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Edited by Hassan M. Behery

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Dedicated to

My wife Mervet
My daughter Hala
My son Mohamed

For their enduring help and continuous assistance.
Without them this work may not have been completed
as it is today. H.M.B.

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Preface

The phenomena of fabric hand is one of the most significant characteristics in determining fabric marketing, and providing the fabric scope of end-uses, performance, and appearance.

For several decades, the study of fabric hand has attracted interest of research and development in engineering groups, textiles and fiber scientists, statisticians, fabric designer industrialists, and dyers and finishers. Many groups and committees were formed to elucidate the fundamental aspects of fabric hand, either by subjective assessments or by a more quantitative approach of objective measurements relating to the physical and mechanical properties of the fabric.

Subjective assessments of fabric hand by human judges rely on psychophysical approaches or psychological techniques. Psychophysical approaches use consumer judges, because sensory evaluation of fabric hand by consumers gives information about their perceptions and preferences of fabrics for specific end uses.

Since the 1930s, Peirce has pioneered the laboratory attempts to characterize the hand of fabrics. Initially, this was difficult by the fact that no single definition of hand existed at the time. Since then, there have been many efforts to specify what defines fabric hand.

In surmountable publications have been introduced by various groups of researchers in journals, conference proceedings, meetings, and workshops. Much new equipment has been designed and put into service for the objective assessment of fabric hand. Such activities were developed in the four corners of the globe. However, it is worth noting that Japan and Australia, not only took the lead in this activity, but contributed most in both the subjective and objective assessments of fabric hand.

This book is primarily a textbook, based on the wealth of information and experience of numerous researchers and scientists who devoted the majority of their time and effort towards the advancement of knowledge in the field of fabric hand for both subjective and objective hand assessments. The book is intended for textile students in universities and colleges. It will also be of immense assistance and help in providing knowledge and know-how to

fabric designers and industrialists who are looking for a specific product for a particular end-use. The book discusses the effect of physical and mechanical properties on fabric hand, starting with the fiber level, to yarn and fabric level, including the effect of the wet processing (dying and finishing). The development of equipment and instruments for objective hand measurement is also presented in the book.

The application of the advanced statistical methods are given with practical examples and illustrations. Most important, the comparison of the assessment of fabric hand between different cultures, gender and languages, and the need for common terms and definitions are outlined and presented. Finally, the effect of refurbishment on fabric hand is discussed.

The reader is also provided extensive appendices covering The Standardization and Analysis of Hand Evaluation presented by the HESC – (Hand Evaluation and Standardization Committee), The Textile Machinery Society of Japan. And, also the SiroFAST – fabric assurance by simple testing which was developed in Australia by the SCIRO Division of Wool Technology.

H.M.B.