Phytochemistry, Vol. 28, No. 11, pp. 3251–3252, 1989.
Pergamon Press plc. Printed in Great Britain.

BOOK REVIEWS

North American Terrestrial Vegetation: edited by M. G. BARBOUR and W. G. BILLINGS, University Press, Cambridge, 1988. 434 pp. $49.50.

This is a straightforward review of the plants and vegetation of the North American Continent from the Arctic North through the rockies and the prairies to Mexico and Costa Rica. It has been achieved by dividing the Continent into some 13 geographical zones (e.g. chaparral, arctic tundra, etc.), each commanding a separate chapter. Inevitably there is some overlap in the vegetation represented in these zones but this does not lead to repetition since the editors have carefully monitored the individual contributions. The only omission is a summary chapter, focussing on the vegetation of the entire continent—an awesome task considering the enormous range of habitats and the species diversity and one which the editors have perhaps wisely not attempted. There are a number of black and white illustrations printed on the same paper as the text but these do not really do justice to the magnificent flora. Forest canopy scenes come out reasonably well but desert landscapes suffer most from the lack of definition.

While written primarily for an ecological audience it should be of interest to other plant scientists as well. There are many biochemical problems awaiting solution in particular habitats. For example the relative infrequence of C4 or CAM compared to C3 plants in the Californian deserts is surprising and deserves further study from the photosynthetic point of view. Again, there is evidence of allelopathic effects in the suppression of growth of annuals by shrubs in the chapparal, but more work is needed on what is still a largely unsolved mystery. In some regions the allelopathic effects are complicated by the outbreaks of fire and the regeneration of vegetation after such fires is another fascinating phenomenon deserving biochemical and physiological investigation. Finally, the sheer wealth of plant species in any given geographical zone is still a challenge to North American phytochemists; it is doubtful whether more than a few per cent of species have been examined properly for their secondary constituents up to the present time.

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Gas Chromatography and Lipids: A Practical Guide: by W. W. CHRISTIE, The Oily Press, Ayr, Scotland, 1989. £30.*

This book is the latest offering from Bill Christie—an author who is well known as an expert (and author) on lipid analysis. It is also the first product from a new (and appropriately named!) publishing house. For these reasons I read the volume with great interest.

At first sight it seems unusual to have a book in which analysis is based on one technique. However, this allows an in-depth treatment which would not be possible otherwise. Since the analyses described and techniques detailed apply to lipids, then the various examples given seem relevant and do not end up as a mere catalogue of results. In the main opening chapter, in particular, Christie gives enough information about ancillary or preliminary methods to allow the (final) GC analysis to be seen in context.

All the obvious aspects of GC seem to be covered. A first part gives a clear and quite comprehensive description of basic fatty acid and lipid structures as well as including details for extractions of lipid classes. This is followed by a chapter describing the theory of gas chromatography, the types of instruments and details of their parts (detectors, injector systems etc.).

The remainder of the book is divided into two sections—dealing with the analysis of fatty acids and of lipids other than fatty acids. Within the former section are chapters on the preparation of (volatile) derivatives, of the gas chromatography (GC) of such derivatives, the use of spectroscopic and chemical degradative methods and the use of GC-MS. There is sufficient detail within the various parts of this section for someone to identify properly fatty acids without recourse to other analytical texts.

The section on lipids other than fatty acids contains two chapters on methods for separating molecular species as well as a closing chapter on the separation of particular lipids or products (fatty alcohols, ether lipid products, cholesterol, glycerol, long chain bases) by gas chromatography. The sections on molecular species are up-to-date and very comprehensive but the section, as a whole, is much less complete than that on fatty acids. The researcher needing advice on complex lipid separation, identification and quantification would probably have to refer to other books for more details. Nonetheless there is much sound advice to be gained here also.

Now to some criticisms. I was disappointed by the appearance of the text in many places. The format and

*May be ordered directly (post free) from Oily Press, 36 Woodend Road, Alloway, Ayr, Scotland KA7 4QR.