

## BOOK REVIEWS

**Heat Transfer and Fluid Flow Data Books.** Edited by R. H. Norris, F. F. Buckland and N. D. Fitzroy. General Electric, Schenectady, N.Y. (1973).

It is with scientific information as with energy: if only we could collect and concentrate it, we should be well supplied. Books, journals, and research memoranda flow over our desks like winds and ocean currents around the globe; and to focus information of the right kind, reliability and precision on the problem of the moment is as difficult as raising steam by focussing the rays of the sun. It requires investment of time and money: and only the well-endowed societies can afford to do it on a large scale.

Yet there is a difference: unlike energy, once information has been concentrated and codified, it may be multiplied and distributed at a low cost; when the initial information-collecting investment has been made by one group, therefore, others may obtain equal benefit by paying a much smaller premium—if the first group allows it.

The volumes under review are the fruits of a protracted and large-scale investment by the General Electric Company of Schenectady, originally for its own benefit, and now made generously available to the world at large.

The editors have had to devise a form of codification which permits continual inclusions of new material, and also replacements of that which has become obsolete. A capacious framework of numbered headings and sub-headings, and the use of ring-binders for assembly of sheets, have been essential aids; but a steady editorial policy with regard to principles of selection and style of presentation, together with wisely continuous support from the management, must have been the vital factors. The preface, which is factual and reticent like the whole publication, gives no information about how the undertaking was actually conceived, promoted, controlled and steered to success; probably there were occasional losses of confidence, or of sense of direction; but they have not marred the published work.

There are two volumes. The first, the Fluid Flow Data Book, is organised under the following headings: general; straight ducts of uniform cross-section; curved ducts of uniform cross-section; branching flow; ducts with sudden contractions (nozzles, orifices, duct inlets, etc.); ducts with expanding cross-sections (diffusers); drag of bodies—linear motion; drag of bodies—rotating motion; fans. The headings of the second volume, the Heat Transfer Data Book, are: general; conduction in solids—steady state; forced convection; free convection; radiation; condensation; vaporisation; combined heat-flow phenomena; transient heat flow, basic data; heat exchangers; rotating-surface convection; properties of liquids; properties of solids; standards and constants.

To indicate how the sections are arranged, it suffices to describe one, say that on rotating-surface convection. This has sub-headings as follows: introduction; cylinder without enclosure; enclosed cylinder with zero axial flow; enclosed cylinder with axial flow; rotating disk without enclosure; rotating disk with enclosure; effect of kinetic-energy recovery and windage on surface temperature rise. To take the sixteen pages on the disk rotating in an enclosure as a final example of organisation, its sub-divisions are headed: qualitative concepts and significant independent parameters; suggested procedure for evaluating the heat-transfer coefficient. The latter sub-division is broken into fourteen how-to-do-it steps.

Of course, not everything is covered; and one wonders how the new computer-oriented approach to equipment design is going to be accommodated. However, so valuable is this continuing enterprise, and so great must sometimes

be the temptations to abandon it because of its expense, or because of the difficulty of compressing a sprawling literature into an orderly pattern, that I will venture no criticism, for fear of discouraging the editorial team.

Academic scientists are sometimes scornful of the contributions of industry to scholarship. The volumes here reviewed show clearly that at least some commercial companies maintain high standards in their internal publications, and that, when they release these, they can put most academic work to shame.

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**Heat Transfer in Flames.** Edited by N. H. Afgan and J. M. Beer, Scripta, Washington D.C., U.S.A. (1974).

This attractively presented book is an outcome of the 1973 Seminar of the International Centre for Heat and Mass Transfer, held at Trogir, Yugoslavia. The authors of individual papers come from many countries; and the average standard of their contributions is high. The focus of attention is the development of prediction methods; and, if few of the methods presented are yet usable (or even understandable) by the practising furnace designer, several of them promise soon to become so.

Facts being more interesting than (some people's) opinions, it seems appropriate to let the contents list speak for itself. There are 501 pages of text, photographically produced from typescript; and the editorial work is excellent.

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