

# Woollen Spinning, Weaving, Knitting, Dyeing, Bleaching and Printing Technology Handbook

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Spinning is a major industry; it is part of the textile manufacturing process where three types of fibre are converted into yarn, then fabric, then textiles. The textiles are then fabricated into clothes or other artifacts. The fundamental operations for the stocks of fibers from which a woollen yarn is made are opening, cleaning, mixing, forming a slubbing or roving and finally thinning the roving to the required yarn number and twisting it to produce a yarn possessing the requirements for subsequent processing such as warping, winding, weaving, finishing and dyeing. These demands vary with the different conditions confronted in manufacturing but include the following features: strength, elasticity, uniformity in weight per unit length and even distribution of twist. Woollen spinning involves three principal operations, irrespective of whether the mule or the frame or ring spinner is used, namely: Drafting, final drawing out, Twisting, or insertion of twist, Winding on, or packaging. Weaving constitutes the actual production of cloth or fabric, i.e., to combine the essentially one dimensional textile structure thread or yarn in such a way as to result in an essentially two dimensional structure of cloth of certain appearance, hand and strength. Knitting is the art and science of constructing a fabric by inter lacing loops, there are two types of knitting: warp and weft knitting. In recent years whole new classes of dyes such as fiber reactive, disperse, cationic basic, neutral dyeing premetalized have been discovered and produced for the dyeing of the natural and new synthetic, hydrophobic fibers. Bleaching improves whiteness by removing natural coloration and remaining trace impurities from the cotton; the degree of bleaching necessary is determined by the required whiteness and absorbency. Cotton being a vegetable fibre will be bleached using an oxidizing agent, such as dilute sodium hypochlorite or dilute hydrogen peroxide. If the fabric is to be dyed a deep shade, then lower levels of bleaching are acceptable, for example. However, for white bed sheetings and medical applications, the highest levels of whiteness and absorbency are essential. Wool fiber production technology necessitates full understanding of its growth, pristine structure, physical, chemical and functional properties as well as processes involving manufacture of textile fibers.

Some of the fundamentals of the book are woollen spinning, atmospheric conditions in wool manufacturing, Bradford system top gilling or top finishing, the principle of weaving, woollen and worsted weaves, knitting, the changing outlook of the knitting industry, influence of fiber fineness on quantity of dye required, altering the affinity of the wool fiber for dyes, dyeing of yarn according to the packing system, special wool finishes, water repellent, stain resistant treatments for worsted and woollen fabrics, the printing of wool piece goods, lustering of wool fabrics, fluorochemicals, mothproofing etc.

The present book is of its own kind which covers woollen spinning; knitting, dyeing, bleaching and printing, special wool finishes etc. This is an important reference book for wool technologists, scientists, new entrepreneurs, research scholars and all others related to this field.

# Contents

## 1. WOOLLEN SPINNING

- Mule Spinning
- The Self-acting Mule
- The Operations of Mule Spinning
- General Mechanical Details
- Production of a Mule
- Standspinner
- Woollen Ring Frame Spinning
- Reduced Balloonâ€™Balloonless Spinning
- Main Technical Data
- Twisting or Yarn Folding
- Woollen Yarn Calculations
- Woollen Yarns
- Yarn Number and Wool Grade
- Yarn Strength
- Wool Blends with Man-made Fibers
- Atmospheric Conditions in Wool Manufacturing

## 2. WORSTED TOPMAKING

- Worsted Carding
- Geelong Converter
- Backwashing
- Dryers
- Top Steaming and Aging
- Oiling
- Gilling or Preparing
- Worsted Combing
- Combs and Combing
- Bradford Worsted Combing
- Principle of Combing
- Punch or Ball Winding
- Operation of the Noble Comb
- Parts of the Noble Comb
- Production of Noble Comb
- Control of Noble Combing
- Bradford System Top Gilling or Top Finishing
- Can Gillbox or Conditioner
- Top Gillbox or Top Baller
- French Worsted Combing
- Working Principle of the French Comb
- French Finish Gilling
- Noils
- Amount and Type of Noils
- Tow-to-Top Conversion Systems
- Stretch-breaking Methods
- Cutting Methods

## 3. THE PRINCIPLE OF WEAVING

- The Essential Motions of a Loom
- Details of Principal Components of Weaving Machinery
- Shedding or Harness Motion
- Let-off Motion

The Take-up Motion  
Full Width Temples  
Picking Motion  
The Shuttle  
Automatic Stop Motions and Controls  
Warp Stop Motions  
Weft Stop Motion  
Protection Stop Motions  
Weft Pirn Feeler Devices  
Box Motion  
Automatic Filling Replenishment and Multi-colour Weaving  
Box Loader System  
Unifil  
Pirnless Weaving  
The Sulzer Weaving Machine  
Other Development in Weaving Machines  
4. WOOLLEN AND WORSTED WEAVES  
Methods of Describing Weaves  
Use of Design Paper  
The Plain Weave  
Derivatives of the Plain Weave  
The Twill Weave  
Balanced or Even Twills  
Effect of Yarn Twist on Twill  
Steep and Reclining Twills  
Pointed and Herringbone Twills  
Broken or Reversed Twills  
Corkscrew Twills  
Inter-locking and Offset Twills  
Undulating Twills  
Diversified, Combination, and Fancy Twills  
The Satin Weave  
The Crepe Weaves  
The Bedford and other Corded Weaves  
Backed and Double Cloths  
Filling-backed Cloths  
Warp-backed Cloths  
Double Cloths  
Montagnacs, Chinchillas, and Felts  
Triple Cloths  
Plushes and Velvets  
Filling Plushes  
Warp Plushes  
Practical Fundamentals of Fabrication and Design  
Construction in Commercial Fabrics  
Maximum Textures of Special Type of Fabrics  
Relative Constructions of New Fabrics  
5. KNITTING  
Principles of Stitch Formation  
Weft Knitting Machines  
Plain, Rib, and Purl Stitches  
Tuck and Miss Stitch Fabrics  
Special Knitted Fabric Design Effects

The Changing Outlook of the Knitting Industry

## 6. DYEING, BLEACHING AND PRINTING

Modern Dyestuffs

Designation of Dyes

Trade Names

Letter Designations

Abbreviations and Percentages

Index Numbers

Theory of Dyeing

Wool Dyes

Acid Dyes

Chrome dyes

Metal-complex Dyes

Metal-complex Dyes

Vat Dyes

Solubilized Vat Dyes

Reactive Dyes

Influence of Fiber Fineness on Quantity of Dye Required

Some Sources of Faulty Dyeing

Tippy Dyeing

Scouring

Wetting Out

Mixed Stocks

Carbonizing and Neutralizing

Sun-bleached Yarns and Fabrics

Lime in Pulled Wools

Effects of Faulty Steaming

Matching Shades

Conditioning Samples before Matching

Feeding Dyes

Ring Dyeing

Excessive Crocking

Chlorinated Wool

Metal Contaminants

Stripping Dyed Wool

Abrasion Marks

Boiler Compounds

Machine and Spinning Oils

The Matching of Shades

Matching and Shade Control by Instruments

Low Temperature Dyeing

Irga Solvent Process

Collins Process

C.S.T.R.O. Process

Chrome Dyes

Acid Milling and 1:1 Metal-complex Dyes

Reactive Dyes

The Dyeing of Wool at High Temperatures

Ultrasonic Dyeing

Pad Dyeing Methods

Cibaphasol Technique

Irga Pad Process

C.S.I.R.O. Methods

Altering the Affinity of the Wool Fiber for Dyes  
Decreasing the Affinity of Wool for Dyes  
Increasing the Affinity of Wool for Dyes  
Bicoloured Tippy Dyeing  
Dyeing Wool Mixtures  
Wool and Silk Mixtures  
Wool and Vegetable Fiber Mixtures  
Wool and Man-made Fiber Mixtures  
Wool Dyeing Machinery  
Construction of Dyeing Machines  
Loose-stock Dyeing Machinery  
Top or Slubbing Dyeing Machinery  
Pot or Can Dyeing Machinery  
Continuous Top Dyeing  
The Machine Built by Fleissner  
Segardâ€™Serracant Tunnel Equipment  
Ilma Range  
Konrad Peter Range  
General Experiences  
Yarn-dyeing Machinery  
Dyeing of Yarn According to the Packing System  
Dyeing of Yarn According to the Hanging System  
Dyeing of Yarn According to the Spindle System  
Machines for Drying of the Dyed Materials  
Hank Dryers  
Piece-dyeing Machinery  
Jet Dyeing Machines  
Beam Dyeing  
The Pad-roll Piece Dyeing Machine  
Continuous Woollen Piece Dyeing  
Bleaching Wool  
Hydrogen Peroxide Bleach  
Peroxide â€™Dye-inâ€™ Bleach  
Hydrosulfite Bleach  
Double Bleach  
Continuous Process  
Potassium Permanganate Bleach  
Bisulfite Bleach  
Sodium Chlorite Bleach  
Optical Bleaching Wool  
Bleaching and Dyeing in One Bath  
Effect of Stabilizers  
Anti-yellowing Treatment  
Vigoureux or Melange Printing  
The Printing of Wool Piece Goods  
Pretreatment  
Acid Dyes  
Basic Dyes  
Direct Dyes  
Vat Dyes  
Soluble Vat Dyes  
Oxidation Colours  
Spray Printing

## 7. SPECIAL WOOL FINISHES

Introduction

Flat Setting

Setting with Monoethanolamine Sulfite Solutions

Permanent Press

Lustering of Wool Fabrics

Luster on Pile Fabrics

Mechanism

Luster on Clear Finished Worsteds

Stretch Fabrics

Stretch Yarns

Inducing Yarn Crimp during Weaving

Yarn Crimp Development, Interchange and Chemical Setting

Finishing Helanca Ski Cloth

Water Repellent, Stain Resistant Treatments for Worsted and Woollen Fabrics

Silicones

Chromium Compounds

Fluorochemicals

Mothproofing

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