Rearranging, we have

$$-K\left.\frac{\partial T}{\partial y}\right|_{y=0}=\rho cpB\frac{\partial}{\partial x}(u_{AV}|_x\theta_M|_x)-K\left.\frac{\partial T}{\partial y}\right|_{y=B}+\rho cpv_{wx}(T_{gx}-T_i) \quad (A5)$$

Introducing the dimensionless parameters gives

$$\rho cpV_{WX}V_{WA}\frac{q_wB}{K}\theta_{gX}=-\rho cpB\frac{1}{L}\frac{\partial}{\partial x}\left(U_iU_{AVX}\frac{q_wB}{K}\theta_{MX}\right)-\frac{K}{B}\frac{q_wB}{K}\left.\frac{\partial\theta}{\partial Y}\right|_{Y=0}+\frac{K}{B}\frac{q_wB}{K}\left.\frac{\partial\theta}{\partial Y}\right|_{Y=1}$$

Rearranging gives

$$\rho cpV_{WA}V_{WX}\theta_{gX}=\frac{K}{B}\left(\left.\frac{\partial\theta}{\partial Y}\right|_{Y=1}-\left.\frac{\partial\theta}{\partial Y}\right|_{Y=0}\right)-\frac{\rho cpBU_i}{L}\frac{\partial}{\partial X}(U_{AV}\theta_M)_X$$

or

$$V_{WX}\theta_{gX}=\frac{K}{\rho cpBV_{WA}}\left(\left.\frac{\partial\theta}{\partial Y}\right|_{Y=1}-\left.\frac{\partial\theta}{\partial Y}\right|_{Y=0}\right)-\frac{BU_i}{LV_{WA}}\frac{\partial}{\partial X}(U_{AV}\theta_M)_X$$

$$=\frac{1}{Re_{wa}Pr}\left(\left.\frac{\partial\theta}{\partial Y}\right|_{Y=1}-\left.\frac{\partial\theta}{\partial Y}\right|_{Y=0}\right)-\frac{\partial}{\partial X}(U_{AV}\theta_M)_X$$

from which,

$$\theta_{gX}=\frac{1}{V_{WX}}\left\{\frac{1}{Re_{wa}Pr}\left(\left.\frac{\partial\theta}{\partial Y}\right|_{Y=1}-\left.\frac{\partial\theta}{\partial Y}\right|_{Y=0}\right)-\frac{\partial}{\partial X}(U_{AV}\theta_M)_X\right\} \quad (A6)$$

Comparing Eqs (A4) and (A6) shows that

$$\theta_{gX}=\theta_i$$

ie, the temperature of the sucked fluid is equal to the temperature of the wall from which suction occurs; this is true at any location X on the transpirating wall.

Book review

HEAT TRANSFER 1986 — Proceedings of the Eighth International Heat Transfer Conference

Eds C. L. Tien, V. P. Carey and J. K. Ferrell in cooperation with the members of the International Scientific Committee and the US Scientific Committee

These proceedings include two plenary papers (one on the history of early conferences and the other on appreciation of the work of D. G. Fahrenheit), 28 keynote papers by various authorities on selected topics, 450 contributed papers, an author index, a subject index and a common nomenclature, comprising six volumes and 3193 pages.

Heat transfer is a sufficiently active field to support several prestigious journals and annual conferences. Hence, these Proceedings of the 8th International Conference are representative of current work rather than a compilation of work over the four years since the last conference. Even so, the quantity, international scope and general high quality of the contents makes access to these six volumes sine qua non to everyone working in the field of heat transfer.

The editors, conference committees and the publisher are to be commended for carrying out the process of review, selection, and publication over a very short span of time, thereby making the contents quite timely. The restriction of the contributed papers to six pages appears to have resulted in progress reports and/or in the omission of essential information in only a few instances. The preparation of the printed version on mats by the authors resulted in more typographical and other errors than an edited journal set in type. Also, a variation from paper to paper in type face, contrast and readability is quite evident. Fortunately, almost all of the pages fall within the range of decipherability.

The authorship of the keynote papers assures their authenticity. As such, they are invaluable as reviews or reports on the state of the art. The only disappointment is not to fine one in your subject of interest.

The contributed papers encompass a wider range of quality, perhaps as a consequence of a variability in the standards imposed by the several independent national committees. One might expect to gain some insight into the new directions of technology by surveying these papers, but such trends are not evident to this reviewer. Indeed, one might infer that the art and science of heat transfer are undergoing only a very gradual transition. This may imply a period of consolidation in which well-established methods of analysis such as machine computation, and modern techniques of measurement such as laser-Doppler anemometry are being widely applied to transform heat transfer from a semi-quantitative field, as reflected by log–log plots of widely scattered data, to a profession with a pervasive theoretical and a sound experimental basis.

A detailed analysis of content and trends is hardly feasible here, but several selective observations are offered as follows. Some techniques from other fields are being adapted for improved measurement. Research on heating and cooling is obviously in at least temporary eclipse. Research is apparently interfacial effects, boiling in flow and two-phase convection. Nuclear and augmented heat transfer remain popular topics but the number of papers on electronic, biological and medical aspects of heat transfer is conspicuously and surprisingly small.

One subtle aspect of the contents is the internationality of these volumes. One might classify national contributions by their typographical quality but not by their scientific content. This group of papers is strong evidence that in heat transfer the ideal of 'one world' is now closely approximated.

The lingering impression of these volumes, on this reviewer, is the magnitude and quality of the work. Anyone who has a broad interest in heat transfer will be almost overwhelmed by the essential task of assimilating this new material.

The price of the complete set, while not necessarily excessive, is a strong incentive to attend the Ninth Conference and thereby obtain the proceedings as part of the registration fee.

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