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6/24/77
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Foreword to the Russian Edition

A book by E. Adityurov under a very intriguing title "The New Heat Transfer" has been published in the USA. The book comes out in three volumes, and the first two volumes have been published already.

The first volume which we bring now to the attention of a reader, gives a general idea about the essence of the author's approach to the analysis of the heat transfer process, and it demonstrates the employment of this approach in solving of a number of technical problems.

The essence of the author's approach can be described briefly in the following way:

1. At the present time the processes of heat transfer are analysed on the basis of such equations as $y = a_1 x$ which the author calls "the proportional equations". The actual processes are complicated and it is possible to describe them more precisely with such linear equations as $y = a_2 + bx$ or with not-linear equations.
2. The processes of heat transfer should be studied with employment of the equation $q = f_1$ (the system's parameters) $\cdot f_2$ (thermodynamical force). The thermodynamical force for heat conductivity is dT/dx , for heat exchange by radiation it is $(T_{\text{source}}^4 - T_{\text{flow}}^4)$, and for heat exchange by convection it is $\Delta T = T_{\text{flow}} - T_{\text{liquid}}$. It allows to employ equations in which the value sought is expressed in the open form in its relation to the independent parameters of the system. These equations can be employed instead of a transcendental equation of such type as $q = a\Delta T$ which is employed in the contemporary heat transfer studies.
3. Non-dimensional values and criteria which are obtained with methods of dimensionality and similarity and which are used widely in the contemporary heat transfer studies, don't give anything but make the analysis and understanding of heat transfer processes more complicated. The author suggests to give up non-dimensional values, and he employs in his book only the correlations between the physical parameters of the system.

Executed by the author the broad study of assets and liabilities of giving up the employment of coefficients of heat exchange and heat conductivity in the analysis of various processes of heat transfer is of undoubted interest. We don't know whether the work of this kind and in such scope has been done by anybody before, despite the fact that the dissatisfaction with employment of the coefficient of heat exchange in the analysis of not-linear processes of heat transfer is well known. The Adityurov's book contains data which allow to appreciate the advantages of giving up this coefficient, and in this way the book contributes to clearing up the matter wheater "the game is worth the candle".

This book is not a textbook, or a monograph, or a reference book in heat transfer, but it is the exposition and the defence of the new approach to the analysis of processes of heat transfer which is suggested by the author. The author employs in this book the elementary simple apparatus and the very polemical style of exposition which can irritate a reader. We recommend not to make hasty conclusions.

A review of this book has been published in the "New Books Abroad" ("Novye knigi za rubezhom") magazine, series B, 8, page 23, 1976.

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