

## BOOK REVIEW

**Proceedings of the Second All-Soviet Union Conference on Heat and Mass Transfer**, English translation edited by C. GAZLEY JR., J. P. HARTNETT and E. R. G. ECKERT, Vol. 1. The Rand Corporation, Santa Monica, California (1966).

THIS volume contains thirty-two of the approximately 450 papers that were presented at the subject conference in Minsk in May 1964. The papers in the volume are entirely devoted to either single phase convective heat transfer or to the corresponding friction resistance, and with only a few exceptions are concerned with flow inside ducts on channels rather than external boundary-layer flows.

The papers are grouped under five subject headings:

- I. Heat transfer and frictional resistance in a liquid or gas the physical properties of which vary appreciably with temperature and pressure.
- II. Heat transfer and frictional resistance in pipes and channels of different shapes.
- III. Heat transfer and resistance studies in entry sections of pipes and channels.
- IV. Studies on increasing the rate of convective heat transfer.
- V. Unsteady-state convective heat transfer.

By and large these papers are reports of experimental investigation, with the exception of Section V where the four papers presented are entirely analytic. In the first four sections there are twenty experimental papers, and eight analytic papers. The papers do not, either individually or collectively, constitute exhaustive studies of the indicated

subjects, nor do any of them concern totally new subjects or problems. However, readers with specialized interests will in many cases find useful supplemental information.

In Section I the results of an investigation of the effects of large temperature differences and high velocities on the turbulent flow of a gas are very welcome, as well as several papers on flow of liquids at large temperature differences, and in the supercritical region.

Three of the papers in Section II consider flow in circular tube annuli, while others are concerned with complex-shaped channels and the region between coaxial cylinders.

Section III contains another analysis of the now rather vast literature on heat transfer in the laminar entry region of a circular tube, along with an experimental paper on the laminar entry length, and analytic and experimental papers on the turbulent entry length.

One paper in Section IV presents experimental data on the effects of spiral inserts in a pipe, while another gives the results of the effects of large scale roughness elements placed on a surface. The other papers give the results of various experimental investigations of tube banks and various types of fins. An analytic paper suggests a method for the rational comparison of different types of heat-transfer surface.

The entirely analytic papers in Section V include a new solution for the unsteady laminar boundary layer on a semi-infinite plate, as well as papers on pipe-flow and flow over spherical bodies.

W. M. KAYS