Volume 8

I. J. Kumar, *Recent Mathematical Methods in Heat Transfer.* Brief descriptions of several mathematical techniques which have been applied to heat transfer problems and an indication of where more detailed information can be found. 285 references to 1971.

A. Žukauskas, *Heat Transfer from Tubes in Crossflow.* Single tubes and tube banks, both heat transfer and flow resistance. 83 references to 1970.

S. Ostrach, *Natural Convection in Enclosures.* Internal flows caused by wall heating in rectangular and cylindrical cavities. 52 references to 1970.

R. D. Cess and S. N. Tiwari, *Infrared Radiation Energy Transfer in Gases.* Band absorption models and their use in calculating radiative transfer. 59 references to 1970.

Z. Zarić, *Wall Turbulence Studies.* Discussion of turbulence measurements in wall layers. Mostly hot-wire anemometer results—many produced by the author. 64 references to 1970.

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D. Japikse, *Advances in Thermosyphon Technology.* Analysis and experimental results on both open and closed thermosyphons. Discussion of several applications. 117 references to 1972.

C. A. Depew and T. J. Kramer, *Heat Transfer to Flowing Gas–Solid Mixtures.* Turbulent channel flows of dilute mixtures of solids and gases. Discussion of transport properties. 77 references to 1971.

H. Merte, Jr, *Condensation Heat Transfer.* Nucleation in bulk and on surfaces. Condensation rates. 148 references to 1971.

B. Gebhart, *Natural Convection Flows and Stability.* Flows over surfaces and in bouyant plumes. Effect of mass diffusion. Instability. 107 references to 1972.

C. L. Tien and G. R. Cunnington, *Cryogenic Insulation Heat Transfer.* Discussion of types of insulation. Analysis and experimental results. Test methods and applications. 108 references to 1972.

R. Eichhorn

Lexington, Kentucky, U.S.A.

Heat Bibliography. Published 1972 by the Department of Trade and Industry, 475 pages, £5·35.

Nearly 8000 references to the world's literature on Heat and Mass Transfer and similar subjects are contained in the 1972 *Heat Bibliography.* The Fluids Group of the National Engineering Laboratory compiled the bibliography which is available from Her Majesty's Stationary Office, 49 High Holborn, London W.C.1. or branches throughout the United Kingdom.

J. H. Whitelaw

Imperial College
London S.W.7

Heat and Mass Transfer in Boundary Layers, Vols. I and II. Edited by N. Afgan, Z. Zaric and P. Anastasijevic. Pergamon Press, September 1973.

These two volumes (of 1012 pages in all) contain the proceedings of the International Summer School on Heat and Mass Transfer in Turbulent Boundary Layers, held at Herceg Novi in September 1968, and some invited lectures and abstracts of other papers of the International Seminar on Heat and Mass Transfer in Flows with Separated Regions and Measurement Techniques, held in the same place one year later.

The latter meeting was the first of the yearly seminars sponsored by the International Centre for Heat and Mass Transfer. In view of the fact that one of the special objectives of the Centre is to promote and assist the exchange of technical information in the field, it is perhaps unfortunate that it was only possible to publish abstracts of 65 of the contributions to the seminar.

As it is, these volumes contain 60 papers from the Summer School and eight from the Seminar, in addition to the 65 abstracts. To list them all, and to comment usefully on each, would strain both the hospitality of this Journal and the ability of this reviewer, who will therefore limit himself to indicating the scope and nature of the meetings by making specific mention of just a few of the papers, chosen (almost!) at random.

V. V. Struminskii considered some aspects of non-linear stability theory related to transition and laminarization. S. S. Kutateladze discussed the turbulent boundary layer in the case of vanishing viscosity; A. Fartier's paper is on a similar topic. J. Mathieu reported on the influence of an external turbulent flow on velocity and temperature distributions in the boundary layer. Transpiration cooling was discussed by J. P. Hartnett and V. M. K. Sastri, by M. R. Head and F. A. Dvorak, and by others. D. B. Spalding described (in his inimitable style) his numerical method for predicting the properties of two-dimensional boundary layers; several other papers came from the Imperial College group. Z. Zaric reviewed some methods of measuring these properties, especially in the close vicinity of the wall. M. A. Styrikovich considered heat and mass transfer in a boiling boundary layer, while W. M. Rohsenow and E. Fedorovich looked at the post-burnout region where the wall is dry and mist flow exists.

Nearly half the papers (25) at the Summer School originated in the USSR and provide a convenient statement of the approaches then used in that country to methods for analyzing turbulent boundary layers (including the effects of transpiration, mass transfer and two-phase flows) as well as giving some limited experimental data in such situations. The UK (with 10 papers), Yugoslavia (9) and France (8) are well represented. The remaining papers came from the USA (4), Sweden (2), Germany (1) and India (1). Thus the "international" nature of the meeting is a little uneven, and does not reflect the quantity or quality of the work being done throughout the heat transfer community. Nevertheless, there is, of course, a wealth of material here covering (in addition to the topics already mentioned) combined forced and free convection boiling heat transfer, duct flow, flow over tubes, flames, heat transfer near the critical state, measurement techniques and other subjects.

The proceedings of the seminar on Heat and Mass Transfer in Flows with Separated Regions and Measurement Techniques (on the title page, the last three words are omitted) opens with a paper by H. H. Korst which analyzes the dynamic and thermodynamic mechanisms involved in in the Chapman-Korst model of separated flows, which is based upon a study of individual components of the flow, such as the attached boundary layer before separation, its modification during separation, the developing and fully developed free shear layer, reattachment, flow recirculation, etc. C. W. Hirt develops a set of generalized turbulence