

ChE letters

Sir: I read with great interest the article by Kenneth J. Bell (CEE, 6, No. 4, Fall 1972) detailing his views on the requirements for a course in Process Heat Transfer. The thinking of Dr. Bell no doubt influenced by his close association with some of the greats in this field, is closely parallel to that of members of the Department of Chemical Engineering at the University of Salford, England, who were influenced by those same greats through their writings.

Students at Salford during the final two years of their studies are required each week to attempt problems which require between six and twelve hours calculation for their solution. Many of these are concerned with process heat transfer calculations and are also used as a basis for developing computer programs for the routine solution of such design problems. We, too, were initially handicapped by the absence of a suitable textbook, a circumstance which led Heinemann Educational Books Ltd, London, to publish 'Heat Transfer' by F. A. Holland, R. M. Moores, F.A. Watson and J.K. Wilkinson in November 1970. The text consists of twenty calculations presented in full detail in Anglo-American units with a parallel presentation of key results in SI units. There is also a section on the estimation and correlation of physical properties of fluids presented in consistent SI units, with five fully detailed examples. To make the book self contained there are ten chapters which present an abridged theoretical treatment of all the methods used in the design calculations, including a chapter on conversion of units. The 612 page book has been made available in the USA through American Elsevier Publishing Co., Inc. for less than \$20 for the hardback edition.

I hope this information may prove of interest to those in other Departments of Chemical Engineering who have felt the need for such a text. The book was reviewed in the International Journal of Heat and Mass Transfer, 14 pp 1879-1880, 1971.

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ChE book reviews

Polymers in the Engineering Curriculum. Proceedings of the Third Buhl International Conference on Materials, Pittsburgh, Pennsylvania, October 28-29, 1968, Hershel Markovitz, ed., Pittsburgh: Carnegie Press, Carnegie-Mellon University, 1971. 311 pages. Reviewed by W. R. Schowalter, Princeton University, Princeton, N.J.

This unusual volume deserves review if for no other reason than to publicize the fact that, in spite of the title, the book contains several concise, readable, and authoritative reviews on certain areas of polymer science.

Since 1963 the Buhl Foundation of Pittsburgh has supported a series of conferences on the sub-

ject of materials. Dr. Markovitz describes the origin of the third conference as follows:

The choice of the subject of the Third Buhl International Conference on Materials — Polymers in the Engineering Curriculum—grew out of the concern of the organizers that engineering schools, almost universally, had not been responding to the obvious upward trend in engineering applications of polymeric materials. There is little doubt that a large fraction of the graduates of engineering departments will have to deal with these materials during their professional lives. If it is granted that an important task of engineering schools is to prepare the student for his career, it is surprising that so few educational institutions had modified their curriculum in light of this fact.

The conference organizers decided that it would be useful to devote the first day of the meeting to "an overview of the polymer industry and the underlying science important for the understanding of macromolecular behavior." It is this portion of the conference that generated the reviews mentioned above. One should not be surprised, given the origin of the volume, that an enormous difference in emphasis and style exists among the authors. The review talks are probably bounded in these respects by C. Truesdell's description of "Classical and Modern Continuum Theories" and A. V. Levy's address titled "Producer-User Cooperation to Utilize Polymers as Engineering Materials, A Necessity." Other papers of a review nature include

Some Fundamentals of Polymer Chemistry — W. H. Stockmayer and C. W. Pyun
Mechanical Behavior of Polymers — H. Markovitz
The Morphology, Properties and Structure of the Crystalline State of Polymers — R. S. Stein
Mechanical Analysis of Plastics Fabrication Processes — T. Alfrey, Jr.
Application of Modern Continuum Mechanics to the Design of Polymer Melt Processes — J. R. A. Pearson.

In addition there are some interesting statistics showing the impressive growth rates for production of various kinds of polymers. Historical notes about the polymer industry are also included.

The wide assortment of talks and audience backgrounds led to some amusing discussion exchanges, most of which were transcribed. For example:

A: . . . did you vary only a single variable at a time?

B: It was done on a statistical basis.

A: I'm asking for that basis if you can give it.

B: I dont remember the details of which variables were varied

A: In other words you were assuming a simplicity here, no interactions of these variables, or you really