins by discussing the numerous imaginative stories of journeys to the moon and stars which have been written throughout the ages. Of these, the best known are probably Lucian's "Vera Historia", Kepler's "Somnium", Cyrano de Bergerac's "Voyage dans la Lune", and the novels of Jules Verne and H. G. Wells. The development of rockets is then described. It appears that the earliest mention of rockets which can be traced is contained in a Chinese chronicle which records their use at the siege of Pien-king in A.D. 1232. Soon after that date they were used by the Arabs and in Europe. At the end of the eighteenth century, Hydar Ali and his son Tipoo Sultan successfully employed them against the British in India, and this led to the considerable improvements in rocket design and performance made by Sir William Congreve, and to the establishment of the British Rocket Corps, which distinguished itself on the Continent in the early part of the nineteenth century. From about 1850 until the First World War, rockets as a weapon of war suffered a decline because of the great advances made in artillery.

The tide then turned, and between the two Wars considerable progress in rocket development was made, chiefly in America by Goddard and in Germany by the Verein für Raumschiffahrt, of which the author was vice-president. He gives a most interesting first-hand, though probably not entirely unbiased, account of the fortunes of this Society and of the personalities of its leading members, such as Oberth, Valier and Hohmann, and of others, such as von Opal and Ganswindt. During the recent War, rocket development advanced at an extremely rapid pace, and the book contains chapters in which the chief rockets used by the Americans, British and Germans are described.

For Mr. W. Ley the chief interest of rockets lies in the possibility of their use as a means of escaping from the earth's gravitational field, and he devotes a considerable part of his book to a discussion of space-travel and its problems. The theoretical work of Hohmann and others is described, and numerous diagrams are given in order to illustrate the best and most economical routes to and round the moon and planets, the techniques of landing and other points of astro-navigation. Figures and tables based on various fuels and propellant-mass ratios are quoted, and other problems, such as the effect of gravity and acceleration on the human body, are not neglected. One may not share Mr. Ley's idealism and enthusiasm; but one cannot help admiring the thoroughness with which he investigates, and generally overcomes, all the objections and difficulties which arise.

The volume is exceedingly well documented throughout; perhaps one of its most valuable parts is the extensive bibliography of books and pamphlets, in which are listed about 150 works in English, French, Russian and Italian, ranging from the technical and mathematical to the historical and fictional.

R. A. RANKIN

A MODERN COUNTY FLORA

A Geographical Handbook of the Dorset Flora

By Prof. Ronald Good; including a Chapter on the Soils of Dorset, by K. L. Robinson. Pp. xi+255. (Dorchester: Dorset Natural History and Archaeological Society, 1948.) 20s.

THE facts of distribution of the flowering plants of Britain are to be found in a long series of county floras which we owe to the flair and enthusiasm of the amateur field botanist. These facts have been the material for wider speculation on and more detailed study of the factors determining the origin and controlling the distribution of the flora. The names of Forbes, Watson, Stapf, Matthews and Salisbury may remind us of the interest of such contributions. Prof. R. Good's book is unique in combining the facts of the typical county flora with a consideration of general and special problems of distribution.

Its predecessor, Mansel-Pleydell's "Flora of Dorsetshire", was published in 1895 and is a good example of its kind. It is interesting to compare it with Prof. Good's "Handbook". In the earlier book, preliminary matter runs to 37 pages and 345 are given to the lists of plants. In the later, the lists of plants take just one half of 255 pages. In both there is a short account of topography and geology. Prof. Good also deals with climate and includes a useful and modern account of soil types and distribution from the pen of K. L. Robinson. Mansel-Pleydell gives some tables comparing the Dorset flora with that of neighbouring regions. Prof. Good has written a lucid account of the origin of various groups of native plants and discusses the status of 470 adventive species.

But the most interesting part of the work, and that which is entirely fresh, is a detailed account of the distribution of plants within the county. There is an introduction on general principles and a brief section on the climatic factor. Climate seems to be the major factor controlling the distribution of about