needs of Britain. For British readers, the choice of title is unfortunate, for it will serve to revive a controversy that has latterly been laid to rest. The process that Mr. Tead has been studying is now almost universally called 'management' over here, and the protagonists of 'administration' are fast dwindling. Nor is there any more a divergence about 'art v. science': the process of management is now recognized as a skill that partakes of each. Mr. Tead would have served his cause the better by calling his book, say, "A Practical Man's Guide to Leadership".

E. F. L. BRECH

ADVANCED TEXT-BOOK OF ORGANIC CHEMISTRY

Chemistry of Organic Compounds

By Prof. Carl R. Noller. Pp. ix+885. (Philadelphia and London: W. B. Saunders Co., 1951.) 35*s*.

SCHOLARSHIP, much teaching experience and an appreciation of the worth of organic chemistry have gone to the making of this book. Its author, professor of chemistry at Stanford University, sets out his subject-matter in forty-two chapters. Two of these are mainly devoted to theory; the rest, as well as the customary elementary matter, deal with more advanced topics, such as heterocyclic compounds, synthetic rubber, fluorinated aliphatic compounds, amino-acids, steroids, organic peroxides, and compounds of phosphorus, of silicon and of metals. The contents are intended for the first two years of a course for university students.

Prof. C. R. Noller is aware that the ever-increasing mass of facts of organic chemistry can be seen as an ordered array and intelligently studied only if a knowledge of the underlying physical principles and of modern ideas of molecular structure have been so mastered that they can be applied. He is likewise aware that many a student has not the mathematics at command necessary for the latter task: he therefore makes use of bold simplification. Thus, of the two approaches to the structure of a molecule, he prefers to begin with that of the molecular orbitals and to introduce these by the geometrical method popularized in Great Britain by Prof. C. A. Coulson. Simplification is also effectively used in Chapter 7, which is devoted to an exposition of reaction mechanism, a subject on which the author lays much emphasis because of its integrating value. Here, readers meet the brilliant teacher. First, he recalls the factors concerned with equilibrium; then by means of diagrams, logical argument and simple mathematics, he proceeds to explain the different mechanisms. Several illustrative examples both of ionic and of free radical mechanisms are discussed at considerable length. Once again Prof. Noller directs attention to the work of British chemists, singling out for mention C. K. Ingold and his collaborators and paying a special tribute to the late Prof. A. Lapworth. The theoretical principles established in these two chapters are extensively applied in the body of the book. Thus, the chapter on aromatic nitro compounds has several pages on the mechanism of substitution in the benzene nucleus and includes the modern theory of nitration.

The forty well-written chapters of descriptive matter abound with distinctive characteristics, but considerations of space permit the recording of only a few examples. For example, Chapter 17 gives a concise, but in itself complete, account of stereoisomerism and includes a masterly exposition of the determination of the configurations of the sugars, while Chapter 31, on dyes, opens with a discussion of the subject of colour and of its relation to chemical constitution.

An exceptionally full index (forty-five pages), historical footnotes, frequent and absorbing digressions on economic aspects, and devices to aid study (such as the use of two sizes of type and the numbering of the carbon atoms in big molecules) do not complete the list of attractive features. In short, this stimulating and inspiring book should afford the student just the help he needs. "Noller" will undoubtedly take a high place among the great instructional books of organic chemistry.

G. FOWLES

POCKET ATLAS OF THE SWISS FLORA

Taschenatlas der Schweizer Flora

Mit Berücksichtigung der Ausländischen Nachbarschaft. Von Eduard Thommen. Zweite, vermehrte Auflage. Pp. xvi+309. (Basel: Verlag Birkhäuser, 1951.) 13.50 francs.

THIS booklet, of a convenient pocket size, contains more than three thousand black-and-white drawings of the ferns and flowering plants found in Switzerland and the adjacent areas of France and Germany. The drawings are carefully executed and reproduced; but their small size and the fact that they are rather crowded, with some dovetailing, makes it rather difficult to recognize all the species, even though detailed drawings of characteristic portions of flowers and fruits are given. The author himself considers that his drawings are best used in conjunction with one or other of the existing non-illustrated Floras of Switzerland. The fact that the present issue of the Pocket Atlas is a second and enlarged edition is proof that it has served a good purpose.

Below each row of drawings the author gives the Latin, German and French names of the plants, and he indicates by a small initial letter the colour of the flowers. In addition there are twenty-two pages in which some systematic, geographical or general information concerning many of the plants is given. The author generally informs his readers, when that is the case, that the plant to which he refers is not a native of Switzerland, but has become naturalized either by spreading by natural means from adjacent areas or by human agency. This latter will have been the case with such trees as *Catalpa* and *Paulownia*. It is a pity that in some instances no such information is given. Some readers may therefore not know that *Sarracenia purpurea*, which is figured, is a native of wet bogs in North America. It is not a Swiss plant, but may be found at least in one locality about 1,000 ft. above the Lake of Geneva, where it was planted many years ago and has since flourished. The author might also have mentioned the interesting fact that it is an insectivorous plant. But he has been rather chary about letting readers know that other plants like *Drosera*, *Pinguicula* and *Utricularia* are insectivorous. It is a pity that interesting information of this nature or of ecological facts is not given in the notes. It would be useful to reconsider this matter if a third edition is contemplated.

F. E. WEISS