

Pharmacia Fine Chemicals AB, the manufacturers of 'Sephadex', but is merely a reflexion of the domination of the market by this product. Although any reference work on biochemical techniques must contain a chapter on gel chromatography, this book, which is the most expensive of the trio, must be considered a poor investment because it contains little more information than can be obtained from the technical literature provided free by the manufacturers of these materials.

The third book describes the uses of immunochemistry for the identification of various macromolecules, for example, polysaccharides, proteins and lipids. The author follows the pattern set by the other two books and concentrates upon the practical applications of the technique and, in particular, pointing out to the reader the possible errors and misinterpretations which can arise. It is pleasantly free from the bewildering terminology which many authors in this field use with reckless abandon and which may have previously discouraged potential users of this valuable technique.

All three books are printed on good quality paper; they are easy to read and should stand up reasonably well to the constant handling a laboratory manual will inevitably receive. The title on the spine of my volume on immunochemistry contained a glaring error—'macromolecule'.

N. SHAW

## CONSTITUENTS OF LICHENS

### Chemical and Botanical Guide to Lichen Products

By Chicita F. Culberson. Pp. xi + 628. (University of North Carolina Press: Chapel Hill, November 1969.) \$12.50.

THIS is a good book which will probably be the standard text on the subject for some time to come. Lichens produce a wide range of compounds which have been variously called lichen acids, lichen substances or lichen products. They include depsides, depsidones, dibenzofurans, usnic acids, chromones, xanthonones, anthraquinones, carotenes, sterols, terpenes, terphenylquinones and pulvic acid derivatives. Many of these compounds are known only from lichens, particularly those which are acetate-polymalonate derived aromatic phenols joined by esterification, oxidative coupling or both.

Two quite different groups of scientists are interested in these compounds. First, and for obvious reasons, there are organic chemists. Second, there are lichen taxonomists. It is over a century since Nylander described the "colour tests" which became an integral part of the identification and classification of lichens. In recent decades, the development of simple microchemical methods for the identification of specific compounds has had a major impact on lichen taxonomy. Indeed, in the taxonomy of no other group of plants has chemistry been used so successfully as in lichens.

This book is good because it caters so well for both the chemist and the lichen taxonomist. Dr Culberson herself is an organic chemist with an eminently well deserved reputation in the chemistry of lichen products. She has been closely associated in her work with her husband, a lichenologist who is the leading expert in the world in the chemical taxonomy of lichens. Hence, the lichen nomenclature in this book is modern and reliable, with the synonymy thoroughly checked.

The essential core of the book consists of two major reference sections. The first lists more than 300 chemical constituents of lichens, with physical data, chemical structures and annotated references. The second lists the occurrence of these compounds in approximately 2,000 species, forms and varieties of lichens. There is also an excellent chapter on the biogenesis of lichen products and their relationship to the products of free-living fungi. In dealing with the chemical constituents, the author has

not restricted herself to secondary products or lichen acids, but she also includes carbohydrates, amino-acids, vitamins and growth factors.

Some lichen taxonomists might have appreciated an introductory guide to the actual methods of using microchemical techniques, although copious references on them are given. Likewise, the chemist might have been given some guide as to what compounds might be expected in previously unstudied lichens, especially where primary metabolites are concerned.

Perhaps the most important comment I can make, however, is an earnest wish that the author and publishers will be able to produce new editions of this book when advances in research make this necessary.

D. C. SMITH

## GROWING VASCULAR CELLS

### Tissue Cultures

By O. J. Pollak. (Monographs on Atherosclerosis, Vol. 1.) Pp. xii + 143. (Karger: Basle and New York, 1969.) Sfr./DM 41; 82s.

A MONOGRAPH on tissue culture might seem to be an unusual start for a series devoted to atherosclerosis. Workers in the field will, however, appreciate the need for a fundamental study of the prime reactor in the atherosclerotic process, namely, the vascular endothelial cell.

The book is comprehensive and has a full bibliography. It emphasizes and summarizes the many difficult problems encountered when carrying out and interpreting experiments with growing vascular cells. Not the least of these problems is the precise identity of the cell that emerges in the course of tissue culture; a problem that is still not entirely solved. A more intensive cytochemical study of such cells might be of value in establishing cell identity; the author discusses and emphasizes cytochemical techniques as applied to tissue culture.

Much of the work that is described is concerned with aortic endothelial cells. It does not necessarily follow that they resemble the lining cells of coronary arteries that have not been so fully studied. This important point is made, but perhaps not forcibly enough.

The end of the book is better than the beginning. Towards the end there is more discussion and critical comment. The beginning is more of a list of results and names of authors with little or no commentary on the quality or significance of the reported works.

It is sometimes difficult to understand the meaning of sentences largely because of the American use of English, but generally speaking the subject is clearly and concisely expressed.

This book provides a rare, valuable summary of modern work on arterial cell culture and is an important addition to the writings about atherogenesis. G. A. GRESHAM

## Obituaries

Dr G. D. Greville

GUY D. GREVILLE, who died on December 13, 1969, at the age of 62, had been head of the Department of Biochemistry at the Agricultural Research Council Institute of Animal Physiology, Babraham, Cambridge, where he succeeded Sir Rudolph Peters in 1959. After graduating with a double first in chemistry at Cambridge in 1929, he worked for some years in the biochemical section of the Middlesex Hospital Medical School, where he collaborated with F. Dickens and E. C. Dodds. In 1937 he was appointed research biochemist in charge of the biochemical laboratories at Runwell Hospital, Essex.