

indication of the range of alternatives nor any idea of the application of methodologies to particular problems. In this way it fails the student and gives a very false impression of how molecular biological techniques are used in research. The examples of this are too numerous to quote. Quite frankly I do not see why Academic Press brought out this book, considering their existing volume

on plant molecular biology. This is simply a very well written teacher's source book to a course which would probably need rapid overhaul to keep it up-to-date.

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Flavours and Fragrances: Proceedings of the 10th International Congress of Essential Oils, Fragrances and Flavours, Washington D.C., U.S.A.: edited by B. M. LAWRENCE, B. D. MOOKHERJEE and B. J. WILLIS. Elsevier, Amsterdam, 1988. 1104 pp. \$302.85.

Many practising scientists pay lip-service to the value of conferences. Undoubtedly these can be useful forums for meetings, discussions, canvassings and posturings and they are invariably pleasant social occasions. Only a prig could object to those who can enjoy paid (or at least subsidised) trips to agreeable places under the aegis of furthering the progress of their science. However, the practical, let alone the intrinsic, value of many such happenings is surely disputable. And whether the proceedings need to be routinely recorded for posterity (especially in the form of very expensive volumes) seems to me to be debatable.

Three broad categories of scientific meeting may be distinguished. One follows the Solvay prototype and is essentially a seminar given by authorities to (usually small) invited audiences, e.g. the Ciba Foundation Symposia. The discussions following the lectures are an integral part of the events and the published records are documents of lasting worth. The second type are symposia arranged around a series of plenary lectures, e.g. some phytochemical Society Symposia. Again, publication in an edited form provides a valuable series of up-to-date reviews and previews. The third type are demotic gatherings comprising numerous presented papers, sometimes accompanied by poster sessions. At worst, the brief, un-refereed and sometimes trivial communications—often given to justify attendance or to claim priority—are not worth placing on permanent record. In any event, by the time any volume of the conference appears much of the work is likely to be in journals—if indeed it had not been published before the event. It is noteworthy that the proceedings of many periodic prestigious conferences and congresses are not published in book form (e.g. those of the Royal Society of Chemistry).

The volume under review is an expanded and edited version of scientific papers presented at a three-day congress held in 1986. The meeting is held triennially and is clearly a high-grade example of the third type listed above. In contrast to the previous meetings in the series, the number of presentations was restricted (to 85) and these were solicited from notable workers in the field. The divisions were Agricultural/Botanical (29 contributions) and Analysis/Composition (28) which overlapped exten-

sively in subject matter, and Chemistry/Technology (28). The first two groupings largely consisted of detailed listings of the aroma and taste components of numerous oils and extracts, including studies of minor components of known oils, the analysis of new oils, of oils from known plants grown in new locations, of headspace analysis, of the existence of chemotypes and so on. The edited versions are in 'journal' style, with adequate experimental detail usually accompanied by pages of GC-MS and phytochemical data largely pertaining to the lower terpenoids. The standard of work is high, but most studies can be of interest only to specialists within the already restricted field under survey. But there are some more generally digestible things in the pudding: in particular, papers on the extraction of oils with liquid carbon dioxide (D. A. Moyler and H. B. Heath), the catabolism of monoterpenes in essential oil plants (R. Croteau) and the role of tissue culture in micro-propagation (T. W. Stones); but even these largely tread some very well-worn paths. The third section as a whole is of more widespread interest and mainly gives details of selected general and specific synthetic routes to aroma and flavour compounds and their analogues. Noteworthy contributions concern the industrial synthesis of optically-active terpenoids based on asymmetric isomerization (S. Akutagawa, T. Sakaguchi and H. Kumabayashi), an excellent review on new developments in the analysis of essential oils by Fourier transform (IR, UV, NMR) spectroscopy (K. H. Kubeczka, W. Schultze, V. Formacek, and W. Herres), the mass spectrometry of sesquiterpene hydrocarbons (S. K. Ramaswame, P. Briscese, R. J. Gargiullo, and T. von Geldern) and recent developments in the synthesis of perfumery chemicals (J. H. P. Tyman).

In my view, most of the articles in this book are of limited interest—even for browsing purposes—and should be, in any event, lodged in the primary literature. I cannot see any scientific justification for a permanent record of such a conference although this volume is, of course, one of many of its kind. Nevertheless, the book does exist for those who want it and whose libraries can afford it; and publication is presumably a commercial proposition. The logic and economics of much scientific book production never fail to amaze me. The format is elegant using most expensive paper, and the editing is admirable: but the volume groans, and I can only regret the sacrifice of all those trees!

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