deduced by Szent-Györgyi, Krebs, Ochoa and many others, and this surely could have been included at the expense of some of the space devoted, for example, to alkaloids (pp. 177–180) or to terpenes (pp. 255–257).

A critical and accurate text-book of biochemistry for postgraduate students is needed which is not written with a medical point of view in mind and which includes both dynamic and static aspects of the subject within a reasonable size. Dr. Haurowitz has had the courage and tenacity of purpose to attempt this important task, and the 485 pages of his book might have provided such a volume. Unfortunately, they have failed to do so.

F. G. Young

NORTH-AMERICAN PLANT TAXONOMY

An Introduction to Plant Taxonomy

By George H. M. Lawrence. Pp. viii+179. (New York and London: The Macmillan Company, 1955.) 23*s*. net.

THIS little book consists largely of a somewhat curious selection of material from "The Taxonomy of Vascular Plants" by the same author. According to the preface, it "is intended to serve as an aid to the non-taxonomist in the use of a manual or flora that accounts for the plants of any region of North America". A brief introductory chapter explains the nature and significance of taxonomy and distinguishes clearly between classification and nomenclature, two things which are frequently confused by the beginner. The survey of systems of classification, which occupies a dozen pages, seems of rather doubtful value to the non-taxonomist who simply wishes to use a flora. Engler's system is criticized once again for its lack of phylogenetic truth, in spite of the fact that it is admittedly based on artificial grades of perianth complexity and that its author never claimed any phylogenetic significance for it.

Nearly one-third of the book is occupied by what is in effect an elaborate illustrated glossary of the terms which may be used in describing vascular cryptogams and seed plants. The illustrations, though generally clear and helpful, are not uniformly accurate; for example, the fern sporangium (Fig. 8*f*) is shown with a stalk which bears no resemblance to reality. A more important point, however, is the great number of terms which are defined. These alone seem enough to discourage any non-taxonomist from attempting to use a flora, and many of them, in my opinion, are unnecessary words which, anyhow, are very rarely met with in modern works. The tendency nowadays is to reduce the number of terms used in description, even if it means a slight loss of precision or the substitution of a rather longer phrase in plain English. The greater precision which might be supposed to be obtained by using a word such as velutinous is largely illusory. The non-taxonomist will neither remember nor bother to look up afresh the precise meaning of such words, while specialists frequently differ over the exact application of the multitudinous terms used to describe qualitative features.

As long as botany consisted essentially of the systematics of flowering plants, this great abundance of descriptive words was all part of the game, but this period in the development of the science ended more than half a century ago. Taxonomists to-day need to make their work readily available to ecologists, physiologists and indeed to every kind of botanist, as well as to the host of happy amateurs. It is high time that many of these esoteric words were forgotten. It seems, therefore, regrettable that thirty-nine words describing hairiness and no fewer than sixty-two describing the shapes of leaves or parts of leaves are defined.

It is difficult to see how the summary of the International Code of Nomenclature or the brief account of phylogeny and biosystematics can help the kind of reader referred to in the preface, though the few pages dealing with collecting and identifying may well be of value to the beginner, and the chapter on taxonomy in North America is of interest to the historically minded.

The remainder of the book deals with important families (of flowering plants) in a rather chatty way. The same kind of information is to be found in more detail and more concisely expressed in most floras. Finally, it is perhaps worth pointing out that the cost per page seems to be about twice as much as that of comparable books printed in Britain.

T. G. Tutin

NEWER TECHNIQUES IN ORGANIC ANALYSIS

Organic Analysis

Edited by John Mitchell, Jr., I. M. Kolthoff, E. S. Proskauer and A. Weissberger. Volume 2. Pp. viii+372. (New York: Interscience Publishers, Inc.; London: Interscience Publishers, Ltd., 1954.) 8.50 dollars.

THE first volume of this work presented methods for the quantitative determination of a number of organic functional groups. The opening chapters of this second volume describe further specific determinations of the carboxyl group, the ester group, the nitro, nitroso and nitrate groups and of total nitrogen by the standard methods. The fourth chapter deals with the uses of lithium aluminium hydride in analysis. One application is to the determination of active hydrogen, and this provides an alternative to the Zerewitnoff method. Lithium aluminium hydride is so powerful as a reducing agent that its action upon various oxygen-containing groups is non-selective. However, the amount of the reagent consumed is proportional to the oxygen present in the groups attacked, and a method has been developed, using an indicator such as N-phenyl-aminoazobenzene, which gives a direct titration of the number of oxygen atoms present in a compound (ether oxygens being excepted). Great care is necessary to exclude moisture, oxygen and carbon dioxide; but the method should be very valuable.

The remaining five chapters of the book are concerned with special techniques. An account of coulometric methods does not open up many possibilities of their use in organic work. A chapter on polarography shows in detail the many pitfalls and difficulties which may arise with organic substances. Polarographic methods are rapid and convenient in certain instances, but great care and attention to detail are essential. A discussion of methods based