

TABLE OF CONTENTS

I. Raw Materials, *H. F. Mark*, Chapter Editor

1. Introduction, <i>H. F. Mark</i>	2
2. Cellulose, <i>R. H. Marchessault</i>	4
3. Cellulose Acetate, <i>Charles L. Fletcher</i>	14
4. Proteins, <i>Herschel S. Jenkins</i>	22
5. Polyamides, <i>A. Hill</i>	26
6. Polyesters, <i>L. C. Payman</i>	32
7. Acrylic Polymers, <i>A. Cresswell</i>	34
8. Vinyls and Vinyl Copolymers, <i>G. G. Lowry</i>	39

II. Fiber Manufacturing Processes, *Jesse L. Riley*, Chapter Editor

1. Introduction	
A. General Principles, <i>Jesse L. Riley</i>	50
B. Economics and Engineering, <i>C. O. Butler</i>	53
2. Viscose Rayon, <i>I. Wison</i>	57
3. Cuprammonium Rayon, <i>H. Hofmann</i>	64
4. Acetate and Fortisan, <i>Jesse L. Riley</i>	67
5. Protein Fibers, <i>Herschel S. Jenkins</i>	69
6. Polyamide Fibers, <i>A. R. Munden</i>	70
7. Polyester Fibers, <i>P. T. Barrett</i>	73
8. Acrylic Fibers, <i>Vincent A. J. Leon</i>	76
9. Saran and Polyethylene, <i>R. E. Monica</i>	79
10. Superfine Thermoplastic Fibers, <i>Van A. Wente</i>	80
11. Glass Fibers, <i>Larry R. Dearduff</i>	84
12. Commercial Developments Outside the U.S.	
A. Recent European Developments, <i>J. W. Fisher</i>	85
B. Far Eastern Developments, <i>Hideo Oe</i>	89

III. Fiber Characteristics, *A. F. Tesi*, Chapter Editor

1. Introduction, <i>A. F. Tesi</i>	94
2. Filament Rayon, <i>Charles H. Lindsley</i>	94
3. Viscose Rayon Staple and Tow, <i>W. T. Waters</i>	98
4. Acetate and Triacetate, <i>A. F. Tesi</i>	102
A. Acetate	102
B. Triacetate	105
5. Protein Fibers, <i>Lyman Billings</i>	109
6. Polyamide Fibers, <i>Frank J. Soday</i>	111
7. Polyester Fibers, <i>J. F. de Bordenave</i>	116
8. Acrylic Fibers, <i>G. W. Stanton and T. B. Lefferdink</i>	121
9. Vinyl and Related Fibers, <i>A. T. Walter and R. L. Stultz</i>	127
10. Glass Fibers, <i>Larry R. Dearduff</i>	134
11. Metallic Yarns, <i>Leon E. Seidel</i>	136
12. Solution-Dyed Fibers, <i>George W. Wernz</i>	138

IV. Fiber Identification, *William G. Wolfgang*, Chapter Editor

1. The Burning Test	142
2. The Determination of Fiber Density	145
3. Microscopic Examination	146
4. Staining by Special Dyes or Reagents	151
5. Solubility in Various Reagents	154
6. Quantitative Separation by Solvents	157
7. Summary	159

V. Staple, Tow, and Yarn Processing, *C. W. Bendigo*, Chapter Editor

1. General Introduction, <i>C. W. Bendigo</i>	166
Staple Fiber Processing, <i>Jack Compton</i>	
2. Introduction, <i>Jack Compton</i>	168
3. Cotton System Processing, <i>John A. Goodwin</i>	173
4. American System Processing, <i>F. M. Johnson</i>	184
5. Worsted System Processing, <i>Fritz Kobayashi</i>	194
6. Woolen System Processing, <i>Russell L. Brown</i>	199
7. Statistical Quality Control Techniques, <i>Norbert Lloyd Enrick</i>	207
Tow and High Bulk Staple Processing	
8. Tow and High Bulk Staple Processing, <i>J. L. Lohrke, Jr.</i>	214
Yarn Processing, Treatment, and Testing	
9. Throwing and Twisting, <i>Martin H. Gurley, Jr.</i>	222
10. Processing of Bulked Filament Yarns, <i>Martin H. Gurley, Jr.</i>	234
11. Coning, Winding, and Filling Preparation, <i>Eldon Stowell</i>	243
12. Processing Assistants, <i>Ralph G. Schaubhut</i>	255
13. Warping, <i>Alfred Reisfeld</i>	260
14. Warp Sizing, <i>Ralph G. Schaubhut</i>	266
15. Identification of Filament Yarn Warp Sizings, <i>Charles R. Trommer</i>	271

VI. Sewing Threads, *Richard T. Kropf*, Chapter Editor

1. Historical	280
2. Functional and Cost Requirements	281
3. Synthetic Threads	283

VII. Rope, Cordage, and Twine, *David Himmelfarb*, Chapter Editor

1. Introduction	292
2. Manufacture	292
3. Properties	296

VIII. Woven and Industrial Textiles, *J. F. Hagen*, Chapter Editor

1. Weave Room Problems, <i>J. F. Hagen</i>	302
--	-----

2. Weaving Equipment Developments, <i>F. M. Fitzgerald</i>	303	F. Towels and Toweling, <i>John Wiggins and John Kemp</i>	398
3. Industrial Fabrics		IX. Tufted Materials , <i>Stanley H. Rose</i> , Chapter Editor	
A. Tire Fabrics, <i>R. M. Harlin</i>	306	1. Introduction	402
B. Belt Ducks, <i>F. T. Hopkins</i>	309	2. The Tufting Process	405
C. Hose Duck, Hose and Belt Cords, <i>Norman J. Cyphers</i>	312	X. Knitted Textiles , <i>Charles Reichman</i> , Chapter Editor	
D. Filter Fabrics, <i>James R. Robinson</i>	320	1. Introduction, <i>Charles Reichman and George A. Urlaub</i>	410
E. Laundry Textiles, <i>D. W. Stromenger</i>	322	2. Outerwear Knitting, <i>Charles Reichman</i>	422
F. Webbing and Tapes, <i>Russell J. Neff</i>	324	3. Hosiery and Underwear Knitting, <i>George A. Urlaub</i>	436
G. Glass Fabrics for Structural Plastics, <i>Ira Zane</i>	327	4. Warp Knitting, <i>Alfred Reisfeld</i>	456
H. Heat Shaped DYNEL Fabrics, <i>Arthur L. Snyder</i>	334	XI. Lace and Nets , <i>Martin H. Gurley, Jr.</i> , Chapter Editor	
I. Awning Fabrics, <i>Roger Gant, Jr.</i>	336	A. Methods of Lace Manufacture	474
J. Tarpaulins and Other Protective Coverings, <i>O. D. Schumann</i>	337	B. Nets and Netting	477
4. Military Textiles		C. Types of Lace	477
A. Navy, <i>T. J. Seery</i>	340	XII. Nonwoven Materials , <i>D. V. Probasco</i> , Chapter Editor	
B. Army, <i>Louis I. Weiner</i>	345	1. Introduction, <i>D. V. Probasco</i>	480
C. Bureau of Aeronautics (Navy), <i>Margaret B. Hays</i>	349	2. Nonwoven Textiles, <i>D. V. Probasco</i>	480
D. Marine Corps, <i>Norman Sachs</i>	356	3. Battings, <i>Sidney J. Stein, Jr.</i>	491
5. Apparel End-Uses		4. Felts	
A. Dress Goods, <i>K. A. Seward</i>	359	A. Wool Felts Containing Man-Made Fibers, <i>Raymond R. Stevens</i>	493
B. Lingerie Fabrics, <i>H. Kriegeskotte</i>	361	B. Felt of Synthetic Fibers, <i>Herbert G. Lauterbach</i>	494
C. Blouses, <i>Arthur Raphael and Donald G. Schulman</i>	362	C. Modified Cotton Felt, <i>Audra J. Albrecht</i>	496
D. Fur-Like Pile Fabrics, <i>David Weiss</i>	363	D. Man-Made Protein Fibers in Fur Felts, <i>Michael J. Demicco</i>	497
E. Women's Coatings, <i>K. C. Bass and A. A. Wiggins, Jr.</i>	365	5. Papers	
F. Elastic Yarns and Fabrics, <i>Herbert C. Simpson</i>	367	A. Rayon in Papermaking, <i>Howard E. Shearer</i>	498
G. Synthetic Elastomer Yarns and Fabrics, <i>R. N. Edkins, L. M. Anderson, and J. G. Van Oot</i>	370	B. Synthetic Fiber Papers, <i>J. R. Emery</i>	501
H. Linings, <i>Gordon E. Rennie</i>	372	XIII. Textile Engineering Principles , <i>J. J. Press</i> , Chapter Editor	
I. Children's and Infants' Wear, <i>W. B. Vincent</i>	373	1. Generalized Engineering Principles, <i>J. J. Press</i>	
J. Underwear, Pajamas, and Shirtings, <i>E. C. Pfeffer, Jr.</i>	376	A. Fiber Characteristics	506
K. Slacks and Suitings, <i>Paul Zindwer</i>	380	B. Yarn Characteristics	512
L. Outerwear, <i>William N. Doniger</i>	383	C. Fabric Characteristics	519
M. Uniforms and Work Clothing, <i>L. L. Larson</i>	385	2. Stress-Strain Properties of Fibers, <i>J. F. de Bordenave, D. J. Bringardner, and H. T. Pratt</i>	531
DYNEL in Work Clothing, <i>R. K. Kennedy</i>	389	3. Moisture, Temperature, and Fiber Performance, <i>J. J. Press</i>	539
N. Shoe Industry Fabrics, <i>Gilbert Freeman</i>	389	4. The Design of Impact-Resisting Fabric Structures, <i>Jack C. Smith and Herbert F. Schiefer</i>	545
6. Household and Other Furnishings		5. Engineering Fabric Esthetics, <i>Robert S. Chapin</i>	547
A. Woven Floor Coverings, <i>W. J. Elliott</i>	390		
B. Upholstery Fabrics, <i>P. B. Baldwin</i>	393		
C. Automotive and Other Transportation Fabrics, <i>Edward A. Smith</i>	395		
D. Interior Decorative Fabrics, <i>Henry J. Linton</i>	396		
E. Blankets, <i>John G. Piper and Francis T. Spencer</i>	397		

6. Wash-and-Wear Fabrics, <i>Joseph L. Barach</i>	557	3. Federal, Military, and Other Govern- mental Standards.....	675
7. Engineering Aspects of Fabric Design with Stretch and Bulk Filament Yarns, <i>L. W. Rainard and E. P. Mersereau</i>	559	XVIII. Manufacture of Apparel and Allied Products, <i>James M. Perry and Jacob Solinger</i> , Chapter Edi- tors	
8. The Effect of Blending on Fabric Per- formance, <i>James F. Sayre</i>	562	Techniques of Apparel Manufacturing, <i>James M. Perry</i>	
XIV. Dyeing and Printing, J. Edward Lynn , Chap- ter Editor		1. General Manufacturing Considerations, <i>James M. Perry</i>	680
1. Dyeing, <i>J. Edward Lynn</i>	586	2. Apparel Manufacturing Techniques for Specific Fibers, <i>James M. Perry</i>	683
2. Printing, <i>J. Edward Lynn</i>	593	General Principles of Apparel and Allied Processing, <i>Jacob Solinger</i>	
3. Pigmented Emulsion Dyeing and Printing, <i>Leslie L. Balassa</i>	597	3. Apparel Design, <i>Nathan Sandler</i>	690
4. Special Fabrics		4. Cloth Spreading, <i>Harry Bard</i>	691
A. Pile Fabrics, <i>Carl F. Schilkowsky</i>	601	5. Cloth Cutting and Drilling Machines, <i>Herbert S. Hoff</i>	696
B. Lace, <i>Martin H. Gurley, Jr.</i>	602	6. Sewing Quality, <i>Jacob Solinger</i>	701
5. Dyeing Individual Fibers and Blends, <i>J. Edward Lynn</i>		7. Pressing, <i>Hyman E. Cole</i>	718
A. Viscose.....	603	XIX. Renovation of Man-Made Textiles, <i>Albert E. Johnson</i> , Chapter Editor	
B. Bemberg.....	607	1. Home Laundry Equipment and Use, <i>Betty G. Wadsworth</i>	726
C. Acetate.....	607	2. Commercial Laundering, <i>George H. John- son</i>	731
D. Arnel.....	609	3. Dyeing, <i>Albert E. Johnson</i>	740
E. Nylon 66.....	611	4. Carpet Cleaning, <i>James W. Rice</i>	746
F. Caprolan (Nylon 6).....	614	5. Table of Fiber Properties, <i>Albert E. Johnson</i>	750
G. Orlon.....	614	XX. The Marketing of Man-Made Fibers and Fabrics, <i>Arthur M. Spiro</i> , Chapter Editor	
H. Acrilan.....	616	1. Introduction, <i>Arthur M. Spiro</i>	762
I. Creslan.....	618	2. Fiber Producers' Products—Continuous Filament Yarn, Staple, and Tow, <i>Arthur M. Spiro</i>	769
J. Darvan.....	618	3. Spun Yarns, <i>Arthur M. Currier</i>	777
K. Verel.....	619	4. Thrown Yarns, <i>J. Stuart Campbell</i>	779
L. Zefran.....	620	5. Novelty Yarns, <i>Ray E. Chandler</i>	782
M. Dynel.....	621	6. Rope, Cordage and Twine, <i>Arthur M. Spiro</i>	783
N. Dacron.....	623	7. Sewing Threads and Fish Lines, <i>C. Duane Houk</i>	784
O. Vicara.....	625	8. Apparel Fabrics, <i>Jackson E. Spears</i>	785
P. Saran.....	625	9. The Functions of Converters, Commission Operators, Jobbers, Sales Agents, Whole- salers, Factors, and Brokers, <i>Saul Rosen- baum</i>	792
Q. Glass Fibers.....	626	10. Knitted Outerwear Fabrics, <i>Ben Heller</i>	794
6. Typical Processing Procedures, <i>J. Edward Lynn</i>	627	11. Uniform and Work Clothing Fabrics, <i>L. L. Larson</i>	797
XV. Flock Printing, Harold Fountain and John B. Halloran , Chapter Editors		12. Hosiery, <i>Alfred P. Slaner</i>	798
1. Flock Printing Processes.....	634	13. Household and Decorative Fabrics, <i>Richard Pohlars</i>	802
2. Flock Fibers and Other Materials.....	637	14. Automotive and Transportation Interior Fabrics, <i>Edward A. Smith</i>	804
3. Standards and Safety.....	639		
XVI. Finishing, J. Edward Lynn , Chapter Editor			
1. Mechanical Treatments.....	642		
2. Chemical Treatments.....	650		
3. Individual Fibers.....	657		
4. Coated Fabrics.....	661		
XVII. Textile Performance Standards for Specific End-Uses, Jules Labarthe , Chapter Editor			
1. Standards for Consumer Goods (Including Textile Product Identification Act, p. 673).....	666		
2. Automobile, Upholstery and Industrial Standards.....	674		

CONTENTS

15. Household and Contract Floor Covering, <i>Walter B. Guinan</i>	807	XXI. Economics and Statistics, <i>Stanley B. Hunt,</i> Chapter Editor	
16. Industrial Fabrics, <i>Henry S. Grew, Jr.</i> . . .	813	1. Definitions.	836
17. Tire Yarns and Fabrics, <i>George I. Rounds</i>	816	2. World Statistics	837
18. Military Fabrics, <i>Fred Walker</i>	817	3. United States Statistics...	849
19. Narrow Fabrics, <i>Robert Kirschner</i>	821	World Fiber Trade Marks, Compiled by <i>J. J. Press</i> ..	873
20. Men's Wear Apparel Products, <i>Elmer L.</i> <i>Ward</i>	823	Glossary, Chapter Editor, <i>J. A. Truitt</i>	883
21. Women's Wear Apparel Products, <i>Adele</i> <i>Simpson</i>	828	Index	905
22. The Retailing of Man-Made Textile Prod- ucts, <i>Norman Tarnoff</i>	831		