Wool: Science and technology
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## Contents

*Preface*  xi  
*List of contributors*  xiii

<table>
<thead>
<tr>
<th>1</th>
<th>Wool production and fibre marketing</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>General introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>World wool production</td>
<td>3</td>
</tr>
<tr>
<td>1.3</td>
<td>Wool harvesting</td>
<td>5</td>
</tr>
<tr>
<td>1.4</td>
<td>Clip preparation</td>
<td>5</td>
</tr>
<tr>
<td>1.5</td>
<td>Participants in the wool trade</td>
<td>5</td>
</tr>
<tr>
<td>1.6</td>
<td>Wool sampling</td>
<td>11</td>
</tr>
<tr>
<td>1.7</td>
<td>Fibre diameter</td>
<td>13</td>
</tr>
<tr>
<td>1.8</td>
<td>Fibre length</td>
<td>14</td>
</tr>
<tr>
<td>1.9</td>
<td>Wool colour</td>
<td>15</td>
</tr>
<tr>
<td>1.10</td>
<td>Bulk testing</td>
<td>16</td>
</tr>
<tr>
<td>1.11</td>
<td>Dark fibre contamination</td>
<td>16</td>
</tr>
<tr>
<td>1.12</td>
<td>Specification of woolscour deliveries</td>
<td>17</td>
</tr>
<tr>
<td>1.13</td>
<td>Computer blend selection</td>
<td>18</td>
</tr>
<tr>
<td>1.14</td>
<td>Wool promotion</td>
<td>18</td>
</tr>
<tr>
<td>1.15</td>
<td>The Fernmark brand</td>
<td>19</td>
</tr>
<tr>
<td>1.16</td>
<td>Marketing of distinctive wool types</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Woolscouring, carbonising and effluent treatment</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Introduction</td>
<td>21</td>
</tr>
<tr>
<td>2.2</td>
<td>Nature of contaminants</td>
<td>21</td>
</tr>
<tr>
<td>2.3</td>
<td>Historical overview of scouring methods</td>
<td>22</td>
</tr>
<tr>
<td>2.4</td>
<td>Unit operations</td>
<td>23</td>
</tr>
<tr>
<td>2.5</td>
<td>Scouring chemistry</td>
<td>33</td>
</tr>
</tbody>
</table>
### Contents

2.6 Development of scouring systems 35  
2.7 Chemical treatments in woolscours 39  
2.8 Drying 42  
2.9 Solvent scouring 45  
2.10 Woolgrease and its recovery 46  
2.11 Effluent 49  
2.12 Process control and quality assurance 55  
2.13 Energy conservation 56  
References 57

3 Fibre morphology 60  
**H Höcker**

3.1 Introduction 60  
3.2 General chemical composition 61  
3.3 Composition and structure of morphological components of wool 67  
3.4 Outlook 76  
References 78

4 Physical properties of wool 80  
**J W S Hearle**

4.1 The wool fibre 80  
4.2 Effects of water 80  
4.3 Observed mechanical properties 84  
4.4 Structural mechanics 106  
4.5 Electrical properties 118  
4.6 Yarns and fabrics 122  
References 126

5 Wool chemistry 130  
**W S Simpson**

5.1 General introduction 130  
5.2 Chemical composition 131  
5.3 Degradation by radiation and heat 131  
5.4 Photobleaching and photoyellowing 132  
5.5 Absorption of acids 135  
5.6 Absorption of alkalis 137  
5.7 Dyeing with acid dyestuffs 139  
5.8 Acid, alkali and enzymic hydrolysis 141  
5.9 Oxidation with peracids 143  
5.10 Chlorine-based oxidation 145  
5.11 Reduction 145  
5.12 Sulphitolysis 146
5.13 Metal salts 147
5.14 Miscellaneous reactions 150
5.15 Crosslinking 151
References 156

6 Mechanical processing for yarn production 160
L Hunter

6.1 Introduction 160
6.2 Worsted processing system 161
6.3 Preparation for spinning (drawing) 177
6.4 Semi-worsted processing system 180
6.5 Woollen processing system 181
6.6 Spinning 192
6.7 Twisting 206
6.8 Winding, clearing and lubrication 207
6.9 Yarn steaming (setting) 208
6.10 Top dyeing 208
References 209
Bibliography 213

7 Chemical processes for enhanced appearance and performance 215
W S Simpson

7.1 Introduction 215
7.2 Bleaching 215
7.3 Prevention of dyebath yellowing 216
7.4 Insect-resist treatments 217
7.5 Shrinkproofing 219
7.6 Antistatic properties 224
7.7 Flame-retardant wool 225
7.8 Photostabilisers 226
7.9 Stainblocking 228
7.10 Multi-purpose finishes 229
7.11 Polymer grafting 230
7.12 Removal of vegetable matter by carbonising 232
7.13 Setting 232
References 234

8 Practical wool dyeing 237
K Parton

8.1 Introduction 237
8.2 Dyestuff chemistry 238
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3</td>
<td>Dyeing of different substrate forms</td>
<td>240</td>
</tr>
<tr>
<td>8.4</td>
<td>Classification of wool dyestuffs</td>
<td>242</td>
</tr>
<tr>
<td>8.5</td>
<td>Commercial forms of dyestuffs</td>
<td>247</td>
</tr>
<tr>
<td>8.6</td>
<td>Levelness</td>
<td>248</td>
</tr>
<tr>
<td>8.7</td>
<td>Dyeing fibre blends</td>
<td>251</td>
</tr>
<tr>
<td>8.8</td>
<td>Treatments to improve colour fastness</td>
<td>252</td>
</tr>
<tr>
<td>8.9</td>
<td>Environmental issues</td>
<td>252</td>
</tr>
<tr>
<td>8.10</td>
<td>Fibre protection</td>
<td>256</td>
</tr>
<tr>
<td>8.11</td>
<td>Summary</td>
<td>256</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>257</td>
</tr>
<tr>
<td>9</td>
<td>Manufacture of wool products</td>
<td>258</td>
</tr>
<tr>
<td></td>
<td>K RUSSELL, D MCDOWELL, I RYDER AND C SMITH</td>
<td></td>
</tr>
<tr>
<td>9.1</td>
<td>Introduction</td>
<td>258</td>
</tr>
<tr>
<td>9.2</td>
<td>Twisting</td>
<td>258</td>
</tr>
<tr>
<td>9.3</td>
<td>Winding</td>
<td>264</td>
</tr>
<tr>
<td>9.4</td>
<td>Warp preparation for weaving</td>
<td>266</td>
</tr>
<tr>
<td>9.5</td>
<td>Weaving yarns</td>
<td>269</td>
</tr>
<tr>
<td>9.6</td>
<td>Fabric design</td>
<td>270</td>
</tr>
<tr>
<td>9.7</td>
<td>Weaving machinery</td>
<td>273</td>
</tr>
<tr>
<td>9.8</td>
<td>Knitting and knitwear</td>
<td>275</td>
</tr>
<tr>
<td></td>
<td>Bibliography</td>
<td>289</td>
</tr>
<tr>
<td>10</td>
<td>Carpets, felts and nonwoven fabrics</td>
<td>290</td>
</tr>
<tr>
<td></td>
<td>G H CRAWSHAW AND S J RUSSELL</td>
<td></td>
</tr>
<tr>
<td>10.1</td>
<td>Carpets</td>
<td>290</td>
</tr>
<tr>
<td>10.2</td>
<td>Felts and nonwoven fabrics</td>
<td>304</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>312</td>
</tr>
<tr>
<td>11</td>
<td>Finishing</td>
<td>314</td>
</tr>
<tr>
<td></td>
<td>S A MYERS</td>
<td></td>
</tr>
<tr>
<td>11.1</td>
<td>Finishing of woven fabrics</td>
<td>314</td>
</tr>
<tr>
<td>11.2</td>
<td>Finishing of knitted fabrics</td>
<td>328</td>
</tr>
<tr>
<td>11.3</td>
<td>Finishing of knitwear</td>
<td>330</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>332</td>
</tr>
<tr>
<td>12</td>
<td>Overview of global dynamics in the wool textile industry</td>
<td>333</td>
</tr>
<tr>
<td></td>
<td>P D F KILDUFF</td>
<td></td>
</tr>
<tr>
<td>12.1</td>
<td>Introduction</td>
<td>333</td>
</tr>
<tr>
<td>12.2</td>
<td>Overview of trends in world textiles</td>
<td>333</td>
</tr>
</tbody>
</table>
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Werner von Bergen and his collaborators released Volume 1 of their *Wool Handbook* in 1963, and two further volumes followed soon after. This series was unique in presenting a broad-spectrum description of every pertinent aspect from sheep-raising to wool consumer products. These texts were subsequently enlarged and reprinted in several editions.

Another notable previous publication was *Wool. Its Chemistry and Physics* by Alexander and Hudson, first published in 1954. More recently, two more narrowly focused texts have appeared, both highly valued in industry and academia. They are Maclaren and Milligan’s *Wool Science. The Chemical Reactivity of the Wool Fibre* (NSW Science Press 1981) and Lewis’ *Wool Dyeing* (Soc. Dyers and Colourists, Bradford, 1992).

The present text is therefore the first attempt in almost 40 years to present a comprehensive view of the wool industry from fibre marketing through to manufacture of consumer products.

In Chapter 1, I briefly describe a major overhaul that has occurred of the methods of trading wool, basically moving the entire system from one of individual intuitive skill to one based on laboratory measurements of sale lots.

Wool-scouring also has improved enormously in efficiency with a host of small and a few large innovations. Chapter 2 describes this modern technology, which reflects a strong emphasis on environmental concerns such as treating effluent discharges and energy conservation, coupled with far better quality control and capabilities for new add-on processes.

Chapters 3, 4 and 5 describe the principal sectors of current wool science. Understanding of wool fibre morphology, and of physical and chemical properties continues to progress and, in doing so, highlights just how intricate and complex is the wool fibre. Instrumentation, now available for isolating and sequencing wool proteins and for determining their structural arrangement, is beginning to offer a better-informed basis for technologists to devise improved wool products and processes.

Chapters 6 onwards deal in turn with each major aspect of wool pro-
cessing technology. I have to say the contributing authors have been, and in most cases still are, working in the heartlands of these industries. Spinning, weaving and knitting are the three really major physical processes. The Chapter on wool carpets exemplifies how one particular consumer product may be woven, tufted, knotted, or needled to create a great variety of pattern and texture.

Chemical processes that improve appearance or performance of wool products have been brought together in Chapter 7 to better highlight the technical options available to meet special specifications. The development of synthetic fibres with specialised performance features, allied with higher expectations of consumers, has been a strong motivation for creative new processes for wool. Flameproof protective clothing and antistatic carpets are just two fairly recent examples where wool products meet the most demanding requirements.

Wool dyeing innovation is similar to wool-scouring in some respects in that it has been driven by a greater emphasis on energy conservation, shorter treatment times, and better management of effluents, in addition to the publicly more visible competitive demands for high standards of stylish and stable colouration of wool products. The final chapter is intended to put these modern developments in the wool industry into a global context amongst other fibres and textile technologies.

I wish to sincerely thank my co-authors for their efforts to make available an up-to-date text for wool technologists, textile students and so many others interested in this old, yet modern, industry.

W S Simpson
Contributors

Editors:
Dr W S Simpson  
19 Longmuir Street  
Christchurch 4  
New Zealand  
E-mail: stan.simpson@xtra.co.nz  

Dr G H Crawshaw  
Flat 5  
Chapel House  
Wells Road  
Ilkley  
West Yorkshire  
LS29 9JD  
UK

Chapter 1: Wool production and fibre marketing  
Dr W S Simpson, 19 Longmuir Street, Christchurch 4, New Zealand  
E-mail: stan.simpson@xtra.co.nz

Chapter 2: Woolscouring, carbonising and effluent treatment  
Mr Lindsay A Halliday, 145 Bells Road, West Melton, Christchurch RD1, New Zealand  
E-mail: lindsayh@es.co.nz

Chapter 3: Fibre morphology  
Professor D H Höcker, German Wool Research Institute,  
52062 Aachen, Veltmanplatz 8, Germany  
E-mail: hoecker@dwi.rwth-aachen.de

Chapter 4: Physical properties of wool  
Professor J W S Hearle, The Old Vicarage, Church Lane,  
Mellor, Stockport, SK6 5LX, UK  
E-mail: johnhearle@compuserve.com

Chapter 5: Wool chemistry  
Dr W S Simpson, 19 Longmuir Street, Christchurch 4, New Zealand  
E-mail: stan.simpson@xtra.co.nz
Chapter 6: Mechanical processing for yarn production  
**Professor Lawrance Hunter**, CSIR Division of Manufacturing and Materials Technology, PO Box 1124, Port Elizabeth, South Africa  
E-mail: lhunter@csir.co.za

Chapter 7: Chemical processes for enhanced appearance and performance  
**Dr W S Simpson**, 19 Longmuir Street, Christchurch 4, New Zealand  
E-mail: stan.simpson@xtra.co.nz

Chapter 8: Practical wool dyeing  
**Mr Keith Parton**, Clariant UK Ltd, PO Box 42, Calverley Lane, Horsforth, Leeds, LS18 4RP, UK  
E-mail: keith.parton@clariant.com

Chapter 9: Manufacture of wool products  
**Mr Kevin Russell, Mr David McDowell, Mr Ian Ryder, and Mr Colin Smith**, The Woolmark Company, Valley Drive, Ilkley, West Yorkshire, LS29 8PB, UK  
E-mail: kevin_russell@wool.com david_mcdowell@wool.com ian_ryder@wool.com colin_smith@wool.com

Chapter 10: Carpets, felts and nonwoven fabrics  
**Dr G H Crawshaw**, Flat 5, Chapel House, Wells Road, Ilkley, West Yorkshire, LS29 9JD, UK, and **Dr Stephen Russell**, School of Textiles and Design, University of Leeds, Leeds, UK  
E-mail: geoff.crawshaw@wnz.co.uk  sj.russell@leeds.ac.uk

Chapter 11: Finishing  
**Mr Steven A Myers**, The Woolmark Company, Valley Drive, Ilkley, West Yorkshire, LS29 8PB, UK  
E-mail: steve_myers@wool.com

Chapter 12: Overview of global dynamics in the wool textile industry  
**Dr P D F Kilduff**, Department of Textile and Apparel Technology, School of Textiles, NCSU, 240 Research Drive, Raleigh, NC 227695-8301, USA  
E-mail: pdfkilduff@aol.com