FOREWORD TO THE ENGLISH EDITION

Heat exchangers are the inalienable important units in the majority of complex engineering systems. The specification of requirements for heat transfer surfaces is one of the most significant stages of heat exchanger design. The influence of properties and structure of the surface on the mechanism and efficiency of heat transfer from the solid surface to a liquid or from a liquid to the surface (the most widely used heat transfer systems in heat exchangers) exert a decisive effect on all the stages of the heat transfer. However, the development of a theory describing the laws governing the effect of the surface, and the development of engineering methods for the design of heat exchangers has required a considerable effort.

The analysis and correlation of the results of studies of heat transfer, in which the effects of the surface were considered directly or indirectly and which were conducted by the present authors and researchers in other laboratories in different countries, led off the authors to write the present book devoted to this urgent problem. This monograph was originally published by Energoatomizdat in Moscow in 1999.

The authors are convinced of the usefulness of the detailed and systematically presented results of these studies under various conditions of one- and two-phase flows. Specialists in heat exchange equipment design which is widely used in many branches of modern technology will be interested in this text.

The timeliness of the publication of the first monograph ever concerned with the effect of the surface on heat transfer in English has been coordinated by the authors with the Heat Exchanger Design Handbook (HEDH) published by Begell House Publishers, Inc. Separate aspects of the effect of the surface are directly or indirectly touched upon virtually in all chapters of the five volumes of HEDH. In our opinion, the publication of Efficient Surfaces for Heat Exchangers in the context of the development of the correlations governing heat and mass

transfer processes is a logical development of the ideas of HEDH toward comprehensive scientific substantiation and optimization of design-structural and technical-economical solutions. The presented results are especially topical for heat exchanging equipment in the new, highly technological and science-oriented branches of technology.

Following the recommendations of the Editors, the authors have made certain alterations and amendments to the English edition of the book.

The authors express their sincere gratitude to Professor Arthur E. Bergles and William F. Begell for their attention to the work, consideration of scientific and practical significance of the topics covered in the book and willingness to undertake the editing and publication of the book, thus making the results of our extensive studies widely available.

On behalf of the authors

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New York - St. Petersburg, September 2001