starting with the conduction of heat in a finned tube through the effect of the thermal conductivity of the tube supporting the fins up to the variation of the heat transfer coefficient around the circumference of the fin.

They describe in detail their experimental arrangement and the extensive experimental study with bundles of tubes with spiral fins at Reynolds numbers of the flowing air from 10^4 to 10^6. The effect of fin geometry on heat transfer and hydraulic drag was investigated with 12 staggered bundles. The effect of bundle configuration was studied with 9 such bundles. The nonuniformity in distribution of heat transfer over a fin surface at high Re was investigated experimentally on tubes with spiral and circular fins, placed in the first and then in the fifth longitudinal row of a bundle, respectively.

The great scientific value of the book lies in the tabulated experimental results which are given in the Appendix. The resulting correlations for heat transfer and pressure drop for turbulent single phase flow through bundles of finned tubes were published in 1983 by Zukauskas and coauthors in the well known *Heat Exchanger Design Handbook* from Hemisphere.

It is a good book for specialists in heat transfer. Well informed people have worked with the contents since 1974 because the Russian language is not a very high barrier. Now this material is also available to people who don't want to take the trouble to interpret experimental results which are described in a foreign language. Only a few subscripts that are not translated will confuse them.

V. Gnielinski

Flow visualization IV

Edited by Claude Veret
Hemisphere Publishing, New York, 918 pp., £149.95

The International Symposium on Flow Visualization is one of a number of specialty conferences that seem to be currently in vogue. This is the fourth of a series, held in Paris in August 1986, and has sustained a record that attests to its success and is evidence of a burgeoning activity in an important field.

Experimental techniques for providing a visual image of the flow have always formed a natural adjunct to more conventional means of gathering data. What gives rise to this present explosive interest in flow visualization is a capability of quantifying the basically subjective analysis through the power of digital processing and analysis. Coupled with this are the relatively newly discovered techniques associated with lasers and holographic imaging to go along with the more conventional approaches, such as interferometry and Schlieren methods. The researcher who wishes to exploit flow visualization now has at hand a formidable array of techniques. The results achieved, as quick perusal of this volume will show, can be astonishingly useful and very often beautiful. There is no doubt that our understanding and appreciation of the physics of many flows have been singularly enhanced by the use of flow visualization.

I am enthusiastic about this series of conferences. The sharing of information, quickly, in a field which is advancing rapidly is essential. The papers are short but succinct, certainly long enough to get the important points across. The proceedings of these conferences should be recommended reading for all those interested in the general area of fluid mechanics and heat transfer, regardless of their particular approach to the subject.

J. F. Keffer

Turbulent shear flows 5

Edited by F. Durst, B. E. Launder, J. L. Lumley, F. W. Schmidt and J. H. Whielaw
Springer-Verlag, Berlin, 360 pp.

Symposia on turbulent shear flows are held every two years, alternately in the United States and Western Europe, bringing together specialists in the broad area represented by such flows. Selected papers from these meetings are published in book form a year or so after the meeting. The present volume is the fifth in this series and contains papers presented at Cornell University August 7–9, 1985 grouped under four topical headings: Homogeneous and simple flows, Free flows, Wall flows, and Reacting flows.

One of the great virtues of the books in this series is the introductory article by a distinguished specialist providing an overview, a perspective on the articles which follow in each heading. In this volume such articles are written by A. E. Perry, R. J. Adrian, P. Bradshaw and N. Peters.

Of the 26 papers in this volume only two, those by Saripalli concerned with experiments on the normal impingement of a pair of circular jets and by Coupland and Priddin concerned with the large scale computation of turbulent combustion in a real combustor, are of a directly applied nature. The other papers involve the usual flows of fundamental interest, jets, wakes, mixing layers, channels and boundary layers. The contributions are nearly equally divided between largely experimental and largely computational efforts. There are no strictly theoretical papers. There is only one paper with a geophysical emphasis, that by J. J. Rohr *et al.* reporting experimental results on turbulence downstream of a grid in a stably stratified water tunnel.

The one distinction setting the present volume apart is the sad one of its dedication to Professor S. Corrsin whose death in 1986 is a great loss to the turbulence community. His many contributions to the subject will continue to be referenced for years to come and his many students will continue the research directions he initiated.

These volumes make valuable additions to the turbulence literature, and the organizers of the symposia and the publishers of these volumes should be encouraged to continue their issuance. I look forward to the proceedings of the Sixth Symposium.

P. A. Libby

Papers presented at the Second International Conference on Laser Anemometry Advances and Applications, Strathclyde, September, 1987

BHRA, The Fluid Engineering Center, Cranfield, UK

This volume contains photo reproductions of five invited papers and forty-three contributed papers that were presented at the Strathclyde Conference on Laser Anemometry. The invited papers, each approximately twenty pages long, span a wide range of topics including refractive index matching techniques (A. Dybbs and R. V. Edwards), applications of LDA to computational fluid mechanics (A. Gosman), internal combustion engines (G. Wigley), particle sizing (W. Bachalo), and three-dimensional measurements (A. Boutier). The contributed papers are principally concerned with applications of laser Doppler anemometry in flow measurements and, to a lesser extent, development new to LDA techniques and instruments. Topics include fiber optics, photon correlation, signal processors, diode lasers and signal processors. There are also several papers on non-Doppler, incoherent single-point methods, and three papers on whole field methods, i.e., particle image velocimetry and the "Doppler picture" technique of Srulijes and coworkers. Measurements of particle size and/or particle velocity are discussed in six papers.

The invited papers contain valuable general information about the respective