

# CONTENTS

## CHAPTER I

### INTRODUCTION AND STRUCTURE, PROPERTIES AND CHARACTERISTICS OF WOOL

PARAGRAPH	PAGE
1. Introduction .....	1
2. Early Sheep Husbandry in Spain .....	3
3. Influence of Spanish Merinos .....	6
4. Ancient Breeds and Original Types of Sheep .....	11
PHYSIOLOGY AND STRUCTURE .....	13 to 16
5. Physiology of the Wool Fiber .....	13
6. Structure of the Wool Fiber .....	14
7. Microscopy of Wool .....	14
PROPERTIES AND CHARACTERISTICS .....	16 to 28
8. Properties and Characteristics .....	16
9. Fineness or Diameter of Fiber .....	16
10. Length of Fiber .....	18
11. Strength .....	19
12. Elasticity .....	20
13. Softness and Pliability .....	20
14. Color .....	21
15. Luster .....	21
16. Felting and Shrinking .....	22
17. Waviness and Crimp .....	23
18. Working Properties .....	23
19. Kempy Wool .....	24
20. Chemical Composition .....	24
21. Action of Acids and Alkalies .....	25
22. Bleaching .....	25
23. Dyeing .....	25
24. Action of Heat .....	25
25. Conductor of Heat and Electricity .....	26
26. Grease and Foreign Matter .....	26
27. Methods of Removing Grease .....	27
28. Moths .....	27
29. Mildew .....	27
30. Moisture or Hygroscopic Quality .....	27

## CHAPTER II

### CLASSES OF FLEECE WOOL

31. Classification .....	29
32. Carding and Combing Wools .....	29
33. Old Classifications .....	30
34. Merino Types .....	32

PARAGRAPH	PAGE
35. Complete List of Merino Breeds .....	36
36. Characteristics of Various Merino Wools .....	37
37. Merino Wools of the United States .....	38
38. Territory Wools .....	39
39. Influence of Farming in the West .....	41
40. Various Territory Wools .....	41
41. British Types of Sheep .....	44
42. Conformation of Mutton Sheep .....	45
43. Mutton Qualities Influenced by Breed .....	46
44. Classification of Wool from Mutton Breeds .....	47
45. Complete Classified List of British Breeds .....	48
46. British Breeds Classified According to Character of Wool .....	49
47. Description of Important Long-Wool Breeds .....	50
48. Lincoln .....	51
49. Leicester .....	52
50. Cotswold .....	54
51. Romney .....	54
52. Roscommon .....	55
53. Description of Important Medium Wool Breeds .....	55
54. Southdown .....	56
55. Shropshire .....	57
56. Hampshire .....	58
57. Oxford .....	59
58. Dorset Horn .....	60
59. Cheviot .....	62
60. Crossbreds .....	63
61. Purpose of Crossbreeding .....	64
62. Results of Crossbreeding .....	66
63. Carpet Wools .....	69
64. List of Important Carpet Wools .....	72
65. Miscellaneous Breeds .....	73
66. Corriedale .....	73
67. Iceland .....	74
68. Tunis .....	76
69. Karakul .....	76

## CHAPTER III

## SHEARING, PREPARING AND MARKETING WOOL

70. Method of Shearing .....	80
71. Shearing Season .....	82
72. Weight of Fleeces .....	82
73. Method of Machine Shearing .....	83
74. Australian Method .....	84
75. Introduction of Australian Method in West .....	87
76. Poor Preparation of United States Wools .....	90
77. Wool Marketing in the United States .....	93
78. Wool Merchants .....	93

CONTENTS

xv

PARAGRAPH	PAGE
79. Services Rendered by Wool Merchants .....	96
80. Mills Buying Direct .....	98
81. Sales to Local Dealers .....	98
82. Consignment Sales .....	99
83. Direct Sales to Local Mills .....	99
84. Sales by Auction .....	100
85. Reasons for Failure of Auctions in United States .....	101
86. Farmers' Co-operative Sales Agencies .....	101
87. Comparative Prices (in Cents per Pound) of United States Wool in Boston, 1906-1923 .....	102
88. Rail and Ocean Freights on Raw Wools .....	102
89. Foreign Wool Auctions .....	103
90. Wool Auctions in Australia .....	105
91. Marketing Wools of the British Isles .....	107
92. South American Wool Sales .....	111
93. Canadian Wool Situation .....	112
94. Essential Requirements for Manufacturing .....	114

CHAPTER IV

GRADING AND SORTING

95. Necessity for Grading .....	116
96. Definition and Necessity for Sorting .....	116
97. Location of Sorts in Fleece .....	119
98. Method of Sorting .....	122
99. Practical Examples of Mill Sorting .....	122
100. Skirting .....	124
101. Mill Methods of Designating Sorts .....	124
102. Illustrating Sorts in Fleece .....	124
103. Wool Grades—Foreign System .....	125
104. Wool Grades—American System .....	126
105. Comparative Grades .....	133
106. Estimated Percentage of Various United States Wools .....	134
107. Market Quotations .....	134
108. Sorting Tests .....	134
109. Grade of Wool from Various Breeds of Sheep .....	136

CHAPTER V

SHRINKAGE

110. Cause of Shrinkage .....	139
111. Shrinkage Affects Value .....	139
112. Sample Lots Scoured to Ascertain Yield .....	140
113. Practical Illustrations .....	141
114. Table Giving Grease and Scoured Price per Pound .....	144
115. Approximate Shrinkages of Various Wools .....	145
116. Approximate Shrinkages of United States Wools (Bulk) .....	146

PARAGRAPH	PAGE
117. Approximate Shrinkages of Choice Australian, South African, South American and New Zealand Skirted Wools (Net) . . . . .	146
118. Approximate Shrinkages of Important British Fleece Washed Wools (Net) . . . . .	147
119. Shrinkage of Various United States Wools . . . . .	147

## CHAPTER VI

## PULLED WOOLS

120. Source of Supply . . . . .	148
121. Three Methods of Pulling . . . . .	148
122. Sweating Process . . . . .	149
123. Industry at Mazamet . . . . .	149
124. Lime Process . . . . .	151
125. Depilatory Process . . . . .	151
126. Inferior Qualities of Pulled Wools . . . . .	153
127. Grading and Sorting . . . . .	153
128. Uses of Pulled Wool . . . . .	155
129. Marketing . . . . .	156
130. Shrinkages . . . . .	156
131. Mazamet Pulled Wools . . . . .	157

## CHAPTER VII

## MOHAIR AND OTHER TEXTILE HAIR FIBERS

132. Distinction Between Hair and Wool . . . . .	158
133. Mohair . . . . .	158
134. Sources of Supply . . . . .	159
135. Type Description of Angora Goat . . . . .	159
136. Caring for Goats on the Range . . . . .	161
137. Shearing and Preparing Mohair . . . . .	162
138. Grading and Sorting . . . . .	164
139. Market Quotations for Mohair . . . . .	167
140. Marketing Mohair . . . . .	167
141. Uses of Mohair . . . . .	167
142. Alpaca . . . . .	168
143. Vicuna . . . . .	168
144. Llama . . . . .	168
145. Summary of Alpaca, Vicuna and Llama . . . . .	168
146. Cashmere . . . . .	170
147. Bombay Hair . . . . .	171
148. Camel Hair . . . . .	171
149. Horse Hair . . . . .	173
150. Cattle Hair . . . . .	174
151. Goat Hair . . . . .	174

## CHAPTER VIII

## REWORKED WOOL AND WASTE PRODUCTS

PARAGRAPH	PAGE
152. Importance and Necessity .....	175
153. Economic Aspect of Shoddy .....	176
154. Classification of Reworked Wool .....	178
155. Noils .....	178
156. Carbonized Noils .....	181
157. Second Combing Noils .....	181
158. Noil Market Quotations .....	182
159. Soft Wastes .....	182
160. Market Quotations for Soft Wastes .....	182
161. Hard Wastes .....	182
162. Market Quotations for Garnetted Yarn Wastes .....	185
163. Shoddy .....	185
164. Source of Rag Supply .....	187
165. Mungo .....	188
166. Extract Wool .....	188
167. Market Quotations for Rags .....	189
168. Market Quotations for Shoddy, Mungo and Extract Wool .....	189
169. Flocks .....	190

## CHAPTER IX

## FABRIC REQUIREMENTS AND HISTORICAL SYNOPSIS

170. Wools Required for Various High-Grade Established Fabrics.....	191
171. Historical Synopsis of the Wool-Growing Industry in the United States .....	192
172. Economic Necessity for a Greater Sheep Industry in the United States .....	200

## APPENDIX

## STATISTICS

TABLE	PAGE
A. Importation and Production of Fleece and Pulled Wool in United States, 1913-1923 .....	207
B. United States Wool Imports Showing Country of Production, Fiscal Year, June 30, 1923 .....	207
C. Carpet Wools Imported by the United States, Fiscal Year Ended June 30, 1923 .....	207
D. Imports of River Platte Wool into the United States, 1915-1923..	208
E. Wool Imported into Boston, New York and Philadelphia by Ports and Classes, Fiscal Year 1922-1923 .....	208
F. Imports by Grand Divisions, Fiscal Year Ended June 30, 1923....	208
G. Graphic Chart of Woolen and Worsted Industries .....	209
H. Wool Product of the United States, 1918 .....	210
I. Distribution of United States Sheep by State Groups .....	212

TABLE	PAGE
J. United States Sheep Records by Decades .....	212
K. Relative Standing by Leading Wool-Producing States, Arranged According to Number of Sheep, 1900, 1910 and 1920 .....	213
L. Comparative Chart of United States Wool and Sheep Statistics, 1901-1920 .....	213
M. Wool Production of the World According to the Latest Available Reports and Estimates .....	214
N. Comparative Price of Domestic Wools in Boston, October, 1913-1923	217
O. Production of Raw Wool in Principal Wool-Producing Countries, 1923 .....	219
P. Number of Sheep in the World According to the Latest Available Reports and Estimates, 1923 .....	219
Q. Distribution of Sheep at Close of Year in Australia, 1923 .....	221
R. Number of Woolled Sheep in South Africa at Close of Year, 1923..	221
S. Estimated Number of Sheep and Lambs in Canada by Provinces, 1922-1923 .....	222
T. Estimated Number of Sheep and the Production and Value of Canadian Wool Clip, 1915-1923 .....	222

## MISCELLANEOUS

Score Card for Sheep .....	224
Score Card for Mutton Sheep .....	225
Directions for Caring for Sheep in Order to Produce a Good Quality and Condition of Wool .....	226
An Old Shepherd's Don'ts .....	226
Directions for Preparing and Packing Wool .....	227
Typical Market Quotations for Wool and Mohair .....	228
Mohair Production .....	232
Typical Market Quotations on Noils, Wastes, Clips, Rags and Reworked Wool .....	232
Garnetted Yarn Waste, Rags, Shoddy, Mungo, Extract Wool and Flocks .....	233
Imports of Noils, Wastes, Wool Rags, Flocks and Mungo by Months, Fiscal Year Ended June 30, 1923 .....	235
Glossary of Terms Used .....	236