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Advances in military textiles and personal equipment

Edited by E. Sparks



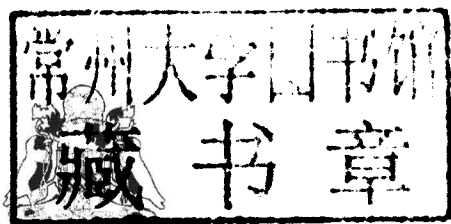
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Advances in military textiles and personal equipment

The Textile Institute and Woodhead Publishing

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Historically, The Textile Institute has published books of interest to its members and the textile industry. To maintain this policy, the Institute has entered into partnership with Woodhead Publishing Limited to ensure that Institute members and the textile industry continue to have access to high calibre titles on textile science and technology.

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M. Stott

I pondered over this preface for some time, trying to find the right words to express the level of passion I have for the domain of military textiles and personal equipment and the respect for those who work tirelessly in research and development to try to ease the burden placed on our military personnel, who are engaged in increasingly complex theatres of operation.

All too frequently military textiles and personal equipment are not accorded the same importance as larger platforms, but, considering defence capability in the round, humans are central and fundamental to the success of most engineered systems. Overloading them mentally, physically or both can have a significant impact on overall effectiveness, or potentially even cause failure. When considered in the context of UK military doctrine, Human Capability spans the moral, physical and conceptual components of fighting power, considering the human individually and collectively as the inventor and learner of lessons, decision-maker and communicator, as well as the more traditional operator and maintainer. Too often the human is the afterthought when designing systems, as human behaviour is complex and difficult to measure; and yet the synergy that designing people 'into' the system can have is huge, due to the inherent flexibility and adaptability they exhibit.

This book is unique in that it provides not only state-of-the-art knowledge in materials science for military application, but also how this impacts personnel from the psychological standpoint, and then specific case studies looking at applied design, with handwear and footwear, hydration systems and load carriage as examples. This breadth as well as depth provides valuable insights for designers and researchers into the power of people in the overall success of engineered systems. Although emphasis is placed on the military domain, there are many sectors that could benefit from the insights of internationally recognised authors on topics such as body armour and helmet design, alongside the new and exciting prospects presented by fields such as nanotechnology.

This book is divided into two parts. Part I covers the materials science of military textiles and equipment, and Part II is about the application and case studies. Each of the chapters discusses the state of the art as well as future trends,