DONALD Q. KERN and ALLAN D. KRAUS, **Extended Surface Heat Transfer.** McGraw-Hill, 805 pp.

THE AUTHORS present a summary of the theories, mathematical methods and engineering applications of heat transfer through those surfaces of heat exchanging equipment, which are extended by fins or spines, including the finned passages of compact-heat-exchanger elements.

The first chapter consists of a conventionally written introduction in heat transfer and mathematical principles. Unfortunately there was made no difference in the notion of heat and enthalpy (or internal energy), a sin of omission which is often committed by practising engineers. Starting in chapter two with a list of ten limiting assumptions the analyses proceed from the simplest cases to more complex ones by removing the simplifying constraints step by step. The aim of all these analyses is the evaluation of fin efficiencies and finally the optimization of shape and size of fins. In chapter six and seven finite-difference methods are introduced together with a detailed description of two generalized computer programs for steady state—respectively transient problems.

A complete listing of the source-programs in FORTRAN IV is given in the appendix together with the input data and the computer output for 21 steady state and five transient cases. Among these cases are even so contrived ones as the assumption of radiation and forced convection with variable heat transfer coefficient on one side and free convection on the other side of a longitudinal rectangular fin.

Part one of the book, mainly concerned with the evaluation of fin efficiencies, ends with the analysis of finned passages in the so-called *n* sandwich or *n* stack.

Part two, only half as voluminous as the first one, gives some very specialized informations on heat exchanger design. It contains four chapters (9–12) on Longitudinal High-fin (Double Pipe) Exchangers, Radial Low-fin Shell-and-tube Exchangers, Transverse High-fin Exchangers (Air-fin coolers), and Compact Heat Exchangers. Many tables and diagrams with finned-tube data on heat transfer coefficients, friction factors and fin efficiencies, together with detailed calculation examples make that second part of the book a valuable tool for the practising engineer.

Part three contains the appendices with some selected analytical solutions of the heat conduction equation, tables of Bessel, Gamma, exponential and hyperbolic functions, all the computer listing mentioned above, and some tables and diagrams on physical properties.

A serious disadvantage of the book, especially for the non-Anglosaxon reader, is the use of British-Engineering-System units in all examples, graphs and tables. Nevertheless, it was an admirable task to collect and to order the great amount of material existing until now only as isolated articles in technical periodicals, project reports or preprints of symposia, and to present it together with the authors' own contributions in a unified form.

The authors are to be congratulated on producing a modern, computer-oriented monograph on a special topic of heat transfer. But we reckon the book could be better sold if its two unequal parts would have been split into two volumes, and if SI units were used.

H. MARTIN
E.-U. SCHLUENDER

Karlsruhe

Int. J. Heat Mass Transfer. Vol. 17, p. 528. Pergamon Press 1974. Printed in Great Britain

ANNOUNCEMENT

CONFERENCE ON CHEMICAL ENGINEERING RHEOLOGY
(MOLECULAR AND CONVECTIVE TRANSPORT IN RHEOLOGICALLY COMPLEX FLUIDS)

The conference will be held in Salford, 11–13 September 1974, and is organized jointly by the Department of Chemical Engineering, University of Salford (UK) and the Institut für Verfahrenstechnik, Technische Hochschule Aachen (Germany).

Papers have been tentatively proposed by the following authors: Professor R. B. Bird (Wisconsin); Dr S. J. Chen (Kenics Corp); Dr D. C.-H. Cheng (Warren Spring Lab); Dr M. F. Edwards (Bradford); Professor J. L. Gainer (Virginia); Professor H. Giesekus (Dortmund); Professor W. N. Gill (New York); Professor R. J. Gordon (Florida); Professor C. D. Han (Brooklyn); Dr W. M. Jones (Aberystwyth); Professor A. V. Luikov (Minsk); Dr W. C. MacSporran (Bradford); Dr R. A. Mashelkar (Salford); Professor S. Middleman (Massachusetts); Dr P. Meissner (BASF Ludwigshafen); Dr C. Koen (Mareuil-Marly); Dr P. Mitschka (Prague); Professor S. Peter (Erlangen); Professor R. Rautenbach (Aachen); Professor W. R. Schowalter (Princeton); Professor P. Schümmer (Aachen); Professor J. Schurz (Darmstadt); Professor R. I. Tanner (Sydney); Dr R. Y. Ting (Naval Res. Washington); Professor Y. Tomita (Tokyo); Professor J. Ulbrecht (Salford); Professor U. Werner (Dortmund); Professor J. L. White (Tennessee); Professor W. L. Wilkinson (Bradford); Dr B. Yates (Unilever, Port Sunlight); Professor J. M. Smith (Delft) and Dr E. Reher (Merseburg).

The Conference will probably be held in two parallel sessions. There is still some room to accommodate a few more papers along one or more of the following lines: mixing and blending of miscible non-Newtonian fluids, axial and radial dispersion in non-Newtonian flows, two phase systems with at least one non-Newtonian component, molecular diffusion in rheological systems, mass transfer across the interphase and through membranes with at least one non-Newtonian liquid, thermal conductivity and heat transfer in non-Newtonian flows, interaction of turbulence and viscoelasticity, other transport phenomena.

Proposed titles with an adequate synopsis should be sent either to Professor J. Ulbrecht, Department of Chemical Engineering, University of Salford, Lancashire, M5 4WT (UK) or to Professor P. Schümmer, Institut für Verfahrenstechnik, RW Technische Hochschule, Aachen (Germany), not later than 30 April 1974. An earlier notice from intending authors would, however, be greatly appreciated.