BOOK REVIEWS

Smectic Liquid Crystals Textures and Structures

G. W. GRAY AND J. W. GOODBY

Heyden & Sons, Inc., 1984, 157 pages, ISBN #0-249-44168-3, $75.00

This book was written to be a practical experimental guide for textures and classification of smectic liquid crystals of different polymorphic types. The term smectic refers to the phase of a liquid crystal characterized by the arrangement of the molecules in layers, with the long axis of the molecules perpendicular to the plane of the layers. The writing style of the book is easy to read and follow. The 10 chapters present smectic phases A to I, with a general introduction to phase identification and a final chapter discussing the new developments in phase classification and structure. The reference list at the end of each chapter is extensive, showing the thoroughness of the authors to past and current literature. The history of the phases is presented with comments on identification difficulties and how some of these were sorted out.

Throughout each chapter, a systematic procedure is given for identification and classification. The procedure involves microscopic examination, miscibility studies, X-ray diffraction patterns, and differential scanning calorimetry.

Comparisons are made between the various phases A to I, noting similarities and differences. Actual photomicrographics in color show the phase in detail and present the graphic demonstration of the text. In discussing the various possible structure arrangements for the phases, excellent two- and three-dimensional graphics are presented in the text.

The chemical species that follow the various phases are noted and thus relate the phase behavior to the practical.

When different theories exist concerning the different phases, such as smectic C phase, the various interpretations are explained in detail.

In the final chapter on new developments, the use of high-power, high-resolution radiation coupled with new alignment methods are stressed as having produced a very powerful probe for structural studies.

Continuous Culture 8: Biotechnology, Medicine, and the Environment

A. C. R. DEAN, D. C. ELLWOOD, AND C. G. T. EVANS

Ellis Horwood Ltd., John Wiley, New York, 1984,
ISBN 0470 20042 1, $84.95

The proceedings of any symposium are bound to be quite varied in topic, style, novelty, and authority. This variety is very noticeable in the current book, "Continuous Culture 8: Biotechnology, Medicine, and the Environment." Here, the common thread linking all the contributions, that of continuous culture, is extremely tenuous, and I suspect very few people will find more than a very few chapters of direct interest. In 20 chapters the book covers topics as diverse as determination of virulence, models of activated sludge processes, plasmid stability, and chemical feedstock production.

The heterogeneity of the contents makes it very difficult for a single reviewer, or at least this reviewer, to give a weighty opinion on the quality of the book as a whole. For most readers, most chapters will be of interest only as "interested layman;" and as such a person I particularly enjoyed the chapters by Senior entitled "Polyhydroxybutyrate," by Millis entitled "Solvents and Chemical Feedstocks: Can Microbes Help?", and by Ratledge, Boulton, and Evans entitled "Lipid Production by Oleaginous Micro-organisms." Many of the other chapters made interesting reading and one or two were extremely heavy going. I suspect this reflects the reviewer's ignorance, rather than any particular weakness in the authors' work.

A further problem with symposium proceedings is that of timeliness. Book production inevitably takes time, and the editors are forced to chose between rapid publication, using the authors' typescripts as "camera-ready" copy, and a more lengthy, type-set approach, which gives uniformity of appearance, an opportunity for editing, and produces a much more readable book.

In this case, the editors chose the latter course and have done a very good job. The delay period does not appear to have been too great, for

the book, published in 1984, includes many references to works published in 1982 and a few in 1983. Perhaps aware of the potential problem, the book seems nowhere to mention when the symposium actually took place.

A trivial point, one that caused me to smile rather than to feel any irritation, is in the use of running titles for each page. These are the same as the title of the last subsection on each page, which results in several pages carrying the running title "Acknowledgments." I suspect that few people read the Acknowledgments section of an article, and that no-one ever needs to flip rapidly through a book to find a particular Acknowledgments section. It would have been more useful, perhaps, to have the authors' names and abbreviated chapter titles as running headings.

In summary then, a very well-produced, well-edited book, with many authoritative chapters, covering a very wide range of topics. This broad spectrum means that I suspect few people will find it worthwhile to purchase their own copy, but that many will read a chapter or two in the library copy.

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The statement that the book's objective is to be of service to the comparative beginner who is attempting to gain experience and knowledge in the field of microscopy of smectics as well as the experts in the field is truly met on all counts.

The book seems to be a must for the serious student of smectic liquid crystals.

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