Solvents

By Dr. Thos. H. Durrans. (Monographs on Applied Chemistry, Vol. 4.) Fifth edition, revised and enlarged. Pp. xii+202. (London: Chapman and Hall, Ltd., 1944.) 17*s*. 6*d*. net.

WHEN this book was first published in 1930 it was not generally appreciated how useful organic solvents were and how wide their application could be. Since then they have become of prime importance, and their manufacture is an important section of the fine chemical industry. This little book has undoubtedly contributed to their use; it gives just the required amount of information in detail about each of them, as well as a general section about their behaviour in general. Organic solvents have adverse as well as useful properties: they are toxic and have a considerable fire risk. Workers with them risk chronic poisoning, so that guidance in their use is required: the book contains the necessary information including the relevant data regarding critical concentrations. Similar data are given for the explosive limits of the various substances.

There are now so many of these solvents, most of them sold under trade names, that it is hard to know what they are. The appendix giving the trade names and probable composition is therefore especially valuable: it occupies eight pages with some four hundred entries.

A second appendix shows in tabular form the power of the solvents to dissolve twenty-five named substances mostly used by the plastics industry. The work is a mine of information, and its frequent revision enables it to be kept up to date and accurate.

There is no indication of any particular new solvents, though such are continually being added to the list. Dr. Durrans is to be congratulated on his efforts, which are greatly appreciated by all users of solvents.

Aeroplane Flight

By H. F. Browne. Pp. 167. (London, New York and Toronto: Longmans, Green and Co., Ltd., 1944.) 7*s*. 6*d*. net.

THERE is already a flood of books on the elements of aerodynamics purporting to be written in non-technical language for the beginner. Many of these fail to fulfil their authors' intentions simply because the explanations assume a knowledge of mechanics and physics not to be expected of the non-technical reader. Mr. Browne does not commit this mistake. He explains the principles of mechanics as he meets them in very simple language, using homely everyday examples, illustrated by unique sketches of his own preparation. These diagrams are perhaps the most outstanding feature of the book, and they have been made to illustrate the text in a way that photographs or sketches of actual aircraft parts could never equal.

The subject is discussed in chapters each dealing with some part of the theory of flight such as lift, stalling, drag, thrust, control, stability and performance. There is also a discussion on the mathematical units involved, leading up to a chapter on wind tunnels and the interpretation of their results. The explanations of some of the more complex ideas are extremely good. The mechanics of the airscrew, the gyroscope and gyroscopic action, and the meaning of "Reynolds Number" in aerodynamic experimental work, are examples of the way in which the author has succeeded in putting the technical facts into language that is both simple and mathematically true.

While this book is essentially for beginners, its method of presentation of the subject might well be studied by many teachers.

The Annual Register

A Review of Public Events at Home and Abroad for the Year 1943. (New Series.) Edited by Dr. M. Epstein. Pp. xii+176. (London, New York and Toronto: Longmans, Green and Co., Ltd., 1944.) 42*s*. net.

THE new issue of this annual record follows the usual arrangement. The greater part is devoted to a factual and objective story of world history divided into national sections, half of which treat of Great Britain and the Dominions; the British Colonies have no separate section. The record is chronological, which puts the social history into perspective with the history of the War, and so gives an admirable sketch of human interests in the year. Under the headings of various enemy or enemy-occupied countries, there is much social history some of which failed to receive adequate notice in the restricted newspapers of to-day.

The second half of the book has the usual surveys of literature, with reviews of some outstanding books, art, music, drama, science, law and finance. The review of scientific achievements is comprehensive though very condensed and perhaps less readable than some of the other sections. Then follows a record of events, obituary notices and a long and detailed index.

In addition, certain public documents printed in full include the Anglo-Chinese Treaty concerning Extra-Territorial Rights. In spite of the crowded events of the year, the editor has succeeded in producing a balanced volume of the same size as previous issues.

Elements of Radio

By Abraham Marcus and William Marcus. Prepared under the editorship of Ralph E. Horton. Complete edition. Pp. xiii+699. (London: George Allen and Unwin, Ltd., 1943.) 27*s*. 6*d*. net.

THIS book, printed in the United States, is in the nature of an elementary course of instruction in radio technique on very practical lines. The authors state that as a result of many years experience of teaching this subject, they consider it a mistake to require the student to learn a mass of laws and principles of electricity before teaching him radio. The first half of the book deals with the radio receiver, starting with the crystal detector and leading up through valve detectors and amplifiers to the superheterodyne type of receiver. The second half of the book is slightly more advanced, and deals first with the phenomena of direct and alternating current electricity and their applications; and then with the essential characteristics of radio transmitters and auxiliary equipment.

The style throughout is very elementary, with very clear diagrams, and includes a series of questions, problems and practical exercises and demonstrations, all of which are probably very suited to a particular type of instruction designed for a short-period (one year or less) course. Only the simplest of formulæ are included, such as for the calculation of circuit constants; and the technical material is clearly and accurately presented.