

SARDAR PATEL UNIVERSITY, VALLABH VIDYANAGAR

B.Sc. Home Science

(Under Choice Based Credit Scheme)

Semester - SIXTH (Textile & Clothing)

IN EFFECT FROM : 2020-21

Sr. No.	Course Type	Course Code (10Digit)	Name of Course	Theory (T) Practical (P)	Credit	Contact hrs/ week	Exam Durati on in hrs.	Marks		
								Internal	External	Total
								Total	Total	Total
1	Foundation Courses	UH06FINT21	Interpersonal Communication in Workplace	T	3	3	3	30	70	100
2		UH06FSEM22	Seminar	P	1	2	Internal	50	-	50
3	Core Courses	UH06CTCL23	Textile Printing	T	3	3	3	30	70	100
4		UH06CTCL24	Textile Dyeing and Printing	P	2	4	3	30	70	100
5		UH06CTCL25	Advance Textiles & Finishes	T	3	3	3	30	70	100
6		UH06CTCL26	Historic Textiles & Costumes	T	3	3	3	30	70	100
7		UH06CTCL27	Apparel Manufacture Technology	T	3	3	3	30	70	100
8		UH06CTCL28	Men's Clothing	P	2	4	3	30	70	100
9		UH06CTCL29	Textile Testing	P	2	4	3	30	70	100
Elective Course (Any one 10,11,12,13)										
10	Elective Course	UH06EHSC01	Marketing	T	2	2	2	15	35	50
11		UH06EHSC02	Life Skills	T	2	2	2	15	35	50
12		UH06EHSC03	Garments- Export & Import	T	2	2	2	15	35	50
13		UH06EHSC04	Hygiene & Sanitation	T	2	2	2	15	35	50
Total					24	31		305	595	900

**THIRD YEAR BSC (HOME) VI SEMESTER
INTERPERSONAL COMMUNICATION IN WORKPLACE
COURSE CODE: UHO6FINT21**

Theory

**Credit:03
100**

Pd/Wk: 03

Marks:

Objectives:

- a. To prepare the students for work place
- b. To include in them important aspects of life career growth leadership
- c. To help them understand the intricacies of team work in work place.

THEORY	CONTENT	WEIGHTAGE
I	Need for interpersonal skill development <ul style="list-style-type: none">- Understanding the universal need for developing interpersonal skills- How to develop interpersonal skills in a workplace- Informal learning	20%
II	Understanding the difference between individuals <ul style="list-style-type: none">- What is personality- The main personality traits and factors- Effect of personality traits o job performance- How to deal with different personality types- Value differences and how to deal with them- Different kinds of intelligences- Work ethics	25%
III	Interpersonal communication <ul style="list-style-type: none">- How does communication happen- Relationship building- Non- verbal communication- Overcoming communication barriers- Steps to effective communication	25%
IV	Team work skills <ul style="list-style-type: none">- Why team work is important- Types of teams- The advantage and disadvantage of teamwork	20%

- Role distribution
- Guidelines for team level communication
- Trust, recognition, sharing

V Diversity in Understanding Cultural differences 10%

Outcome:

Students will be able to understand workplace strategies, importance of interpersonal skills and perform better in their workplace.

References:-

1. Cole M & Cole. S (1993) : The development of children. New York: Scientific American Books.
2. Arun Kumar (2000) Child Psychology, Anmol Pub. Pvt Ltd New Delhi.
3. Kumar K (1993) Study of childhood and Family. In T.S.Saraswati & B. kaur (ed) Human Development & Family Studies in India: An agenda for research and policy (PP67-76) new Delhi : Sage.
4. Lerner R.M & Hostech, D.F (1983) Human Development : A Life Span perspective New York: Ms GrawHill.
5. Mussen, P. N Conger, J.J. Kagar, J & Huston, A C (1990) Child Development & Personality (7ed) N. Y Harper Collins.

**THIRD YEAR B.SC. (HOME) VI SEMESTER
SEMINAR
COURSE CODE: UH06FSEM22
Practical**

Credit:01

Pd/Wk: 02

Marks: 50 (Internal)

Objectives:

1. To provide an opportunity to develop insight into various recent researches/ issues related to their fields.
2. To help students develop an ability to review contemporary articles in their own fields of specialization.
3. To help the students to develop confidence in preparing and presenting reports.

Outcome:

After the completion of the course the students will be able to get a brief idea about:

1. Making a research proposal, framing objectives, collecting review, preparing tool for data collection and implementing it.
2. They will be able to analyze and interpret the data.

THIRD YEAR B.SC.(HOME), VI SEMESTER
TEXTILE PRINTING
COURSE CODE: UH06CTCL23

Credit: T3

PD/wk: 03

Marks: 100

Objective:

1. To impart knowledge on various methods of printing.
2. To make students aware with latest printing technology in fabrics & garments.

Theory:

UNIT	CONTENT	WEIGHTAGE
I	Different methods of printing - Direct, Resist & Discharge Printing	10%
II	Direct printing technique 1. Block printing 2. Roller printing 3. Stencil printing 4. Screen printing	20%
III	Resist printing techniques 1. Tie & Dye 2. Batik	15%
IV	Discharge Printing	10%
V	Latest printing methods 1. Spray printing 2. Flock printing 3. Transfer printing 4. Photographic printing 5. Digital printing	25%
VI	Auxiliaries used in printing 1. Dyestuff 2. Wetting agent 3. Solvents, Solution aids & dispersing agents 4. Thickeners 5. Defoaming agents 6. Oxidizing & reducing agents 7. Catalyst & oxygen Carriers	20%

8. Acids & alkalis
9. Carriers & swelling agents
10. Miscellaneous

Outcome:

The learner will be able to dye and print fabrics with various group of dyes, techniques suitable to fiber and fabric.

Reference:

1. Textile, Fibres to Fabrics(1983);B.P.Corbman; M.C.grow Hill International Editions;
2. Tie- Dyed textiles of India, Traditions & Trade (2000); Murphy V & Gill; Abhishek Publications, Chandigarh.
3. Modern Technology of Textiles Dyes & Pigments (1999); Panda M.; NIIIR, New Delhi.
4. Recent processes of Textiles Dyeing Bleaching & Finishing (1983); Srivastava S.B.; Small Business Publications, New Delhi.
5. Dyeing Chemical Technology of Textiles (1975); Tortman E. ;Charles Griffin, London.
6. Batik Leisure Crafts (1969); Leisure C.; London.

**THIRD YEAR .B.SC. (HOME), VI SEMESTER
TEXTILE DYEING AND PRINTING
COURSE CODE: UH06 CTCL24**

Credit: P2

PD/wk: 04

Marks:100

Objective:

1. To get knowledge of printing paste to be on different fabrics.
2. To develop skills in various methods of printing

Practical:

1. Dyeing of yarns with different classes of dyes.

2. Dyeing of various fabrics with suitable dye class.
 - a. Direct dye
 - b. Vat dye
 - c. Naphthol dye
 - d. Reactive dye
 - e. Acid dye(Note: yarns & fabrics to be dyed- cotton, silk, Jute, Polyester, acetate)

3. Designing 05 motifs for each printing methods as
 - a. Block printing
 - b. Stencil printing
 - c. Batik printing
 - d. Screen printing
 - e. Tie & Dye

4. Preparing a sample using following printing technique
 - a. Block printing
 - b. Stencil printing
 - c. Batik printing
 - d. Screen printing
 - e. Tie & Dye

5. Designing and preparing a household article/ garment using any one of the above methods.

Note: i) Prepare a portfolio of the motifs.

ii) Prepare a portfolio of the dyed & printed fabric samples.

**THIRD YEAR B.SC. (HOME), VI SEMESTER
ADVANCE TEXTILE & FINISHES
COURSE CODE: UH06CTCL25**

Credit: T3

PD/wk: 03

Marks:100

Objective:

- i) To acquire knowledge about various natural, synthetic & regenerated fibers in detail.
- ii) To make students aware about eco-friendly textiles.
- iii) To enable students understanding the textile finishes and their performance.
- iv) To impart knowledge on use of fibres as technical textiles in agriculture, medical geographical, industrial and packaging field's.

Theory:

UNIT	CONTENT	WEIGHTAGE
I	Fiber morphology and its relation to fiber properties & performance 1. Natural Fibres: Cotton, Wool, Jute, Linen 2. a. Synthetic Fibres: Polyester, Polyamide, Acrylic b. Regenerated Fibres: Rayon, Model, Lycra and Lyocell c. Elastometric Fibres: Polyurethane fiber	30%
II	Technical textiles –Indutech, medtech, agrotech, geotech, Home tech, Pactech Characteristic, Fibres used & application	15%
III	Latest development in textile fibers and its environmental friendly production at different levels	15%
IV	Textile finishes- Introduction, importance and classification	10%
V	General / routine finishes – Calendaring, Bleaching & Scouring, Sanforizing, Mercerizing, degumming	10%
VI	Special/ functional finishes- Crease resistance, permanent & durable press Fire retardant, moth proof, soil & stain resistance, water proof.	20%

Outcome:

1. After the course completion student will be able to identify fiber s, relationship with fabric performance and its end-use.
2. Learner can know of textile finishes and its performance on fabrics.

Reference:

1. Textile Fibers & Fabrics (1983); Cobman B.P.; Mcgraw Hill Pub. New York.
2. Textiles (1977); Korth H.; Work Ltd., London.
3. Textiles Finishing (2000); Murphy W.S.; Abhishek Pub. Chandigarh.
4. A Text book of fiber Science & Technology (2000); Mishra S.P.; New age International Pub. New Delhi.
5. Fiber Science And Technology (1996); Nakamar A; Oxford & IBH Pub. Bombay.
6. Textile Finishing (1997); Nalankilli & Taya P.;SSM Institute. Tamil Nadu.

**THIRD YEAR B.Sc. (HOME) ,VI SEMESTER
HISTORIC TEXTILES AND COSTUMES
COURSE CODE: UH06CTCL26**

Credit: 03

PD/WK: 03

Marks: 100

Objective:

1. To acquire knowledge of textile heritage of ancient times.
2. To study the costumes and accessories of various countries of world.

Theory:

UNIT	CONTENT	WEIGHTAGE
I	Importance of Historic textiles & costumes	10%
II	Traditional textiles of oriental countries 1. Spain, 2. China, 3. Africa	20%
III	Textiles and costumes of ancient times 1. Egypt 2. Greece 3. Rome 4. France	30%
IV	Textiles and costumes of medieval Europe 1. Middle ages 2. 18 to 20 centuries	20%
V	Costumes of ancient India 1. Vedic 2. Mughal 3. Rajput	20%

Outcome:

After the course learners can make use of textile & costume heritage in fashion design.

Reference:

1. Colour of the Indus (1998); Askari C.;Merell Holberrdon ,London.
2. Costumes of India & Pakistan (1969); Dar S.N. ;D.B Taraporwala, Bombay.
3. Indian Costumes (1966); Ghuriye G.S.
4. Costumes through the ages (1967); Laver J; Sinon & Schaster New York.
5. A History of Costumes in the West (1987); Francois Boucher
6. The Oxford Companion to the Decorative arts (1975), Osborne H

**THIRD YEAR B.SC. (HOME), VI SEMESTER
APPAREL MANUFACTURE TECHNOLOGY
COURSE CODE: UH06CTCL27**

Credit: 03

PD/WK: 03

Marks: 100

Objective:

1. To develop understanding of apparel manufacturing process in industries.
2. To import knowledge of equipment used in apparel manufacturing.

Theory:

UNIT	CONTENT	WEIGHTAGE
I	Apparel industry - Introduction and history	10%
II	Production system used in apparel industry	10%
III	Process of apparel manufacturing <ol style="list-style-type: none">1. Production planning – merchandising, marker planning, layout2. Cutting – types of cutting equipments, their functions& application3. Sewing - Garment sewing machines, specialized sewing machines4. Finishing – Importance of finishing in apparel industry<ul style="list-style-type: none">- Acceptable quality level- Finishing equipments5. Packaging & labeling<ul style="list-style-type: none">- Importance and essentials- Equipments used	30%
IV	Sewing assembling <ol style="list-style-type: none">1. Different types of stitches2. Different types of seams3. Needles & needle parts4. Needle break policy5. Needles in specialized machine6. Special attachments in machine	30%
V	SPEC Sheet <ol style="list-style-type: none">1. Importance of SPEC sheets2. Preparation of SPEC sheet	20%

Outcome:

Learners after this course will have knowledge of various aspects of apparel industry and its working.

Reference:

1. Textile Industry,- Problems & prospects in 21st Century (2002); Dr. Rai I; Books Treasure, Jodhpur, India.
2. Inside the fashion business (2003); Dickerson K.G.; Pearson Education Pvt Ltd, Delhi, India.
3. Indian Textile policy for 21st Century(1999); R. Venkatesan & V.Katti; B.R. Publishing Corporation New Delhi, India
4. Fashion merchandise information(1986) ; D.D. Prisco & H.W. Moore; John Wiley & Sons, Inc.
4. Inside the fashion business(1987); J.A. Jarnew, M.Guerreiro, B. Judelle; Macmillan Publishing Company, New York,
5. Introduction to clothing manufacture (1991), G. Cooklin, Black well Science Ltd, U.K.
6. Introduction to clothing production management (1999) ,A.J. Chuter, Black well Science Ltd, U.K.
7. Garment technology for fashion designer (1997); G. Cooklin, Black well Science Ltd, U.K.

**THIRD YEAR B.SC. (HOME) , VI SEMESTER
MEN'S CLOTHING
COURSE CODE: UH06CTCL28**

Credit: 02

PD/WK: 04

Marks: 100

Objectives:

1. To impart knowledge on prevailing styles in men's clothing
2. To develop skills in designing and construction of men's clothing

Practical:

1. Study and adaptation of ready to use basic blocks for men's wear (40, 42, 44)
2. Adaptation and construction of night dress
 - a. Pyjama
 - b. Kurta / shirt
3. Adaptation and construction of shirt (shirt collar with band)
4. Adaptation and construction of trouser

Outcome:

1. After the course learner can construct men's garments
2. She/he can get jobs in apparel industry.

Reference:

1. Garment technology for Fashion (1997); Cooklin. G.; Blackwell Science U.K.
2. Handbook for fashion designing (1998); Rita J; Mittal Pub. New Delhi.
3. Basic process & Clothing Construction (1964) ; Doongaji S.C.& Deshpande; New Raj Book, New Delhi.
4. Sewing for Apparel Industry (2000); Shaeffer C ; Prentice Hall New Jersey.
5. Zarapkar – System of cutting (1994); Zarapkar K; Navneet Prakashan Bombay

**THIRD YEAR B.SC. (HOME), VI SEMESTER
TEXTILE TESTING
COURSE CODE: UH06CTCL29**

Credit: 02

PD/WK: 04

Marks: 100

Objectives:

1. To gain knowledge of physical properties of different textile fibers, yarns and fabrics.
2. To learn to access the quality of textile fibers and fabrics.

Practical:

1. Identification of textiles fibers
 - a. Microscopic tests.
 - b. Burning tests.
 - c. Solubility tests or Chemical tests.(Fibers to be tested – Cotton, wool, silk, jute, polyester, rayon, nylon, acrylic, acetate)
2. Yarn determination
 - a. Twist
 - b. Yarn count
 - c. Lea testing
 - d. Linear density
3. Fabric determination
 - a. Weight per unit area
 - b. Stiffness
 - c. Crease recovery
 - d. Thickness
 - e. Tearing strength
 - f. Drapability(Fabric used- light wt.- lizy bizy, polyester, voile, satin, medium wt.- poplin, casement, brasso, Heavy wt.- drill, jean, canvas, brocade)
4. Determination of fastness of dyed textile material
 - a. Washing fastness
 - b. Light fastness
 - c. Rubbing fastness

Outcome:

After completing the course individual can conduct basic tests for fibers, yarns & fabrics required for quality control in industries.

Reference:

1. Progress in Textiles & Quality Management (1999) Kothary V.K.; Lafi Pub. New Delhi.
2. H.B. of textiles testing and quality control 2nd Ed. (1988); Grover E.B. & Hamby D S; Wiley Eastman Ltd. New Delhi.
3. Textiles Testing (2002); Angappan P ; SSMIIT Tamil Nadu.
4. Textile Testing Fibre, Yarn & Fabric (2001); Basu A.; The South India Coimbatore.
5. Textiles Testing (1972); Skinle J ;Taraporewala Bombay.
6. Principles of Textiles Testing (1996); Booth J.E.; CBS Publication, Delhi.

THIRD YEAR B.SC. (HOME) VI SEMESTER

MARKETING
COURSE CODE: UH06EHSC01
Theory

Credit:02

Pd/Wk: 02

Marks:50

Objectives:

1. To get acquainted with the basic concepts of market and marketing.
2. To familiarize the students about product development.
3. To make the students aware about different business organization.
4. To acquainted students with pricing policies and strategies.

Unit	Content	Weightage
Unit I	Concept of Marketing <ol style="list-style-type: none">1. Definition of marketing and marketing management.2. Concepts of market-place, area and demand.3. Types of market.4. Market Segmentation: Definition and basis. Organization and function of organization <ol style="list-style-type: none">1. Sole Proprietorship and Partnership.2. Characteristics of ideal form of organization.3. Sole Proprietorship merits & limitations.4. Features of partnership merits & demerits.5. Ideal partnership.6. Partnership Deed, Registration of firm, rights of partner.	25%
Unit II	The Product <ol style="list-style-type: none">1. Classification of consumer products.2. The product life cycle.3. The adoption & diffusion process.4. New product development.	15%
Unit III	Pricing <ol style="list-style-type: none">1. Definition and importance of pricing.2. Pricing objectives.3. Price determining process.4. Factors influencing price decisions.5. Pricing policies and strategies.	25%

Unit IV	Distribution	20%
	<ol style="list-style-type: none"> 1. Marketing channels. 2. Direct and Indirect. 3. Choice of distribution channel. 4. Types of distribution systems. 5. Physical distribution, warehousing and transportation. 	
Unit V	Promotion	15%
	<ol style="list-style-type: none"> 1. Sales Promotion: Definition and techniques. 2. Personal Selling: Definition, Kinds of salesman, qualities of successive salesman, types of training. 	

Outcome:

After the completion of the course the students will be able to get a brief idea about:

1. The role of marketing in the economy.
2. Marketing skills needed for sales promotion and personal selling.
3. Procedure for new product development, pricing decisions and distribution.

References:

1. Kotler Philip(2003) “Marketing management Pearson Education” Pvt. Ltd, Delhi.
2. SharlekarS. (1995) Marketing Management Himalaya Pub. House, Bombay.
3. SchoellF. (1985) Marketing Allyn and Bacon Inc, London.
4. Sarkar M. (2000) Marketing Management Crest Pub House, New Delhi.
5. Rajgopal (2000) Marketing Concepts and Cases, New AgeInternational (P) Ltd pub, New Delhi.
6. Fundamentals of business organization & management (Y.K.Bhushan).

**THIRD YEAR B.SC (HOME) VI SEMESTER
LIFE SKILLS
COURSE CODE: UH06EHSC02**

Credits: 02

Pd/Wk: 02

Marks: 50

OBJECTIVES

- 1) To cater the need of modern corporate economy and urban living.
- 2) To update students about globalization and multicultural work set up by providing valuable trained on life skills.
- 3) To motivate students for personal and professional growth.
- 4) To provide tools for success and character building.

THEOR Y	CONTENT	WEIGHTAGE
UNIT-I	Introduction 1) Understanding what are life skills meaning and usefulness 2) Need for life skills in today's world 3) Preparing and dealing with changes.	25%
UNIT-II	Driving our own growth. 1) Motivation: meaning need and sources 2) Development of positive thinking 3) Benefits of positive thinking 4) Mind power: Meaning, benefits of meditation	25%
UNIT-III	Stress management 1) Understanding stress symptoms and consequences 2) Techniques to manage stress 3) Understanding relation between life goals, motivation, productivity and stress.	25%
UNIT-IV	Leadership skills Key characteristics' of leader, self-confidence, assertiveness, trustworthiness, morality, emotional, stability, self-awareness, objectivity, developing of teamwork Skills, decision making, emotional stability.	25%

OUTCOMES:

- 1) It will develop personal and professional growth.
- 2) The knowledge will help in improvement of personality.
- 3) It will enhance employability.

REFERENCES:

- 1) Nishitesh, Dr.BhaskaraReddi (2012), "SOFT SKILLS & LIFE SKILLS, B Sc publishers. Hyderabad.
- 2) Rao M.S. (2010) Soft Skills, Enhancing Employability.
- 3) Mane M.S (2015) Personality development and Soft skills.

**THIRD YEAR B.SC. (HOME), VI SEMESTER
GARMENTS – EXPORT & IMPORT
COURSE CODE: UH06EHSC03**

Credit: T 2

PD/wk: 2

Marks: 50

Objectives:

1. To make students aware of garment import & export marketing techniques.
2. To acquire knowledge of textile policies in India.
3. To develop insight in quality assurance of apparel & textile products.

Theory:

UNIT	CONTENT	WEIGHTAGE
I	1. Introduction to export & import management 2. Management function	20%
II	Finance function 1. Nature & Scope 2. Methods of financing 3. Financial planning	20%
III	Policies in apparel & textile export 1. Government 2. Nongovernment	15%
IV	Business System 1. Laundering a proprietorship 2. Joint stock company 3. Cooperatives 4. Partnership	25%
V	Quality Control in apparel & textile units 1. Importance 2. Stage of Quality Control in Industry 3. Role of Information technology	20%

Outcome:

Learners can work in the field of export and import of textiles.

Reference:

1. How to export garments successfully (1995); Shukla R.S.; Abhinav Publishing Industries Pvt. Ltd. New Delhi, India.
2. Textile Industry , - Problems & prospects in 21st Century (2002); Dr. Rai I; Books Treasure, Jodhpur, India.
3. Inside the fashion business (2003); Dickerson K.G.; Pearson Education Pvt Ltd, Delhi, India.
4. Indian Textile policy for 21st Century(1999); R. Venkatesan & V.Katti; B.R. Publishing Corporation New Delhi, India
5. Reorienting fashion “ The globalization of Asian dress” (2003)Edited by Sandra Niessen, A Leshkovich & C. Jones Published by BERG, Oxford International Publisher Ltd.
6. Fashion merchandise information(1986) ; D.D. Prisco & H.W. Moore; John Wiley & Sons, Inc ;
7. Inside the fashion business(1987); J.A. Jarnew, M.Guerreiro, B. Judelle; Macmillan Publishing Company, New York,
8. Introduction to clothing manufacture(1991), G. Cooklin, Black well Science Ltd, U.K.
9. Inside the fashion design(2004); S.L. Tate; Person Education Inc.
10. Introduction to clothing production management(1999) ,A.J. Chuter, Black well Science Ltd, U.K.
11. Garment technology for fashion designer(1997); G. Cooklin, Black well Science Ltd, U.K.

**THIRD YEAR BSC (HOME) VI SEMESTER
HYGIENE AND SANITATION
COURSE CODE: UH06EHSC04
Theory**

Credits- 02

PD/Wk- 02

Marks-50

Objectives:

This course will enable students to:

1. Develop correct habits of personal and environmental hygiene.
2. Learn safe handling of food and ensure complete safety of raw and processed foods.

THEORY	CONTENT	WEIGHTAGE
I	Definition of hygiene its application to everyday life. Personal hygiene care of skin, hair, hands feet, teeth, use of cosmetics and jewellery.	10%
II	Safe handling of food – Personal hygiene including uniform, medical checkup, good food handling habits and training, control and eradication of flies, cockroaches, rodents and other pests.	20%
III	Disinfections – Definition of disinfectant, sanitation, antiseptic and germicides, common disinfectants, use in case of working surfaces. Plant equipment's. Dish washing, hand washing etc., and sterilization of plant equipment's.	20%
IV	Care of premises and equipment's–impervious washable floors and walls, table tops, floors etc. Good ventilation and lighting, care of dark corners, crevices and cracks. Garbage disposal – collection storage and proper disposal from the premises including effluents.	25%
V	1. Storage of food – Technique of correct storage temperature of different commodities to prevent bacterial contamination of milk, butter, cream, cheese, fruit juices. LTHT, HTST method, sterilization of milk, water etc.	25%

2. Legal administration and quality control – Laws relating to Food Hygiene.

Outcomes:

1. Students can get the knowledge of personal and industrial hygiene and sanitation.
2. They can get the information regarding storage and care of food and equipment.
3. They will aware about legal standards related with food hygiene.

References –

1. Hobbs B.C. and Gilbert (1970): Food Poisoning and Food Hygiene, Edward Arnold , London.
2. Rack B. G. Hygiene in Food Manufacturing and Handling Food trade Press London .
3. Longree K. Blaker G. G. (1971): Sanitary Techniques in Food Services, John Wiley, New York.
4. Longree K. (1967): Quality food sanitation 2nd Edition Inter Science Pub, Johan Wiley & Sons. , New York.