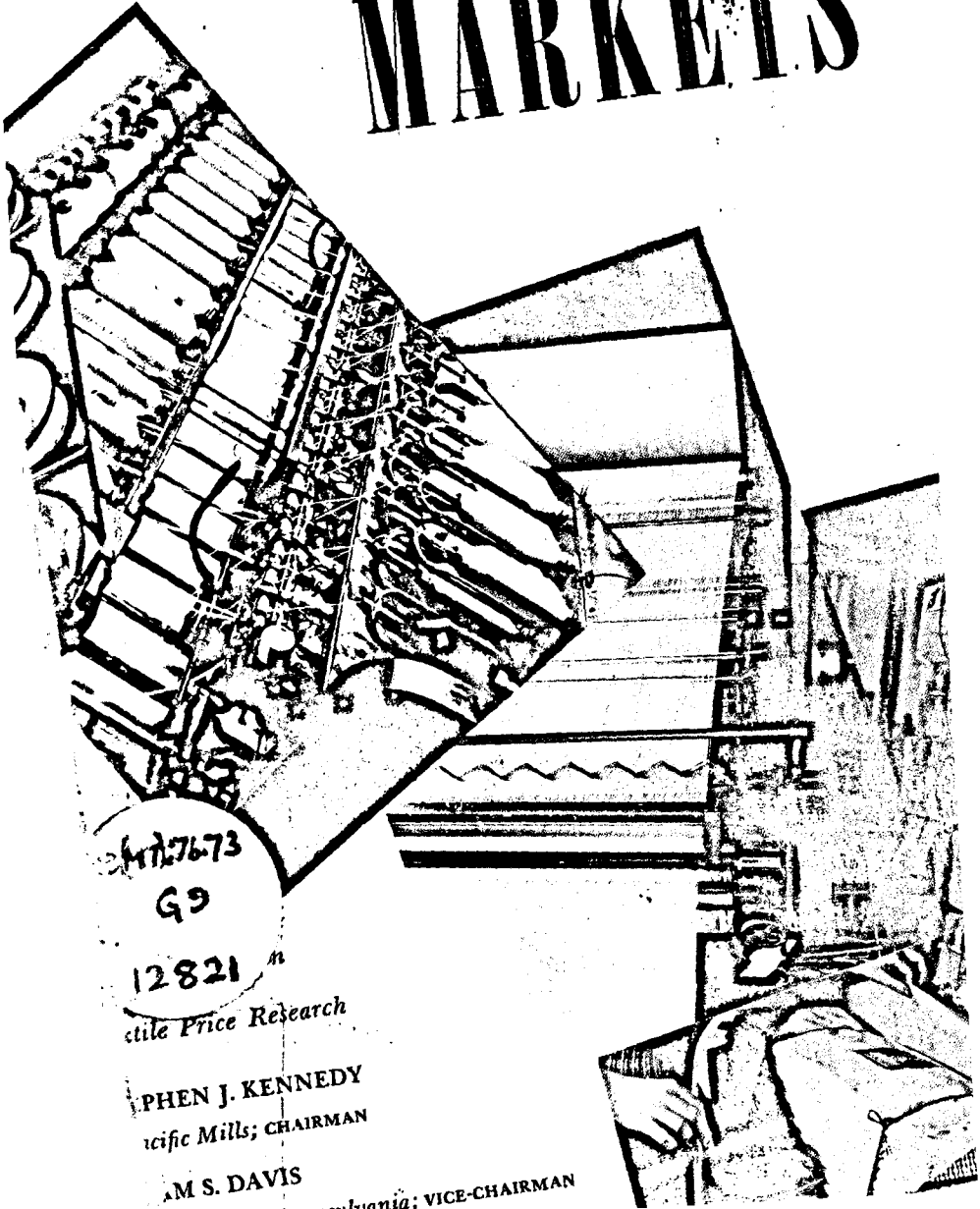


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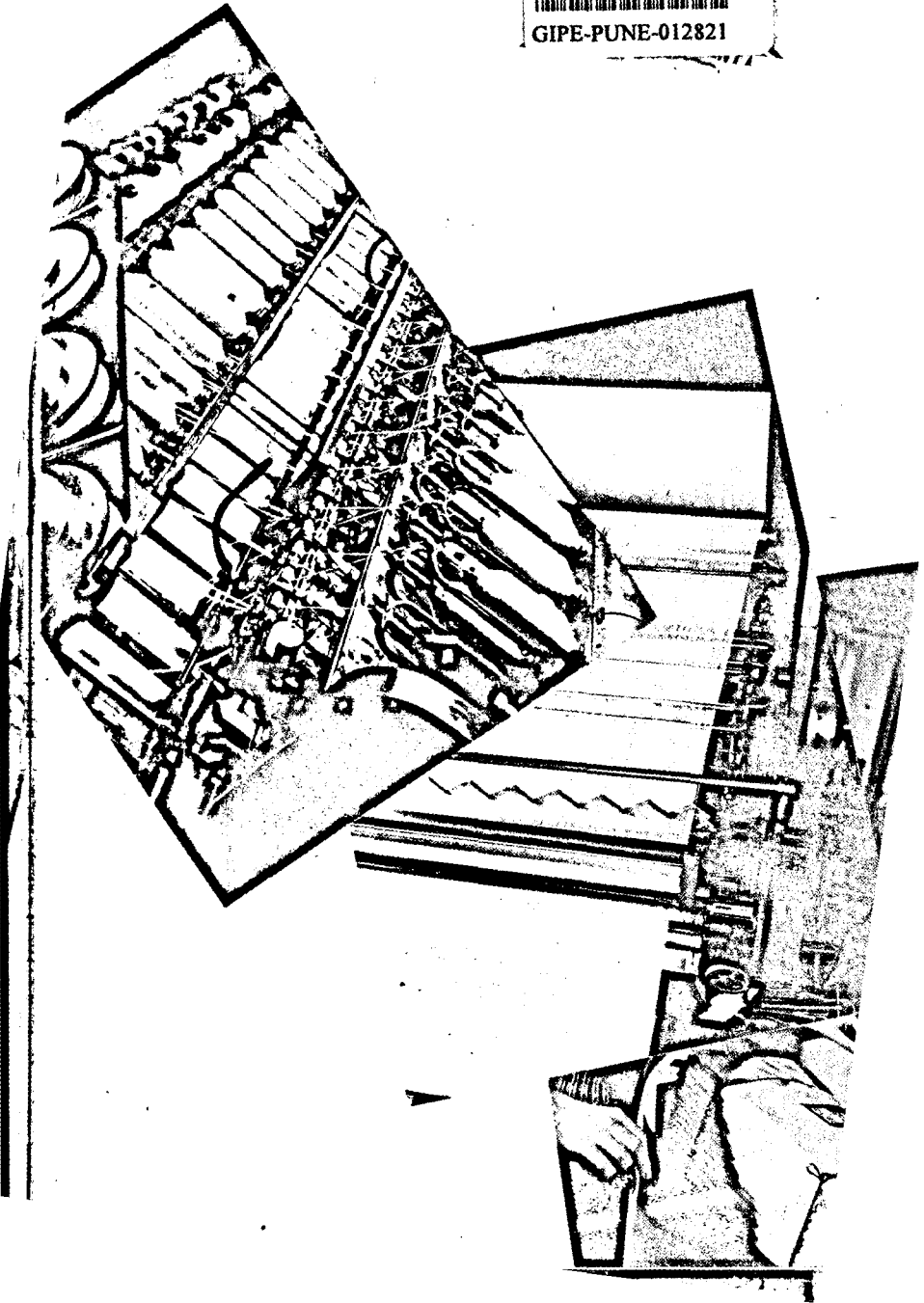
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Number Two

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(Resolution of October 25, 1926, revised February 6, 1933)

Textile Markets

THEIR STRUCTURE IN RELATION
TO PRICE RESEARCH

*Report of the Committee on
Textile Price Research to the
Conference on Price Research*

National Bureau of Economic Research

New York · 1939

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Foreword

THE Report of the Committee on Textile Price Research is the second formal publication of the Conference on Price Research. It is a product of the system of exploratory committees set up by the Conference as a means of appraising research needs and stimulating needed research. These committees, dealing with price problems in the textile, oil, steel, bituminous coal, and automobile industries and in merchandise distribution, were charged with responsibility for defining the economic and industrial problems centering about prices in the areas under review, for appraising existing data with reference to the needs of industrial and economic research, and for outlining appropriate programs of research. Within the terms of this broad mandate, each committee has determined its own objectives and procedures.

Facing the tangled problems of a group of industries that works through the most complex market structure of any in the American economy, the Committee on Textile Price Research has with admirable clarity portrayed the characteristics of that structure and has provided a guide to areas of practicable research within the general system. To the industrialist acquainted at first hand with the distribution problems of the textile industries the significance of the contribution the Committee has made will be clear. The economist who is introduced to the problems of these industries by the present report will learn of its merit as he explores the markets and studies the marketing procedures the report illuminates. For both industrialist and economist it will serve as a guide to understanding and a challenge to the solution of the problems it defines. In their generous contribution of the time and knowledge that have gone into this report, Dr. Kennedy, Mr. Davis, and their colleagues have rendered a notable service to the industry and to their fellow economists.

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Preface

THE Committee on Textile Price Research was appointed in summer 1936 by the Conference on Price Research as one of five industry committees formed to survey the possibilities for price research in leading American industries. Its objectives have been threefold:

- 1) To describe the structure of the textile industries as they relate to the pricing process
- 2) To chart the directions in which economic research concerned with price phenomena might be most effectively undertaken
- 3) To sponsor in collaboration with appropriate agencies the improvement and amplification of existing textile price data

Since the Textile Statisticians Group already existed for the purpose of improving textile economic data, the third of these objectives was referred to it for incorporation into its program. The Committee on Textile Price Research has accordingly been concerned chiefly with the first two objectives: (1) the development of an over-all picture of the market structure of the textile industries; (2) the study of economic areas in which price behavior is of particular importance.

The Committee's acceptance of the commission to report on the possibilities for studying price phenomena in the textile industries does not presuppose any conviction on its

part that all economic research in these industries should center about price behavior. Several fields require a different emphasis, e. g., market analyses or problems of firm or industry organization. Yet when one attempts to analyze fundamental questions, such as the interrelation of supply and demand or of the extent to which textile markets function as regulators of supply and demand, one is inevitably confronted with the necessity of relating these inquiries to price behavior.

The enormous scope of the textile industries makes an over-all picture of the textile markets and their interrelations imperative for the student of prices, to prevent undue emphasis upon minor aspects as well as to lead to an understanding of the relation of one product to others in the flow of goods and the significance of corresponding price quotations. Such a survey has been attempted in Part One and in the chart in terms of levels of manufacture, lines of flow of goods, and representative price specifications. This section of the report should be of general interest both within and outside the industry to those who wish to gain quickly a grasp of the scope and interrelations of textile markets and prices.

In Part Two the Committee has outlined the areas of study which, in its opinion, offer the greatest opportunity for furthering knowledge of price behavior in the textile industries. An exploration of price behavior in these industries could easily become an extended safari lost in a bewildering economic jungle containing about every conceivable kind of price situation. For within the bounds of the textile industries may be found examples of virtually every kind of price mentioned in modern economic literature, including all shades of competitive and non-competitive prices, and of so-called flexible and inflexible prices. Even a classification of the myriad price situations within the textile industries would be a piece of major research, ranging from the prices of capital equipment designed to meet exacting engineering specifications, such as felts for giant paper-making machines, to prices of consumer goods de-

signed to satisfy the twin appeals of fashion and economy, such as the so-called popular priced dress for daytime wear.

In view of the multitude of markets and the almost limitless implications that arise when one attempts to isolate a single project for study, the Committee has chosen to chart areas of study rather than to formulate specific research projects. In outlining these areas the approach has been to emphasize questions, issues, relations rather than methods of attack and sources of data. In other words, the aim has been to stake out areas and show that here are 'claims' rich in the 'pay dirt' of economic understanding if only they are worked.

The accomplishments of those who have in recent years increased the fund of economic information relating to the textile industries provide a foundation of facts and research experience for which all who in the future undertake economic research concerning the textile industries will be in great debt. Not only research relating to price behavior but the preparation of this type of report would have been enormously difficult if not impossible a decade ago. When the Cotton Textile Institute was formed in 1926 less than 20 per cent of cotton mills had any kind of system for determining costs for selling purposes. It is not surprising then that 'broader economic problems received relatively little attention. Only within the last decade or so has economic research come to have a real significance in the textile industries. Progress in this field can be traced along three lines: the published findings of private investigators, improvement in the collection of economic statistical data, and the development of research organizations interested in broad textile economic research.

It is not possible to review here in detail the growing list of private studies that approach the textile field upon an ever widening front. Those published within the last decade include studies in economic history and geography, financial analysis, changes in productivity, distribution methods and organization, and, in fact, almost every phase of economic activity. Probably the most significant land-

mark was the publication in 1926 of *Distribution of Textiles*, a report prepared by the Harvard University Bureau of Business Research, which, coming at a time when management problems were shifting from manufacturing to distribution, helped in an important way to focus attention upon the perplexing problems of textile distribution.

The rising interest in economic problems in the textile industries has been reflected even more sharply in the progress of statistical analysis. Before the War rather limited statistical data were compiled by some of the textile trade associations. Virtually all the current statistical series relating to the textile industries have been started since 1920.

In addition to the trade association statistical reporting, statistical analyses and reports have been made by various government departments. These include formal studies, such as those made by the Tariff Commission at the request of the President, and the regular reports of the Bureau of the Census, of Labor Statistics, of Agricultural Economics, and of Foreign and Domestic Commerce. The classifications used by these agencies in their statistical reporting on the textile industries have been reorganized since 1935 through the co-operation of textile trade association executives and officials in the government departments concerned. The Textile Statisticians Group, an informal committee of trade association and government statisticians interested in the collection of textile statistics, has been instrumental in reorganizing and amplifying government textile data to increase their usefulness.

Along with these activities designed to increase the coverage and significance of the factual record has been the institution of industry-wide economic research under the sponsorship of the Textile Foundation. Created by act of Congress in 1930 to undertake scientific and economic research for the benefit and development of the textile industries, this organization is managed by a board of directors consisting of three members representing the textile industries and the Secretary of Commerce and of Agri-

culture. In recent years the Foundation has been aided in planning its program in the economic field by the Committee on Economic Research of the United States Institute for Textile Research, a private organization sponsored by leading textile manufacturers interested in all phases of research. The following economic studies have been sponsored by the Textile Foundation:

The Commercial Problems of the Woolen and Worsted Industries, by Paul T. Cherington (Textile Foundation, 1932)

Merchandising of Cotton Textiles, Methods and Organization, by M. T. Copeland and E. P. Learned (Harvard University, 1933)

Production and Distribution of Silk and Rayon Broad Goods, by M. T. Copeland and W. H. Turner (National Federation of Textiles, 1934)

Vertical Integration in the Textile Industries, by H. S. Davis, G. W. Taylor, C. C. Balderston, and Anne Bezanson (University of Pennsylvania, 1938)

In October 1938 the Textile Foundation approved the launching of a study on Textile Inventory Policies and Statistical Guides, to be undertaken by the Industrial Research Department of the Wharton School, University of Pennsylvania. When completed, it will deal with some of the areas of research suggested in this report. In the choice of a subject, and in the outlining of the project, this committee collaborated with the Committee on Economic Research of the United States Institute for Textile Research, which recommended the project to the Textile Foundation.

In preparing this report the Committee has incurred a vast number of obligations and it wishes here to express its appreciation to all who have contributed. It is first of all indebted to its advisory members who have provided counsel and suggestions many times while the survey was being made and this report written. Numerous other people closely connected with the textile industries have furnished needed information about technical points; in particular

the committee wishes to thank G. H. Andrews, Spool Cotton Company; R. B. Armstrong, G. A. Dash, and G. W. Taylor, Industrial Research Department, Wharton School, University of Pennsylvania; G. F. Brown, National Association of Wool Manufacturers; R. L. Burrus, United States Agricultural Marketing Service; M. R. Cooper, Bureau of Agricultural Economics; C. W. Haynie, Institute of Carpet Manufacturers of America; J. S. McDaniel, Cordage Institute; John Murray, Journal of Commerce; A. B. Tatistcheff, Commodity Exchange, Inc.; W. H. Turner, United States Steel Corporation, formerly with Marshall Field and Company.

The material for the appendices covering textile price series in government records was prepared for this committee by E. R. Lerner of the Central Statistical Board. Similarly, the summary of the work of the Federal Trade Commission in textile cost and price analysis was prepared by W. H. S. Stevens, formerly Assistant Chief Economist of the Federal Trade Commission.

The Chairman in particular is grateful to the National Bureau for its cooperation, and especially to Martha Anderson for her keen interest in all details of the manuscript and its publication. To H. Irving Forman is due credit for preparing the final draft of the chart inserted in the back cover showing textile market interrelations.

It is the hope of the Committee that this report may help to extend the economic horizon through stimulating the thinking of students of the textile industries, whether in mills, in public offices, or in university classrooms.

STEPHEN J. KENNEDY
PACIFIC MILLS
NEW YORK CITY

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PART ONE

The Textile Markets



**THE MARKETS
IN WHICH TEXTILE PRICES ARE MADE**

TEXTILE products move through the textile markets somewhat as an automobile moves along an assembly line. One processor specializes upon certain operations, then sells his product in an open market to some subsequent processor, who in turn re-sells it in another market after he has performed his own specialized operation. Each new owner thus brings it nearer to the form in which it will meet some specific consumer requirement. With a few exceptions, two or more of the steps in manufacture may be conducted by a single firm within the industry, or even by a majority of the firms; in some instances, as in the manufacture of blankets, the entire manufacturing process may be completed within a single organization. Despite these exceptions, the segregation of the successive processes of fabrication and their performance by separate firms must be regarded as one of the outstanding characteristics of the textile industries.

Separation of wholesale and retail distribution from the manufacturing function is under these circumstances to be expected. In some industries, such as petroleum, coal, and automobile manufacturing, distribution tends to be carried through as an integral part of the merchandising of the product; that is, distribution is so closely identified with manufacturing that the 'industry' is popularly re-

garded as embracing both. In textiles, the cloth manufacturing operations are usually all that are regarded as within the textile industries proper, although for some purposes, as in the classification used by the Census of Manufactures, products of the cutting-up and fabricating trades are also included. In economic research, and more particularly in price research, all manufacturing and distribution functions must be regarded as part of a single process—the meeting of consumer demand. Accordingly the following list of textile market levels includes the wholesale and retail markets for finished products as well as those identified with raw materials and semi-manufactured goods:

- | | |
|---------------------------|------------------------------|
| 1 Raw Fiber Markets | 5 Finished Goods Markets |
| 2 Processed Fiber Markets | 6 Fabricated Product Markets |
| 3 Yarn Markets | 7 Wholesale Markets |
| 4 Gray Goods Markets | 8 Retail Markets |

The term 'market' is used here in the rather specialized sense in which the trade itself refers to the market for a given type of goods, namely, the buyers and sellers of a group of products, closely related in character and produced from the same equipment or by the same type of mill which tend to be sold interchangeably to the same group of purchasers. This is a much narrower meaning than is attached to the word 'industry', since a given industry may produce goods for a fairly large number of markets.

Just where one market ends and another begins is a question frequently difficult to answer. In one sense, every fabric has a market of its own. The trade concept is on the whole quite clear, however, so that the theoretical difficulties suggested by this use of the term need not be considered. The important thing is that a trade area designated as a market must possess a fairly high degree of internal unity; that is, the products should be of similar construction, serve the same uses, and be sold to the same group of buyers. Just how far analysis should go in breaking down a group of products according to their separate

markets must be determined by the individual investigator in the light of the particular situation with which he is dealing.

It will be noted that markets are identified with products, rather than with geographical areas, or even primarily with certain groups of buyers. The reasons are first, that geographical price differentials are for all practical purposes either non-existent in the textile industries or of minor importance; second, that in a general sense everyone uses textiles and hence the ultimate market extends throughout the nation. It is the differences in products, in the raw materials from which they are derived, and in the processes by which they are manufactured that draw the lines of distinction among textile markets.

Even though one producer may limit his distribution to a small geographical area his product is priced in competition with similar products having a national market. The center of this national market is New York City, or more specifically some particular district in it where the principal sellers have their merchandising offices. Some buildings in the Seventh Avenue garment district house practically an entire industry; similarly 'Worth Street', an area barely three crosstown blocks, houses the entire cotton goods market. Thus are the primary textile markets centralized and geographical price differentials per se ruled out of the picture. Local markets do exist, of course, in retail and wholesale distribution. But their prime characteristics are those arising from special services of a strictly local character performed by a given firm, not those due to location with respect to the national market.

The reality of intermediate markets in the flow of goods between raw material and finished products is not lessened by the fact that integrated firms may at some particular level bridge the gap and transfer their goods directly from one operation to another without recourse to the market. Where the amount of goods moving in this way is large in proportion to total production, the significance of the open market quotation may have to be qualified.

Furthermore, differences in the character of the buying and selling agencies may exist between markets. In some instances such differences may be quantitative, only two or three sellers in one case and in another a great many; or they may be qualitative with vertically integrated organizations in one instance selling a finished product as compared with the sale of gray goods through brokers.

Textile price analysis must of necessity adopt a classification of data according to markets that is in line with trade distinctions and terminology. Very early in such analysis some product representative of a particular market that can be traced backward and forward through manufacturing and distribution must be selected for detailed study. To give a clear picture of the classification of textile markets and their interrelationships a chart showing over 200 markets, some of which are really market groups requiring further subdivision for actual analysis, is inserted in a pocket at the end of this book.

It is insufficient, naturally, to deal with price data by themselves, unrelated to quantity data. For most significant price analyses comparable quantity data are requisite. Yet here a major problem presents itself in that while price data logically follow market lines, quantity data tend to follow 'industry' lines. Sometimes production or sales data directly parallel market data. In most basic industry data, however, such as that reported by the biennial Census of Manufactures, mills are grouped according to broader classes of products than are directly relatable to price data. It is important, therefore, to be thoroughly familiar with classifications according to industries and the direct relation of such totals to particular markets. Practically all non-price data, or data based upon producing rather than market units, follow such 'industry' classifications. That used by the Census in 1935 and 1937 represents about as fine a breakdown as is considered practicable. These 'industries' as designated by the Census are grouped in Table 1 according to the market levels into which this study has been divided. A grouping of this sort involves an over-

simplification since integration between two or more levels, where it exists, is necessarily overlooked. In every industry there are bound to be firms that make products which, according to this classification, might be listed under two or more industries: either unrelated products or products of successive operations that are made elsewhere in other industries. While this classification undoubtedly is of aid in placing these various industries in relation to the flow of goods, it is not so much by industries as by markets and market levels that price analysis must be made.

Complete analysis of market pricing in the textile industries would entail separate analysis of the price determining forces in each of the several hundred textile markets. That, obviously, is beyond the scope of this report. In fact, it would of itself involve quite a number of separate research projects. What this report attempts to present is not so much the price determining forces for all these various markets as an analysis of price characteristics according to the various levels of manufacture. It outlines the scope of the markets at each stage of manufacture and shows how research students can best select representative items for price study, how deal with quality and grade differentials, and in what sources find current price and related data.

Grades and qualities constitute one of the most important aspects of analysis according to market levels. Specifications of grade and quality for one level are dependent upon those of the preceding level. In fact, at each level of production new qualities or characteristics are imparted to the product which must be taken account of in addition to those of the preceding level, in order adequately to describe and specify for price recording purposes just what the article is.

Since the fiber level provides the one definitive set of grades to which price analysis must defer, it is perhaps most important that the student have a clear picture of qualities and grades at that level. For this reason textile fibers are discussed in considerably more detail than the ever increasing number of products available on subsequent levels. To

TABLE 1

The Textile and Related Industries by Major Market Levels
and Relative Importance, 1937
*As Measured by Establishments, Value Added,
and Value of Product*

MARKET LEVEL AND INDUSTRY	NO. OF ESTABLISH- MENTS	VALUE ADDED BY MANU- FACTURE (<i>millions of dollars</i>)	VALUE OF PRODUCT (<i>millions of dollars</i>)
Grand Total	20,634	2,978.2	7,076.7
1 <i>Raw Fiber Level, total</i> ¹	39	6.6	21.3
Wool pulling	19	4.0	16.7
Wool scouring (largely on commis- sion)	20	2.6	4.6
2 <i>Processed Fiber Level, total</i>	247	30.3	85.4
Batting, padding, wadding, and up- holstery filling	110	13.0	36.9
Processed waste and recovered wool fiber (for sale)	126	11.6	38.2
Wool combing (on commission and tops for sale)	11	5.7	10.3
3 <i>Yarn Level, total</i>	993	217.6	554.5
Carpet yarn, woolen and worsted (for sale and on commission)	15	5.1	16.9
Cordage and twine	118	28.4	66.4
Cotton yarn and thread (for sale)	396	107.8	266.7
Dyeing and finishing yarn, cotton, rayon, and silk (for sale and on commission)	128	14.8	21.6
Rayon throwing and spinning (on commission)	25	1.9	2.4
Rayon yarn and thread (for sale)	51	6.9	21.7
Silk throwing and spinning (on com- mission)	96	11.6	15.3
Silk yarn and thread (for sale)	52	12.7	40.2
Woolen yarn (for sale and on com- mission)	41	5.0	13.6
Worsted yarn (for sale and on com- mission)	71	23.4	89.7
4 <i>Gray Goods Level, total</i>	1,490	598.5	1,361.7
Cotton narrow fabrics	156	21.4	43.5
Cotton woven goods (over 12" in width)	675	438.9	961.0
Jute goods	32	12.4	25.6
Linen goods	12	2.6	6.4
Rayon broad woven goods (over 12" in width)	237	80.6	220.8
Rayon narrow fabrics	112	10.2	18.5
Silk broad woven goods (over 12" in width)	104	24.2	63.1
Silk narrow fabrics	81	8.2	13.8

¹ The production of textile fibers per se, either in agriculture or by the chemical industries, has been omitted from this table.

THE TEXTILE MARKETS

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5	<i>Finished Goods Level, total</i>	1,251	434.8	1,105.9
	Artificial leather, oilcloth	33	12.6	40.4
	Dyeing and finishing, cotton fabric ²	246	98.7	201.7
	Dyeing and finishing, rayon and silk fabric ²	159	34.8	57.6
	Dyeing and finishing, woolen and worsted	53	6.4	11.1
	Felt goods, except woven felts	39.0	11.0	20.6
	Knitted cloth	213	23.7	68.0
	Woolen woven goods, incl. woven felts	332	115.7	288.7
	Worsted woven goods	176	131.9	408.8
6	<i>Fabricated Product Level, total</i>	16,605	1,690.4	3,947.9
	<i>Apparel, Men's and Boys'</i>			
	Clothing, leather and sheep lined	78	6.6	21.0
	Clothing, men's, youths' and boys', n.e.c. (suits, overcoats, etc.), regular and contract factories	2,218	260.2	619.8
	Clothing, work (incl. work shirts) and sport garments (except leather)	674	71.2	202.7
	Furnishings, men's n.e.c. (bathrobes, neckwear, etc.), regular and contract factories	364	23.8	60.9
	Shirts (except work shirts), collars, and nightwear, regular and contract factories	529	80.2	184.2
	Trousers (semi-dress), wash suits, and washable service apparel	232	18.0	46.8
	<i>Apparel, Women's and Children's</i>			
	Blouses, regular and contract factories	192	12.3	29.2
	Clothing, women's, misses', and children's, n.e.c., regular and contract factories	787	56.3	155.2
	Coats, suits, and separate skirts, regular and contract factories	1,767	117.5	321.2
	Corsets and allied garments	215	38.3	70.8
	Dresses, except house dresses, regular and contract factories	2,422	200.5	461.6
	House dresses, uniforms, and aprons, regular and contract factories	482	41.2	97.1
	Outerwear, children's and infants', regular and contract factories	452	35.5	82.5
	<i>Apparel, n.e.c.</i>			
	Gloves and mittens, cloth or cloth and leather combined, made from purchased materials	122	17.3	38.4
	Gloves and mittens, knitted			
	Handkerchiefs, regular and contract factories	74	6.1	19.7
	<i>Hats and Millinery</i>			
	Hat bodies, carded, wool felt	14	6.9	15.5
	Hat and cap materials, men's	69	5.1	15.2
	Hats and caps, except felt and straw, men's	258	5.8	11.7
	Hats, fur felt	140	32.0	66.8
	Hats, straw, men's	47	6.5	13.6
	Millinery, regular and contract factories	755	47.2	88.2

² Including finishing departments of integrated gray goods mills.

TABLE 1—(Continued)

MARKET LEVEL AND INDUSTRY	NO. OF ESTABLISHMENTS	VALUE ADDED BY MANUFACTURE	VALUE OF PRODUCT
		<i>(millions of dollars)</i>	
<i>Hosiery</i>	746	202.1	362.5
<i>Knitted outerwear, regular and contract factories</i>	669	47.3	106.8
<i>Underwear</i>			
Knitted underwear	179	54.3	117.8
Underwear, men's, regular and contract factories	59	7.3	21.2
Underwear and nightwear of cotton and flannelette woven fabrics, women's, children's, and infants'	122	10.4	30.0
Underwear and nightwear of knitted fabric, women's, children's, and infants'	113	15.0	36.3
<i>Suspenders, garters, and other elastic woven goods</i>	64	6.4	15.0
<i>Floor Coverings</i>			
Asphalted felt-base floor coverings	13	15.9	33.5
Carpets and rugs, paper-fiber and grass	9	1.9	3.2
Carpets and rugs, rag	35	0.7	1.3
Carpets and rugs, wool (other than rag)	55	78.6	162.2
Linoleum	3	20.4	35.6
<i>House Furnishings</i>			
Curtains, draperies, and bedspreads, regular and contract factories	332	16.2	53.6
Lace goods	57	17.8	28.3
House furnishings, n.e.c. (incl. all sheets and pillowcases)	404	24.4	69.1
<i>Misc. Fabricated Products</i>			
Awnings, tents, sails, and canvas covers	367	12.8	30.3
Bags, other than paper-	186	26.3	130.0
Embroideries, regular and contract factories	585	13.2	19.8
Fabricated textile products, n.e.c. (incl. belting, horse blankets, etc.)	101	8.2	19.8
Fish nets and seines	9	1.2	3.1
Flags, banners, regalia, and related products	120	4.0	7.3
Trimnings (not made in textile mills), stamped art goods, regular and contract factories	486	17.5	99.1

SOURCE: *Census of Manufactures, 1937*

indicate subjects of unusual interest to price study special markets have been singled out for somewhat more attention than others: exceptional market situations that either stand out as unique in the industry or may be duplicated elsewhere in the textile industries.

THE TEXTILE FIBERS

The textile industries start not with a single basic raw material as do the mineral industries, but with some dozen entirely different raw materials, each of which can be shaped into a product solely by itself without regard to the others. All these fibers are on an equal footing so far as their utility is concerned, for each is preferred for some uses over all the others. Although each has its own distinctive properties, they are enough alike so that there are few uses that cannot be served by, at least two. Consequently in almost every market and consumer use there is competition among the different textile fibers. Furthermore, the raw fiber markets are the best organized of all the textile markets. They derive a large part of their importance from the fact that each fiber comes from a wholly different set of producers. Each passes through a separate market down to the point where it is fabricated into the products designed to meet a specific consumer use. Even down to the consumer the distinctive fiber content of the article is usually maintained.

The consumer chooses among the textile fibers on the basis of style, serviceability, and price. Thus one of the most important aspects of textile price research revolves around the role of price in inter-fiber competition. The cases in which price can be expected to be the more important determinant will be clearer after considering the uses to which the fibers are put and their price differentials. The extent of these differentials is indicated in Table 2 listing the eight groups of textile fibers and the prices quoted for key grades as of March 1, 1939.

All fibers do not compete for the same uses; their physical properties differ far too widely. Only when they reach the ultimate use can one determine the extent of inter-fiber

TABLE 2
 Prices of the Textile Fibers
 (as of March 1, 1939).

	CENTS PER POUND	QUALITY
<i>Raw Cotton</i>	9.05	7/8" middling upland, New York spot *
<i>Wool, Hair, and Related Fibers</i>		
Wool	71	Fine French combing, graded territory, scoured basis, Boston
Mohair	48-59	Medium, grease basis, Boston
Camel hair	\$1.15	
Alpaca	65	
<i>Rayon</i>		
Filament yarn, viscose	51	150 denier, 40-60 filament, f.o.b. mill
Filament yarn, cellulose acetate	54	150 denier, 40-60 filament, f.o.b. mill
Staple fiber, viscose	25	1 1/2 denier, 1 1/2", f.o.b. mill
Staple fiber, cellulose acetate	46	Any denier up to 10 denier, any length
<i>Raw Silk</i>	\$2.31	13/15 denier, 78% general evenness by seriplane, nearby delivery, New York
<i>The Cordage Fibers</i>		
Abaca (Manila fiber)	5 1/4	I fair current (c.i.f. N.Y.)
Henequen (Mexican)	3 3/8	Current clean (c.i.f. N.Y.)
Palma	2 5/8	(c.i.f. N.Y.)
Mauritius fiber	4 1/2	Prime (c.i.f. N.Y.)
New Zealand fiber	4 1/4	High fair (c.i.f. N.Y.)
<i>Jute</i>	5 3/16	First actuals (c.i.f. N.Y.)
<i>Flax and Hemp</i>		
Flax (Dutch)	23	(c.i.f. N.Y.)
Hemp (Italian)	19 3/4	G (duty paid, c.i.f. N.Y.)
<i>Upholstery Stuffing Fibers</i>		
Kapok	14 3/4	Prime Japara (c.i.f. N.Y.)

* Base staple length of cotton for futures contracts changed August 15, 1939 from 7/8 to 15/16 of an inch.

competition. For example, for the sleeve lining of men's suits, filament rayon competes with mohair. Similarly, in handkerchiefs cotton and linen compete, and in any number of apparel items, cotton, filament rayon, spun rayon, silk and wool compete in some degree. Thus we are brought ultimately to the study of specific markets, where the problem is the competition of two or more specific fibers for some particular use.

Because of the influence of fiber prices upon the price structure at subsequent market levels textile price research must necessarily begin with the fiber markets. Since the supply conditions of the textile fibers vary so widely, all except rayon being agricultural in origin, fiber prices are subject to continual and extreme fluctuations. The impact of price fluctuations such as those of cotton, fluctuating repeatedly over the last twenty-five years by as much as 50 per cent in a single year, cannot help but create serious dislocations in the markets for cotton products. Moreover, the whole structure of retail trade is built on relatively stable prices. Thus the price organization of the textile industries may be visualized as having, at one extreme, relatively stable retail prices, and at the other, violently fluctuating raw material prices with a series of intermediate market levels which must in the best way possible adjust these differences. Under these conditions the importance of adequate data on fiber prices is readily apparent.

The use of fiber prices in textile economic research assumes an understanding of grade differentials and their significance. What are the standard grades and their relation to other grades? How do these differentials affect prices at subsequent levels of production? Unless one knows, for example, that print cloths, the largest single group of cotton textiles, are usually made from 1" strict middling cotton, whereas 15/16" middling is the standard grade most generally quoted in the market, and that there is customarily a differential or premium ranging around 1 cent per pound for the longer staple, one cannot determine the true rela-

tionship between the prices of print cloths and raw cotton.¹

Standards of grade and grade differentials thus become a basic consideration in price research. They have been worked out most completely and with greatest precision for the textile fiber markets. In fact, at no subsequent level of production do standards of quality exist comparable with those for fibers. Being all, except rayon, products of agriculture, the textile fibers are subject to that infinitude of variation in outward form that is characteristic of all products of nature. Unlike synthetic fibers, the quality of which can be approximately predetermined by formulas and mechanical adjustments used in the manufacturing process, the exact quality of these agricultural fibers is determinable at the time of initial sale only by actual inspection.

The technical requirements of manufacturing require mills to standardize on the quality of the fiber they use. This has made necessary the development of reasonably reliable and practical standards of quality precise enough to meet the requirements of both buyers and sellers. In part these standards have been developed by governmental action, as in the case of the standards for cotton classing in this country; and in part they are the work of the trade itself or of the commodity exchanges, as in the case of silk.

Despite extreme variations in quality most natural fibers tend to center around a single narrow range of qualities which may comprise a fairly large part of total production. This narrow range of qualities tends to become the standard grade in trading, and is selected by common consent as the basis for price quotations, first in the spot markets, then in futures transactions. Prices for other grades may either be figured up and down from this standard by means of some sliding scale arrangement or be quoted independently of any base price. The latter practice is most common where futures markets are not well developed, usually because of the difficulties of establishing a market standard to which other grades bear a fixed and readily determinable relation.

¹ Grades of raw material most frequently used for several types of cotton fabrics are given in the section on gray goods.

Further differences in quality are introduced in preparing the fiber for market. The separation of the cotton fiber from the seeds, the removal of the pulp surrounding the cordage fibers, the unreeling of silk from the cocoon, and the sorting of wool all provide opportunities for accidental lowering of the grade or possibly improving it.

Discussion of the textile fibers would be incomplete without some mention of secondary sources of supply, particularly in dealing with statistics of materials used. Secondary sources of supply figure less in the textile industries than in many others,² but even here they play an important role. Secondary sources are particularly important in the case of wool recovered from rags and clippings, the proportion of which to raw wool is estimated to average about one-fourth. The various types of wastes that develop during mill processing constitute a further important secondary source, not only in wool manufacture but also especially in cotton, rayon, and silk. Since these secondary sources exert a salient influence upon many textile markets, a detailed statement concerning them is given under 'Processed Fibers'.

COTTON

The pricing of cotton is dependent upon the variety, 'grade', length, and character of the fiber. American upland is the leading type both in this country and abroad. Other types exist, however, and are quoted in market centers such as Liverpool and Osaka which draw upon the production of all important cotton producing countries. The more important foreign types—Egyptian, Indian, and China—differ sufficiently from upland to be classed by botanists as separate species.

Although American upland was originally developed commercially in the Piedmont region of the South, its cultivation has since been extended to practically every cotton growing country of the world, notably Brazil and the British

² The amount of reclaimed rubber used by the rubber trade in 1930 constituted 29 per cent of total consumption; in the copper and lead industries the percentages of reclaimed metal were 43 and 40 respectively.

colonies in Africa. This species comprises over 99 per cent of the American crop, the only other being Pima cotton, or American-Egyptian, which is grown on irrigated lands in the Southwest. Sea Island cotton, also related to Egyptian and formerly of some importance, is no longer grown in this country in any important way. Within the American upland type there are said to be a thousand named varieties,³ usually identified with either the name of the originator or with the district in which first produced. One commercial variety of particular importance frequently referred to by name is 'Peeler' or 'Delta' cotton. Originally the term 'Peeler' referred to a variety of long staple cotton grown in the lowlands of the Mississippi delta, but it is now applied indiscriminately to all 1¼" cotton produced in that region.

'Grade'⁴ is a composite of three factors which are judged simultaneously: color, nature and amount of foreign matter, and preparation of the cotton at the gin. Certain types of stains, indicative of weathering in the field and of insect attacks, interfere with subsequent bleaching and dyeing. Undue amounts of foreign matter, usually dried and broken plant foliage and occasionally sand and dust, require extra processing to remove, thereby increasing the mill cost; if not entirely removed, they may lower the quality of the finished product. Similarly, smoothly ginned cotton contains less waste and produces a more uniform yarn than roughly prepared cotton. Grade thus refers in large part to non-cotton elements, particularly to effects produced after the boll has been picked.

The United States Department of Agriculture has since 1914 prescribed grade standards for American upland cotton. The revised standards established under the United States Cotton Futures Act, effective August 20, 1936, are designated as the Universal Standards for American Upland Cotton and are used throughout the world for Ameri-

³ A. H. Garside, *Cotton goes to Market* (Stokes, 1935) p. 48.

⁴ For a detailed statement on grade see U. S. Department of Agriculture, *The Classification of Cotton 1938* (Misc. Pub. 310).

can cotton. The distribution of the American upland crop by grade, 1931-35, is shown in Table 3.

TABLE 3
Percentage Distribution of United States Cotton Crop
by Grade
American Upland Type
(Three-Year Average, 1936-1938)

GRADE	PER CENT
Extra White	1.2
White	76.2
Middling Fair	..
Strict Good Middling	..
Good Middling	3.0
Strict Middling	17.5
Middling *	28.8
Strict Low Middling	18.5
Low Middling	6.1
Strict Good Ordinary	1.8
Good Ordinary	.5
Spotted	21.5
Tinged	.6
Yellow Stained	..
Gray	.1
No Grade	.4

SOURCE: *Agricultural Statistics*, U. S. Department of Agriculture

* The standard grade.

Color and amount of foreign matter are graded together in 32 classes. Six major color classifications range from gray through extra white (the best grade) to yellow stained. In amounts of foreign matter there are five full grades, between which are half grades, designated 'strict'; quarter grades, designated 'barely'; and three-quarter grades, designated 'full'. Actually the trade goes no finer than half grades, using but nine grades in all, ranging from middling fair to good ordinary. Of these 32 standards 13 are represented by actual samples of cotton, supplied by the United States Department of Agriculture and kept in specially built containers for visual comparison with the sample being classed. The rest are descriptive. Expert classers seldom need to refer to these official samples except in cases of dispute.

Tentative standards have recently been adopted for prep-

aration, but quoted prices are not ordinarily based on them. In fact, whenever a grade is named without reference to color or preparation, it is presumed to be equal to the standard for white color.

The length of the cotton fiber, or staple length, is one of the most important factors of quality. Finer yarns require longer staples, other factors being equal. Also, longer staple cottons ordinarily produce greater strength in yarns of a given fineness than do short staples. There are 20 recognized staple lengths ranging from $\frac{3}{4}$ " to $1\frac{1}{2}$ " in length, at intervals of $\frac{1}{32}$ " in the middle range. The largest proportion of the American crop, as indicated in Table 4, tends to center around $1\frac{5}{16}$ ".

TABLE 4
Percentage Distribution of United States Cotton Crop
by Staple Length

American Upland Type
(Three-Year Average, 1935-1937)

LENGTH IN INCHES	PER CENT
Shorter than $\frac{7}{8}$	10.6
$\frac{7}{8}$ and $29/32$	28.5
* $15/16$ and $31/32$	25.2
1 and $1\ 1/32$	19.6
$1\ 1/16$ and $1\ 3/32$	9.9
$1\frac{1}{8}$ and $1\ 5/32$	5.2
$1\ 3/16$ and $1\ 7/32$.9
$1\frac{1}{4}$ and longer	.1

SOURCE: *Agricultural Statistics*, U. S. Department of Agriculture

* The standard quality for market quotations up to August 15, 1939 was $\frac{7}{8}$ " middling upland. It was changed as of this date to $15/16$ ".

Character is a term representing a group of qualities—uniformity of length, fineness, strength, and maturity—not susceptible of direct measurement, but which have a definite bearing upon the value of a given lot of cotton to a spinner.

WOOL

Sheep's wool, the most widely used of the animal fibers, competes with textile fibers of agricultural origin on the basis of its specific properties as much as by reason of price. Other similar animal fibers in general use are mohair, cashmere, alpaca, and camel hair.

The relatively high price of raw wool encourages the use of wool substitute fibers. These come into direct competition with wool, usually entering into the same fabric, and may not always be separately identified in the final product.⁵ The principal wool substitutes used because of their lower price are cotton, rayon waste and staple fiber, and reworked wool.

Two general classes of raw wool are recognized in the American market at present: apparel and carpet. These terms refer more to general quality than to actual use. So-called 'apparel' wools are the finer wools and are shorn from improved breeds of sheep. Carpet class wools tend to be coarse and are usually shorn from native or unimproved breeds. Nearly all carpet class wool is ordinarily used for purposes other than the manufacture of clothing, especially for floor covering for which it may be imported into this country free of duty. However, where a special effect is desired as, for example, in certain kinds of tweeds, it is often used by producers of apparel fabrics. There is no established system for grading carpet wools, prices usually being quoted in terms of the locality where grown.

Apparel class wools are graded according to degree of fineness (diameter of fiber). Two systems of designating wool fineness are used interchangeably in this country: the 'blood', which runs from 'braid' to 'fine', and the numerical, which runs from 36s, 40s to 64s, 70s, 80s. Originally both systems had special significance, the 'blood' referring to the amount of merino blood in the animal producing the fleece;

⁵ Rules of trade practice concerning fiber content of fabrics containing rayon have been promulgated by the Federal Trade Commission.

the 'numerical', to the count or fineness of worsted yarn to which the wool could be spun. Neither system, however, carries its original meaning today, both having become synonymous descriptions of fineness. These grade descriptions are listed in Table 5, together with the mill consumption of apparel wool by these grades, 1936-38.

TABLE 5

Percentage Distribution of Apparel Class Wool Consumption
by Grade

(Three-Year Average, 1936-1938)

GRADE	PER CENT
64s, 70s, 80s (fine)	38.6
58s, 60s ($\frac{1}{2}$ blood)	13.6
56s ($\frac{3}{8}$ blood)	21.6
48s, 50s ($\frac{1}{4}$ blood)	15.6
46s (low $\frac{1}{4}$ blood)	10.6
44s (common)	
36s, 40s (braid)	

SOURCE: Computed from monthly reports by the Bureau of the Census

In addition to fineness, fiber length is important in the pricing of apparel wools. For shorn wools this is indicated by such terms as 'combing' and 'clothing', or 'worsted type' and 'woolen type'. Generally speaking, 'combing' wools are those long enough to be combed, that is, processed on the worsted system; 'clothing' wools are those too short for satisfactory combing and are therefore usable only on the woolen system (the term 'clothing' when used in raw wool specifications has no significance beyond indicating short fibers). Combing wools are of more interest from a price standpoint since they constitute the largest volume of raw wool on the market today and are the chief raw material of the worsted branch of wool manufacturing. Clothing wools are but one of the numerous raw materials used by the woolen branch, other materials being pulled wool, reworked wool, and noils.

'Pulled wool' is wool that has been removed from the pelts of slaughtered sheep. While often used by worsted manufacturers when it is long enough, it is usually thought

of as 'woolen' wool. Quality or fineness of pulled wool is indicated in the United States by letters such as AA, A, and so on down to C super, AA being approximately equivalent to a fine shorn wool. From the standpoint of volume, pulled wool is greatly overshadowed by shorn wool, which constitutes more than 75 per cent of the apparel class and 95 per cent of the carpet class wool consumed in this country.

The locality of growth is also a factor in apparel wool as in carpet wool prices. Australian wools, for example, command a premium not only because of better grading but also because climatic conditions are ideal for growing high quality wool. Shorn wools grown in the United States are usually sold with reference to the state where produced. For convenience the market tends, however, to group wools grown in this country into three broad classes; (1) Texas wools; (2) territory wools, or those grown in the range areas west of the Mississippi other than Texas; (3) domestic or fleece wools, or those grown in the farm land areas, mostly east of the Mississippi. The third group includes the Ohio delaine, the finest wool grown in this country. Sometimes fleece wools are classed as 'bright' or 'semi-bright', depending upon color.

In proportion to wool the amount of other animal fibers used in the wool manufacturing industry is quite small (Table 6). The use of camel hair, as well as cashmere and

TABLE 6

Animal Fibers Used in Wool and Hair Manufacturing,* 1935

(Apparel Class)

	POUNDS
Wool, raw (scoured weight)	221,257,000
Mohair	24,871,000
Camel hair	941,000
Goat, including cashmere	736,000
Alpaca and vicuna	675,000
Rabbit hair	102,000

SOURCE: *Census of Manufactures, 1935*

* Includes only raw material; excludes waste and re-worked fibers.

alpaca, is restricted almost wholly to the production of certain types of overcoatings and knit outerwear to produce exceptionally soft textures. Fabrics produced from these fibers command substantial premiums over wool fabrics, so that competition between them and wool must be regarded as on a use rather than a price basis.

Mohair, however, is used in larger volume and directly competes with wool. Currently its volume amounts to about 10 per cent of that of raw wool. Mohair is the fleece from the angora ⁶ goat, a breed originated in Asia Minor and prior to the War developed for commercial purposes in South Africa. Since 1900 it has been bred extensively in Texas, which now furnishes almost our entire domestic requirements. Mohair resembles in many respects a coarse wool, except that it will not felt, and is much more wiry. This resiliency makes it especially suitable for pile upholstery, as in automobiles, which is its principal use. It is used also in apparel fabrics, usually blended with either cotton or wool, and more recently with rayon staple. Uniform grade standards for mohair are lacking, although the tendency today is to apply count terms, as 40s, 36s, 32s, according to fineness of yarns that can be spun, to the various sorts of mohair. Diameter is the dominating factor in grade determination, although length of staple, luster, and that rather vaguely defined term 'spinning quality' also enter into the sorters' considerations. Four grades are used by the Department of Agriculture in their reports: first kid, second kid, medium, and low.

RAYON AND OTHER SYNTHETIC FIBERS

The potential significance of the synthetic fibers has been greatly enhanced within the last few years by the development of new modified types of existing fibers and the invention of wholly new types. The term 'rayon', which is prop-

⁶ Two fibers can rightly be called 'Angora': one, the hair of the angora goat, known as mohair; the other, the hair of the angora rabbit. The latter is always meant in trade references to 'Angora,' a pure white, extremely fine and downy fur.

erly applied at present to only the first two of the nine groups⁷ listed below, today encompasses probably 99 per cent of all the man-made fibers produced in the world. Nevertheless, most of the non-rayon fibers shown are relatively new and their commercial production in the future cannot be accurately predicted either absolutely or relatively to the production of rayon itself.

Rayon is the generic term for filaments made from various solutions of modified cellulose by pressing the cellulose solution through an orifice and solidifying it in the form of a filament.

It is sold in two distinct forms:⁸ as continuous filament yarn in skeins, cones, or similar packages, and as cut staple fibers compressed into bales, much as is cotton. Rayon filament yarn should properly be regarded as a yarn rather than as a fiber. Its inclusion at this point in the discussion is useful, however, to stress the contrast among the various fibers. Rayon filament yarns are comparable in price with yarns of the other fibers rather than with the raw fibers themselves. Staple fiber, on the other hand, is a true 'fiber' in the same sense as cotton or wool, since it must undergo a spinning operation before it is in yarn form. While distinct in form, the common origin of rayon filament yarn and staple fiber makes it desirable to consider these two fibers together.

The two basic types of rayon, regenerated cellulose fibers, and cellulose derivative fibers, constitute the first two groups of the synthetic fibers:

Group I Rayon—Regenerated Cellulose Fibers

This group includes yarns and staple fibers that are essentially 100 per cent cellulose in their final form. The viscose,

⁷ *Rayon Organon* (Textile Economics Bureau, New York, November 1939); see also the *Textile World*, September 1939.

⁸ Two other forms of rayon are commercially important, although not as textile fibers: rayon monofil, which is a single coarse round filament often used in place of horsehair; and rayon bands and strips spun through a single rectangular or slit-like orifice and used for hat braids and millinery fabrics.

cuprammonium, and nitro-cellulose rayon yarns and staple fibers make up this class.

Some rayon filament yarn trade names in this group are Bemberg, Chardonize, Cordura, Crown, Du Pont, Enka, North American, Spun-lo-, Tenasco, etc. (United States); Brenka, Tudenza (Great Britain); Matalva, Rayolva (France); Fortesia, Sedura (Germany); and Autar, Snia (Italy).

Among the rayon staple fiber trade names in this group are Du Pont, Fibro, Nupronium, Sylph (United States); Fibro (Great Britain); Floccal, Velna (France); Cuprama, Vistra (Germany); and Lucia, Sniaflocco (Italy).

Group II Rayon—Cellulose Derivative Fibers

By far the most important members of this group are the cellulose acetate yarns and staple fibers. Another cellulose compound that has appeared recently as fiber for special purposes is ethyl cellulose. The yarns and fibers in this group are chemical compounds of cellulose.

Some trade names for filament yarns in this group are Acele, Celanese, Eastman Acetate, Ethofil, Seraceta, Tubize (United States); Apaceta, Celanese (Great Britain); Rhodiaceta (France); Acelan, Aceta (Germany); and Opalba, Sapolba (Italy).

Trade names of some acetate staple fibers are Acele, Teca (United States); Celafibre (Great Britain); and Aceta, Rhodia Fiber (Germany).

Rayon Filament Yarn

Rayon filament yarn is composed of several continuous filaments, usually lightly twisted together. The number of filaments may vary within a standard size yarn. This is possible since the filaments, in contrast to silk, can be produced of varying size. Thus a popular size of 150 denier⁹ yarn

⁹ The standard unit of size in the silk and rayon numbering system is the denier, the weight in grams of 9,000 meters of yarn. This system could be called the weight-of-a-standard-length system. Thus a fine yarn has a small denier number and a coarse yarn a higher denier number. By contrast,

today is composed of 40 individual filaments and is referred to as 150-40 yarn. Each filament would then weigh $3\frac{3}{4}$ deniers, the sum of their weights being 150 deniers. But 150 denier yarn is also made commercially in 60 filaments ($2\frac{1}{2}$ deniers per filament), 100 filaments ($1\frac{1}{2}$ deniers per filament), and on up to 225 filaments ($\frac{2}{3}$ denier per filament). Other yarn deniers are similarly available in various filament sizes. Fine filament (or so-called multi-filament) yarns usually command price premiums.

Similarly, yarns are produced in a variety of sizes. Other prominent coarser deniers are 200, 300, and 450. Chief among the finer denier yarns are 100, 75, and 50. The more commonly quoted size for price comparison purposes is the 150-40 yarn, which may be considered as serving as a base grade for rayon filament yarn.

Rayon filament yarn is sold in various types of packages, such as cones, skeins, cops, tubes, spools. Cones are by far the most popular form of package both for weaving and knitting, followed by skeins. Other package forms are of relatively small importance today. Rayon yarn prices are basically quoted on skeins, there being an additional charge for some of the alternate types of package.

Rayon is graded by each producer into various qualities. Thus filament yarn may be graded as first, second, or inferior quality. Factors causing a lower grading than first quality may be lack of evenness, presence of knots or broken filaments, off-color, etc. The lower qualities of yarn are usually sold at discounts from first quality yarn.

Luster in rayon may be varied by the producers by inserting minute particles of titanium dioxide in the spinning solution. If none of these particles is used, the filaments have a smooth surface; thus they reflect light and appear to be bright. But if the titanium particles are introduced into the spinning solution, then infinitesimally rough filaments

the cotton and wool yarn numbering systems might be called the length-of-a-standard-weight systems; in these systems the finer the yarn the larger the yarn number. Adopted by an International Congress in 1900, the denier system is used universally today for both silk and rayon.

are obtained, light is diffused on striking such yarn, and the surface appears matt or dull. Common rayon lusters are bright, semi-dull, and dull (pigmented). The dull yarn formerly commanded a price premium over other lusters, but today is sold at the same price as the bright yarn.

Rayon can be had from producers tinted or untinted, oiled or unoled, and with varying turns of twist per inch from no-twist up to a commercial maximum of about seven turns per inch. When more twist is required, it is put into the yarns either by the weaving mill itself or by commission throwsters who specialize in 'throwing' or twisting yarn for the weaving and knitting trades.

Rayon Staple Fiber

Rayon staple fiber or cut rayon is produced by cutting a bundle (tow or rope) of continuous rayon filaments into uniform lengths ranging usually from $1\frac{1}{2}$ to 5 inches. These cut fibers may then be spun into yarn on a cotton, woolen, worsted, or spun silk spinning system. After rayon staple fiber is spun into yarn, it is called spun rayon yarn. While it may seem unnecessary to chop a continuous filament up into short lengths, then reassemble them by spinning the fiber into yarn, there are good reasons for doing so. For various technical reasons and because of the saving in processing cost, rayon staple fiber is sold for about half the price of rayon filament yarn. Almost equally important is the fact that rayon staple fiber may be spun to resemble almost any of the other fibers: cotton, wool, flax, or spun silk. It may be blended with these fibers to ensure greater resemblance to them, or it may be used by itself. Here is price competition from a fiber that in woven fabrics has physical characteristics closely resembling all the other apparel fibers. The rapid growth in the use of spun rayon apparel fabrics in the last few years indicates a fertile field for study of inter-fiber competition.

Rayon staple fiber is sold in standard lengths and denier sizes per filament depending on the use to be made of it. For example, the $1\frac{1}{2}$ " $1\frac{1}{2}$ denier rayon staple is the most

popular for spinning on the cotton system. On the other hand, a worsted spinner requires longer fibers, comparable in length to the wool fibers he would ordinarily use, such as staple of 5" 5½ denier. A large assortment of lengths and filament size is manufactured. Rayon staple fiber today is made in bright and dull lusters, the latter commanding a price premium over the former in the viscose process, but both lusters being sold at the same price in the acetate process.

Both rayon filament yarn and rayon staple fiber are primary products. Rayon producers' waste, on the other hand, is a secondary product resulting from viscose or cuprammonium yarn production; waste from the acetate rayon process is usually not sold as such, but is redissolved and respun through the spinnerette into rayon filament yarn by the rayon producer.

The characteristics of rayon described above apply in general to the other synthetic fibers as well, so far as they have been developed up to the present time. These other fibers may be grouped as follows:

Group III Natural Protein Fibers

The most important commercial fibers in this group today are those made from milk casein. These fibers generally are produced in the form of short staple fibers rather than in the continuous filament yarn forms. Included in this group are Lanital (Italy); Lactofil (Holland); Casein Fiber (Great Britain); Tiolan (Germany); and Cargau (Belgium).

Also to be included here is the new man-made 'silk' developed by Showa in Japan, and by the Ford Motor Company and the Glidden Company in the United States, the base of which is protein from the soybean.

Similarly, protein-base fibers are made in Japan and Germany by dissolving silk noil or waste and making this into regenerated 'silk' filaments.

Experiments are announced also by the Corn Products Refining Company on another group of protein-base fibers

derived from zein, which is obtained from corn. The trade name of the derived protein is Mazein.

It is reported from Germany, Holland, and Japan that there is some commercial production of fibers with a base of protein from fish, as well as from animal protein sources.

The wide range of these natural protein fibers suggests that many proteins can be used as a base for man-made fibers. Commercial production of fibers in this group is still relatively small, however, with the possible exception of the casein type.

Group IV Nylon—Synthetic Protein-like Fibers

This group of fibers is basically made from coal, water, and air, and has a protein-like structure, but they are not synthetic resin fibers. The generic name for fibers in this group is nylon, officially defined as follows: "Nylon is the generic name for all materials defined scientifically as synthetic fiber-forming polymeric amides having a protein-like chemical structure; derivable from coal, air, and water or other substances and characterized by extreme toughness and strength and the peculiar ability to be formed into fibers and into various shapes such as bristles, sheets, etc."

Group V Synthetic Resin Fibers

These fibers have an all-chemical base (such as vinyl or acrylic) and do not utilize as raw materials any vegetable or animal substances, such as cellulose or protein. Included in this group are Vinyon (United States); Pe-Ce (Germany). The Vinyon itself is a special grade of unplasticized Vynlite, the copolymer of vinyl chloride and vinyl acetate.

Group VI Fibers of Regenerated Cellulose containing Protein

These fibers are made from a mixture of viscose and casein in the spinning solution and are produced in staple fiber lengths only. Listed in this group are Cisalpha, Lacisand (Italy); and Fibramine (Belgium).

Group VII Animalized or Basified Viscose Fibers

The production of these fibers, which possess wool dyeing properties in varying degrees, involves the chemical introduction of nitrogenous groups or synthetic resins which become a physically integral part of the fibers. This material is incorporated directly into the viscose spinning solution or into the freshly-formed fiber by an after-treatment. In this group of fibers are Rayolana (Great Britain); and Artilana, Vistralan (Germany).

Group VIII Glass Fiber

The spinning of glass into fine filaments which may be used either as continuous filament or as staple fiber has been begun recently on a commercial basis by the Corning-Illinois glass works in the United States, under the trade name Fiberglas. This fiber possesses unusual dielectric and thermal properties as well as being non-inflammable.

Group IX Rubber Filaments

Rubber and rubber-like filaments for use as the core of Lastex and similar elastic yarn have been produced for some years by the United States Rubber Company. While not usually thought of as a textile fiber, rubber serves in this particular use in place of a textile fiber.

SILK

Raw silk is a continuous fiber similar to rayon filament yarn. It is included here with the other textile fibers to round out the picture, although in price comparisons silk prices would ordinarily be compared with the yarn prices of the other fibers.

The strand of raw silk is composed of two separate filaments, each originating in one of the worm's pair of silk glands, cemented together by another secretion of the worm, giving the appearance of a single strand. The cementing liquid, known as sericin, which, like the silk or fibroin itself, hardens upon contact with the air, must be

removed from the raw silk before it is dyed. The process of removal is known as the boil-off. The removal of this sericin, necessary to the dyeing and finishing of silk, gives rise to one of the most important economic aspects of the silk industry, weighting. In the boil-off of this gum, silk loses from about 10 per cent to as much as 23 per cent of its weight. The average is about 19 per cent for Japan white silk, and about 2 per cent more for yellow. It is to restore this weight that weighting with tin salts was originally resorted to.

Raw silk is defined as the single strand reeled from cocoons. As the double fiber is about $2\frac{1}{2}$ to 3 denier in size, the single filament would be just half that. Too fine to be used by itself, the silk from several cocoons must be combined to form yarn of commercial sizes. Most raw silk for the hosiery industry is $13/15$ denier, obtained from reeling the silk from 5 or 6 cocoons together. Similarly the $20/22$ raw silk used in weaving is obtained from 9 to 10 cocoons. The silk within a single cocoon varies widely in quality. Only about half of the thousand or so yards in a cocoon is strong and even enough for reeling. All but the middle half must be discarded as waste. The innermost layers are too fine and weak, whereas the outermost layers, which anchor the cocoon to the leaf or twig, are coarse, rough, and frequently broken.

Commercial silk is either white or yellow.¹⁰ The difference between these two grades arises from the slightly higher gum content of yellow silk. Consequently, a pound of yellow silk contains about 2 per cent less silk and sells at a slightly lower price. Also yellow silk cannot be used as satisfactorily for delicate shades, since it boils off to a pearly white rather than a blue white. Furthermore, it tends to be less elastic than white silk and is accordingly used chiefly in weaving rather than in hosiery.

Grading raw silk turns on three primary qualities: evenness, cleanness, and neatness; and the auxiliary characteris-

¹⁰ There is also a wild silk, or tussah, which is rather harsh and has a natural brownish color that cannot be removed by bleaching.

tics of strength, elasticity, color, and size. The primary qualities, it will be noted, apply to yarn rather than to fibers such as wool or cotton.

The study of raw silk prices over a period is complicated by the fact that a system of grades determinable by objective tests has been set up only within the last ten years. Since silk to meet domestic requirements is wholly imported, the establishment of grades has not been a concern of the Department of Agriculture, as in the case of cotton. In the early days the grading of silk was left to the trade, under the 'chop' system, whereby each importer or dealer sold under his own 'chop' or brand. Each firm dealt in raw silk of more or less uniform grade, or if it carried a range of qualities, set up certain standards of its own, to which presumably it adhered. Grades of one house were not necessarily related to those of other firms. The classification finally adopted by the National Raw Silk Exchange, established in 1928, requires objective tests for evenness, cleanliness, and neatness. Samples of the silk are wound on panels and compared under standard light conditions by visual test with a standard set of photographs approved by the trade association for the industry. Variations in evenness of the raw silk and imperfections due to slugs, knots, etc., show up at once. The results of the tests are expressed in percentage seriplane, as 78 per cent seriplane.¹¹

Strength is determined by the number of breakages that occur in winding 30 or more skeins at the rate of about 120 yards per minute. Certain tolerances in breakage are identified with each grade. Silk that meets other tests of a certain grade but is defective in strength would be graded down. Usually weakness in winding accompanies a low seriplane rating. The present grading system used in the trade, together with seriplane rating for each grade, is shown in the accompanying table. The grade letters are composites of the various factors included in grade. The standard grade used on the New York Raw Silk Exchange for trading in

¹¹ By agreement in the trade, the U. S. Testing Company has been designated as the official agency for testing silk for grade.

Raw Silk Grade Standards

GRADE		GENERAL	LOW	COMPOSITE PERCENTAGE	
		EVENNESS [§]	EVENNESS	17 DENIER AND BELOW	18 DENIER AND ABOVE
		BY SERIPLANE			
*Special	AAA	92	83	90	90
	AAA	89	80	88	88
	AA	86	77	86	85
	A	84	74	84	83
	B	82	72	82	81
	C	80	69	80	79
	D	77	65	77	76
	E	72	60	73	72
	*F	67	54	68	67
	*G	below 67	below 54	below 68	below 67

* Not deliverable against futures contracts on Commodity Exchange, Inc.

futures is grade D, 78 per cent seriplane, 13/15 denier.

Comparison of the grades now current in the trade with those in existence prior to 1928 is quite difficult. The old grades had been established solely by the tests of individual buyers using no uniform method or objective tests. This led to gradual debasement of grade. In 1914, for example, double extra (XX) was the best grade on the market. It was probably equal in physical characteristics to double A (AA) today. However, firms kept developing what purported to be finer grades, such as crack double extra, and later a still finer, super crack double extra. Yet it is improbable that actual improvements in quality occurred. In other words, triple extra (XXX) today is in all probability the same as double extra (XX) was in 1914. Thus, there were many 'old' scales, for the quality, the grading, and the classification of silk have been changed many times. The best that can be said is that when the new scales were adopted in 1928 the market grade, if that term can be used, known as Triple Extra was about equal to A; Grand Double Extra to B; Crack Double Extra to C; Double Extra to D; and Extra to E.

THE CORDAGE FIBERS

One of the most striking examples of inter-fiber competition is to be found among the cordage and twine fibers. Here are some 12 or 15 different fibers, which, since they

are all usable within fairly broad limits for the same or similar products, sell in competition with one another, both to consumers, and to a less degree, to mills.

Cordage is made principally from the so-called 'hard fibers'. A relatively small amount is made from 'soft fibers' but these types have specific uses and are not directly competitive with hard fiber cordage for most uses. Twine is made of cotton, soft fiber, and hard fiber. Hard fiber twines have, to some extent, in recent years, replaced certain soft fiber twines, such as jute twine. Generally, hard fiber twines are produced in the coarser sizes with higher relative strengths, while soft fibers are used for finer twines.

'Soft fibers' have other uses, particularly in woven fabrics. The distinction between hard and soft fibers parallels, in a general way, the botanical classification into leaf fibers, which are obtained from the tissues of leaves, and bast fibers, obtained from the tissues of stems.

The relative importance of the different fibers in the cordage industry is indicated by the different raw materials used in 1935 by the cordage and twine, jute and linen goods industry group, as reported by the Census of Manufactures (Table 7). Demand for the cordage and twine fibers is peculiarly subject to forces external to the industry, particularly the influence of mechanical inventions. The demand for oil well cordage, for example, has been affected by the substitution of wire rope for cable drilling, which in turn was affected by rotary drilling. Similarly the invention of the automatic grain binder about 1880 created an enormous new demand for binder twine, today the largest single product of the industry. More recently the use of the harvesting combine has hastened a reduction in the amount of binder twine needed. In the same way fluctuations in domestic and world grain crops have a direct effect upon the demand for and price of these cordage fibers used for binder twine.

Consumers purchase finished products made from Manila fiber, sisal, jute, and hemp by fiber identification alone. Henequen is often referred to, erroneously, as sisal. Never-

TABLE 7

Raw Materials Used in the Cordage and Twine,
Jute Goods and Linen Goods Related
Industry Group, 1937

	POUNDS
<i>Hard Fibers</i> *	
Abaca (Manila)	83,791,194
Sisal and henequen	158,923,063
New Zealand fiber	82,643
Istle	10,481,794
Maguey	1,601,768
Other hard fibers (incl. Mauritius fiber)	2,588,113
Total	257,468,575
<i>Soft Fibers</i> *	
Jute	149,791,480
Jute butts and rejections	54,573,869
Hemp and hemp tow	2,863,620
Flax, hackled	8,124,725
Flax tow	2,071,418
Other soft fibers	4,325,231
Total	221,750,343
<i>Cotton</i>	73,224,404
Grand Total	552,443,322

SOURCE: *Census of Manufactures, 1937*

* A fairly large part of the soft fibers was used for purposes other than cordage and twine, such as jute webbing and bagging for baling cotton, carpets, and linen thread. Practically the entire amount of hard fibers, however, was used for cordage and twine.

These statistics apply to the United States alone. Total world consumption is in radically different proportions.

theless, it is common practice to blend different grades and fibers to produce desired variations in strength and price. Hence, competition among the cordage fibers may be either direct or indirect, depending upon consumer specifications or requirements.

Hard Fibers

Hard fibers, except New Zealand fiber, are produced only in the tropics. Native plants yielding fibers suitable for cordage and twine are to be found in practically all tropical countries, but as the quality of fiber obtained from them varies widely, only a few are cultivated commercially. The eight fibers of greatest importance in world trade are: (1) Abaca (Manila fiber); (2) Henequen; (3) Sisal; (4) New Zea-

land fiber, or phormium; (5) Mauritius fiber, or piteira; (6) Maguey, or cantala; (7) Istle or Tampico; (8) Palma. All these fibers, and especially abaca, are often referred to colloquially as hemp, particularly in European countries. In this country, however, the trade generally applies the term 'hemp' only to 'true' hemp, one of the soft fibers, whereas the hard fibers are designated as shown in the above list.

Tensile strength is the basic quality of the cordage fibers, and a fiber must possess this quality if it is to be included in any of the standard grades rather than be classed as 'damaged' or waste. The combined qualities of *cleaning* and *color* are the determinative factors in grading. With respect to abaca fiber, *cleaning* determines the group under which a certain fiber belongs, and *color* determines the grade within this group. Both the stem and leaf fibers are surrounded by vegetable pulp, from which they must be separated. The method of cleaning and the degree of thoroughness of the cleaning process are extremely important factors affecting the quality of the fiber.

Fibers are graded also according to the method by which they are separated from the pulp: hand or spindle stripping, mechanical decortication, and retting. Hand or spindle stripping produces the finest grade of fibers, although the product of mechanical decorticators is of adequate quality for ordinary use, as for binder twine. Retted fiber is always of inferior quality.

ABACA (MANILA FIBER)

Abaca is the principal fiber used in this country in rope where the greatest possible strength for a given diameter is needed. Its special properties of being able to resist rot in salt water, and to absorb large amounts of water-resisting and lubricating compounds, enabling it to remain afloat longer, make it particularly desirable for marine cordage. Since about the middle of the 19th century, abaca has replaced all other fibers, chiefly true hemp, for this use. The substitution has arisen not from a price differential so much as from superiority for a given use.

Abaca, a banana-like plant, is native to the Philippine Islands. The fiber lies in the outer bark of the leaf stems, which grow together much like a stalk of celery, and must be separated from the soft pulp on the inner side of the leaf stem. Fibers range up to about eighteen feet in length, the largest proportion being from six to nine feet.

Because of the rigid strength requirements manila cordage must meet, grading of abaca has been carried to an exceptionally fine point. The grading system currently in use, adopted by the Philippine Government in 1914 and subsequently modified, is based upon the intrinsic quality of the plants from which the fiber is extracted and covers the many forms the fiber takes after stripping, as well as its various uses. There are 42 grades, of which 34 apply to hand stripped and 8 to decorticated abaca. The former includes 6 grades of a superfine quality of fiber, 'Tagal', which is used for hat braids and commands a substantial premium in the market. The largest proportion of abaca is classed among the standard grades, of which there are 18, based upon variations in cleaning and color, with 11 additional grades for 'damaged', tow, and waste.

Abaca is identified in world markets according to the port of origin. A leading port of export today is Davao. Fiber from there is produced on a plantation system mainly by Japanese, and has a somewhat more uniform quality than the product of small producers, which comprises the bulk of the shipments from the ports of Manila and Cebu. Davao fiber is also spindle stripped and is more uniform in length and quality than hand stripped fiber. The unit of sale is the bale of 126.5 kilos net (278.3 pounds net).

SISAL AND HENEQUEN

Henequen and sisal are the principal sources of binder twine, and are also used in twine for tying bundles, etc. They are used also in the manufacture of a relatively small quantity of lower priced cordage. Henequen, produced in Yucatan and often called Mexican sisal, furnishes the bulk of our domestic requirements for binder twine. Sisal, a

botanical species distinct from henequen, was brought to Florida from Yucatan about a century ago and subsequently distributed in various parts of the tropics, particularly in the British colonies of East Africa and in Netherland India.

Abaca matures its first stalks about two years after planting, and continues to be harvested for twelve to fifteen years without replanting. Henequen matures its first leaves after four to seven years of growth, depending on soil and climatic conditions, after which harvesting is continuous for ten to twenty years. Sisal matures its first leaves after two to three years of growth, and harvesting is continuous for four to seven years. Harvesting consists simply in removing about fifteen of the lowest leaves at a time, ordinarily at intervals of about six months.

Sisal and henequen are usually cleaned by mechanical decorticators. The first henequen machines were built in Yucatan, but machines for cleaning both henequen and sisal are now manufactured in several countries.

Grading is much more simple for sisal than for abaca, only five grades being generally recognized in the trade. 'Current clean' is the standard grade for market quotations. Sisal sold on the market is always identified with country of origin. The unit of sale is a bale of about 400 pounds.

OTHER HARD FIBERS

Although abaca, henequen, and sisal are the principal hard fibers used in this country, they are priced in a world market where they come into competition with the other hard fibers. At times substantial quantities of these other fibers have also been used in this country (as was the case with New Zealand fiber up to a few years ago). Some have distinct properties of their own, although for many purposes they are used interchangeably, depending upon price and nearness to the market.

New Zealand fiber is longer than sisal, 5 to 10 feet in length, and is finer and softer than abaca. Because of its fineness it is frequently referred to as New Zealand flax. It is produced from the leaves of the harakeke lily, grown

both wild and cultivated in New Zealand and St. Helena. Since no entirely satisfactory automatic decorticator has yet been devised to clean this fiber, it must be cleaned by several operations, including retting, which places it at a price disadvantage in world markets with machine-cleaned sisal. There are five commercial grades, similar to sisal but with different designations.

Mauritius fiber, because of the method of cleaning which includes boiling in a solution of soap and water, is about half way between the soft and hard fibers, being considerably finer and softer than sisal. It can thus be used for bags as well as cordage. As it is almost white, one of its principal uses has been in mixing with other fibers to lighten the color of rope. The fiber ranges from 4 to 7 feet in length and is obtained from the leaves of the giant Cabuya, a plant grown in Brazil, India, and Natal as well as in the island of Mauritius.

Manila maguey or cantala is obtained from an agave plant native to Mexico, but now grown in Netherland India, the Philippine Islands, and India. This fiber is cleaned in the Philippines by retting and in Netherland India with automatic fiber cleaning machines. It is about the same length as sisal but finer and weaker. It competes with sisal in Continental Europe and the Far East for use in the manufacture of the lower sizes of rope.

Istle, also known as 'Tampico' or 'Mexican fiber', is obtained from the leaves of two Mexican agaves found principally in the desert uplands of northern Mexico. The fibers are from 8 to 20" long, and in addition to being used in cheap twines are used as a substitute for animal bristles in cheap brushes. Palma, also called Palma istle, is about the same length, and used for similar purposes, but is obtained from a tree, yucca.

Soft Fibers

Cotton is used in the United States, in both cordage and twines, in larger quantities than any of the soft fibers. The main product is, of course, wrapping twine, but cotton rope

for clothes lines, braided sash cords, mops, etc., is also important.

'True' hemp (*Cannabis sativa*) is historically the principal soft fiber for cordage purposes. It is a bast fiber, similar to jute and flax, and, like other bast fibers, is extracted from the stalk by retting. Hemp is still produced in the agricultural regions of southeastern and Central Europe from Italy to Soviet Russia, but has been largely replaced in this country, chiefly by abaca in cordage, and by cotton in many smaller sizes of twine. Some hemp is still produced in Wisconsin and Kentucky, and is designated as Wisconsin or Kentucky hemp in the domestic market. The chief use for it today in this country is in special types of twine and in halibut fishing lines.

Other soft fibers used for cordage include Sunn, a fiber grown in India and consumed mainly in Europe; kenaf, a jute-like fiber grown in various countries; and jute, used principally for twines. Paper twines compete on a price basis with cotton and jute wrapping twines and also have specific uses as 'wool twine'.

Wrapping twines represent a particularly interesting example of inter-fiber competition on a price basis, since so many different fibers are available and so many different grades can be marketed.

JUTE

An especially significant example of inter-fiber competition and one certain to receive increasing public attention is the competition of jute with cotton. Many of the uses now served by jute could be served equally well by cotton: for bags, twine, wrapping material, rugs, and cotton bagging. Uses where cotton would not serve as well are in certain kinds of webbing, insulation, linoleum backing, packing, carpet yarns, and interlinings—uses that account for approximately one-fifth of total domestic consumption.

British India has virtually a monopoly on the production of jute. It is grown in the delta of the Ganges in the densely settled province of Bengal, where abundant native labor is

available for the arduous cultivation and retting required. An increasing amount of the fiber, currently about half of total production, is woven in India into cloth, burlap or hessian, and sacking. More recently the sewing of bags has been begun there.

It has been said that the price advantage of jute in this country is due, on the one hand, to the very low cost of labor in India for producing the fiber, weaving it into cloth and sewing it into bags, and on the other, to relatively low tariffs. Also, that the imposition of a higher tariff to bring cotton and jute to a comparable basis might lead to a broad substitution of cotton for jute, and by the same token, mean higher costs to grain farmers. A study of price relationships of the two fibers should yield interesting results if done impartially without regard to the economic and political interests involved.

United States consumption of jute products amounts to about 8 hundred million pounds per year. It is imported in the raw state, as woven fabric, and as bags (Table 8).

TABLE 8
Imports of Jute and Jute Products, 1937

	(THOUSANDS OF TONS)	(MILLIONS OF DOLLARS)
Jute, raw*	92	8.793
Jute, butts	27	1.133
	(MILLIONS OF POUNDS)	
Waste bagging and waste sugar sack cloth*	63,911	1.803
Jute yarns	4,475	336
Cordage	163	17
Bagging for cotton	744
Burlaps	657,724	41,144
Woven fabrics, n.e.s.	2,315	509
Bags or sacks	50,855	2,556
Other manufactures	890
Total	57,925

SOURCE: Bureau of Foreign and Domestic Commerce

*Free of duty.

FLAX AND RAMIE

Flax enters the markets of the United States almost wholly in the form of woven fabrics and fabricated articles from European weaving centers. Accordingly its significance in price research as a fiber per se is relatively small. Certain amounts of flax or flax waste do enter this country for the production of threads, fishing lines and nets, and toweling, and for mixing with cotton in the production of part-linen goods, but from the standpoint of this report, prices for the woven fabrics are far more significant.

Ramie, or china grass, a bast fiber-like flax or hemp, has never attained commercial importance in this country, although it is used in China and small amounts originating there do enter world commerce.

FIBERS FOR STUFFING PURPOSES

Stuffing fibers may be regarded as of two types: coarse fibers for upholstery stuffing and softer fibers for such purposes as mattresses and bedding. The principal requirements of this group of fibers are to produce bulk without undue weight and to possess a certain amount of resilience. As this involves no direct strain upon the fibers, it is possible to use grades that would have to be rejected for yarn manufacture. Hence short fibers, and waste from all the other fibers, are available for this use and compete among themselves, in part on a price basis and in part on their special properties, together with specialty fibers produced just for padding. For example, for such uses as mattress felts, cotton batting, and surgical cotton, at least three types of cotton are available: cotton linters (i. e., the short fibers removed from the cotton seed after ginning), certain types of cotton waste, and lower grades of raw cotton. Again, in comfortables, cotton, wool noils, and silk waste compete, although on different price levels. For upholstery stuffing a wide range of fibers is available: Spanish moss, obtained from the limbs of trees in swamps along the Gulf Coast, crin vegetal, a product of French Morocco, flax upholstery tow, from the

stalks of flax grown for its seeds, sisal, coir, excelsior, horsehair, etc.

Kapok differs from other upholstery fibers in that it possesses unique properties. Its extreme lightness and resistance to absorption of moisture make it particularly suited to life preserver belts. It is also used for temperature and sound insulation. Owing to its brittleness and the extreme smoothness of the fibers, it is not spinnable, and its usefulness as mattress or upholstery stuffing is limited to five years or so.

Coir (or coconut fiber) is the fibrous mass contained between the husk of the coconut fruit and the shell of the nut and is separated from the husk by a retting (or soaking) process. There are three main types: (a) curled fiber, a short variety used for mattresses or for stuffing upholstery as a substitute for horsehair, etc.; (b) mat fiber, the finest quality, used in the manufacture of ropes, twines, and matting; (c) bristle fiber, a coarser and thicker quality, from which brushes and brooms are manufactured. The extraction of coir for manufacture and foreign trade is almost entirely confined to India and Ceylon, where the industry is carried on in the villages.

THE TEXTILE FIBER MARKETS

With the exception of rayon, the leading textile fibers are all products of agriculture. Their primary markets are accordingly characterized by fairly large fluctuations in yield and production arising from climatic conditions, by a large number of sellers, usually under the necessity of disposing of their product quickly, and by a certain amount of governmental supervision over the marketing process.

Spot and Futures Markets

Only small amounts of textile raw materials are purchased directly by mills from growers, since the mills' requirements as to grade cannot readily be adjusted to the year-to-year fluctuations in quality of any given set of producers. Growers' markets must, therefore, necessarily exist for as-

sembling agricultural products for ultimate distribution through central markets. In these growers' markets the primary producers sell their crop to local merchants or other country buyers. The prices in these markets, commonly termed, 'prices received by farmers', represent sales only during that part of the year when farmers are disposing of their crop. Price series of this kind are compiled by the United States Department of Agriculture for cotton and wool based upon returns from special price reporters. They are released in the form of monthly and weighted average seasonal prices by states and for the United States. The most representative price series are those for the central spot markets to which farmers ship the largest part of their product for sale through a factor or commission merchant. Here transactions are carried on between purchasers representing mills, exporters, and other interests on the one hand, and commission merchants, shippers, factors, and other representatives of growers, such as growers' co-operatives on the other. Sometimes there is only one central market for a fiber, such as Calcutta for the jute trade. Usually, however, many of these market centers are scattered over the growing area, all important in the assembling and marketing of the crop but tending in pricing to follow the leadership of some one or two central markets in which all leading buyers and sellers operate. Thus in the cotton belt almost any city with a population of 25,000 or more is regarded as a market center, but New Orleans holds the leadership in spot pricing.

For cotton and silk, futures markets exist in this country and for some of the other fibers futures markets may be found in England, on the continent, or in the producing country (Table 9); recently, Japan established a rayon futures market. In these futures markets, contracts are entered into for the delivery of standard grades of the commodity for specified future deliveries. These prices are the familiar 'futures' prices and are identified by the particular month in which delivery is to take place, usually the nearest active month being referred to as 'the' futures market quotation.

TABLE 9
Market Centers for the Textile Fibers

	LEADING WORLD MARKET	U.S. MARKET CENTERS	OTHER IMPORTANT MARKET CENTERS
Cotton	Liverpool * New York *	New York * New Orleans * Chicago *	Havre *, Bremen *, Osaka * (U.S. crop) Bombay * (Indian crop) Alexandria * (Egyptian crop) Shanghai * (Chinese crop)
Wool	London (apparel) Liverpool (carpet)	New York * (tops) Boston (apparel) Philadelphia (carpet)	Sydney, Wellington, Buenos Aires, Cape Town, Antwerp *, Roubaix *
Mohair	London	Boston	
Silk	Yokohama * Kobe *	New York *	Milan, Lyons, Canton
Abaca	Manila	New York	London
Henequen	Merida	New York	
Sisal	London	New York	Amsterdam
Hemp	Various	New York	Naples, Odzaki (Hungary), Belgrade, Bombay, Calcutta
Jute	Calcutta * London *	New York	Hamburg, Trieste, Genoa, Dundee
Flax	Leningrad		Courtrai, Riga

* Futures Market.

The relation of this market to the spot market has been particularly well stated by Bradford B. Smith with respect to cotton:¹²

"The price of cotton is determined largely in the futures markets, although the spot situation may be and often is an important factor. Since cotton may be sold or bought for delivery in future months, a purchaser, in effect, can place his order for his future needs and a seller can provide for the disposition of his cotton when it becomes available. In the meantime an operator can buy from one and sell to the other, thus evening up the operation. In case the price for future delivery goes much higher than the current price the operator buys the cotton in the spot market and sells it for delivery in the future month at the higher price, carrying the cotton over the intervening period. The continuation of this process tends to bring the prices together. A similar purchase in one market and simultaneous sale in another, known as a straddle between markets, tends to keep prices in the two markets within a margin equal to the cost of transportation between them. As a result, all the prices at the central and futures markets, as well as at the local farm markets, tend to move together, both as between markets and between months for future delivery. Since it is in the futures operation that anticipated needs are met, and since, by the mechanism of straddles, such needs are averaged out and communicated to the spot markets, it may be said that the futures markets determine the price."

Spot prices are generally available for all fibers, in at least one or more markets, even where there are no organized exchanges or markets. In the case of wool, for example, Department of Agriculture representatives interview both

¹² Factors Affecting the Price of Cotton, Technical Bulletin 50 (U. S. Department of Agriculture, 1928).

Some modification of this explanation is desirable today in the light of conditions in the cotton market that have prevailed recently. A more accurate general statement would be: "The large swings in prices of spot cotton are generally associated with more or less similar changes in prices of cotton futures contracts for the near-active month. But these prices do not always change by the same amounts or in the same direction." (L. D. Howell, 'Cotton Prices in Spot and Futures Markets', Technical Bulletin 685, U. S. Department of Agriculture, 1939.)

TABLE 10
Selected Sources of Fiber Prices and Related Data

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
<i>A RAW COTTON</i>			
15/16" middling ¹	<i>Daily Official Report of Designated Spot Cotton Markets</i> pub. by Department of Agriculture office at Atlanta	Daily average spot price based on quotations in the ten leading markets	Data on production, ginnings, consumption, stocks on hand, imports, and exports comp. monthly by Census in terms of origin (domestic and foreign). Receipts into sight comp. by New Orleans Cotton Exchange; imports and exports by BFDC
15/16" middling ¹	New York Cotton Exchange	Futures, nearest active month, closing price	
<i>Staple cotton</i>	<i>Cotton Market Review</i> , issued weekly by Department of Agriculture office at Washington, D. C. and Memphis	Premiums for grade and staple	
1 3/16" middling, delivered to N. E. mill points			
1 1/8" middling, delivered to N. E. mill points			
1 1/32" middling, Memphis Territory and Western delivered to Carolina mill points			
1" middling, Memphis Territory and Western delivered to Carolina mill points			
7/8" middling, Memphis Territory and Western delivered to Carolina mill points			

¹ Base staple length of cotton for futures contracts changed August 15, 1939 from 7/8 to 15/16 of an inch.

Rayon staple fiber

Viscose, 1½", 1½ denier
Acetate, 1½", 1½ denier

Japan 13-15 denier 83% seriplane (grand crack double extra)

Japan 13-15 denier 78%, seriplane (crack double extra)

Japan 20-22 denier 81% seriplane yellow (special crack double extra)

Japan 20-22 denier 81% seriplane white (special crack double extra)

Italian 20-22 denier 83% yellow

Apparel Class, Domestic, Boston

64s, 70s, 80s, French combing, graded territory, scoured basis²

56s, ¾ blood, combing, graded territory, scoured basis

48s, 50s, ¼ blood, combing, graded bright fleece, scoured basis

Pulled, B super, scoured

Apparel Class, Foreign, Boston (in bond)

Australian 64s, 70s, good average scoured basis

Montevideo 1s, 56s, grease basis

Montevideo 2s, 50s, grease basis

B RAYON STAPLE FIBER

Prices pub. in trade papers; e.g., *Daily News Record, Commercial Bulletin*

Weekly prices for luster, semi-luster, and dull cut fiber in Boston market

C RAW SILK

Prices pub. in trade papers; e.g., *Daily News Record, Journal of Commerce*. Also certain grades in *Daily Market Report on Raw Silk* of Commodity Exchange, Inc.

Prices quoted daily for Japan raw silk in N. Y. market; also Raw Silk Futures prices on N. Y. Commodity Exchange. Foreign spot and futures prices pub. for the Yokohama and Kobe markets

D RAW WOOL

Weekly Review of the Wool Market pub. by Agricultural Marketing Service, Boston, Mass.

Weekly range of sales based on interviews with dealers, top-makers, and mill buyers; when sales negligible, quotations asking prices of dealers. During recent years quotations on foreign apparel wools largely nominal except for occasional buying spurts

Same source as Domestic

² Grade from which top is made that is most freely traded in both in spot and futures markets.

Production data comp. by Textile Economics Bureau; pub. in *Rayon Organon*. Imports comp. by BFDC

Imports and exports comp. by BFDC. Into-sight movements, mill takings, stocks by countries of origin in monthly statistical suppl. to *Daily Market Report on Raw Silk* of the Commodity Exchange, Inc.

Data on monthly consumption by mills and quarterly stocks in hands of mills and dealers pub. by Census in terms of origin (domestic and foreign, no breakdown of domestic by territory and fleece), class type (shorn or pulled), grade, and staple or system on which consumed. Weekly import data for three chief ports and monthly for entire country pub. by Departments of Agriculture and Commerce, respectively, classifications comparable to those used by the Census

TABLE 10—(Continued)

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
<p><i>Carpet Class</i> China, scoured basis B. A. 6s, scoured basis India, Vicaneer, scoured basis Scotch Blackface, scoured basis</p>	<p>Prices on grease basis pub. in trade papers; e.g., <i>Daily News Record</i>, Monday issue; <i>Commercial Bulletin</i>, <i>Journal of Commerce</i>, <i>American Wool and Cotton Reporter</i></p>		Same as Apparel Class
<i>E CORDAGE AND OTHER FIBERS</i>			
<p>Manila, I, fair, current, c.i.f. N.Y. Manila, Davao, I, c.i.f. N.Y. Henequen (Mexican), current clean, c.i.f. N.Y. Sisal (Java), grade A, c.i.f. N.Y. Mauritius fiber, prime, c.i.f. N.Y. Jute, first, actuals, c.i.f. N.Y. Hemp (Italian), G (duty paid), c.i.f. N.Y. Flax (Dutch), c.i.f. N.Y. Kapok, prime Japara, c.i.f. N.Y.</p>	<p>Selected prices pub. in trade papers; e.g., <i>Commercial Bulletin</i>, <i>Journal of Commerce</i>, <i>Daily Mill Stock Reporter</i>, <i>Cordage Trade Journal</i>, or available from importing firms</p>	Weekly prices in N. Y. market	Imports comp. by BFDC

dealers who are offering wool and top-makers and mill buyers who are looking for wool. The quotations represent actual sales to the extent that significant transactions have occurred; for grades on which sales have been negligible, the quotations are the asking price of dealers, or if available, bid and asked prices. In other fiber markets, where organized exchanges or government compilation of prices is lacking, various trade papers or brokers frequently compile price information for release to the trade daily or weekly. (See Table 10 for detailed information on Sources for Spot price data of the various fibers.)

For cotton and wool the Bureau of Agricultural Economics compiles quotations which are accepted by the trade as representative spot price series. For cotton this price series is in the form of a daily average price of spot cotton for the $\frac{7}{8}$ " middling grade, based on prices quoted in ten leading spot markets: Norfolk, Augusta, Savannah, Montgomery, Memphis, Little Rock, Dallas, Houston, Galveston, and New Orleans. For apparel class wool it is in the form of a weekly average of prices of domestic¹³ and foreign apparel class wool in the Boston wool markets.

The market for raw wool has not so far been organized around a futures market as has that for cotton and silk, since the delivery of wool in homogeneous units, which might be sold by sample or grade, would be exceedingly difficult. Not only are the classifications as to quality much broader than in the case of cotton, for example, but decisions as to quality must necessarily be largely a matter of individual judgment owing to the absence of definitive standards. Since 1931, however, a wool top futures market has existed in this country, which serves to some extent as a hedging market for the wool trade.

¹³ The term 'domestic' has a special meaning with respect to wool in addition to its general use in reference to wool of domestic origin. During the 19th century, when most of our domestic wools were produced in the Ohio valley, the term 'domestic' was applied to wools from that area to distinguish them from wools from the great plains 'territories' west of the Mississippi, to which the raising of sheep was then being extended. 'Domestic' wools are today more frequently termed 'fleece' wools.

Apparel wool is sold abroad at auctions. Such sales have taken place for almost a century in London, Liverpool, Antwerp, Bremen, Hamburg, Marseilles, and recently in Australia. This method of marketing has been little used in this country, partly, no doubt, because wool is not graded at shearing sheds and partly because wool growing is spread over so vast an area. The bulk of the American clip therefore passes through the hands of dealers in the leading market centers of Boston, Philadelphia, New York, Chicago, and St. Louis. Imported wool passes through these same markets, particularly Boston for apparel wool, and New York and Philadelphia for carpet class.

Wool of domestic origin supplies by far the largest part of the United States apparel wool consumption, varying in recent years from 65 to 90 per cent of the total. A high protective tariff makes for priority of the domestic apparel clip in the American market. All our carpet class wool, however, is imported. There is no tariff on this class of wool or on low grade apparel wool (not finer than 40s) if used for floor coverings, press cloths, knit or felt boots, or heavy fulled lumberman's socks, etc.

The domestic market for raw silk, like that for cotton, tends to center around the New York futures market. Organized in 1928 by Commodity Exchange, Inc., the New York futures market is the principal center for pricing of raw silk in this country.

For these three fibers, cotton, wool, and silk, the domestic price is peculiarly sensitive to fluctuations within this country, in either supply or demand. The United States is the largest producer of raw cotton and accordingly exerts a marked influence upon the world price. Similarly, it is the largest consumer of silk, so that world prices are largely dependent upon purchases of raw silk by American mills. The high tariff on wool, together with the adequacy of our domestic supply of clothing type wool, places us in a different position with respect to the world market than for these other fibers. Likewise for mohair, our domestic production approximately equals our needs. With respect to

the other textile fibers, jute, and the cordage fibers, the United States is only one factor in a world demand where other countries exert an equal or even greater influence.

Adjustments in Price for Quality

Foreign matter or excess moisture in the fibers, and the wide range of qualities, are further important factors in pricing textile fibers. Silk, wool, and abaca readily absorb large amounts of moisture—in fact, their hygroscopic qualities are among their most important; they must accordingly be ‘conditioned’ before the actual weight of fiber in a given lot of goods can be determined. For this purpose conditioning warehouses are important adjuncts to the market.

Wool in the natural state as it comes from the sheep’s back, furthermore, contains a large amount of natural grease, and also, besides dust and vegetable matter, a considerable amount of dried perspiration or suint. Altogether, this foreign matter may constitute from 20 to 80 per cent of the total weight of the fleece. Wool prices quoted in the ‘grease’, therefore, vary not only with grade, staple, and general character but also with expected shrinkage during the scouring process. When wool prices are quoted on a ‘scoured basis’, it means that account has been taken of the probable yield of scoured wool that would result under ordinary commercial scouring. Such prices do not include actual cost of the scouring operation. If wools are quoted ‘scoured’, which is the customary practice for pulled wools, it means that the wool has been scoured, thus removing the grease and other foreign matter, and that the scouring charges are included in the price.

Variations in grade and staple are reflected in each fiber market, and are reported in detailed price quotations for the fiber. For fibers sold on a futures exchange, such as cotton and silk, where transactions are carried on in some one standard grade, some means for establishing the price differential for grade and staple at the time when delivery is due, must be provided for. In the case of silk this was, until July 1938, taken care of by a committee of the New

York Commodity Exchange, which once a month, or oftener if required, fixed the grade differentials. In the new contracts in force since that date, certain differentials are fixed for each grade, amounting to so much per pound over the base grade.

For cotton the Department of Agriculture compiles each day the current differentials for all grades established by law and for a wide range of staple lengths, for use in the settlement of futures contracts as well as for other purposes. These differentials are compiled in the form of daily averages for the ten spot cotton markets designated by the Secretary of Agriculture for use in determining the differentials to be used in the settlement of contracts traded in on any of the three domestic futures exchanges. The differentials are expressed in terms of points to be added to ('on') or subtracted from ('off') the quotations for futures contracts. The Atlanta office of the Bureau issues a daily report giving most of these differentials.

Futures contracts for cotton usually include in the price freight to some designated point, whereas spot sales represent only the value of the cotton in a particular market center. Inclusion of warehouse charges in the price varies from one market center to another.

The units of trading vary from one fiber and one country to another. On fibers of domestic origin prices in the United States are quoted in cents per pound, as in the case of cotton, wool, and mohair. Silk in Japan is quoted in yen per picul bale, containing $133\frac{1}{3}$ pounds of silk. Italian silks, on the other hand, are packed in bales of about 200 pounds, etc.

The Rayon Market

The market for rayon is fundamentally different from all other textile fiber markets. This difference arises from the fact that the rayon fiber is itself a manufactured rather than an agricultural product. It is different also in that there are no intermediaries in the sale of the fiber to users: rayon producers usually sell directly to mills rather than through

countless assemblers, brokers, or commission merchants, as in the case of a fiber like cotton.

Prices are made by the eighteen rayon producers in this country in the form of list prices. These cover the very large range of different sizes of yarns, together with all the combinations of luster, quality, type of put-up or package, etc. Prices for both rayon staple and rayon filament yarn, like the prices of most manufactured products involving relatively large amounts of fixed labor and capital costs, tend to be fairly stable, with rather infrequent changes during the merchandising season. This is in contrast to the wide day-to-day fluctuations in prices of agricultural fibers, arising in large part from the absence or abundance of rainfall in some near or remote corner of the world.

Rayon prices, like prices of all other manufactured textiles discussed in this report, are subject to slight variations not indicated in the list prices. Thus for several years most of the rayon producers maintained a quantity discount system whereby large users obtained a discount up to 5 per cent for purchase of rayon in quantities of 1,000,000 pounds per year or more. These quantity discounts were discontinued in 1936, concurrent with the effective date of the Robinson-Patman Act. Trading prices, as for other manufactured textiles, are of varying importance, being more likely to occur in prolonged slack periods where an open change of the list price during the season would unsettle the market rather than increase sales. Rayon producers have at times guaranteed their prices against decline during a stated period in order to assure a steady flow of their product. But this practice was last used in 1937. One of the most interesting aspects of rayon has been the improvement in quality in addition to, and independent of, price reductions. The improvement in the technology of yarn production and fabric construction, the steady reduction in prices over the last twenty years, and the accompanying steady increase in consumption, is an almost perfect example of elastic demand with increasing values and decreasing prices.

PROCESSED FIBERS

Under the heading processed fibers are two types of products:

- 1) Fibers that have undergone some manufacturing beyond the state in which they appear in the raw fiber markets, but that have not yet been spun into yarn.
- 2) Wastes of all kinds, including byproducts of textile manufacture.

WOOL TOPS AND THE WOOL TOP MARKET

Only for wool and spun rayon are there important markets intermediary between the raw fiber and yarn. They have arisen from the fact that long and short wool fibers lie intermingled in the fleece. Since the worsted system of manufacture is dependent upon the exclusive use of long fibers, their segregation in the form of 'tops' is essential. This is done in the combing process, which removes the shorter fibers called noils, and delivers the 'tops' in the form of a continuous strand of parallel fibers to be subsequently drawn and spun into worsted yarn.

The organization of top making into a specialized industry in this country, rather than as part of the vertically integrated process of worsted manufacture, has expanded rapidly in recent years. At present about half of the wool used by worsted mills is bought in the form of top against only a quarter ten years ago. Reasons for the organization of this separate trade and the introduction of an important new market in the chain of manufacture include the desire of integrated worsted mills to shift a part of their inventory risk, since tops can be bought in smaller quantities and nearer to the time of actual use. Another reason is the ability of specialist top-makers to produce desired qualities of tops at lower costs by selecting the right wools and blending them in the right proportions, and by keeping the equipment of the commission combers on whom they rely operating at a higher rate than that of mills with their own combing departments.

Tops are identified with the grades of wool from which they are combed. They may be designated by either the blood or the numerical system; sometimes the origin of the wool, such as territory wool, is also specified. Tops are produced for both the English or Bradford and French systems of spinning; that is, oiled and dry combed. Oiling involves the addition during the combing process of olive or mineral oil to the extent of about 3 per cent of the weight of the wool. Oil makes the fiber more pliable and easier to handle, particularly the coarser grades, the French system of dry spinning being ordinarily used to spin the finer grades of wool tops.

Practically all the spot trading in wool tops is done on makers' standard grades. Each top-maker has his own trade name so that comparison between grades of different top-makers to establish market prices is sometimes difficult. On the whole these grades tend to approximate the different grades of wool used generally in the trade.

In addition to this spot market, which centers in Boston, there has been since 1931 an important futures market in tops, the New York Wool Top Exchange, conducted by the Wool Associates of the New York Cotton Exchange. This serves as a hedging market for the apparel wool trades.

Prices for wool top futures, while not identical with spot prices, are more readily available and serve to indicate general price movements. Trading is conducted in a single quality, American Fine Top, made from average 64s domestic wool, oil combed, and of average length and color. Deliveries may be made in other grades of tops, however, subject to a premium or discount depending upon their quality relative to the Exchange standard.

RAYON TOPS

The sharp rise in the price of wool during 1936-37, which took it well above its range over a decade, encouraged the processing on a large scale of rayon staple fiber and waste as wool substitutes in the worsted industry. More recently, style as well as price factors have contributed to a contin-

uance of this blending to obtain a wide variety of effects in both low- and high-wool-content fabrics. In blending with wool in tops for worsted machinery, the rayon waste or low grade staple fiber used for this purpose must first be converted into tops by combing out short or broken fibers. The resulting product closely resembles wool tops and can be combined with the latter in the drawing operation. Like the manufacture of wool tops, rayon tops tend to be produced by specialized top-makers for sale to worsted mills.

After 1937, with the sharp decline in the price of wool to a relatively low level, the use of rayon tops by wool manufacturers fell off sharply. Their future use on any large scale will probably be handicapped by fiber identification requirements. Worsteds are characteristically higher priced fabrics and are generally regarded as all-wool fabrics, so that mixtures are undoubtedly at a disadvantage in competition with all-wool worsteds. This statement presumes that rayon staple fiber is used as an adulterant with wool and not for any unique qualities of its own, a viewpoint that is changing somewhat today.

TYPES OF WASTE

Waste originates at all stages in the processing of textile fibers, although it seldom attains a status that would justify the dignity of the word 'byproduct'. The production of waste provides an important source of materials for use in place of the raw fibers themselves. The relation between waste and fibers is continually shifting in accordance with price movements in the world commodity markets. Waste materials may either re-enter the flow of manufacture, by being 'processed' or rehandled in some way, in which case they compete directly with raw fibers; or they may be disposed of for certain other purposes requiring a lower priced material. Some of the principal uses of wastes are:

a) *Reworking*—for re-entry into the flow of manufacture. Wastes from all stages of production are eligible for this use, although only in wool and rayon are wastes beyond the roving stage processed for re-manufacture into yarn.

TABLE 11
Common Types of Waste

STAGE OF MANUFACTURE	COTTON	WOOL	FILAMENT RAYON	SILK	CORDAGE FIBERS	JUTE
Fiber prepara- tion	Cotton linters, short fibers attached to the cotton seeds	Noils, from comb- ing out tops		Filature waste, outer and inner portion of cocoon, and waste in reeling Pierced cocoons Dupionne	Tow waste	Jute butts or cuttings
Yarn manufac- ture or prep- aration	<i>Soft waste</i> Picker waste Card strips Vacuum strips Comber noils Fly waste <i>Hard waste</i> Thread waste <i>Sweepings</i> Yarn waste	<i>Soft waste</i> Card waste Tops waste Lap waste Slubbing Roving Ring waste <i>Hard waste</i> Thread or yarn waste <i>Sweepings</i> Yarn waste	Producers' waste Throwsters' waste Mill waste Yarn waste Mill ends Clippings	Throwsters' waste Mill waste Yarn waste Mill ends Clippings	Mill waste	Mill waste
Weaving and knitting Finishing	Weave room patches Mill ends or short lengths Napper waste Pound goods	Napper and shear waste Finishers' flocks Clippings				Mill ends
Fabrication	Clippings	Clippings	Clippings	Clippings		
Articles for re-use	Old rags, woven and knit	Old rags, woven and knit	Old rags, woven and knit	Old rags, woven and knit	Old rope	Old bags and burlap

TABLE 12

Selected Sources of Processed Fiber Prices and Related Data

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
A COTTON LINTERS			
Linters, U. S. No. 2 Linters, U. S. No. 6	Department of Agriculture weekly report, pub. also in <i>Daily Mill Stock Reporter</i>	Transaction prices, f.o.b. mill	Data on production, exports, and imports comp. monthly by BFDC. Annual estimate by Department of Agriculture showing production by grades
B COTTON WASTE			
Card strips, No. 1, upland strips Comber noils, No. 1, peeler comber waste	Mill sales prices pub. by Southern Combed Yarn As- sociation for Charlotte mar- ket. Dealers' quotations in Boston market pub. in <i>Daily Mill Stock Reporter</i> and <i>Commercial Bulletin</i>	Dealers' prices, f.o.b. shipping point	Imports and exports comp. by BFDC
C RAYON TOPS			
Tops from rayon waste Bright Dull Tops from cut fiber Domestic, bright Domestic, dull Foreign, bright	Prices pub. in trade papers; e.g., <i>Commercial Bulletin</i> , or <i>Daily News Record</i>	Weekly prices of dealers in Boston market	Imports comp. by BFDC
D RAYON WASTE AND NOILS			
Rayon waste Open Thread Rayon noils Bright Dull	Prices pub. in trade papers; e.g., <i>Commercial Bulletin</i> , <i>Daily News Record</i>	Weekly prices of dealers in Boston market	Imports and exports comp. by BFDC

E SILK WASTE

No published prices

Imports and exports comp.
by BFDC

F WOOL TOPS

New York futures price 64s, 70s,
80s, Territory tops
Fine staple Territory 64s
Fine dry combed Territory 64s
 $\frac{3}{8}$ blood staple (56s)
 $\frac{1}{4}$ blood staple (50s)

Daily Market Report of N. Y.
Wool Top Exchange
Prices pub. by trade papers;
e.g., *Daily News Record, Com-
mercial Bulletin*

Daily futures price
Weekly prices in Boston mar-
ket

See Raw Wool. Quarterly
stocks of wool tops by grades
comp. by Census. Imports
comp. by BFDC

G WOOL NOILS

Fine white noils
 $\frac{1}{2}$ blood noils
 $\frac{3}{8}$ blood noils
 $\frac{1}{4}$ blood noils

Prices pub. in trade papers;
e.g., *Commercial Bulletin,*
Daily News Record, American
Wool and Cotton Reporter

Weekly prices in Boston mar-
ket

See Raw Wool. Quarterly
stocks of wool noils by grades
comp. by Census. Imports
comp. by BFDC

H WOOL WASTES

Lap waste
Ring waste
Thread waste

Prices pub. in trade papers;
e.g., *Commercial Bulletin,*
Daily News Record, American
Wool and Cotton Reporter

Weekly prices in Boston mar-
ket

Imports comp. by BFDC

I REWORKED WOOL AND SHODDY

No pub. prices

J WOOL RAGS

Ungraded rags
Mixed softs (N.Y.)
Rough cloth
Old graded rags
Blue serges
Black and white worsteds
Graded clips
Fine mixed clips
Black and white worsteds

Prices pub. in trade papers;
e.g., *Commercial Bulletin,*
Daily News Record, American
Wool and Cotton Reporter

Weekly prices of dealers in
Boston market. Also buying
prices of grades in N. Y. mar-
ket

Imports comp. by BFDC

b) *Stuffing purposes* (including surgical cotton)—cotton linters and other wastes, for padding, wadding; wool noils and waste for comfortables; hard fiber tow for upholstery stuffing, etc.

c) *Cleaning and Wiping purposes*—cotton hard wastes, cloth patches, etc.

d) *Paper Making*—wastes of all fibers, usually woven-fabric waste, especially cotton rags for writing paper; cord-age fibers and jute for 'manila' paper, corrugated cartons, etc.

e) *Chemical Products*—especially cotton linters, for cellulose acetate and nitration products, such as rayon and gun cotton.

The basic classification of wastes is that of the process in which the waste originates. The major forms of waste for the various fibers are tabulated in Table 11, and sources of price data in Table 12. Wastes occurring at any stage prior to the actual spinning of the yarn are termed 'soft' wastes. Yarn and subsequent wastes are called 'hard', since they must be passed through a garnetting machine to reduce them to a mass of fibers that can be used again as a raw material. Soft cotton wastes are similarly classed as spinnable or non-spinnable. This distinction is none too sharp since some grades of waste that are spinnable are not usually used for that purpose. For example, cotton card strips, although spinnable, are usually used in the better grades of batting and wadding.

The largest volume of mill wastes originates in the processes prior to weaving, for an obvious reason. What in yarn manufacture would correspond to waste, in gray or finished cloth is turned out as 'seconds', 'thirds', 'mill ends', 'short lengths', 'pound goods', etc., and is disposed of through regular channels of distribution. Waste occurs also in the cutting-up operation, for no matter how carefully the cutter lays his pattern, small scraps of cloth must always be cut out between sections of the pattern. These scraps, together with old rags, can be reconverted into fiber by passing them through a card or garnett which unravels the cloth structure

until it is reduced to fibers. For the more expensive fibers, this 'reworked' processed fiber may re-enter the productive process through blending with raw or other fiber. This use is limited largely to wool, rayon, and silk, the reworked fiber for all three going chiefly to the woolen trade for 'blending' with wool and sometimes cotton. Cotton clippings and rags and reworked jute and cordage fibers go almost exclusively to the paper trades.

Wastes of the same grade vary considerably in quality from one mill to another. Some mills maintain sorting departments and thereby obtain a better price. The large waste dealers clean and willow their purchased waste and, from experience over a period of time, have acquired a knack of grading it despite the absence of objective standards, so that to a certain degree they can deliver a fairly uniform product.

Boston tends to be the central market for all types of textile waste; wool, cotton, and rayon. Other cities are also important, such as Charlotte for cotton and New York for wool rags. Usually there are two markets for waste: that in which the producer disposes of his waste to a dealer, who assembles and grades it; and that in which the dealer disposes of it. Both are closely dependent upon the primary markets for leadership in pricing.

Mill sales prices on combed yarn wastes have been compiled and published by the Southern Combed Yarn Spinners Association for several years. This is one of the few if not the only waste market where prices for the first of these two markets are available. The absence of quotations is to be explained in part by the fact that many mills enter into contracts with dealers who agree to take their entire output of certain grades of waste over a year or more at a price bearing some fixed relation to the raw material price. For the most part the price series now available are the asking prices of dealers.

The complexities of organization of the waste trades are frequently quite baffling. Yet the importance of waste as a type of byproduct, and of reworked fiber as a substitute

for new raw materials, makes the inclusion of the waste trades essential to a complete understanding of fiber price action. After all, the utilization of textile wastes in some way is an inevitable aspect of our scarcity economy.

COTTON LINTERS AND COTTON WASTE

Cotton Linters

In the ginning of cotton a special type of waste, known as cotton linters (ginned or staple cotton is referred to as 'lint'), is produced. These are short fibers of $\frac{1}{4}$ " to $\frac{5}{8}$ " in length which adhere to the cotton seeds. For the most part they are too short for spinning and are used for stuffing, mattress felts, and surgical cottons, as well as chemical cellulose products such as rayon, plastics, lacquers, and munitions. There are three basic classes of linters, determined by the number of times the seed is passed through the cutting or delinting machine. If passed through just once, the linters are referred to as first cut. These fibers are longer than second cut. Seven official grades have been developed and standardized by the Department of Agriculture, the best being U.S. 1 and the poorest U.S. 7.

The producers of linters, cottonseed crushing mills, are all in the cotton growing states. Closely related to cotton linters production is the production and sale of cottonseed and its products such as cottonseed oil. Some persons hold that the cottonseed itself is the primary product and that the linters are a secondary product in its manufacture. While there is some correlation between the size of the cotton crop and the linters production, this is not always true because of (a) the production of cottonseed oil products and (b) the fact that more or fewer (deeper or thinner) cuts of cotton linters may be taken from the seed. Cotton linters prices are influenced by the supply of and demand for them, and also to some extent by the price of raw cotton itself. The range of prices for each grade varies according to the color, character, quantity of foreign matter included, and the quality of the particular producer.

The unit of sale is a bale weighing 600 pounds, although actually bales may vary in weight from 500 to 700 pounds.

Cotton Waste

The term 'cotton waste' is almost exclusively applied in the trade to waste obtained in yarn manufacture. Non-spinnable waste, that is, thread or yarn waste, is sold principally for use as a wiping material for machinery and for stuffing, where it competes with certain grades of cotton linters, kapok, and other upholstery stuffing materials.

Spinnable cotton waste may either find its way back into the yarn preparatory processes or be used for batting and wadding. Many mills sell their less easily utilizable wastes. At times there are price advantages in using some of these grades of waste, since their prices do not always move in exact accord with cotton. Again some mill may have purchased a special grade of cotton to fill a contract for a certain construction of cloth. When the contract has been filled, the waste is still on hand, and may bring a higher price in the waste market than if mixed with other cotton and used to produce some other fabric. Or it may not be a suitable type of cotton for the other products of the mill. Operation in the waste market in preference to using the waste in the mill or to buying new cotton is one of those fine points of judgment in mill management that deserves attention in a study of pricing policies.

Cotton waste is classified according to the length of fiber and amount of foreign matter, much as cotton itself is. It is always identified with the specific operation where it originated. About twenty grades are recognized in the market, but inasmuch as standards are not established by law as in the case of raw cotton, each mill's product may be said to be a grade in itself.

Comber waste, which contains the greatest number of long fibers of any waste produced, stands near the top of the list in quality, being surpassed in price only by such specialties as 'card strips' from Egyptian (Sakellarides) cot-

ton and No. 1 white spinner. From there the list runs on down to sweepings and motes.

Prices for card strips and comber noils are given as percentages of the price of New York spot cotton. This basis is used because of the close relation between these two grades of waste and raw cotton. Ordinarily the relation varies between 75 and 90 per cent of New York spot prices, but during the processing tax period the ratio was above 100 per cent, since New York spot prices did not include the processing tax, whereas the price of waste included the tax, which amounted to approximately 20 to 30 per cent of the raw cotton price. Prices of all grades of cotton waste are quoted in cents per pound with a range to indicate the highest and lowest quality. When demand is strong the range is narrow. Prices of all grades of waste tend to move together as there is very little opportunity for the price of one grade to remain out of line long, the possibilities of mixing and substitution being almost unlimited.

WOOL NOILS AND WASTE

Noils, a byproduct of the worsted combing operation, serve as one of the basic raw materials of the woolen industry and are used by woolen mills together with clothing type wool and reworked wool mill waste for the production of woolen yarn, and by felt mills for the production of felt. As taken from the comb, noils consist of the shorter fibers which contain varying amounts of straw, burrs, and other extraneous matter. The removal of this vegetable matter by means of various chemicals is known as carbonization. Noils are identified according to the grade of wool from which they are combed, as fine, half-blood, etc. They are sold both as carbonized and un-carbonized, the latter being the more important.

Wool wastes similarly are classified according to the grade of wool from which they are derived, as well as being identified with the process in which they originated. Most wool wastes are produced by the worsted branch of the industry. Woolen mills tend to utilize their own wool waste

by mixing it with other stock to be carded. The only regular quotations on soft wastes are for card, lap, and ring wastes. 'Thread' wastes constitute the more important type, so far as volume is concerned, and may be sold in their natural state as a hard waste or as fiber after garnetting.

WOOL RAGS

The wool from rags may be sold either as rags or as reclaimed or reworked wool or shoddy. While many woolen mills using this type of material purchase it in the form of rags, a separate reworked wool industry does exist which recovers fiber from rags and sells it to mills. There are, however, no recognized grades of recovered fiber, all market news in this field being written in terms of the rag market.

Wool rags are of two types: used rags, 'mixed country rags', or 'mixed stock'; and new wool rags or 'clips', remnants from the cutting tables of garment manufacturers, plus manufacturers' 'headings' and samples.

The heterogeneous collection of old garments and scraps gathered by peddlers and sold to rag dealers is sorted into three groups: soft wool cloth ('mixed softs') consisting chiefly of women's wool fabrics; knit goods, serges, and merinos; and hard wool rags ('rough cloth') principally men's worsted suitings. Each classification is subjected to further grading according to color and type of fabric, from which a rather extensive set of grades is developed.

New wool rags, or clippings are subjected to a somewhat more intensive grading. Thus 'grading clips' may be sorted into classes according to color, type of fabric, and use for which the fabric was intended. Grading is a function of the rag dealer. While the rag trade has developed fairly standardized classifications, there is still a certain amount of variation in the quality of different grades as between one rag dealer or grader and another. This may occur when one grader subdivides the primary classifications more finely than another. Furthermore, two dealers may not recognize

material of the same grade under its various names or may apply the same name to two or more grades.

RAYON WASTE AND NOILS, RAYON RAGS, AND SILK WASTE

The position of rayon as a processed fiber is derived primarily from the property of rayon fiber, when not used as a continuous filament, of giving an effect in both knitted and woven fabric closely resembling wool. It has accordingly developed as an important wool substitute in the wool manufacturing industry. In this particular use it has not been rayon staple, as sold by the rayon producers, but rayon waste, which sells at a still lower price, that has commanded the interest of this trade. Rayon waste or rayon noils, derived from combing rayon tops, are put through the same preparatory processes as wool noils or reworked wool or waste. Rayon waste for this purpose may originate with the rayon producer, with mills processing rayon, with the garment cutter, or from the garnetting of old rayon garments. Large amounts of rayon waste in recent years have been imported from Japan, in addition to which a large part of their rayon staple fiber has been of such grade as to be usable only in this way.

In analyzing prices for rayon waste it should be kept in mind that there are just as many types of waste as there are of the original yarn: bright, semi-dull, and dull, and in different deniers and number of filaments. There are also clippings, just as for woolens and cottons which originate in the cutting-up trades.

What has been said about rayon waste applies in a general way to silk waste, except that the amount used in this country is relatively small. A certain amount goes to the pile fabric trades for the production of spun silk yarns for velvets and for colored stripings in the woolen and worsted industries. In Europe and the Orient, however, the production of spun silk fabrics, made from silk waste and known as Schappe, is quite large, since an equal amount of waste is produced for every pound of filament silk.

BAST FIBER AND JUTE WASTES

The ultimate use for all bast fiber and jute products, as well as for grower and mill-wastes of these fibers, is in the production of paper. The collection by dealers and grading of these products for sale to paper manufacturers follows the same general pattern as for other reclaimable fibers. Before old jute bags reach this point, however, they pass through the used bag market, which is shared by cotton bags and cotton linters to jute bags. This used bag market serves a wide range of users, both of washed and unwashed bags, for resale to farmers and for baling and wrapping purposes. Larger manufacturers purchase new bags which they have stamped with their trade mark. After they have once been used, the significance of this stamping is lost, although the bags are usually still serviceable. Eventually all jute bags, when no longer usable, find their way into the 'old bag' market for reclaiming the jute fiber preparatory to being converted into paper.

YARN, THREAD, AND CORDAGE

The term 'yarn' refers both to yarn spun from short fibers and to that made from continuous filaments. The main characteristics of yarn are that it must (1) be continuous, (2) contain twist. Both characteristics are present in cotton and in rayon filament yarns, but not in raw silk, which is the reason why raw silk cannot be called a yarn. The preparation of rayon and silk for weaving or knitting is termed 'throwing' and is essentially a twisting operation, whereas the term 'yarn manufacturing', except for rayon, always refers to the processing of short fibers.

SPUN YARN

From the standpoint of price research, the manufacturing of yarn is important because the wide variation in fiber quality is replaced by a pseudo uniformity of yarn quality under the direct control of the mill. This applies to all short staple fibers and arises from the nature of the manufactur-

ing process. One of the most important operations in the yarn mill is the thorough mixing of the raw material to ensure uniformity in the product. In a cotton mill it is common practice to feed cotton from as many as twelve bales into the opener at once to ensure perfect blending and to prevent variations of grade in a single bale from changing the quality of the yarn from the mill standard. From loosening the fibers from the tangled and sometimes compressed mass in which they reach the mill, bringing them into a degree of parallel order in the carding and combing operations, to drawing them out with ever increasing twist until the yarn of desired size and twist has been obtained, all processes of yarn manufacturing are controlled with the aim of attaining uniformity of quality. The ability of yarn manufacturers to produce a standard quality product from varying grades of raw material, and from varying proportions of different grades, constitutes a primary source of differences in costs and profits between mills, for within a fairly wide range, the quality existing in the fiber need not be passed on by the manufacturer in precisely the form in which it exists in the raw state. A cotton mill, for example, may use short staple or inferior cotton to make what appears to be (under some conditions may actually be) a quality of yarn or cloth equal to what another mill would produce from cotton of a better grade. This is true in some measure all through textile manufacturing processes wherever ingenuity and skill can be made to produce a competitive advantage. Similarly, differences in the relative efficiency of machinery and operatives in different mills may introduce new variations in quality over and above those existent in the raw material. Such differences in quality may be sufficient, if maintained over a period, to justify preference in the eyes of the trade or outright premiums for the product of one mill over another. Or they may arise from intentional variation in the quality of the raw material used, caused perhaps by the shortage of a particular grade in the market. On the whole, however, the yarn markets tend to minimize these inequalities between

the products of different mills for yarns otherwise presumably identical.

The designation of grade or size of spun yarns requires specification, either direct or implied, of the following:

- 1) System of spinning, whether carded or combed
- 2) Grade of fiber used
- 3) Size or count of yarn
- 4) Number of strands, single or ply yarns
- 5) Amount of twist put in by spinning
- 6) Type of package, spools, skeins, cones, warps, etc.
- 7) Color, if dyed.

The spinning system must definitely be specified for wool yarns. Wool may be spun on three basically different systems: the woolen, the Bradford or English, and the French or continental systems, each of which produces a yarn having different characteristics from the other two.

Woolen spun yarn is made from fibers of varying length from less than one inch up to more than two inches, which have been twisted into a yarn with the fibers interlaced in every direction. In manufacturing woolen spun yarn so-called 'wool substitutes' are almost as important as raw wool: 'reworked wool' or 'shoddy'; wool noils, a byproduct of worsted combing; wool waste; cotton; and rayon and silk wastes may be mixed or 'blended' together in varying amounts. Hence price analysis of the components of woolen spun yarn is not possible without access to the formula used by the mill in its production. Woolen fabrics, in addition to being used for suitings and dress goods, furnish the bulk of overcoatings for both men and women.

Worsted spun yarn is made from tops; that is, the long fibers of the wool, $2\frac{1}{2}$ " to 8" or 9" in length, from which the short fibers have been removed by combing. These fibers are parallelized in the combing process preparatory to drawing and twisting into worsted yarn. English or Bradford spun yarn, as indicated above in the discussion of tops, is oiled to increase the pliability of the fibers. These are usually longer and coarser than those used in French spun yarn, and receive more twist. French or continental spun

yarn tends to be fuller and softer and to have less tensile strength than Bradford yarn. This difference shows up in their use, French spun yarn being more frequently used for women's wear, either woven or knit; and Bradford spun yarn, while also used in women's wear, comprising the basic material for men's medium and better grade suitings and pantings. The Bradford system of spinning is less expensive than the French, and consequently yarn made from the same grade of wool is usually a little lower in price.

Spun rayon yarn, made wholly from rayon staple, has so far been produced wholly on the cotton system. Rayon staple is also used as a 'blending' fiber with wool, particularly in certain grades of worsted yarns. While up to the present time the sale in the yarn markets of worsted-rayon yarns made on the worsted system has not reached large proportions, it will probably become fairly important in the future. Meanwhile rayon-wool blends with wool content as high as 40 per cent, made chiefly from reworked wool and noils, are currently being produced on the cotton system, principally by mills for their own use, rather than for sale to other weavers. Some day this type of yarn also may come to be sold actively in the market.

Cotton-spun yarns are of two types: carded and combed. These correspond directly to woollen- and worsted-spun yarns so far as differences in processing are concerned. The differences in their characteristics are not nearly as sharp, however, being limited chiefly to the fineness to which the yarn can be spun and its smoothness. Combed cotton yarn is made from long staple cotton, from which, as in the case of wool, the short fibers are 'combed' out. The distinction between combed and carded cotton yarn has become less sharp in recent years because of a pronounced improvement in carding methods, by which double-carded yarns can be made of almost as fine a quality in the medium range of counts as combed yarn. These super-carded yarns have definitely reduced the demand for combed yarns in certain types of fabrics and knitted garments.

The grade of fiber used for both cotton and worsted

yarns is also either designated or implied. Specification of grade of fiber is not as important here as with the raw material and tends to be limited to broader groups of grades. Thus cotton sales yarn carries no reference to grade of cotton except for either the finer grades of combed yarn made from Egyptian, Sea Island or 'peeler' cotton, or yarns made in whole or part from waste. Otherwise white cotton of the grade and staple length customarily used is assumed. The grade of tops out of which worsted yarns have been made is always specified.

The size or count is the basic market designation for yarn, corresponding in importance to the 'grade' of the raw material and the various standard constructions of gray cloth. Since yarn size can be readily controlled and its determination is dependent upon simply weighing a given length of yarn, the whole question of grade, aside from quality differences between mills, is vastly simpler than with the raw material. When one attempts to compare yarn sizes of the different fibers, one finds, however, that the systems of measurement differ sharply. This arose from different practices in the woolen, worsted, and cotton trades, each of which based its yarn sizes upon the number of yards of yarn in a given *weight*, the weight differing in each trade. On the other hand, the international denier system, established in 1900 for silk and later used for rayon, is based upon the weight of a fixed *length* of yarn. Thus these two types of numbering systems move in opposite directions, a small number designating a coarse yarn for cotton and wool, and a fine yarn for silk and rayon. Table 13 gives the various yarn sizes in order that yarns of comparable size in the different fibers may be compared. The most common size in rayon yarn is 150 denier; in cotton, print cloth yarn sizes, 30s to 40s; in worsted, 30s to 40s for weaving, 18s for knitting; and in woolen from two to three run. Different uses require different yarn sizes so that actually every possible yarn size has some use.

The combining of yarns into two or more plies to give greater uniformity and strength as well as a better appear-

TABLE 13
Comparative Yarn Sizes
for the Principal Systems of Yarn Manufacture

COTTON 1	WORSTED 2	LINEN (LEA) 3 OR WOOLEN (CUT)	WOOLEN 4 (RUN)	RAYON 5 OR SILK (DENIER)	TYPP 6
1.	1.5	2.8	.5	5313	.84
8.*	12.	22.1	4.2**	664	6.72
12.	18.*	33.6	6.3	443	10.08
13.3	20.*	37.3	7.	399	11.20
17.3	26.*	48.5	9.1	307	14.56
17.7	26.6	49.6	9.3	300*	14.88
20.*	30.*	56.	10.5	266	16.80
21.3	32.*	59.4	11.2	249	17.92
24.*	36.*	67.2	12.6	221	20.16
26.6	39.9	74.4	14.	200*	22.32
26.7	40.*	74.7	14.	199	22.40
30.*	45.	84.	15.8	177	25.20
35.4	53.2	99.2	18.6	150*	29.76
40.*	60.	112.	21.	133	33.60
50.*	75.	140.	26.2	106	42.00
53.3	80.	149.3	28.	100*	44.80
60.	90.	168	31.5	89	50.40
70.7	106.	197.9	37.1	75*	59.36
80.*	120.	224.	42.	66	67.20

SOURCE: Yarn-Number Conversion Table in *Textile World Yearbook, 1935*

* Indicates the more important yarn sizes.

** Most woollen yarns are from two to three run.

1 Number of hanks of 840 yards each per pound of yarn. These counts used for cotton, and spun rayon and spun silk yarn spun on the cotton system.

2 Number of hanks of 560 yards each per pound of yarn. These counts are used for mohair, alpaca, camel hair, spun rayon as well as wool yarns spun on the worsted system.

3 Number of hanks of 300 yards each per pound of yarn. These counts are used for linen, and by New England spinners for woollen yarn.

4 Number of hanks of 1,600 yards each per pound of yarn. Run system used by Philadelphia spinners for woollen yarns.

5 Weight in grams of 9,000 meters of yarn. Size of thrown silk, formerly determined by dram system, now generally discarded in favor of denier system. To convert deniers to drams divide by 17.44.

6 Typp (thousands of yards per pound) a universal system of counts sponsored by *Textile World*, which may be used for yarns of any fiber. Currently used on spun glass yarns.

ance is highly important for many uses. Where yarn is to be plied, it is customary to use a slightly lower grade or shorter staple raw material in its manufacture. Cotton carpet yarns, for example, which are usually 3 or 4 ply, may be made from part-waste cotton. Also for certain kinds of knit goods, where an even appearance is desired, ply yarns may be used. Sewing thread is a special instance of plied yarn. In the case of worsted yarns the designation of the number of plies usually precedes the yarn count; e.g., '2/30s' means two-ply 30s yarn. Cotton yarn counts customarily show the number of plies after the size of the yarn, as 20/1 or 20s singles and 20/2 or 20s two-ply.

In rayon yarn the number of turns per inch is definitely specified. That is possible because the yarn is a continuous filament and the twisting operation is directly controllable. With the short fibers, designation of twist is limited to indicating relative amounts of twist. This shows up always in the use to which the yarn is to be put. Warp yarns, in order to withstand the strain of the motion of the warp harness, must be stronger relatively than filling yarns and are accordingly given a higher twist. The amount of twist is not specified, but may be designated as 'warp twist', or simply by stating that the yarn is warp yarn.

Aside from yarn count, perhaps the most significant designation is that which indicates the use to which the yarn is to be put, usually implied in the put-up or package in which the yarn is sold. Thus yarn put-up on cones is intended for the knitting trade or for warping, whereas warp yarns put-up on beams are for weaving or for warp knitting. Yarn put up in skeins may be used for dyeing, although that is less common now than formerly, since dyeing may be done today on tight packages such as cones, tubes, or ball warps. Yarn in skeins may also be rewound onto special size bobbins or shuttles if it is to be used on special machinery. The principal users of cotton and wool sales yarn (yarn produced for sale) are the following trades:

- 1) *Knitted underwear, outerwear, and hosiery: knitting*

mills represent the largest market for both cotton and wool sales yarn. Nearly all the worsted-spun yarns used by knitters are purchased, and part of their woolen-spun yarns. About three-fourths of all cotton yarn used by knitters is similarly purchased in the market.

2) *Weaving mills producing convertible-fabrics*: many weaving mills occasionally purchase yarn, usually odd sizes, or novelty yarns they are not equipped to make, or yarn to be dyed,¹⁴ or yarn beyond what their own spinning can produce. Worsted-spun yarns sold to worsted mills constitute about a sixth of all that are produced. Some mills weaving cotton duck and towels purchase part of or all their yarn.

3) *Insulated wire manufacturers*: a large volume of part-waste cotton yarn is used by electric wire manufacturers for winding or braiding on insulated wire.

4) *Carpet manufacturers*: the largest proportion of woolen spun yarn produced for sale goes to this trade. Carpet and rug mills are also large users of heavy ply cotton yarns for their warps.

5) *Upholstery and drapery fabric manufacturers*: owing to the very wide range of yarn sizes, colors, and novelty effects required, as well as the small yardage per style, upholstery and drapery fabric manufacturers by and large purchase their yarn requirements. They use cotton yarn for warps in plushes and mohair velvets, as well as a wide range of mohair and wool yarns.

6) *Narrow fabric manufacturers*: these mills purchase a fairly large amount of cotton warps and filling yarns, as well as some rayon for the production of such articles as tapes, labels, braids, laces, embroidery trimmings.

7) *Thread mills*: mostly integrated, but not fully.

¹⁴ Yarn dyeing is a specialized operation, usually performed on a job-finish basis. The Franklin Process Company, with branches in various places throughout textile producing areas, controls important patents on yarn dyeing machinery and processing that give it a dominant position in the dyeing of cotton, rayon, and silk yarn. Wool is usually dyed as raw stock, as is a large proportion of cotton used in colored cotton fabrics.

8) *Lace curtain manufacturers*: users chiefly of 2-ply combed peeler yarns.

THE YARN MARKETS

Yarn is the end product of a definite series of manufacturing operations, but since most of it is not in a form for ultimate consumer use, it must undergo further processing. Yet it is a distinct product in that the yarn mill need not perform the subsequent operations itself, but may turn over its product through the yarn markets to different types of manufacturers. In the United States, in contrast to England, yarn production generally tends to be integrated wherever possible with the subsequent operation of weaving, knitting, or other manufacture. Such integration is not industry-wide, however, so that while a large proportion of all yarn is produced by mills for their own use, a fairly substantial amount is distributed through the yarn markets.

The largest proportion of all sales yarn, i. e., yarn produced for sale, is made by spinning mills having no looms, which specialize in yarn manufacture. Some integrated mills, however, use the yarn market as an aid to maintaining a balance in their own manufacturing operations—by keeping their spinning machinery operating at a high rate and selling surplus yarn not needed by their weaving mills in the yarn markets, or by purchasing yarn needed in excess of their spinning capacity.

Most sales yarn mills tend to be relatively small, particularly in the southern cotton yarn industry where the average mill has from 10,000 to 12,000 spindles. Their small size precludes direct selling of their product and has led to the organization of selling through relatively few agents. Similarly, many knitting mills are too small to purchase their entire requirements regularly from mills. Accordingly about a third of all knitting yarn for the outerwear trade is sold through yarn jobbers located at central points in knitting areas. Weaving yarn, on the other hand, and the rest of knitting yarn is sold directly by the spinner or his selling agent to the mill using it. The principal yarn markets are

TABLE 14
Selected Sources of Yarn Prices and Related Data

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
A COTTON YARN			
<p><i>Carded sales yarn</i> 10/1 knitting cones 30/1 knitting cones 20/2 ply warps 30/2 ply warps 20/2 ply skeins or tubes 8/3 ply tubes, carpet yarn tinged cotton <i>Combed sales yarn</i> 30/1 combed peeler knitting cones 40/1 combed peeler knitting cones 40/2 combed peeler warps 60/2 combed peeler warps 36/2 reverse thread twist</p>	<p>Prices pub. in trade papers; e.g., <i>Daily News Record</i>, <i>American Wool and Cotton Reporter</i>, <i>Commercial Bulletin</i>, <i>Journal of Commerce</i></p>	<p>Daily prices in Phila. and N. Y. markets; also weekly prices in Boston market, pub. in <i>Journal of Commerce</i></p>	<p>Production data comp. on confidential basis by Cotton Textile Institute. Imports and exports comp. by BFDC</p>
B RAYON YARN			
<p><i>Filament yarn</i> 150 denier, minimum filament, 1st quality viscose skeins 100 denier, minimum filament, 1st quality viscose skeins 100 denier, minimum filament, 1st quality acetate skeins <i>Spun rayon yarn</i> 24/1 cotton system (1½ staple, 1½ denier) 20/2 cotton system (1½ staple, 1½ denier)</p>	<p>Daily prices pub. in trade papers; e.g., <i>Daily News Record</i></p> <p>Prices pub. occasionally in trade papers, or available from mills</p>	<p>Quotations available are from producers' price lists which are changed periodically</p>	<p>Data on filament yarn production, stocks, shipments by trades, pub. in <i>Rayon Organon</i>. Imports and exports comp. by BFDC</p>

Thrown silk yarn

Hosiery

3 thread 13/15, 20 turns, 87%

4 thread 13/15, 15 turns, 85%

6 thread 13/15, 5 turns, 81%

Crepe weaving

2 thread 20/22, 60/65 turns

3 thread 20/22, 60/65 turns

4 thread 20/22, 60/65 turns

Organzine weaving

2 thread 13/15

3 thread 13/15

Spun silk yarn

Domestic, mill

60s singles

60s 2 ply

Imported 200/2, 1st quality,
N. Y.

Bradford spun, 2/30/64s, weaving
fancy mix on dresser spools

Bradford spun, 2/20/50s, knitting
skeins in oil undyed

French spun, 2/30/64s, weaving
fancy mix on dresser spools

French spun, 2/40/64s, knitting
yarns, undyed

Weaving

Knitting

Carpet

C SILK YARN

Prices pub. occasionally in
trade papers, or available
from mills

D WORSTED YARN

Prices pub. in trade papers;
e.g., *Daily News Record*, *Journal of Commerce*, *American Wool and Cotton Reporter*,
Commercial Bulletin

Spinners' prices on a weekly
basis in Boston and Phila.
markets

Data on orders, production,
shipments, and stocks comp.
by National Association of
Wool Manufacturers covering
about 70% of yarn spun on
the Bradford and more than
90% of that spun on the
French system

E WOOLEN YARN

No published prices

TABLE 14—(Continued)

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
<i>F CORDAGE, TWINE, AND THREAD</i>			
<p><i>Twine</i> Binder, standard 500' per bale (50 lb.) f.o.b. Chicago or New Orleans Cotton, No. 1 wrapping, per lb., mill Class II (Java) 300' medium, reels, per lb., N. Y. (Zone 1)</p>	<p>Prices of specific commodities pub. in trade papers; e.g., <i>Commercial Bulletin, Cord- age Trade Journal</i></p>	<p>Weekly prices in Boston market</p>	<p>Imports and exports comp. by BFDC</p>
<p><i>Rope</i> Cotton, commercial, 5/16", 2d grade Manila No. 1, 3/4" diameter and larger Manila No. 2, 3/4" diameter and larger Sisal No. 1 (Java) 3/4" diameter and larger Sisal No. 2 (Mexican) 3/4" diam- eter and larger</p>			
<p>Yarn, carpet, jute, per lb. mill No. 1 14/16 No. 2 14/16</p>			
<p>Thread, linen, shoe, 10s, per lb., N. Y.</p>			
<p>Cotton thread, 6-cord, white</p>			

in consuming areas. New York City is the chief market for worsted yarns, because of the quantity of knitting yarns used by knitters in New York and the vicinity. Prices for worsted weaving yarns tend, however, to be based upon quotations in Boston, and those for worsted knitting yarns upon quotations in Philadelphia. Because they are near the knitting industries of Pennsylvania and upstate New York, Philadelphia and New York tend to be the leading market centers for cotton yarns. In recent years Gastonia, N. C., the center for the combed cotton yarn industry, and Charlotte, N. C., which is similarly the center for carded sales yarn, have come to be increasingly important as primary market centers, although practically all the actual selling of yarn is still done in the Philadelphia and New York markets.

Price quotations appear regularly in the trade press (Table 14) for a limited range of worsted and both combed and carded cotton yarns. (For yarn numbers other than those quoted, the probable price may be interpolated from the differentials for those quoted.) By reason of the variation in quality indicated above there are no regularly quoted prices on woolen spun yarns. The quotations, as in the case of all textile markets except those for raw fibers, are usually sellers' prices, obtained by news reporters from yarn dealers, selling agents, brokers, and mill representatives.

THROWN YARN

Since both silk and rayon are produced as continuous filaments the process of preparing them as yarn for spinning or knitting is fundamentally different from that used for short or cut fibers. Rayon is already in yarn form when delivered by the producer. Except for additional twist required for crepe or other special uses, rayon yarn may go directly to the loom or knitting machine on the cones or other packages in which it arrives from the yarn producer.

Raw silk, on the other hand, while already in the form of a continuous filament as delivered by the Japanese exporters, is too fine for use in textile manufacture. As it is

only 13/15 or 20/22 denier, whereas deniers of 75 or more are ordinarily required for both knitting and weaving, several strands must be combined or twisted together to give yarn of the desired size and strength. This process is called 'throwing'. All silk must be thrown before being used in either knitting or weaving. The term throwing is applied also to the process of giving additional twist to rayon yarns.

Varying amounts of twist are given to the raw silk in the throwing process depending upon whether the yarn is to be used for warp or filling, or for crepe or other special effects. Warp yarn, or organzine, as it is called, is high twist yarn produced by first twisting single strands of raw silk, 16 turns to the inch, and then combining two or three into a single strand by twisting in the opposite direction with 14 turns to the inch.

Tram or filling yarn receives a single twist, only enough to hold the separate strands together and to prevent their splitting and becoming fuzzy while being dyed.

The amount of twist applied in throwing determines the character of the fabric, some crepes requiring twists up to 70 turns per inch. Satins, on the other hand, receive relatively little twist in the warp in order that the surface may be unbroken and the fabric soft and lustrous. Some hosiery yarn receives relatively low twist. Within recent years to get both sheerness and dull luster, there has been a trend toward crepe or hard twist. Much of this twisting is done in opposite directions in what is known as compensating twist. The present standard crepe twist is 100 turns on 2-thread yarn.

Thrown silk is numbered in terms of the number of singles used and the amount of twist. Thus it may be described as 3-thread 13/15 denier, 60/65 turns crepe twist. The grade of raw silk may also be described. Some years ago, when silk was widely used for woven fabrics, a fairly important thrown silk market developed. Today most throwing is performed either within integrated mills or on a commission basis, commission throwing being more important than the sale of thrown silk yarn.

THREAD

The resemblance of thread to yarn in the popular mind often leads to the use of the two terms synonymously. Properly speaking, the term 'thread' should be applied solely to twisted yarn sewing thread. This is a smooth, evenly spun, hard twisted, ply or cable yarn, treated by special finishing processes to make it resistant to abrasion in its passage through the eye of a needle and through materials in seaming and stitching operations. Actually thread is the product of a manufacturing process beyond the yarn stage just as much as is woven cloth, the difference being in the twisting of several strands of yarn together, rather than interlacing them as in cloth. Thread, like gray cloth, also undergoes subsequent bleaching, dyeing, and finishing operations. Thread is accordingly a finished article and, since it passes directly from the mill to the retail counter or industrial user, thread prices exhibit the characteristics of prices for finished and fabricated products.

The general principle of thread construction is to twist the various plies of yarn together in the opposite direction to the twist with which the yarns were spun. This gives a balanced twist and reduces the danger of kinking in the sewing operation. Thread may be straight laid, cabled, or braided. In the construction of straight laid thread, two or more ends of single yarn are by one operation twisted into a plied thread. Cabled thread usually has greater strength than straight laid, and is used where sewing conditions are severe. There are two twisting operations in cabled thread construction, the first making ply yarn from two or more singles; the second making the cabled thread from three or more ply yarns. Straight laid threads are the most widely used in industrial use; cabled, in home sewing. Braided threads have very limited use for especially heavy duty in certain industries.

Cotton thread represents by far the largest proportion of the total. Linen thread, which closely resembles cotton in its construction, has certain special uses of its own, particu-

larly in the shoe manufacturing industry. Wool is seldom made into thread, but hand knitting yarns constitute a rough equivalent so far as retail sale is concerned, although in both construction and use these are yarns, not thread.

Silk thread has an advantage over cotton for certain uses owing to the high elasticity and great strength of raw silk. However, it is more expensive, and does not allow as high machine speeds as cotton. Furthermore, a silky appearance can be produced in cotton thread by mercerizing. Mercerized cotton thread is used extensively in the cutting-up trades, even in the manufacture of silk dresses, when silk might otherwise be used. There are two types of twisted silk thread: 2-ply thread, confined to hand sewing, and machine twist, a 3-ply cable twist thread. In addition, there are soft silk yarns, floss silk, and embroidery silk. There is also rayon thread on the market, and more recently, thread made of the new synthetic yarn, nylon.

The behavior of thread prices can be understood solely in terms of the types of cotton used in thread manufacture. Since strength and evenness are the most important qualities in thread, longer staple cotton is essential. Formerly fine thread was largely made of Sea Island cotton, but with the elimination of the Sea Island crop by the boll weevil in the early 'twenties, thread manufacturers now use Egyptian cotton alone for the better grades of thread. The best Egyptian types are Sudan cotton, with a staple of as much as $1\frac{7}{16}$ " , and Sakellarides, with a staple ranging from $1\frac{1}{4}$ " to $1\frac{13}{32}$ ". A considerable quantity of Egyptian 'Uppers', with a staple about $1\frac{3}{16}$ " is used for general utility threads. Of the domestic grown cottons, peeler cotton, from 1" to $1\frac{1}{4}$ " , can be used for the coarse numbers. All these grades of cotton exhibit far more stable prices over long periods than the standard market grade of cotton, a factor contributing to greater relative stability in thread prices.

The thread industry has two distinct branches: 'Domestic' or threads for home sewing and 'Industrial' or threads for manufacturers. Owing to the great strides in the invention of sewing machines of highly specialized construc-

tion, the manufacture of more and more articles has come to be concentrated in factory production, taking the place of production in the home or by craftsmen. This change has, on the one hand, led to a reduction in the relative importance of domestic types of threads. Its more direct significance to the thread industry is that it has led to the production of a large number of specialized types of thread.

The tensions, speeds, and complicated stitching of modern machines vary widely from one industry to another, or one type of fabric or material to another. As a result of the continual search to meet the needs of special trades, the manufacture of 'industrial' thread has become extraordinarily complex, involving the production of literally thousands of articles differing in size, construction, twist, color, finish, put-up and yardage, quality and brand. For example, in the production of men's clothing, different grades of thread are employed for each of the following operations: stitching, seat and leg seams, lapels, linings, hand basting, button-holes, and buttons. In addition, every cutting-up trade or other trade using sewing machines, has its own special sizes and types of threads.

The usual classification of thread is by size and cord (ply); generally speaking, the more cords, the better the thread. Threads with a greater number of cords are rounder, smoother, more uniform and more elastic. Finer sizes of yarn are required for their manufacture, which usually means that a better quality of cotton is essential.

Thread sizes¹⁵ have a general relation to yarn sizes, although there is no standard thread numbering system. Three cord thread is designated by the size of the constituent yarns. Thus 3 cord thread made from 30s yarn would be sold as 30s thread. Six cord thread made from 60s yarn would also be designated as 30s since the initial plying of two 60s would give a strand equivalent to 30s single, of which three would be twisted in making the thread.

¹⁵ The numbering system for silk thread is entirely different from that for cotton and is based upon number of yards per ounce, ranging from 000 through A to G.

THE THREAD MARKETS

In one respect the thread markets differ from almost any other textile market. As indicated by the recent textile studies of the Federal Trade Commission, "three firms represent about 85 or 90 per cent of the total investment in the thread industry and about the same per cent of net sales". The dominance of these firms arose originally from their success in producing superior qualities of thread in the days when all sewing was done in the home or by craftsmen. Their trademarks still have a tremendous consumer acceptance, equaled nowhere else in textiles. Yet their percentage of the total market has probably been declining in recent years as the size of the market has increased and other firms have entered the industrial field, where the importance of trade names is much less.

The two branches of the industry, domestic and industrial, have really two distinct markets. In the industrial market thread is sold somewhat like yarn, on a poundage basis, with the thread put up on cones ranging from 3,600 to 30,000 yards each.

Thread for domestic uses is put up in the familiar spool form for sale in that large class of low-priced items sold at fixed prices in variety and department stores. As is characteristic of goods of this type, variation in costs is reflected by varying the quantity offered without changing the price. For domestic threads this is accomplished by changing the number of yards on the spool. Since the cotton used in the higher grades of thread sold in domestic put-up is not subject to the violent fluctuations in price of the domestic cotton market, price adjustment is much easier than on products made from lower grades of cotton.

CORDAGE AND TWINE

Cordage and twine, like thread, constitute a specialized group of products that are ready for consumer use as they leave the mill. Also like thread they cover an enormous range of uses: the entire field of transmission of mechanical

power, tyings, and such specialized uses as wicks, sash cords, clotheslines, fishlines, with a continuous gradation in size and strength from small twines only slightly larger than thread up to oil-well cables and hawsers 6" to 10" in diameter. The basic grouping of these products is into two classes: cordage, the term used for stranded or cable constructions $\frac{3}{16}$ " diameter and larger, and twines, usually a single yarn or two or more yarns twisted or laid together.¹⁶ In some short staple fibers, such as cotton, it is necessary to spin the fibers into a basic element, like a 'thread', which is comparable in further manufacture to individual long staple fibers like abaca. For instance, individual abaca fibers are spun to form an abaca yarn, while in cotton cordage or twine the cotton 'threads' are twisted together to form a cotton yarn.

The commercial classification of cordage and twine turns principally about the three factors of size, grade, and type of fiber used in its production and use. Cordage sizes are usually specified in terms of inches in diameter or fractions thereof, except where the use itself implies the size. Marine cordage is usually specified in terms of inches in circumference. The basic size in hard fiber cordage is $\frac{3}{4}$ " in diameter, from which other sizes are figured up and down on a sliding scale. Twine sizes tend to follow yarn numbering systems in that they are sold on the basis of a given length to the pound. The standard size of sisal binder twine, for example, is 500 feet per pound.

In the larger sizes of cordage where the greatest possible strength and durability for a given diameter is needed, abaca (manila fiber) stands alone as the sole available fiber. There are many grades of manila fiber, however, as already indicated, and the possibilities for blending them to produce varying qualities of rope are very wide. The trade has standardized grades to a certain degree by specifying such grades as Yacht, Bolt, 1st, 2d, and 3d grade manila rope,

¹⁶ The terminology most generally applied is as follows: Twine is less than $\frac{3}{16}$ " in diameter; cord is $\frac{3}{16}$ " to $\frac{5}{16}$ "; rope is $\frac{5}{16}$ " to 3 $\frac{3}{16}$ "; cables are 3 $\frac{3}{16}$ " up.

which reflect directly the grades of manila fiber used in their manufacture. Similarly, sisal and henequen rope, which is of lower quality than manila and sells at a lower price, is classified according to the fiber used.

Durability is not a prime requirement of wrapping twine. Principal requisites are 'immediate' tensile strengths (while the twine is used to transport the package), size (bulk is desirable for some uses to prevent injury to the package, while fineness of the twine is more desirable for other uses), appearance, knotting qualifications, and consumer preference from the viewpoint of handling the twine. Here is one of the most interesting examples of direct inter-fiber competition in the textile industries. Hemp, jute, cotton, paper, istle, maguey, and similar fibers, and gummed tape and soft wire, all compete among themselves and with abaca and sisal for the wrapping twine market. Competition is largely on a price basis, although consumer preference plays a considerable part. Some of this competition is more in the nature of the substitution of another fiber. For instance, hard fibers have displaced jute, particularly in the coarser twines, and there is little or no continuing competition.

Cotton is the only one of these fibers produced domestically; all the others are admitted to this country on the free list. This benefits the grain farmer (large users of binder twine), manufacturers and distributors (retail and wholesale), who use twines made of fibers other than cotton. There have accordingly been attempts from time to time to impose a tariff, which would enhance the use of cotton in these uses at the expense of these imported fibers. The economic effects of such substitution would provide a suitable subject for research along the lines suggested by this report. The relative prices of the various fibers, the effect upon both the immediate and ultimate consumer, and the relative properties of the various fibers for each use would all need to be taken into account.

Many special types of twine and cordage are produced for special uses, with certain sizes and strength requirements generally taken for granted in the trade so that specification

on these two points, while still necessary, is minimized. A list of some of these indicates the range of industrial uses for twine. To these could be added many other special uses, and of course, an almost infinite number of general uses.

USE	PRINCIPAL FIBER
Lath yarn	Henequen
Fodder yarn	Henequen
Clothes lines	Cotton
Seine twine	Cotton
Wool twine	Paper
Sail twine	Cotton, jute, hemp
Tobacco twine	Jute, cotton
Hop twine	Henequen
Mop twine	Cotton
Candlewicking	Cotton
Braided sash cord	Cotton
Broom twine	Hemp, cotton
Mattress twine	Cotton, hemp

This production of special types and sizes for specific purposes is carried equally far or even further in cordage, where the range in requirements and in possible sizes is greater.

THE CORDAGE AND TWINE MARKETS

Since all the products of the cordage and twine industry are ready for direct consumption when they leave the mills, their distribution pattern is radically different from that of gray or finished woven cloth, which must be further processed. The demand side of the market is thus comprised not of a relatively few processors but of many ultimate users, who must be reached through various channels of distribution. For hard fiber cordage the final market is the ultimate consumer in the true sense of the word—the builder or contractor who buys some rope at his local hardware store, the owner of a boat who buys through a ship chandler, etc. The study of distribution of hard fiber cordage in 1930 by the Harvard Bureau of Business Research showed that wholesalers purchased 58 per cent of the total

product of the industry. The rest went directly to industrial consumers: manufacturers of machinery, canvas products, fishing equipment, construction companies, and the like.

Binder twine has quite a different distribution pattern, being used wholly in the harvesting of grain. It is the largest volume product of the industry, since $2\frac{1}{2}$ to $3\frac{1}{2}$ pounds of twine per acre are required in the harvesting of most grain crops. This whole picture is influenced by the position of the International Harvester Company as the largest single producer in the country, selling to farmers through its machinery selling organization. Of great importance also is the fact that in 1936, of domestic production and imports of binder twine, 32 per cent were imports, 23 per cent were made in penal institutions, and only 45 per cent were made by domestic manufacturers using free labor.

For wrapping twine the ultimate users are the distributing trades as a whole—manufacturers, wholesalers, and retailers who need twine to tie packages. In this market twine is strictly ancillary, not a major item of cost. Hence, except for the large users who purchase directly from manufacturers, it is a typical distributor's item for sale to smaller business consumers and in very slight degree to households.

GRAY GOODS

TYPES AND QUALITIES OF GRAY GOODS

The gray and finished goods markets lie about half way between the raw fiber and retail markets. From the standpoint of pricing this position is their most important characteristic—they are intermediate markets of price adjustment, cushioning the rise and fall of raw fiber prices, not originators of primary price movements. Price fluctuations in the fiber markets are adjusted to the requirements of rigid retail prices by the method dominant in textiles: variation in quality or size. In these two markets, however, the arbitrary and concealed changes in quality, characteristically associated with quality changes, are definitely sub-

ordinated to their accomplishment through a regular process of shifting from one to another of a range of standard cloth constructions. This is particularly true of gray goods, in the pricing of which standard market constructions play a role no less important than grades for raw fibers.

Cloth as it comes from the loom or knitting machine may be of two types: gray goods made from uncolored yarns or colored goods of which the warp or the filling or both are composed largely of colored yarn. Since the surface decoration of colored yarn goods is determined by the way in which the colored yarn is used, the pattern must be decided upon before weaving. When the cloth comes off the loom it needs only to be washed and calendered or put through other related finishing operations before it is ready for delivery to the customer. These operations are almost invariably performed by the weaving mill itself.

With gray goods, however, the ultimate surface appearance is indeterminate so far as the mill is concerned, as the cloth may be decorated with a printed pattern, dyed in a plain color, bleached white, or used in the gray. The possible variety of effects that may be achieved is unlimited. Much of the style risk and responsibility for pattern selection can therefore be shifted by the mill to the buyer of the gray cloth. In this way pattern variation can be made to play merely a minor role in the weaving mill's production schedule, assuring a steadier rate of operation, especially if the cloth has a large market; i. e., a large number of possible uses or at least a large number of potential trade customers.

Appropriate patterns, colors, and finishes for gray goods are selected not by the weaving mills or by the finishing plants as such, but by a group of specialists in styling known as converters. In some instances converting establishments are operated as part of a vertical mill organization, or as an adjunct to a finishing plant, but more frequently they are independent. Converters are accordingly buyers of gray goods from weaving mills and comprise one of the largest demand elements in the gray goods markets. Industrial users are the next largest. They may either consume the

cloth in the gray or themselves apply some special finish required for their purposes.

Most cotton, rayon, silk, and linen fabrics are characteristically sold by mills in the gray or unfinished state, whereas wool goods are usually sold by mills as finished goods. Hence there are no gray goods markets for wool fabrics, whereas for the others there are both gray and finished goods markets. Trading in the gray goods markets turns on cloths of standard construction. The greater the demand for a given type of cloth, the more certain is it that the trade will standardize upon a relatively few constructions. Purchasers on the one hand tend to adapt their needs to standard constructions in the expectation that over a period they will have enough sources of supply to assure competitive prices. Mills similarly seem to prefer to operate on standard constructions since it assures them a ready market as well as low costs resulting from continuous mass production. A further reason for concentrating upon standard constructions is indicated by the function of the gray goods markets in making price adjustments. A common illustration is the wide print cloth division of the cotton goods industry. As of a given day the four major print cloth constructions may be quoted.

WIDTH (inches)	CONSTRUCTION (ends picks)	WEIGHT (linear yards per pound)	PRICE (cents per yard)
39	80x80	4.00	6 $\frac{3}{8}$
39	68x72	4.75	5 $\frac{3}{4}$
38 $\frac{1}{2}$	64x60	5.35	4 $\frac{1}{2}$
38 $\frac{1}{2}$	60x48	6.25	3 $\frac{7}{8}$

It will be noted that there is a steady downward progression of prices per yard as one proceeds from heavier (fewer yards to the pound) to lighter constructions.¹⁷ This makes it possible for the cutting-up and retail trades to adjust for raw material price fluctuations by shifting from one standard construction to another without changing the retail price of the finished article. A rise in the price of 80x80 gray cloth, for example, from 7 $\frac{1}{2}$ to 10 cents per yard would

¹⁷ In price *per pound* these four constructions, made of very similar yarns, are very close together.

throw printed percales made from this construction out of the range the dollar dress cutter could pay. After the supply of goods he had purchased in expectation of that price rise had been exhausted, he would be obliged to turn to the next cheaper construction of percales for his dollar dress line; i. e., 68x72s and so on. Over the last fifteen years all these constructions have been used for the dollar dress at one time or another. If prices of gray goods are to be compared over long periods, therefore, both the typical construction and its probable substitutes should be considered together.

While the four print cloth constructions mentioned are the most important, they do not comprise the entire print cloth market. Several other constructions of less general importance, intermediate constructions like 72x76, sub-count constructions like 36" 60x48, or constructions for special uses such as 38½" 44x40 8.20 yd., are also included in the group of standard constructions sold in the print cloth market.¹⁸

This same general outline holds for other gray cloth markets. Usually at least two gray cloth constructions are important for any given type of fabric. Sometimes the number of constructions is so large that no one fabric or group of fabrics is dominant. This is true of certain types of industrial fabrics where the particular requirements of different uses vary so much that different specifications are required in the construction of fabrics for each use. In the case of novelty weaves where patterns are woven into the cloth, as in fancy dress goods and clipped-spot marquisettes, each pattern is a separate construction. These kinds of fabrics tend to be priced on the 'basis' of some standard construction with the actual price figured up or down from that 'basis'.

The term 'standard construction', though it indicates a

¹⁸ Strictly speaking, print cloths have at least 100 threads per square inch. Fabrics made from the same yarns of lower construction are usually termed cheese cloths. However there is a tendency to include all print cloth yarn fabrics under the heading of 'print cloths'.

certain uniformity of quality, should not be interpreted as meaning that all mills produce cloth of exactly the same quality in the same constructions. Variations between one mill make and another are bound to exist, because of the use of better cotton, better machinery, greater skill of operatives, or higher standards of quality. They may lead to price differentials between one mill make and another, usually amounting to not more than 2 or 3 per cent of the value of the cloth. Similarly it should be recognized that as in all manufactured goods, long term quality changes occur within a given standard construction as improvements are made in the manufacturing process. For example, the 64x60 print cloth produced today under conditions of controlled humidity, with feeler motion and on automatic looms, is definitely superior to that sold twenty-five years ago. Weak spots have been greatly reduced through far greater uniformity in the yarns.

Similarly the building up of continuous price series on 'standard constructions' covering a long period is frequently difficult because of the outmoding of certain constructions and widths and the substitution of others. A classic example is the 27" 64x60 7.60 yd. print cloth construction which, twenty-five years ago, was the leading print cloth construction. Although still quoted, its volume is insignificant today as it has been superseded by the 38½" width.

Quality changes of this kind have an important bearing upon the study of prices. If consumers are receiving greater wearing quality in an article ostensibly the same as they used to purchase, that fact should be taken into account in some way in arriving at any conclusion concerning price changes. Methods for measuring serviceability and wearing qualities of textiles have improved rapidly in recent years. The work of Committee D-13 of the American Society for Testing Materials, of the United States Bureau of Standards, and of consumer testing agencies has made available material which, over the course of time, should make possible comparative studies showing the extent of quality changes. It should be recognized, however, that for most

studies of price movements, measures of quality change are not available. Their development must await studies undertaken jointly by technical and economic research workers.

In this connection it should be borne in mind that there is no one best quality in a given field that can be thought of as the standard to which the market 'ought' to conform. Whatever the volume constructions, higher count, stronger, and more durable cloths can be constructed. Such 'better' constructions would not necessarily be more desirable for a given use. For a woman's summer dress, a sheer light weight and none too sturdy fabric is to be preferred to a stronger or higher count fabric. Similarly the 64x60 print cloth is suitable for use in men's inexpensive handkerchiefs, whereas the 80x80 construction would be unsuitable. Here porosity and lightness in weight are more important than strength or wearing quality. This situation is to be found all through the textile field and makes it necessary that qualities of fabrics always be regarded in terms of their uses. Wearing strength, merely one of the qualities desired in fabrics, is frequently subordinated in the minds of consumers to other qualities.

For the study of gray cloth prices we have listed in Table 15 the more important classifications of fabrics sold actively in the gray goods markets. Changes in major constructions are relatively infrequent in cotton fabrics, but frequent in rayon. Any given type of rayon fabric may pass quickly through a cycle of popularity and then disappear. The rayon fabrics and constructions listed, however, have shown over the last three or four years a measure of persistency and can be regarded today as more or less staple.

The proper identification of a given cloth involves specification as to six points:

- 1) Width
- 2) Warp and filling threads per inch
- 3) Weight per linear yard
- 4) Kind of weave or name of cloth
- 5) Size of yarns—single or ply (usually implied)
- 6) Kind of yarn

TABLE 15

Selected Sources of Gray Goods Prices and Related Data

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
A COTTON WOVEN GOODS			
<p><i>Print cloth yarn fabrics</i> Plain print cloths, 36" and wider 38½" 64x60 5.35 yd. 39" 68x72 4.75 yd. 39" 80x80 4.00 yd. Plain print cloths, under 36" 27" 64x60 7.60 yd. 32" 64x60 6.50 yd. Carded broadcloths 36½" 80x60 5.00 yd. 37" 100x60 4.10 yd. Pajama checks 36½" 72x80 4.70 yd. Tobacco cloths 36" 20x12 23.00 yd. 36" 24x20 17.00 yd. Cheese cloths 40" 32x28 10.80 yd.</p>	<p>Prices for selected constructions pub. in trade papers; e.g., <i>Daily News Record</i>, <i>Journal of Commerce</i></p> <p>For most constructions <i>Daily News Record</i> series go back to 1923 when compilation of the Fairchild price index was begun, and as far back as 1913 on some constructions. <i>Journal of Commerce</i>, pub. since 1823, has carried prices on textile items for many years. The publishers' file for years prior to 1930 has been given to the N. Y. Public Library.</p>	<p>Daily prices, f.o.b. mill quoted on a linear yd. basis. Terms net 10 days. Conditions of sale covering all gray goods transactions and so specified in the sale note are stated in full in 'Worth Street Rules'</p>	<p>Imports and exports comp. by BFDC</p> <p>Mfrs. margins comp. by Bureau of Agricultural Economics for 17 constructions, and by various private agencies incl. a weekly series since 1924 by N. Y. Cotton Exchange</p> <p>Data on orders, production, shipments, and stocks for numerous types of gray goods comp. by Cotton Textile Institute on a confidential basis for the use of members only</p>
<p><i>Narrow sheetings and allied fabrics</i> Narrow sheetings 40" 48x48 2.85 yd. 37" 48x48 4.00 yd. 36" 48x40 5.50 yd. 36" 56x60 4.00 yd.</p>	<p>Both papers issue annual summaries of prices: <i>Journal of Commerce</i>, January 2; <i>News Record</i>, 3d week of January</p>	<p>37" 2.35 yd. 30" 2.85 yd.</p>	<p>30" 2.50 yd.</p>

Four leaf twills

37" 84/88x40/44 2.85 yd.

37" 84/88x40/44 2.00 yd.

Heavy warp sateens

34" 104/108x56 3.00 yd.

Osnaburgs

30" 40x30 7 oz.

36" 32x28 2.85 yd.

40" 32x28 3.50 yd.

Jeans

39" 96x64 2.85 yd.

Three leaf twills

39" 68x76 4.00 yd.

Fine cotton goods**Marquissettes**

38½" 44x18, plain

Box loom dress goods

48" 96x50 200d gamsa

48" 44x36 2 ply alpaca

48" 52x44/46 romaine

45" 135x64 100d 2x2 canton crepe

Satins

42" 200x72 75/100 acetate

40" 140x56 100d/40f 150d/40f viscose

40" 110x52 150d/40f viscose

Lawns

40" 96x100 7.00 yd.

40" 88x80 8.50 yd.

40" 76x72 9.00 yd.

Combed broadcloths

37" 136x60 4.00 yd.

Voiles

39" 60x52 slack twist

40" 60x56 ordinary twist

40" 68x76 70s Pima

Piques

38" 176x100 3.55 yd.

Carded filling sateens

37½" 64x88 4.70 yd.

37½" 64x104 4.37 yd.

Cotton duck**Army duck**

28½" 54x40 8 oz.

Flat duck, single filling

29" 76x30 8 oz.

Taffetas

39" 110x48 150d/40f acetate

40½" 92x68 100/150 pigment

40½" 72x56 150 pigment

39" 68x44 150d/40f

39" 108x46 150d/40f faille

Wide duck

36" No. 8

Napped fabrics (in the gray)**Canton flannels**

33" 8 oz. (mitten flannel)

Wide industrial fabrics**Sheetings**

46" 42x38 6.00 yd.

52" 48x48 3.85 yd.

54" 1.55 yd.

54" 1.90 yd.

60" 48x48 3.30 yd.

Drills

59" 68x40 1.85 yd.

59" 2.25 yd.

Twills

56" 1.10 yd.

Sateens

54" 104x64 1.30 yd.

54" 1.55 yd.

Tire cord and fabrics**Cords, on cones**

23/5/3

15/3/3

Woven cord

23/5/3

13/3/3

Square woven fabrics

Builders, 10/4

Wide bed sheeting fabrics**Wide brown sheeting**

90" 56x58

90" 64x64

90" 68x72

B RAYON BROAD GOODS

Prices for selected constructions pub. in trade papers; e.g., *Daily News Record*, *Journal of Commerce*

Daily prices f.o.b. mill

Twills

38" 112x68

40½" 92x64

40½" 72x52

Data on mill activity available in monthly reports of the National Rayon Weavers Association and National Federation of Textiles. Additional data on production, unfilled orders, shipments, and stocks comp. on a confidential basis for the use of members only. Imports and exports comp. by BFDC

TABLE 15—(Continued)

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	NATURE OF PRICES QUOTED	RELATED DATA
<i>C SILK BROAD GOODS</i>			
<i>Flat crepes</i> 43" 55x84 'A' for pure dye 43" 55x72 for wtg.	Prices for selected construc- tions pub. in trade papers; e.g., <i>Daily News Record</i> , <i>Jour- nal of Commerce</i>		Imports and exports comp. by BFDC
<i>Lingerie satin</i> 44" 50x100 2x2 for pure dye 43" 45x84 silk-Bemberg mixture			
<i>D JUTE FABRICS</i>			
<i>Jute</i> Burlap 10½ oz. 40" 8 oz. 40"	Prices pub. in <i>Journal of Commerce</i> and <i>Daily Mill Stock Reporter</i>	Daily prices in the N. Y. market	Imports comp. by BFDC

One or more of these may simply be implied. In the case of cotton drills and certain other fabrics, the number of threads per inch in the warp and filling may vary somewhat from one mill to another, making the weight the sole determining factor. Also, while for cotton gray goods the grade of cotton is not specified, for rayon fabrics the process and denier of the yarn used are always stated and frequently the number of turns per inch. Similarly the grade of raw silk and the number of threads combined to form the warp are given. With this specification of raw material or yarn it is possible to link up readily silk and rayon gray goods with the preceding stage of manufacture. For cotton it is not so easy since there is greater latitude in the grade and staple length of cotton that may be used for a given construction. One mill may use a grade or staple somewhat better or poorer than another mill. For purposes of general analysis, however, typical grades and staple lengths of cotton that may be used in the manufacture of the different classifications of fabrics vary somewhat, as is indicated in the comparison of several basic groups of fabrics.

TYPE OF FABRIC	TYPICAL GRADE AND STAPLE OF COTTON USED	APPROXIMATE RANGE OF YARNS	
		Warp	Filling
Combed voile	Strict middling 1 3/16"	50s-60s	50s-60s
Print cloths	Strict middling 1"	27s-32s	36s-44s
Sheetings			
Class A	Middling 7/8"	10s-14s	12s-16s
Class B	Middling 15/16"	16s-21s	16s-22s
Class C	Middling 15/16"	21s-28s	22s-29s
Drills	Middling 7/8"	10s-20s	12s-22s
Ducks, flat	Strict low middling 7/8"	8s-14s	4s-14s

Whereas cotton gray goods may either pass directly into use as gray goods or be converted into finished goods, all rayon and silk fabrics necessarily pass through the finishing process for resale in finished goods markets. The uses of rayon and silk fabrics are pretty much determined at the time they are woven by the construction itself. There is, of course, some leeway; satins are used in small amounts for dress goods as well as for underwear; plain weave taffetas

may be used for a variety of things; and so on, but in a general sense the range of uses is relatively limited by the construction itself and the price at which the fabric must sell. This is also true for certain types of cotton goods, such as colored yarn fabrics and combed cotton fabrics, but for the other types the uses are extremely broad. For example, one market analyst has found over two hundred uses for ounce duck alone. The chart shows some of the major lines of flow of fabrics, but is, of course, not intended to be complete. However, since price analysis will in most instances start at the retail or use stage and work back in tracing some particular fabric, this diversity of use, which increases in the later stages of manufacture, will not necessarily be an obstacle to price research.

THE GRAY CLOTH MARKETS

Efficiency in the highly active gray cloth markets, in the absence of formal organization, is achieved through concentration of the actual marketing in the hands of relatively few selling agents and brokers, whose main offices are in New York City: cotton gray goods in the Worth Street district; silk in the Seventh Avenue district; rayon in both; and burlap, linen, and other imported fabrics, with importers. In the largest gray cloth markets, about twenty selling houses handle most of the goods sold, and in some markets, less than a half dozen. Instead of lessening competition, as some people unfamiliar with the industry might believe would be the case, this concentration intensifies competition by making quick price adjustments possible. Some selling agents, for example, may represent several mills producing the same fabrics, and if one mill will not accept a buyer's bid, it can be passed to another. Similarly a leading brokerage house will know at all times what prices most important mills will accept for a given type of goods and can at any given time tell prospective buyers what the market 'price' is.

The markets in which gray goods prices are made are thus essentially brokers' markets. There are no list prices. Quo-

tations are on a bid and asked basis, and when there is a meeting of minds, the resulting price is the market price. In inactive markets the asked price is usually the quoted price. To get a continuous price series both market and asked prices may have to be used.

Differences in published quotations for the same fabric for the same day are not infrequent. They may arise from preference for a given mill make and willingness to pay a premium. Or they may come from ignorance on the part of either buyer or seller of what the 'market' is asking. In the absence of a formally organized market such situations are bound to develop. But they are most likely to arise from differences in sources. One paper may get its price for the day from a gray goods broker; another from a selling agent. Prices quoted by brokers tend to be lower than those quoted by selling agents, since the latter are more likely to report asked prices, and the former to report prices for which goods can actually be purchased. Such differences tend to be small and in time balance themselves out.

As in most commodity markets, selling of gray goods may be on either a spot or future delivery basis. For the more widely used standard constructions or staples, as they are sometimes called, mills customarily make goods for stock, so that normally some goods for spot delivery are available in the market. On special constructions at all times, and on staple goods during times of extensive forward buying, mills sell for future delivery. Contracts are usually based upon the expected production of a certain number of looms. Novelty goods are usually delivered 10 per cent weekly, the first delivery being made three to four weeks or more after the contract has been signed (depending on how long it takes to convert the raw material purchased to cover the contract into cloth). The amount of staple goods deliverable weekly may vary widely depending upon the extent to which the mills' capacity is sold ahead, the number of looms available, and the customers' requirements.

Variations between spot and future delivery prices follow in a general way variations in prices of raw materials. Future

delivery contracts may be priced either at a premium or a discount, depending upon such factors as the outlook for the cotton crop or raw silk production. When one price alone is given, it is usually for spot delivery goods, except when mills are sold well ahead, in which case it is the contract price.

FINISHED GOODS

Finished goods markets are of two broad types: markets for converted gray goods and markets where the cloth reaches the point of sale for the first time as finished goods. To these may be added the group of composition fabrics, in which a fabric is combined with other substances to produce a finished fabric with entirely new properties. Under the first are included a large proportion of all cotton, rayon, and silk fabric markets; under the second practically all woollen and worsted fabrics, colored yarn cotton goods, and such specialties as upholsteries, pile and narrow fabrics. Both types of markets have this in common, that standardization of constructions is less prominent than at the preceding levels of production.¹⁹ This arises inevitably from two facts: (1) finished goods contain decoration, which can impart to the cloth a wide range of values both intrinsic and subjective, quite irrespective of the value of the cloth per se; (2) the finishing process tends to blur the construction of the cloth as it was woven so that it is difficult to determine from a finished sample just what the original construction was.

In printed designs on converted goods, one pattern may be more intricate and therefore more expensive to execute in both engraving and printing, as well as having greater color coverage.²⁰ Similarly a group of patterns averaging four or five rollers per pattern and printed in small runs would represent a greater intrinsic value than one with

¹⁹ An important exception is colored yarn cotton goods such as denims, which resemble gray goods more nearly than finished goods.

²⁰ Color coverage is usually expressed as the percentage of the area of the cloth covered by the printed design.

fewer colors and printed in large volume per pattern. The wide variation in cost of dyes makes it possible also for a printer or converter willing to take a chance on consumer, rejection to use inferior dyes. Furthermore, there is the enormously important factor of style, which though subjective, adds to the value of finished goods. Thus, the gray cloth construction no longer tells the whole story of the value of the finished cloth. It is now only a part of the total value, though for the great majority of cloths still the dominant part.

The same situation, of course, applies to woolen and worsted goods where the pattern is woven into the cloth, either in the texture alone or in color and texture combined. The more novel the yarns of the weave, the more difficult is it to classify a fabric according to standards of construction. Where one is dealing with a fiber of such great variation in quality as raw wool, or where reworked fibers also may be present, to give merely the number of picks and ends in the cloth tells practically nothing by itself, unless one could know the grade of raw wool and much other information about its processing—facts one would be unlikely to possess and would probably have difficulty relating to any possible set of standards. This is generally true also of other fabrics that appear for the first time in the finished goods market,²¹ such as pile fabrics where the details of construction are intricate to begin with.

²¹ Narrow fabrics are a case by themselves and fall in between gray goods and fabricated products. The narrow fabric industry may be subdivided on the basis of products into four branches:

- a) woven nonelastic fabrics, such as tapes, labels, ribbons, upholstery, and drapery trimmings
- b) woven elastic fabrics, such as elastic hose supporters
- c) braided non-elastic fabrics, such as shoe laces
- d) braided elastic fabrics

Like thread these products are used incidentally in the production of other articles. The range of possible uses is exceptionally large. For example, there are hundreds of different sizes and constructions of ribbons, with various fibers employed in many different proportions, including metal, cellophane, etc. Many of the products of the industry, such as garment labels, are necessarily made according to the buyer's specifications.

Prices for narrow fabrics tend to be quoted on a list basis. The unit of

A further cause that lessens the importance of standard constructions in finished goods lies in the changes in cloth during the finishing process. As cloth is woven on the loom it is naturally under considerable tension in respect of both the warp and the filling. During the finishing operation this stretch may be increased warp-wise as a result of the cloth being pulled through the finishing processes in rope form with resulting shrinkage in the filling. Also if the cloth is woven with highly twisted yarns such as crepe-twist yarns, the resulting shrinkage may be very great, up to 20 or 25 per cent of the original width and length. Even if the cloth is put through a preshrinking process to prevent subsequent shrinkage, the resulting count of ends and picks per inch may have no readily determinable relation to the original gray construction of the cloth. Similarly, because of differences in weaving tension, the finished construction will not be exactly the same on two successive lots of goods, or even at the two ends of the same lot. The best that can be done so far as standards of construction are concerned is to sell finished converted goods on the basis of the gray constructions from which they were derived. From woolens and worsteds, constructions are omitted altogether and the fabrics are sold simply by the width and the weight of the cloth—so many ounces per linear yard—although in worsteds the grade of top used is frequently mentioned, as a 64s cloth, a $\frac{3}{8}$ blood fabric, etc.

For those types of converted goods where the gray construction represents a widely recognized standard of quality, its use for identifying the quality of the finished fabric works out reasonably well. Sometimes, however, there is a tendency for a certain type of converter to use sub-count constructions, i. e., constructions with slightly fewer ends or picks per inch than in the more generally used market

quantity varies, although there is uniformity in the trade for any given item. Variations in prices between a product of one mill and that of another may be offset by lower prices on other items the same customers would use. The quality of each firm's products also tends, as in the case of thread, to be more important to the customer than minor price differentials. Price data for the industry are not reported in the trade press.

constructions. Or he may use narrower gray goods than the standard and 'hold out' the goods in the final finishing process so that the cloth has about the same finished width as cloth of similar construction actually woven two or three inches wider. In this case the finished goods or the garments into which they are made, will, of course, shrink upon the first washing that much more, although this cannot be known to the customer at the time of purchase.

Practices of this sort have been most common in the rayon and silk industry, particularly in new types of cloth or new constructions in the early stages of development. By progressive debasement in small degrees, by taking out a few ends here or a few picks there—something that cannot be readily detected by users—new cloths have been gradually reduced to lower constructions until some sort of minimum is reached which, if the popularity of the cloth survives, comes to be recognized more or less as a standard construction. Novelty goods are most subject to this type of treatment, whereas in staple goods the 'chiseling' more frequently takes the form of a reduction in gray width. In short, comparability of prices for finished goods, even for goods of ostensibly the same quality, is at best uncertain and must be based either upon such broad qualifications as simply the weight of the cloth or upon the construction of the gray cloth, which cannot always be checked with complete certainty.

The finishing operation, whether performed by a job finishing plant acting upon instructions from a converter or within an integrated mill organization, is the final stage in cloth manufacture. It imparts to the cloth the particular characteristics required for the specific purpose for which it will be used. These characteristics of design, color, and finish should be added to the designation of the cloth itself for the complete identification of the finished goods:

- 1) Width, finished—distinct from gray width
- 2) Gray construction for converted goods; weight, either finished or gray, for colored yarn goods
- 3) Type of cloth or weave

TABLE 16
Selected Sources of Prices of Finished Fabrics and Related Data

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES <i>A CONVERTED FABRICS</i>	RELATED DATA		
<i>Print cloth yarn market</i>				
35/36" percale (38½" 64x60 5-35 yd.) Bleached Plain dyed, fast to washing colors Printed, fast to washing colors	<i>1 Cotton Woven Goods</i> Occasional quotations in <i>Daily News Record</i> and <i>Journal of Commerce</i> ; prices for certain fabrics, obtained from converters and selling agents, available in reports of Wholesale Price Division, BLS (see Ap. I)	Imports and exports comp. by BFDC. Data on production and stocks comp. on a 19-month basis by National Association of Finishers of Textile Fabrics		
35/36" printed percale (39" 80x80 4.00 yd.) Fast to washing colors				
35/36" carded broadcloth (36½" 80x60 5.00 yd.) Bleached Plain dyed commercial colors Printed, fast to washing colors				
35/36" carded broadcloth (37" 100x60 4.10 yd.) Bleached Plain dyed, vat colors				
<i>Narrow sheetings and allied fabrics</i>				
35/36" printed cretonne (36" 48x40 5-50 yd.) commercial colors				
35/36" vat dyed jeans (39" 96x64 2.85 yd.)				
35/36" vat dyed khaki (37" 2.00 yd. four leaf twill)				
Same fabrics, finished, as shown on gray goods list.				
			<hr/> <i>Fine cotton goods</i> 36" printed lawn (40" 76x72 9.00 yd.), vat colors 36" bleached lawn (40" 96x100 7.00 yd.) 39" printed voile (40" 60x56 ordinary twist) 36" bleached broadcloth (37" 136x60, or 128x68) 35/36" printed sateen (37½" 64x88 4.70 yd.), commercial colors	
	<i>2 Rayon Broad Goods</i>			
		Imports and exports comp. by BFDC		

3 *Silk Broad Goods*

Same fabrics, finished, as shown on gray
goods list
39" transparent velvet

Imports and exports comp. by BFDC

B FINISHED FABRICS SOLD BY WEAVING OR KNITTING MILLS

1 Cotton Woven Goods

Colored yarn fabrics

Gingham 32" 64x52 5.50 yd.

Denims

28" 2.20 yd. unshrunk

28" 2.20 yd. fully shrunk

Chambrays and cheviots, plain shades

36" 3.90 yd. (fine yarn)

36" 3.20 yd.

Shirting coverts

36" 3.90 yd. (fine yarn)

36" 3.20 yd.

Cottonades and heavy coverts

28" 2.40 yd.

30" 2.00 yd.

Bed tickings

32" 2.00 yd.

Outing flannels

Bleached and solid colors

36" 4.50 yd.

Fancies

36" 4.40 yd. printed

Prices pub. occasionally in *Daily News Record* and *Journal of Commerce*; prices for certain fabrics, obtained from mills and selling agents, available in reports of Wholesale Price Division, BLS

Imports and exports comp. by BFDC. Data on orders, production, shipments, and stocks comp. by Cotton Textile Institute on a confidential basis for the use of members only

REPRESENTATIVE
PRICE SPECIFICATIONS

Pile fabrics
Velveteens
36" twill back
36" plain back
Corduroys
Men's wear
Ladies' wear

Jacquard woven fabrics
Table damask 58" 66x56

Suiting, standard mixture 56" serge, 12 oz., $\frac{3}{8}$ blood quality, per yd.
Suiting, serge, with 56-58" 15 oz. per yd.
Suiting, serge, width 58" 16 oz. per yd.
Suiting, uniform serge, 12 oz. fine grade, per yd.
Suiting, uniform serge, 12 oz. medium grade, per yd.
Suiting, unfinished, worsted, 13 oz. per yd.
French serge, all wool, 54" 7 oz. per yd.
Overcoating, melton, 28 oz. per yd.
Broadcloth, women's dress goods, $9\frac{1}{4}$ oz. 54-56" worsted and wool, per yd.
Crepe, all worsted, 54" 5.2 oz. per yd.
Flannel, all wool, 54" 6 oz. per yd.
Flannel, all wool, 54" 7 oz. per yd.
Sicilian cloth, cream, 54" cotton warp, 6.2 oz. per yd.
Trousering, 36" cotton warp, worsted filled, 6 oz. per. yd.

TABLE 16—(Continued)

SOURCES

Prices pub. occasionally in *Daily News Record* and *Journal of Commerce*; prices for certain fabrics, obtained from mills and selling agents, available in reports of Wholesale Price Division, BLS

2 Woolen and Worsted Goods

Prices pub. occasionally for specific companies in the *Daily News Record* and *Journal of Commerce*; prices for certain fabrics, obtained from mills and selling agents, available in reports of Wholesale Price Division, BLS

RELATED DATA

Imports and exports comp. by BFDC

Data on orders, production, cancellations, shipments, and stocks comp. by National Association of Wool Manufacturers. Imports and exports comp. by BFDC

3 Knit Cloth

Rayon, plain stitch, circular knit 150d
viscose yarn, per lb.

Rayon, plain stitch, warp knit

Men's light topcoating, knitted, 17 oz., 55"
finished

Milanese fabric, knitted from 20/22 pure
silk, weighted 3-pass, finished to give
approx. 11.00 sq. yd. to lb. computed on
greige weight, priced by the sq. yd.

Tricot fabric, one bar made from 100d
viscose type rayon, knitted to finish
approx. 5.50 sq. yd. to lb. computed on
greige weight, priced by the sq. yd.

Prices pub. occasionally in trade papers

Data on production, stocks, shipments,
and orders comp. monthly by Census

C COMPOSITION FABRICS

Artificial Leather, Oilcloth

Artificial Leather, per yd.
Heavy
Light

Oilcloth, per piece, factory
Shelf, 12", per 24 yd.
Table, 5/4, per 12 yd.
Wall, 5/4, plain tints, per 12 yd.

Prices pub. in reports of Wholesale Price
Division, BLS (see Ap. I)

Imports and exports comp. by BFDC

Data on production, unfilled orders, and
shipments of pyroxylin coated textiles
comp. monthly by Census

- 4) Grade of colors
- 5) Character of decoration or process
- 6) 'Finish'

Construction details of the cloth as quoted in the market, particularly yarn count for converted goods and colored yarn cotton goods, are usually those of the gray cloth, except that the width specified is that of the finished cloth. This allows for normal shrinkage during finishing. Widths tend to become standardized in order to fit the cutting patterns of the fabricating trades. For other finished goods sold directly by mills, construction details are usually those of the finished cloth.

The name of the cloth gains importance in finished goods. It may or may not be related to the name of the gray cloth, as will be seen from the list of finished goods selected for price study in Table 16. In the finished state, fabrics of wide diversity in use, such as print cloths, have a great variety of names or forms, of which the two or three listed are merely representative. Similarly, names with promotional significance and brand names of individual manufacturers begin to appear here in large number. The importance of such names in influencing decisions by the trade as to the price varies considerably. Well established names probably command preference and occasionally a premium, provided styles and other factors are equal.

To a considerable degree the type of cloth itself determines its use, and by the same token, the finishing characteristics that will be imparted to it. These include the decorative design, applied after weaving to bleached, dyed, and printed fabrics, and in the weaving process itself to other types of finished goods. Bleaching constitutes the first stage in finishing of practically all converted cotton textiles. It is preceded by a singeing operation, in which the gray cloth is passed quickly over a live flame or hot plate which burns away surface lint. Cotton goods that are to be dyed or printed must first be bleached to remove lint, warp sizing materials, natural oils, and other substances that would prevent even penetration or registration of the dyes. Also

about a third of all finished cotton goods are used in the bleached state. Similar processes preparatory to dyeing or printing are used in rayon and silk, but are gentler in their action; e. g., simply a scouring operation to remove warp sizing for rayon and the 'boiling off' of the natural gum in silk.

The range of dyestuffs that may be employed in plain and yarn dyed and printed fabrics is literally enormous. Every year new improved colors are produced. Hence the quality of colors has improved steadily for some twenty years, whereby consumers have been receiving more and more in wearability for their money. Two distinct terminologies are applied to classes of colors: one, in consumer terms based upon performance, is used in the dry goods trades; one, in technical terms based upon the nature of the dyes or methods of application, is used in the textile and dyestuffs industries. The consumer terms all imply certain

Consumer Classification

- 1) Guaranteed fast colors
- 2) Fast to washing colors
- 3) Fast to chlorine colors
- 4) Fast to sunlight colors
- 5) Commercial colors

Technical classification

- 1) Vat and naphthol dyes
- 2) Developed dyes ('d and d')
- 3) Sulphur dyes
- 4) Direct dyes
- 5) Basic dyes

standards of performance. Yet within any group of dyestuffs there is wide variation in fastness from one color to another. Furthermore, important variations can be introduced in the application of the dye to the cloth, since in many instances the given color is produced by chemical reaction within the fiber. The methods used by consumers to cleanse the cloth and the conditions of use will further influence importantly the performance of the dye. Hence mere specification of the type of dyestuff according to the technical

classification carries no necessary connotation as to performance of the color according to consumer standards.

Furthermore, dyestuffs do not affect all fibers uniformly. Fibers have varying receptiveness to dyes. Wool, for example, is the most reactive of all fibers to dyes, combining directly with most dyestuffs, and yielding as a rule colors that are much faster than those obtained with the same dyestuffs on other fibers. Hence obtaining fastness of color or making the dyestuff remain in the fiber is much less a problem than with cellulose fibers like cotton and rayon. Likewise, dyes that react readily on one fiber frequently do not have a similar effect on others.

There is finally the 'finishing' operation itself, that is, the imparting to the cloth of a definite 'finish' or 'hand' through processing it over certain machinery, usually with the addition of materials that aid in producing the desired effect. The range of these processes is very great, embracing many different purposes and producing wide variations in effect—napping, shearing, brushing, fulling, beetling, mercerizing, plisse printing, waterproofing, resin-impregnation for anti-creasing, moth-proofing, preshrinkage, imparting of a permanent finish, and ultimately a final finishing operation, which is most frequently calendering or ironing.

The primary function of the final finishing operation is to give the cloth a pleasing 'hand', one that will not break down before the made-up articles or piece goods have passed through the distribution process to the consumer. In some cases permanent finishes may be used, but these are hard to obtain and quite expensive. The type of finish regarded as satisfactory varies widely with the cloth. Wool goods, for example, require a different surface effect than rayon or cotton—one that requires napping, shearing, and brushing; whereas rayon takes an oil, gum, or soap finish, and cotton most frequently a starch finish. In any event the proper finish enables the cloth to maintain its appearance in the store without soiling or musing excessively. Low construction cotton cloths, used for articles to sell at the lowest prices, do not have enough body to carry them through the

cutting-up processes; consequently, starch and mineral fillers that will give the necessary body are added.

PILE AND JACQUARD FABRICS

In addition to the complexities of standards for finished goods outlined above many fabrics have features peculiar to themselves, especially fabrics produced on specialized types of machinery, such as pile and jacquard fabrics. Here the possibility for combination of two or more different fibers within the same fabric in an intricate construction adds to the difficulties of determining standards and maintaining continuous price series.

Jacquard fabrics are used chiefly in tapestries, draperies, and upholstery; certain amounts are used also for neckwear and dress fabrics. The units of sale are very small, usually no more than 60 or 100 yards of a pattern, and diversity in pattern and construction are emphasized. Since design is what matters most, prices tend to have more relation to it than to intrinsic construction. The establishment of standard grades for price study purposes is consequently extraordinarily difficult, although it might be possible to work from the bases upon which costs and prices are figured.

A special situation applies to pile fabrics in that production is entirely in the hands of about half a dozen mills having the necessary machinery to produce velvets, velveteens, velours, duvetyns, plushes, and corduroys. Pile fabrics may be made from any of the fibers, although most commonly they are made from silk, rayon, mohair, and cotton. Usually one fiber is used for the back and another for the face. Thus silk velvets are usually made with a silk, rayon, or cotton back, and with spun silk yarns in the pile. Variations in construction as well as possibilities for fiber manipulation make comparative price analysis here, as for other specialized types of fabrics, quite difficult.

COMPOSITION FABRICS

Giving a specific finish to cloth may go beyond simply processes applied to the fabric itself, and may involve the

combination of the cloth with other substances in such a way as to produce an entirely different article. These composition fabrics constitute a field of their own, partly in textiles and partly in the chemical industries. The more familiar types include pyroxylin-coated goods, artificial leather, oilcloth, and hard surface floor coverings, linoleum and felt base (Table 16). Many other types may be suggested, however, moving out into the field of industrial fabrics. The list is merely suggestive and is given to indicate lines of possible research through linking up products of this type with fabrics and raw materials.

Coated Fabrics

- 1) Artificial leather
pyroxylin-coated
non-pyroxylin coated
- 2) Oilcloth
- 3) Hard surface floor coverings
- 4) Abrasive fabrics
- 5) Gummed cloth
- 6) Surgical adhesive tape

Impregnated Fabrics

- 1) Rubberized fabrics
- 2) Fabrics for oiled clothing
- 3) Window hollands
- 4) Tracing cloth
- 5) Book cover cloth
- 6) Plastics combined with cloth
- 7) Typewriter ribbons
- 8) Brattice cloth

Mechanical Rubber Goods combined with Cloth

Automobile and Bicycle Tires

THE FINISHED GOODS MARKETS

The finished goods markets, like the gray goods, are markets of price adjustment. This applies both to converted fabrics, which have already passed through a gray goods market, and to finished goods, which go on sale for the first time. For the latter, all the price adjustment must be taken up in the finished goods market; for the former, there are two mar-

kets to cushion price changes. The method of adjustment turns on both changes in the construction of the cloth, as described above for gray goods, and the quality of the elements added in the finishing process. There is thus some additional leeway in finished goods for adjusting to the price requirements of the retail trades, revolving around efficiencies of operation and the cutting of corners here and there in the finishing process. On the whole, finished goods prices tend less to follow the violent fluctuations of raw material prices than gray goods, without at the same time having the rigidity characteristic of fabricated products and retail prices.

The finished goods markets differ from the preceding markets in the type of customers comprising the demand side of the market and their pricing requirements. Many contrasts could be drawn between the processors at the earlier stages of manufacture and the typical operator in the cutting trades. From the price standpoint the two most significant are the latter's definite orientation to retail pricing methods and the limitation upon his financial resources, which has resulted in a system of buying that allows his speculating in cloth without using his own capital.

The merchandising of finished goods and of textile fabricated products is based upon the preparation of a 'line', which comprises an assortment of fabrics, colors, and designs broad enough to contain some units that should appeal to all firms in the trades solicited. Part of the line is based upon fabrics carried over from one season to the next, and part upon fabrics that are run for a single season. Each fabric in the seller's line or garment in the cutter's line is planned and designed for sale in definite retail price lines. This 'line' may be changed frequently, but it is usually preserved intact until the entire trade to be solicited has been covered at least once, and possibly one or two times more for re-orders. This may take from three to five months. The fabricator finds it undesirable to change his prices on the line during that time. Having sold some of his accounts at the old price, to cut the price before the

goods have actually gone on sale throughout his trade would be demoralizing to his customers and would result in little net gain to him. The same is true of price increases which are very difficult to make effective in the middle of a season, since all the firm's customers will want to be covered at the low prices.

Thus prices of textile fabricated products tend to remain stable during a 'season'. The timing of seasons varies from one trade to another, or one cutter to another, of course, but at certain dates the prices of finished goods can be adjusted with least disturbance to the fabricated product and retail markets. These occur from two to four times a year when finished goods producers are introducing their new range of patterns or fabrics. Prices must naturally be adjusted at other times as well, but the tendency is to make the changes all at once, at least in the list prices. This method of pricing ties in with retail merchandising procedures, where selling conforms to the seasonal cycle and pricing is stratified in a few price lines. These price lines tend to be maintained, except for sale purposes, where a lower mark-on is accepted temporarily in order to stimulate demand. The concept of the rigid retail price level being maintained for the duration of the season, until the closeout period, directly parallels the aim of the fabricator to keep his price intact until the season is well advanced. Finished goods operators are thus in between this tendency on the retail side toward price stability and the opposite tendency coming from the fiber markets toward price fluctuations.

This situation is made more difficult for the finished goods seller by the inability or unwillingness of the typical fabricator to carry a fair share of the price risk. Cutters are typically underfinanced, partly from choice, since they can borrow what funds they need from factors and their earnings upon their own capital are thus correspondingly larger. Thus a garment cutter with \$20,000 capital may do an annual business of \$300,000 by having his account factored.

If he then earns a profit of 7 per cent on his sales, he has an annual profit of over 100 per cent on his capital.

Under the existing structure of the industry fabricators, by buying from hand to mouth and demanding immediate delivery of what goods they require, can pass a large part of the merchandise risk to converters and mills. This forces the finished goods house to carry a large stock, part of it in slowly moving goods that may have to be closed out at a loss. All this financial weakness on the part of fabricators contributes instability to the market—lack of demand when prices are weak and excessive speculative demand when prices are rising.

Goods may also be purchased for future delivery in the form of a blanket order placed with the vendor and calling for delivery by some specified date. Blanket orders of this kind are useful to the cutting-up and distributing trades because they provide a certain protection or guarantee against price advances before the specified delivery date. In this way a cutter may 'cover' on part of his expected cloth requirements for the season without definitely selecting patterns to be applied against the order. The vendor will usually allow him a definite period for his selection, based upon his early selling activity and the response accorded his 'line' by his customers. Acceptance of a blanket order by a vendor involves further risk since he does not know what patterns will actually be selected. If his sales are well distributed, however, this risk tends to be minimized and he will be able to go ahead finishing up a quantity of goods about which he would otherwise have had no assurance at all concerning their salability. On the whole, sales of finished goods on a future basis tend to be unsatisfactory since purchasers are frequently unwilling to recognize the validity of blanket orders during a declining market, however valid they may regard them during a rising market. Forcing acceptance of goods purchased on a blanket order basis is frequently made difficult by credit limitations of the purchasers and the unwillingness of finished goods

houses to run the risk of losing the goodwill of important outlets.

In contrast to 'market' quotations on gray goods, finished goods are by and large sold from list prices. As indicated above, these price lists tend to be maintained for the duration of the season, or at least on highly seasonable goods, until after the peak of the season. As the season draws to an end, prices are marked down to close out goods that cannot be carried into the next season's offering. During the season minor changes tend to be taken care of by 'trading' off the list, particularly on large quantities of goods, rather than by repricing the list. Trading off the list raises a major problem in price analysis in all industries. Probably it is less of a problem in textiles than in some other industries where list prices are employed.

Finished goods, like gray goods, are priced on a per linear yard basis for goods of specified width. Usually there are two or more prices for the same goods, one for manufacturer's fold and one for piece goods fold, for over-the-counter trade. Prices on piece goods fold may be quoted for either the jobbing or retail trade. The same firm rarely quotes for both trades, but if it does, a differential of 10 to 20 per cent is usually included in the retail price. For price record purposes, quotations in manufacturer's fold are to be preferred, as they tend to be slightly more flexible than prices for piece goods fold. The lack of uniformity in the way quotations are made in many lines renders direct comparison difficult, and for purposes of price analysis lessens considerably the significance of a quoted price unless the terms of sale are known.

Terms of sale vary widely but, in contrast to net prices on gray goods, nearly always involve discounts for prompt payment. In the cotton and worsted industries the terms of sale are usually 2/10 60 extra, and for the sale of piece goods to retail stores, 3/10 e.o.m. Goods are sold f.o.b. mill with occasional exceptions, as when sales are made f.o.b. New York City. In the silk and rayon trades, selling terms are frequently longer and less uniform; 8/10

e.o.m. being the most generally quoted terms to both the cutting-up and retail trades. The uniformity in the cotton trade, which has been arrived at by agreement among the various trades concerned and is covered in detail in the Worth Street Rules, makes possible direct price comparisons between the quotations of different converters.

Continuity of price series becomes a serious problem on finished goods, because of the difficulty of establishing comparability between fabrics offered during two successive seasons, and because of continual shifts in consumer preference. For goods that come on sale for the first time as finished goods, such as woolens and worsteds, this is particularly difficult since variations in quality are frequently employed to stabilize the selling price at a given level. In the case of woolens this may take the form of variations in construction, and in the grade of wool used, or the use of wool substitutes such as reworked wool or rayon waste. The range of possible quality variations in worsteds is somewhat less, although even there rayon can be and has been used successfully as a substitute for price increases. Because of the free market and standard merchandise of practically uniform quality, current prices on a wide range of gray goods are widely quoted. In contrast, prices on finished goods are not extensively published in primary sources, as the trade papers, partly because they change less frequently, and hence there would be no significance in continuous daily quotations. Furthermore, because of the special characteristics they regard as attached to their merchandise many vendors are unwilling to have their prices openly quoted. Consequently, aside from a quite small range of fabrics, those interested in the study of finished goods prices must use price quotations of selected firms as shown in their files of orders or correspondence.

FABRICATED TEXTILE PRODUCTS

Textiles reach consumers in four distinct forms: (1) as piece goods, sold to consumers for fabrication in the home; (2) as fabricated articles ready for use; (3) in non-textile

articles, such as shoes or automobiles, where they play a secondary role to other raw materials; (4) as part of the production costs of a great many industrial and agricultural products, in the manufacturing or distribution of which textiles are used. The fourth group represents consumption in processes as in conveyor belts, as containers, as tyings, and many other uses that constitute to the consumer merely a minor part of the total cost of some product or service not connected in his mind with textiles at all. Similarly, the third type of use, in non-textile products, represents a group of special situations requiring study not so much as textiles as in the form in which they actually reach the consumer, i.e., as a part of price analysis conducted in fields outside textiles. Textiles sold as piece goods include both gray and finished goods, principally the latter, and pass directly from the mill or converter in one form or another to the distributing trades.

Today most textiles used as such by consumers reach them as fabricated products. This term is used here to designate the product of a final manufacturing operation in which definite shape, size, and design is imparted to it to fit it for a specific use.

SPECIAL PRICE CHARACTERISTICS OF FABRICATED PRODUCTS

The student of prices approaching the study of fabricated textile products is at once struck by the importance of five factors, which although present at other levels of manufacture have much deeper significance here.

- 1) The tendency of prices at this level to conform to retail price lines
- 2) The tendency toward standardization of price rather than of quality
- 3) The enormous variety in design and construction available for any given use
- 4) The impermanence and frequent change of design
- 5) The sale of fabricated products not to manufacturers but entirely to distributors, wholesalers, and retailers

Each of these factors affecting prices for fabricated prod-

ucts creates 'new barriers' to the effective study of prices beyond those encountered at the fiber stage and the intermediate levels of manufacturing. Together they go a long way toward explaining why textile prices as a whole have not been studied to better effect.

Perhaps the greatest influence upon prices of fabricated products lies in retail pricing methods. Just as raw material prices have an immediate bearing upon prices of products close to the fiber stage, so products ready for distribution to consumers come directly under the influence of retail pricing and inventory procedures.

During the last decade or so ²² retail stores in seeking to increase their turnover, maintain properly balanced assortments, simplify the tasks of sales people, aid customers in selecting what they want, and generally cut distribution costs through increased efficiency of operation, have limited their lines more and more to the price ranges that show the largest volume and profits. Thus, instead of offering an assortment of some item at every half dollar from, say, \$2.00 to \$10.00, a total of 17 price lines, a store offers goods at perhaps only three price levels, \$2.00, \$5.00, and \$10.00. Such pricing is based on the assumption that sales volume is largest at about those levels, and that they fit into the general buying pattern of the clientele to which the store as a whole seeks to appeal.

Offsetting the advantages of this system of merchandising and stock control is the disadvantage that once a store has set its price lines, it may be unwilling to adjust them freely, and may tend to merchandise at fixed prices instead of to standard qualities; i.e., in order to maintain its price lines, it may vary the quality of its goods. This practice is less of a disadvantage to the retail trader than to consumers and to the textile manufacturing trades. The average consumer cannot know how, when, or to what extent retail prices

²² In the early 'twenties the development of the model stock plan by E. A. Filene focused attention upon this method of merchandising. It has since come to be applied in one form or another throughout American dry goods merchandising.

should change in keeping with raw material or other costs. Then too, the consumer frequently has an idea of about how much she can afford to pay for an article or she may literally have a certain amount of money to spend for it. For articles purchased only infrequently, she may not know how to judge relative values for different grades. Retail store price lines help in the selection by concentrating attention upon styles in her price range. On the other hand, the customer has no reliable gauge of value in relation to prices last month or last year, since the prices are always about the same level. Inflexible retail price lines together with flexibility of quality tend to obscure from the consumer the real value of the article.

The disadvantage of this merchandising method to the manufacturer is that he must consider first of all, not what quality will best serve a given need, but what quality of fabric, when made up into an appropriate article, will fit into some particular retail price line. For the production of a woman's dress to retail for a dollar, a cutter can pay no more than about $12\frac{1}{2}$ cents per yard for cloth. If raw material costs are such that the most desirable fabric for that purpose cannot be sold for less than $13\frac{1}{2}$ cents there will be almost no demand for it. It cannot be used in the dollar range, and the price is too low to justify inclusion in the next higher price lines having general acceptance in the retail trade at \$1.59 or \$1.95. For these price lines the manufacturer and retailer would want a higher priced fabric. If the cloth were used, the consumer would be paying half again or twice as much for her dress, simply because there are no widely used intervening price lines, whereas actually the additional price should be no more than about 10 cents. By the same token, the intrinsic value of the article sold at a particular price will vary widely over a period as raw material costs fluctuate and the same fabric could be sold one month at 12 cents and later at 10, 9, or 8 cents. The consumer still pays \$1.00 for her dress, regardless of the cost of the cloth, although at the lower cloth price levels the manufacturer is probably giving her more

for her money in the form of better workmanship, more expensive trimming, and perhaps more yardage.

Full consideration of this particular problem of quality change would require detailed study of the effects of retail pricing upon a wide range of products at preceding levels of manufacture. Since textiles constitute, of course, only part of the merchandise sold at both wholesale and retail under fixed price lines, the problem must be viewed as much broader than textiles alone. Formidable as it is, the additional problem created by variety is still not wholly insurmountable. Passing over such an obviously difficult field as women's apparel, consider for a moment the variety in a seemingly simple standard product like men's shirts. Besides the basic distinction between collar-attached and neck-band styles, there is the wide variety of collar styles—high, low, long-pointed, tab, button-down, Duke of Kent, and still others; there are various cuff styles, different qualities and number of buttons, different lengths of tails, variation in number of stitches per inch in the sewing, differences in quality of cloth, an almost unlimited variety of patterns in woven-figured or printed fabrics; and different sleeve lengths and collar sizes. All these variables add up to an appalling number of assortments and combinations. Fortunately, in this field, it is fairly easy to spot the styles, sizes, and types that constitute the central tendency of consumer demand; for example, since the early 'twenties the collar-attached white broadcloth shirt has constituted from a half to two-thirds of the entire shirt market.

Careful inquiry into many other markets would indicate similar central tendencies in consumer demand. In some markets, however, the variety is so great that a common denominator is difficult to find. Women's apparel tends to be of that type, although some analysis is undoubtedly possible for investigators thoroughly conversant with the industry.

The frequency of change in design complicates the selection of representative grades or standards even further. Long term analyses in a large part of the fabricated prod-

uct field are almost out of the question at present because of difficulties arising from such frequent change. Short term periods, on the other hand, seem to offer some opportunities for analysis where direct comparisons can be made.

A further factor of predominant importance in the markets for fabricated products is that they are sold entirely to distributors. At all the preceding textile market levels, the chief purchasers are manufacturers buying raw material for further processing. These manufacturers have to know a great deal about construction, finish, and design because these elements influence directly the construction of their own product. The retailers and wholesalers who purchase fabricated products have, on the other hand, only one major concern: will the product sell. Distributors tend to view price not so much in terms of production costs as in terms of what they can get for an article when properly promoted and sold in the right kind of surroundings. This situation contributes much to the wide differences in retail prices between one store and another for the same article.

TYPES OF FABRICATED PRODUCTS

Textile fabricated products consist basically of two types: made-up articles produced by (1) textile mills which combine in some way the fabricating process with preceding manufacturing operations; (2) the cutting trades. This is essentially a difference arising from integration of the fabricating process with cloth manufacture, although in some cases, as in hosiery manufacture, the operations of fabric formation and product fabrication are performed simultaneously. Textile fabricated products may be grouped under five classes. The largest proportion come from the cutting trades.

- 1) Products of the cutting trades
- 2) Products characteristically fabricated by textile mills
 - a) Sheets, towels, blankets, and similar products made by weaving mills, requiring only a minimum of fabrication
 - b) Floor coverings

- c) Knitted underwear, outerwear, and hosiery produced by knitting mills and requiring only a minimum of fabrication ²³
- d) Hats

PRODUCTS OF THE CUTTING TRADES

The term 'cutting-up trade' or 'cutting trade' may be applied to all branches of the textile industry that characteristically perform 'cut-and-sew' operations on purchased fabrics. Firms making men's, women's, and children's apparel comprise by far the largest proportion of the total.

SPECIFICATIONS FOR PRICE ANALYSIS

For products of the cutting trades, the setting up of specifications for price recording and analysis clearly constitutes the dominant price problem. At preceding levels of manufacture specifications of grade and quality can be dealt with by recourse to standards inherent in the markets themselves. For cotton, for example, it is possible to select a standard market quality, having official approval by the Department of Agriculture and the organized exchanges, involving measurable qualities of grade, color, staple length, and character. For gray cloth again, there are measurable factors of width, count, and weight. For finished goods, measurement of quality to establish standard grades becomes less easy as more variables are added to the products: design, color fastness, and so on; yet within certain limits, standards of grade that can be continued over a reasonable period can usually be worked out.

For fabricated textile products developing standards of grade and quality becomes much more difficult, especially for products of the cutting trades where of all textiles the concept of standardization is weakest and the whole tendency on the part of manufacturers and consumers is to

²³ Knitted cloth, including underwear tubing, warp-knit fabrics for underwear, outerwear and gloves, knitted elastic fabrics, beef tubing and stockinette, and knitted work glove fabrics, are to be regarded as gray or finished fabrics, as are fabrics woven on looms.

move as far as possible in the opposite direction. Yet, despite these difficulties, the student of prices cannot pass over fabricated products since it is the last 'wholesale' price before goods reach the consumer. It is here that the most vital information is to be found about the effect of consumer demand upon manufacturers' prices and vice versa.

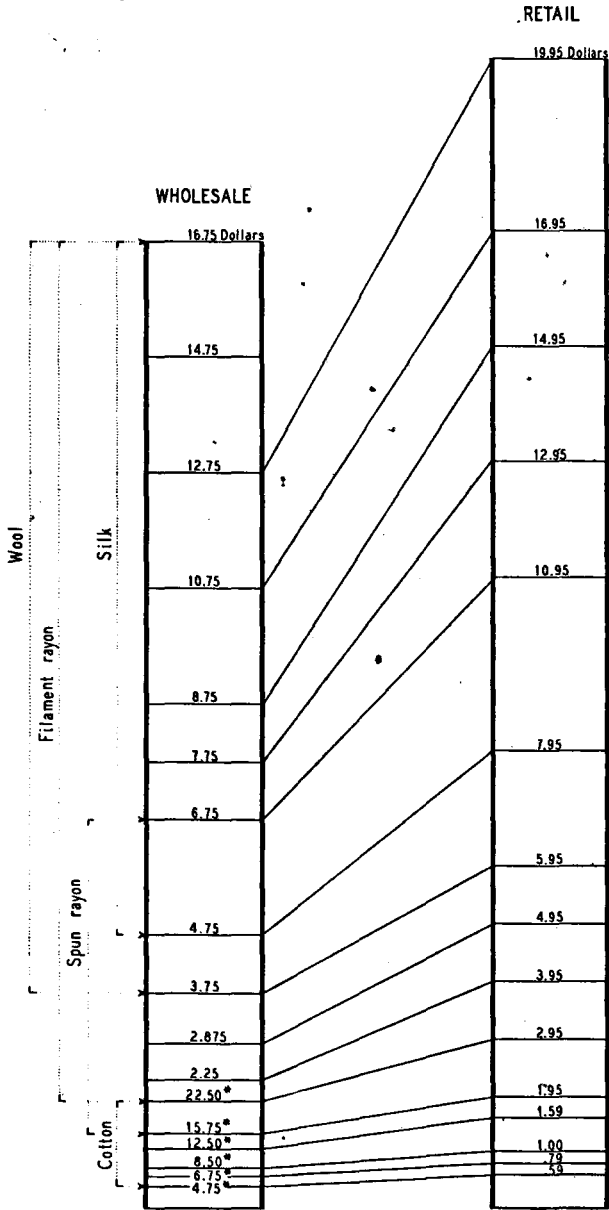
Of the factors mentioned above as applying to all fabricated textile products, variety is most characteristic of the cutting trade. The nature of the cutting-and-sewing operation makes possible the fashioning of almost any conceivable product out of cloth. The range of products is so broad that no attempt is made to list them here. The reader is referred to Appendix I for representative items. Furthermore, types of garments tend to overlap, with continual shifting of definition as style developments give new names to old types of garments or lead to others that do not fit readily into existing classifications. Establishing adequate specifications for pricing cutting trade products is a major research project in itself. Many new techniques must be worked out and a great deal of study is needed before satisfactory prices can be obtained from this field. Currently, the Bureau of Labor Statistics is studying specifications for textile products to be included in its wholesale price index, as part of a general revision of its list of textile wholesale prices. The Retail Division of the Bureau has already progressed far toward dealing with standard specifications for a wide range of apparel articles in connection with its Cost of Living studies. While it is under the necessity of keeping these specifications confidential, its experience indicates that specifications can be set up for a very large part of the textile apparel field.

Specifications for pricing purposes should be regarded in a different light than those currently termed 'consumer specifications'. The latter term is used rather loosely for a wide range of ideas identified with the general endeavor to enable the consumer to judge merchandise values better. Consumer specifications range all the way from simple marking of the fiber content of the fabric to detailed

information as to the construction of the fabric and of the garment itself. Adequate specifications for products of the cutting trades must necessarily be complex and, except for technical experts, checking them against a specific lot of goods is quite difficult. Possibly the classification of textile products into grades or according to a simple terminology may make it possible for the public to buy according to complex standards, but that of course is different from supplying it detailed information; it must be able to interpret and apply. Adequate specifications for pricing a typical product of the cutting trade, such as women's dresses, would need to take account of: the price line for which the garment is produced; the basic fabric; trimmings; size; type of styling; workmanship.

Price Lines. For women's dresses priced to retail under \$30.00, there are sixteen generally accepted price lines (chart). In the cutting trades these price levels have a high degree of rigidity. The competition among cutters to give as good values as possible for what retailers can pay, and the merchandising and mark-on policies of retailers together tend to solidify wholesale prices at these market levels. The corresponding retail levels are less distinct, one important reason being that certain types of retail stores may have much lower distribution costs than others, and may accordingly sell regularly at lower mark-ons. Then of course there are sales, special events, and clearances, which may result in marking down a dress from its regular price line. Thus while the wholesale price may be firm at \$3.75, the retail price may vary from \$5.95, the normal resale level, to \$5.00 or less, depending upon the store, or even within the same store on occasion. Of course, there is nothing to prevent a cutter from cheapening his dress to make possible a lower retail price, by using cheaper cloth and trimmings, for example. The tendency, however, is strongly for cutters to hold within existing levels, where the buyer can compare value against competitive offerings, and the seller can distribute his product to more than just one

WOMEN'S DRESS PRICE LINES



* Price per dozen

store, i.e., price it so that it will fit into the price lines of a large number of potential distributors.

The Basic Fabric. While the wholesale price line seems to be the same year after year, the fabrics vary, sometimes within a single season. Thus, when the 92x68 pigment taffeta was introduced in 1936, it sold finished for 52½¢ per yard—a price at which it could be used for \$3.75 dresses and to some extent in dresses at higher prices. Under the stress of competition rayon yarn prices fell, and the price of the cloth as well, until it was selling finished two years later at about 27½ cents per yard. At that price it could be used in \$1.87½ dresses with about the same leeway for labor. Thus in a general sense, the price of this dress could be said to have declined from the \$5.95 retail price line to \$2.95, whereas the dress sold at \$5.95 in the two years had different materials, the second of much greater intrinsic value than the first.

The basic fabric used in a dress, as indicated above in the discussion of finished fabrics, can be specified with a fair degree of precision. In popular priced lines, large numbers of cutters are likely to use the same basic fabric, partly because of the difficulty under competitive stress of varying the quality very much, and partly because retail buyers specify the fabric desired if it is receiving reasonably good consumer acceptance.

Trimmings. Specification of incidental fabrics, such as linings or facings and trimmings, is more difficult, since they may vary widely in both amount and quality. With the cut of the dress they are, of course, part of the style factor. Cost analysis of garment production would undoubtedly indicate that, while important in setting the final price, the cost of trimmings is usually proportionately too small to require precise specification for pricing purposes.

Size. Size adds a further complication to specifications beyond what is involved at earlier stages of manufacture. Yet, since we are dealing with the market, that is, all women in the country taken together as a whole, average sizes can be easily selected for pricing purposes. For special studies

account might need to be taken of special size lines, such as stouts or misses' sizes.

Range in Styling. Without going into all that may be involved here, we point out that garments tend to be styled for definite uses. A sleeveless dress for summer wear in street length represents a distinct type of styling. Further refinement of such specifications as may be needed for special purposes may be attempted. The broader matter of styling as it affects the distance of the hem from the ground, type of cut, fullness in the skirt, etc., presents problems to the student of price specification that can be evaluated only after careful research.

Workmanship. Next to the basic fabric used, the most important item of cost is labor. In terms of specifications this is to be judged according to the quality of workmanship, which, however, is hard to evaluate according to any fixed standard. What is good workmanship to one person may be quite differently evaluated by another, even for the same general price range. Here also further study is needed to determine how much importance should be attached to this factor and how to evaluate it in reporting prices.

CHANGES IN PRODUCTIVITY

Changes in productivity have had an important bearing upon costs and prices in many textile industries during the last decade, but nowhere have these been more spectacular than in certain of the cutting trades, particularly in the mass production of staple articles of clothing. Generally speaking, three principal methods of garment production can be differentiated: the tailor system, the bundle system, and the straight line or progressive system. The tailor system, where each sewing machine operator sews an entire garment, still persists in the production of women's coats and suits, and in higher priced dresses. Under the bundle system, the first adaptation of cut-and-sew operations to mass production, sewing is divided into thirty, forty, or sixty operations, a single operator performing no more than a few operations. Upon completion of a particular operation

for two or three dozen garments, the bundle is carried to the next operator, and so on through the entire series of operations. This system is utilized at present for practically all types of garments.

Since 1932 the situation has been radically changed by the introduction of the straight line or progressive system, which is coming to be utilized more and more widely in the production of staple articles of apparel, such as wash clothing, shirts, and trousers. Under this system the unit of goods in process is reduced from the bundle to a single garment. It is essentially the Ford belt system applied to a garment factory. Instead of being passed from one machine operator to another on a moving conveyor belt, however, garments in process move along a stationary chute. A single garment goes through thirty or forty operations and is completed in a few minutes. Thus the sewing machine operator performs a single operation on a garment as it is passed on from the operator in the preceding position on the line along the route of the garment's progress to the succeeding operator. The straight line system of mass production, adaptable only to the more staple types of garments, has had a pronounced effect upon the amount of inventory in process, thereby reducing carrying charges, as well as lowering labor costs. In some instances the line system has proved profitable even though labor costs were not thereby lessened. Recognition of this situation is important to the interpretation of price movements for such articles.

SEASONAL OPERATIONS

The seasonal problem provides the driving force behind the cutting markets. In the gray goods markets, and to a considerable degree in finished goods markets, buying movements tend to conceal the seasonal pattern. For cutters, however, manufacturing operations must be keyed to the progression of the seasons. The extraordinary rigidity with which the retail trade conforms to this seasonal pattern forces upon the textile trades a similar seasonal pattern at the fabricating stage which is almost as inflexible,

so far as seasonal peaks and valleys are concerned, as the pattern of retail distribution itself. Owing to the relative shortness of seasons, two to four months of actual production at most, it is difficult for the average cutter to adjust his prices radically during the season. Some new items are of course added almost daily or at least weekly, but a complete restyling and repricing is seldom undertaken oftener than five times a year, and usually only two or three times. While a 'line' is on sale there is a great deal of resistance to price changes of other than a trading nature.

APPAREL AND RELATED MARKETS

The census statistics (see Table 1) of the number of cutting establishments and the value of production show clearly the small size of the average cutting establishment. Large numbers of small firms, maintaining a precarious existence by their wits and by aggressive sales tactics, characterize all these markets. On the other side of the market there are even more retailers, who tend to concentrate their demand increasingly in central buying offices. The growth of chain store distribution also tends to place larger aggregations of buying power in the hands of relatively few buyers in contrast to the large number of sellers.

A detailed description of these markets is not required here.²⁴ What is important to keep in mind is the effect of such a market structure upon prices and risks at other levels. Thus a small cutter may become caught in the maelstrom of these conflicting forces and go through bankruptcy. The effect upon the market and the market price is negligible. The business may lose a few thousand dollars. Its merchandise creditors, however, are likely to be involved for five or ten times as much. They are the firms who have large investments in machinery and mills. The cutter's loss is small, and a few months later he may be in business again under a new name, 'Rosemary Frocks' instead of 'Rosebud Dresses', with a few thousand dollars of new capital bor-

²⁴ For an analysis of one cutting trade market, see Walton H. Hamilton, *Price and Price Policies, The Dress Industry* (McGraw-Hill, 1938).

rowed from friends. Perhaps this time he will be phenomenally successful. But he is still as insecure as ever, for one bad season may put him out of business. His insecurity and the speculative tendencies that are part and parcel of it exert an influence upon prices both for fabrics and fabricated products that should not be underestimated.

Where such conditions are typical of sellers, the significance of quoted prices is open to question. There are countless ways of giving special concessions. Trade discounts may not be uniform, transportation charges may be prepaid, price protection may be guaranteed, the customer may be allowed to return unsold goods after a certain number of days, or he may return them anyway and the cutter raise no objection, and so on. The custom of entertaining, gifts, and countless other ways of influencing a buyer all enter into the price. At no preceding level of manufacture are there so many factors of this sort, constituting part of the real price of the article. The cotton textile merchants, for example, have their 'Worth Street Rules', in which uniform trade practices have been laid down in minute detail. Little regulation of that kind exists in the cutting-up trades, despite repeated attempts to arrive at uniform practices, for example, with respect to returned goods. Similarly, terms of sale, while nominally uniform at 8-10 e.o.m., are frequently varied as a means of price trading where stores demand longer discounts.

Most garment manufacturers mail circulars to their trade giving list prices for their products. These quoted prices may differ substantially from actual bargained prices. Unpublished day to day prices at which the garment manufacturer sells the wholesaler or retailer tend to be related to changes in the price of raw materials. A department store buyer, knowing of a substantial drop in the price of cotton during the preceding week, may feel his way in bargaining with the garment manufacturer for a purchase, for example, of a thousand dozen shirts at 25 or 37½ cents per dozen below the quoted price.

Since the sale of practically all textile merchandise is on

a seasonal basis, buying to cover a season's requirements may involve purchasing a fairly large proportion of the total at the opening of the wholesale season. Thus for the spring retail season on curtains, a buyer would place a third or more of his season's requirements at the curtain show in January although most of that merchandise would not be sold at retail until the week after Easter. Meanwhile, the cutter would be able to manufacture the goods. Similarly in many lines of merchandise the amount of advance buying and the duration of the period are inversely proportional to the style character of the goods.

In general, retail buyers do not have enough leeway to make the extreme speculative forward commitments common at other levels, although at times the barriers are let down by their merchandise offices and they are allowed to buy large quantities of goods for distant deliveries. The tendency in the retail trade in recent years has been to increase turnover by hand-to-mouth buying rather than to seek profits by long term speculative operations. For cutters, the effect of hand-to-mouth operation is to increase retail seasonal peaks even more, in some cases, enabling cutters and converters to get higher than list prices at the peak of the season for spot goods.

SHEETS, TOWELS, BLANKETS, AND SIMILAR PRODUCTS MADE BY WEAVING MILLS

This group of products is distinguished from those made by the cutting trade chiefly by the integration of weaving and finishing with fabrication, which eliminates preceding fabric markets and enables mills to merchandise and sell their product directly to retailers in a form ready for immediate consumption. In addition, this group of products is made on specialized machinery which imparts unique characteristics to each cloth—of weave, as in terry towels, in width, as in sheets, in multiple fabrics as in blankets, jacquard design in bedspreads, and so on. Fabrication of these products by mills rather than by cutters has accord-

ingly come about not just by accident, but is directly related to the character of the products.

Products made by weaving mills which require only a minimum of fabrication include principally sheets and pillow cases, towels, blankets, woven bedspreads, laces and lace curtains. On the whole, these products are subject to a rather high degree of specification. Fabrication of most of them consists of no more than a simple cutting or tearing operation and hemming or binding the raw edges. They thus resemble finished goods in respect of specifications, except for the factor of size and in that they are designed for a specific use. Products of the lace industry are an important exception, for machine production of lace is a manufacturing operation like the knitting of hosiery, in which the final shape, design, and size are imparted to the product in its manufacture. Such finishing operations as are entailed in the preparation of the product for sale are essentially minor, however, being of the same nature as the fabrication of sheets, towels, and the other products listed above.

To the above list, which includes only household textile articles, might be added several industrial textile items which are in part produced by mills and in part by independent cutters. In this group are such items as bags, where some of the large manufacturers have integrated backward and acquired their own cloth mills.

FLOOR COVERINGS

Floor coverings are primarily of two types—soft surface, such as carpets and rugs, which are made wholly from textile fibers, and hard surface, such as linoleum and felt-base, made by combining textile and non-textile materials. While for the most part each type has specialized uses for which different types of one or the other compete, there are also some uses as in business and public buildings where soft surface and hard surface floor coverings compete directly.

Floor coverings also are an interesting example of competition not so much between two textiles as between a

textile item and a non-textile. Carpets and rugs are one of several major articles for the house, the cost of which is too large for the average consumer to be able to purchase more than one at a time, except through the use of installment credit. Hence if one is purchased it may be to the exclusion of the others. The relation between the prices of carpets and rugs and these other household items is indicated in a general way by the accompanying table based upon prices featured during 1935-36 in retail store advertisements in representative cities.

Competitive Popular Price Ranges, Household Articles,
1935-1936

	MOST POPULAR PRICE	PERCENTAGE OF TOTAL OFFERINGS IN RETAIL STORE ADVERTISEMENTS
Oriental rugs (9x12)	\$140-250	63
Domestic rugs (9x12)	22- 60	74
Dining room suites	50-160	71
Living room suites	40-100	69
Bed room suites	40- 90	61
Occasional living room chairs	9- 42	74
Radio sets	16- 80	69
Mechanical refrigerators	90-180	71
Electric washing machines	34- 80	76

Domestic carpets and rugs thus fall near the average for the group of household items, a factor of considerable importance in determining the extent of consumer demand in relation to fluctuations in consumer purchasing power.

The three principal textile fibers used in the carpet and rug industry are wool, cotton, and jute.²⁵ Wool, being the most important raw material in respect of value, is usually used for the pile of the rug, while yarns of jute and cotton are woven in the warp and weft and form the back of the rug. Carpet-class wool, which is used in this industry, is the coarsest wool available and is all imported. Either worsted or woollen spun yarns may be used, although today worsted types are of minor importance. The most impor-

²⁵ Rayon staple fiber has been successfully used in place of wool in carpet manufacture in other countries and may ultimately be important in American industry.

tant classification of wool carpets and rugs is according to types of weave. The predominant weaves at present are Axminster, Velvet, Wilton, and Chenille.

Axminster is produced on a type of loom that makes it possible for practically all the wool to appear in the pile. Accordingly the amount of wool used per square yard in proportion to other fibers is lower than for other types of carpet fabric. The type of loom used makes possible unlimited variety in design.

In *Wilton* carpet fabric, the yarn is supplied from frames in such a way that the yarn from one or more frames always appears in the pile while the rest is buried in the body of the rug. Wiltons are made on jacquard looms. While in general the Wilton type of construction should be higher priced than Axminster, some reduced constructions of Wilton, made from two or three frames, may be obtained at prices comparable with, or below, the medium grade of Axminster or plain velvet.

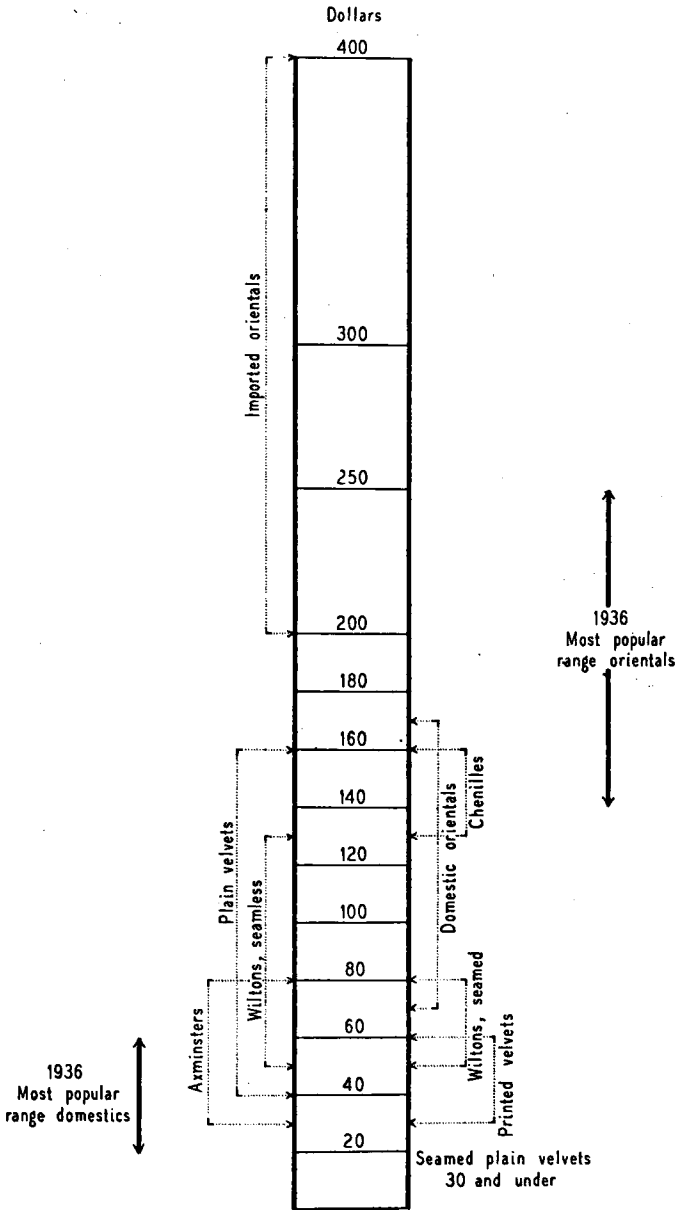
Velvet carpet fabrics are woven on the same type of loom as Wilton but from beams of yarn, either printed or plain and without the jacquard attachment. In most velvets, the proportions of wool between the pile and the body is about the same as for Axminster. The four types of velvet distinguished in the market, arranged in the order of their current importance, are: (1) plain color velvets; (2) plain color twist velvets; (3) printed velvets; (4) printed and plain tapestry.

Chenille is the most expensive of all domestically manufactured types. It is made with a depth of pile up to one and one-half inches and in a wide range of design and color. Chenille can be woven in any shape and up to thirty feet in width. Its high price is to be accounted for by the weaving process, which practically amounts to double weaving.

Sheen-type (luster, domestic washed Oriental) designates a type of weave that has been washed or chemically treated to produce a sheen effect on the pile of the rug. Domestic orientals have this type of finish.

The relative importance of these types, as indicated by

RETAIL PRICE LINES OF CARPETS, SPRING 1937, . SIZE 9 x 12



current industry percentages, is: Axminster 45; Plain velvet 28; Wilton 11; Printed velvet 6; Sheen type 2; Chenille, tapestry, etc. 5.

Two types of weave of considerable importance in the past were Brussels and Ingrain. *Brussels* is really the same as the Wilton weave, except that it has a looped or uncut pile. The market for this type of carpet has become insignificant in the last 15 or 20 years.

Ingrain, a type also very popular thirty years ago but no longer produced in any volume, was woven without pile, being little more than a heavy wool fabric. Costs of production were obviously less than for pile carpetings.

Some additional classification characteristics need brief mention because of their wide promotion in recent years. *Narrowloom* designates rugs and carpets made on looms not exceeding 54" in width, most of it being produced on 36" looms. *Broadloom* simply indicates that the fabric—of any construction—was manufactured on looms over 54" wide, or, more commonly, over 36" wide; that is, in a single width without the seams formerly needed when broad carpeting was made by sewing together strips of narrow fabric. Most of the plain broadloom carpets produced today are made on wide velvet looms, although the largest volume of broadloom carpets is made in figured goods.

The accompanying table indicates the relative importance of the principal price lines of domestic and imported wool rugs and carpets. Standardization of constructions of carpets and rugs in the volume ranges is characteristic of this field as of practically all other textiles. The more im-

Percentage Distribution of Carpets and Rugs by Price Lines

RUGS (9x12)		CARPETS (PER SQ. YD.)	
Price Range	Percentage	Price Range	Percentage
\$24-32	10	Up to and incl. \$3	6
32-40	28	3-4	14
40-50	26	4-5	25
50-60	15	5-6	23
60-70	9	6-7	16
Over 70	12	Over 7	16

TABLE 17
Selected Sources of Prices of Floor Coverings

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	RELATED DATA
	A CARPETS AND RUGS	
<i>Axminster</i>	Prices pub. in trade journals	Imports and exports comp. by BFDC.
4 $\frac{2}{3}$ rows 9x12 rug		Data on production and related data
5 $\frac{1}{2}$ to 5 $\frac{2}{3}$ rows 9x12 rug		comp. by the Carpet Institute on a con-
6 $\frac{2}{3}$ to 7 $\frac{1}{4}$ rows 9x12 rug		fidential basis for the use of members
<i>Wilton</i>		only
252 to 253 pitch 7 $\frac{2}{3}$ rows, 3 $\frac{1}{2}$ frame 9x12 rug		
256 pitch 8 $\frac{1}{2}$ row, 3 $\frac{1}{2}$ frame 9x12 rug		
<i>Wilton 3/4 carpet</i>		
256 pitch 8-9 rows, 3 frame woolen		
256 pitch 10-11 rows, 3 frame worsted		
<i>Plain velvet broadloom carpet</i>		
216 pitch 8-9 rows		
216 pitch 9 rows		
216 pitch 7 $\frac{1}{2}$ -8 $\frac{1}{2}$ rows twist		
216 pitch 8 $\frac{1}{2}$ -9 rows twist		
<i>Plain velvet narrow 3/4 carpet</i>		
216 pitch 8-9 rows		
	B LINOLEUM AND FELT BASE FLOOR COVERING	
<i>Linoleum, per sq. yd.</i>	Prices pub. in trade journals and by	Imports and exports comp. by BFDC
Inlaid, standard gauge	Wholesale Price Division, BLS (see Ap. I)	
Plain, $\frac{1}{8}$ "		
<i>Felt base</i>		
8/4, heavy and light weight yd. goods avg.		
9x12 heavy and light weight rugs avg.		

portant constructions for pricing purposes are shown in Table 17.

The variety of qualities and sizes requires the use of price lists which are freely distributed in the trade. Pricing is for the duration of a season, but is, of course, subject to adjustment in line with changes in raw material or other costs during the season. Such changes may be either in the form of new price lists or trading off the list. Adjustment of qualities to meet new price situations is accomplished through shifts in emphasis from one standard construction to another.

Rug prices are based upon the 9x12 size, from which other sizes are figured. Actually, with the increase in consumer demand for over-size rugs, this size has greatly diminished in consumer importance. Today less than half of the rugs sold are of this size. Broadloom carpets are sold by the square yard; narrowloom carpeting under 27" in width ($\frac{3}{4}$ carpeting), used particularly in institutions, is priced by the linear yard.

KNITTED UNDERWEAR, OUTERWEAR, AND HOSIERY PRODUCED BY KNITTING MILLS

The fabricated products of the knitting industries fall into three general groups: hosiery, knitted underwear, and knitted outerwear.²⁶ In many respects they bear a close resemblance to woven fabrics. Hosiery and knitted underwear, for example, are produced much like gray goods and, as they come from the knitting machine, must be bleached and dyed just as woven goods must. Similarly, knitted outerwear, which includes such items as sweaters, bathing suits, skirts, and coats, may be produced like woven wool fabrics, either as gray goods for subsequent dyeing in the piece or from previously dyed stock or yarn.

As a matter of fact, the knitting machine is essentially as much a producer of cloth as a loom is, but by a different method. Thus the warp knitting machine produces a flat

²⁶ Garments made from knitted cloth should be considered as made in the cutting industries.

TABLE 18

Selected Sources of Prices of Knit Goods and Related Data

REPRESENTATIVE PRICE SPECIFICATIONS	SOURCES	RELATED DATA
<i>Hosiery</i>	Prices pub. in <i>Daily News Record</i> and <i>Journal of Commerce</i> ; prices for certain items, obtained from mills and selling agents, available in reports of Wholesale Price Division, BLS (see Ap. I)	Data on production, stocks, and unfilled orders reported monthly to Census of Manufactures. Data on production and stocks comp. on a 13-month basis by National Association of Hosiery Manufacturers
Rayon		
Men's seamless, plain, 200-220 needle Men's seamless, fancy, 200-220 needle Women's seamless, 240-260 needle Women's seamless, 280-300 needle		
Silk		
Men's seamless, 240 needle, 11-12 thread		
Women's full-fashioned, 39 gauge, 7 thread		
Women's full-fashioned, 42 gauge, 4 thread, ringless		
Women's full-fashioned, 45 gauge, 4 thread, ringless		
Cotton	<i>Underwear</i>	Data on production, stocks, and unfilled orders reported monthly to Census of Manufactures
Men's seamless, dress, cotton, medium quality, mercerized lisle or rayon mixed, 240 needle, black and colors approx. 1½ lb. per doz.	Men's 14 lb. carded cotton ribbed union suits	
Children's seamless sock, cotton, size 7½, mercerized lisle; medium quality rib knit tops, reinforced toe and heel, approx. 5⁄8 to 7⁄8 length	Boys' 10 lb. carded cotton ribbed union suits	
Women's seamless anklets, cotton, size 7½, mercerized lisle, medium quality, rib knit tops, reinforced toe and heel	Men's 2 lb. combed cotton pull-over athletic shirts	
Men's seamless sock, work, cotton, medium quality, medium weight, reinforced toe and heel, approx. 2 lb. per doz.	Men's carded woven broadcloth shorts	
	Women's circular knit rayon (150 denier) bloomer, weighing approx. 2¼ lb. per doz. on 'Medium' size	
	Women's warp knit pure silk bloomer, approx. 12-14 yd. of fabric per doz.	
	<i>Outerwear</i>	
	Men's sweater, wool, pull-over style, Shaker type, weight 19 lb. net, per doz., sizes 36-46	
	Men's sweater, wool, coat style, weight 10 lb. net per doz., sizes 36-46	

fabric much like woven fabric. The circular knitting machine, on the other hand, produces a tubular fabric, which in many instances is adapted to the size and shape of the ultimate product. Such cutting and sewing operations as are needed to produce the finished product are sufficiently incidental for these industries to have characteristically integrated them. Accordingly, knit goods, even though they frequently involve little if anything in the way of fabrication beyond the product turned out by the knitting machine, are properly classed as fabricated products in that they are shaped and sized for specific consumer uses, and exhibit the price characteristics of fabricated products.

Similarly, knitted garments made from fibers that lend themselves to standardization of quality, as silk, rayon, and cotton, tend to conform to construction standards that in some instances, e.g., hosiery, are fully as precise as any developed for woven fabrics. The terminology is different, however. Width does not have the same significance for a loosely knitted fabric as for a tightly interlaced woven fabric. For most types of fabric the number of needles or the count of wales per inch, and the courses per inch, give the construction corresponding to the number of ends and picks per inch in woven goods. The proper tension to apply to the cloth in making this count introduces a complicating factor. The universal common denominator in knit goods is weight, usually expressed in weight per dozen garments. And since we are dealing here with fabricated garments, which must be produced in definite sizes, size is a further common measure. This factor is in turn closely related to style—style not simply in the sense of variety in design, but in type of garment, as for example the various types of women's underwear. In Table 20 is shown a representative list of knit goods products for which prices are now collected by the Wholesale Price Division of the Bureau of Labor Statistics. Hosiery, it will be noted, is divided into two general types: full-fashioned and circular knit or seamless. The latter is knit on a circular knitting machine in tubular form, the shaping accomplished by tightening

the stitches during knitting. Full-fashioned hosiery, on the other hand, is knitted flat and requires a seam to join the two selvage edges together. The distinguishing marks of full-fashioned hosiery are this seam down the back and the fashion marks at various points in the back where the number of wales is reduced by removing needles from the knitting operation, thereby narrowing the fabric without reducing the size of the stitches. These two characteristics can, however, be closely simulated in circular knit hosiery, so that their mere presence does not necessarily indicate that a given pair of hose is full-fashioned.

Construction of hosiery, as indicated, is specified in terms of the fiber used, amount of twist in the yarn, thread weight, gauge, number of needles or courses per inch, and possibly also the amount of reinforcement in heel and toe.

In knitted underwear the dominant bases of classification are the type of garment and the fiber or mixture of fibers used in the yarn. Subclassifications are of course by use, whether for men, women, or children, and by size. Since a large proportion of such garments are produced on circular knitting machines where the sole satisfactory unit of measure is weight, exact specification is seldom possible except in such broad terms as number of pounds per dozen.

This situation also holds for knitted outerwear. In this field also the range of products is large: sweaters, women's knit dresses, bathing suits, infants' wear, neckties, and a multitude of accessories. Here also specifications must be in terms of weight per dozen. Designation of the fiber used is more difficult, for of all textile fields this is the only one where complex fiber blends in yarn are the rule rather than the exception. Worsted spun are the most widely used, but outerwear knitters use also appreciable amounts of other fibers, either by themselves or in complex blends, such as cotton, angora, camel hair, rayon filament, yarn and staple fiber.

PART TWO

Areas of Research
in the
Behavior of Textile Prices

THE foregoing survey of the price and market structure of the textile industries provides the reference points from which to chart the field for price research in these industries. One might begin with individual markets for particular products, but the vast number of different markets in the textile industries precludes more than passing recognition in this report of the need and significance of thoroughgoing, intensive studies of particular markets. Those interested in this phase of price research in the textile industries will find suggestions as to both markets and phenomena worthy of observation in them below in the section on How Prices are made in Typical Textile Markets.

Beyond the study of particular markets lie the fruits borne of comparing and contrasting price relationships in several markets. Many of the questions research is called upon to answer about price behavior involve inter-market action. Consequently it has seemed desirable to draw this 'chart' of the field for textile price research primarily in functional terms rather than in terms of market areas. Altogether nine 'areas' of study are outlined in this report.

Prices and Buying Movements

Prices and Fiber and Product Substitution

Prices and Costs

Prices and Capacity

Prices and Marketing Methods

Prices and Industrial Organization

Prices and the Business Cycle

How Prices are made in Typical Textile Markets

Improvement of the Price Record :

Because of their natural overlapping the delineation of these fields has presented numerous problems. Effective discussion requires that each major price relationship be treated separately. It did not prove feasible, however, to arrange the topics themselves in any set pattern. Both supply and demand aspects and vertical and horizontal relationships were tried as bases of classification, but with unsatisfactory results. Perhaps the best that can be said for the outline is that it seemed to the Committee to minimize overlapping and to point up significant problems better than any alternatives that suggested themselves.

This portion of the report, as remarked in the Preface, is designed to aid in planning economic research in the textile industries, not to present a program of research, or to offer a series of full-fledged projects ready for immediate application. In justification of the emphasis upon price relationships it may be pointed out that price behavior tends to be the 'common denominator' of economic life under our present economy. Furthermore, the very nature of the price system, extending as it does into every sphere of economic activity, may well mean that some of the most illuminating findings concerning general economic behavior in the textile industries may come as 'byproducts' of price studies; similarly, important data on prices may come from studies conducted for quite different objectives.

To repeat, it has been the aim of the Committee in discussing these topics to suggest what needs to be known, not how it is to be discovered. It is the task of others to turn these suggestions into projects. Whether a particular topic should provide one or a series of projects will depend largely upon the enthusiasm, ability, and resources at the command of those undertaking the investigation.

PRICES AND BUYING MOVEMENTS

A study of the relation of textile prices to buying movements would help to explain the extent of economic fluctuations and the factors that make for miscalculation in textile production. Since the textile industries are characteristically not integrated but have several consecutive levels of production under separate ownership, purchases by retailers in anticipation of consumers' buying seasons must be preceded by a series of purchases and sales at preceding stages of production which give rise to a series of vertically related production and trade cycles.

The regular consumer buying seasons such as Christmas, January white sales, Easter, 'back-to-school', have a fair counterpart in the buying operations of retailers although some purchases by the latter are made on a 'day-to-day' fill-in basis. Cutters and converters also may cover part of their seasonal requirements at more or less definite periods based upon the advance commitments of retailers, but there is more tendency on their part to relate their purchases to the technical position of the cloth and fiber markets. Such operations involve the placing of large orders only when conditions indicate that a rise in fiber and cloth prices is imminent, or that a shortage of goods may develop for wanted deliveries. Weavers, knitters, and spinners are also accustomed to time their own buying operations by the technical position of the fiber markets.

Let us review briefly what occurs during an ordinary buying movement or period of advance covering. At the start, gray and finished cloth prices tend to be weak, with little actual buying. Possibly the trade may have waited longer than usual to cover its requirements. Then suddenly inquiries begin to come into the market, frequently from larger operators. Large amounts of goods may quietly change hands. Prices become firm. Others who have been holding off suddenly realize that they have overstayed the market and, since they have to have goods, try to cover at once. Prices firm up still more and deliveries grow scarce.

Prices and Capacity

Prices and Marketing Methods

Prices and Industrial Organization

Prices and the Business Cycle

How Prices are made in Typical Textile Markets

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Usually at this point the seasonal requirements of the trade will have been met and buying will practically cease except for reorders and day-to-day fill-in business.

At times, however, as in fall 1936, an unusual combination of circumstances will bring about a veritable tidal wave of buying. Such a demand is essentially speculative in the sense that it is not related to nearby operations but is inspired by a fear of rapidly rising prices, or a shortage of goods, or both. These abnormal covering movements on the part of the trade may be short-lived or they may go to the wildest excesses, generating increasing vitality as rising prices add to the lure of profits and create a continually greater apparent shortage of goods. Actually, of course, what is happening is that consumer demand is being anticipated, since all the goods bought in these movements must still be sold to consumers. Eventually a point is reached at which buying falls off. With no demand to support the market, prices slide off and remain weak with only day-to-day fill-in orders being placed until accumulated demand generates the next buying movement.

QUESTIONS THAT NEED TO BE ANSWERED ABOUT BUYING MOVEMENTS

Although textile buying movements are a basic characteristic of textile distribution, little if any definite information exists as to what actually takes place. There is great need both on behalf of management and of students of consumer goods industries generally for further light on such questions as the following:

- 1 Origin and Importance
 - a) To what extent are buying movements general throughout the textile markets? Do they seem to be stimulated by the same forces or do buying movements sometimes occur in certain lines wholly independent of conditions in other markets?
 - b) What differences, if any, exist between the timing, duration, and extent of buying movements in different markets? Do prices in the markets exhibit similar patterns?

Some observers say only to the extent that a common fiber is used. Is this always true?

c) What proportion of the total requirements of a market during a season or year are purchased during these buying periods as compared with week-to-week purchases? What influence does distinct seasonal use have upon trade buying, as in the case of blankets? What, over a period of years, is the relation of forward buying to week-to-week purchases?

d) Out of what conditions do buying movements become largely speculative in character? Does this frequently happen when 'shelves are bare' in wholesale houses and stores? Or only when general economic conditions are favorable, such as a broad speculative trend or rising consumer income? What part do fiber prices play? Is a period of declining or weak prices in the primary markets an essential prelude?

Prices and Sales Volume

a) Which usually react first in a buying movement, sales or prices? How long and how rapidly may sales increase without affecting prices? Do sales sometimes rise while prices decline?

b) Conversely, how long and how rapidly may prices rise without diminishing the rate of increase in sales? In what way is the relation between prices and sales affected by retail price lines? In apparel fabrics, e.g., some believe that sales will fall as soon as the price of a fabric reaches the point at which the garments in which it is used would have to be sold in a higher retail bracket.

c) About what proportion of the goods changing hands during a buying movement are bought at the 'low of the market' as compared with the higher quotations that prevail toward the end of the period? What is the distribution of buying between unassorted blanket orders and assorted orders? To what extent does the proportion of assorted orders vary from one market to another and from one product to another? In other words, how does the 'time' distribution of buying compare with the 'time' distribution of prices? Do these distributions vary as between an ordinary and a 'speculative' buying movement?

d) To what extent is it possible to determine whether a buying movement is 'speculative' or not before it has run

its course? Does the volume of assorted orders vs. volume without assortments afford any clue?

e) Are there signs that may indicate when trade buying is reaching the point where it will not be supported by future consumer purchases?

3 Prices and Inventories

a) What happens to inventories during a buying movement? To what extent do they change form, i. e., from 'raw materials' to 'goods in process' to 'finished goods'? To what extent do they change ownership, that is, move from one market level to another?

b) Is there any apparent relation between the hands, and the form, in which inventories happen to accumulate and price behavior during an ordinary buying period? During a 'speculative' buying period?

c) Is there any evidence that consumers accumulate 'inventories' beyond immediate needs?

4 Influence of Large Buyers and Sellers

a) What part do large purchasers play in the course of a buying movement? Large sellers? Are large purchasers more likely than small to secure most of their requirements before prices begin to rise rapidly? Do their purchases contribute substantially to such rises? It is reported in the trade that certain large distributors covered inadequately at the beginning of the 1936-37 buying movement only to come in several months later to buy in such volume that many mills were led to revise their earlier judgment that the whole movement was largely speculative and 'couldn't last'.

5 Aftermath

a) How long does the pessimism that accompanies the collapse of a buying movement tend to affect the tone of business? Relative to the position at the beginning and crest of the buying movement, how far may prices have to fall to stimulate market activity? After an ordinary period of buying? After a 'speculative' period?

b) What happens to 'day-to-day' fill-in business after the collapse of a buying period, particularly of the 'speculative' type? Is there any tendency for all purchasing to cease for a time? If so, with what effects?

c) On whom do the losses from the collapse tend to fall?

To what extent are profits made by any one during a 'speculative' buying period as a whole in view of the losses that follow in its wake?

6 Stabilization

a) Are there any steps that can be taken to prevent ordinary buying movements from turning into 'speculative' buying periods?

b) Would it be practical for sellers to adopt more stringent policies and would they be effective? Many hold that they must sell to maintain 'goodwill' even though they know that contracts may have to be adjusted later. Yet a producer of denims in the 1936-37 buying movement did refuse orders he thought were speculative.

c) What protection does hedging afford the individual company? On raw material? On goods in process? On finished goods?

d) To what extent might more adequate statistical information minimize speculative activity during a buying movement? To what extent could statistical information avoid the miscalculation that comes from overstress on the significance of orders from unexpected sources?

PROBABLE RESEARCH REQUIREMENTS

One or several projects might be developed around the foregoing questions. A general study could probably cover most of the field outlined since many of the questions closely dovetail. Whether projects wide or restricted in scope were undertaken, however, it would probably be found desirable to limit attention to representative products in certain specific markets. Part One, dealing with the price and market structure of the textile and related industries and trades, will be found helpful in selecting both products and markets.

Of particular interest at this time would be an analysis of the buying extravaganza of 1936-37. Undoubtedly it would be less difficult to assemble information about this movement than any other. A study of price behavior during 1936-37, illuminating as it might be made, would still not exhaust the field of price and buying movement relation-

ships. Further work would be needed on earlier movements such as those during 1933-34 and 1926-28, if current movements are to be seen in perspective and the unusual factors in them discounted. In fact it would be highly desirable to compare the buying movements of the last decade with those which preceded the World War, particularly those under comparable conditions. Only by such study could one determine the extent to which the textile buying movement as it is known today is a product of the rise of mass distribution and associated large scale purchasing or whether many of the features regarded as peculiar to this generation might not characterize other periods of textile history.

Most of the information needed about price behavior during buying movements is not to be found in the publications or files of trade associations and government bureaus. It would have to be obtained from individual companies, partly in the form of interviews and partly in the form of statistics drawn from their records. Field work of this type is always expensive—it takes time and it requires a staff skilled in winning co-operation. How much time and money would be required would depend upon the number of products included and of buying movements covered. Field work at some market levels, particularly the retail and cutting-up levels where the collection and analysis of data would be much more difficult than at the mill level, would involve greater expenditures than at others.

PRICES AND FIBER AND PRODUCT SUBSTITUTION

The astounding growth of rayon consumption from a negligible quantity in the early 1920's to a position second only to cotton in this country has directed attention anew to competition among textile fibers and products. This is by no means the first time that a dramatic shift in demand from one fiber to another has aroused both trade and public concern over a condition always latent in the textile industries, namely the substitution of one fiber for another. In

early England this concern resulted in regulations designed to discourage the use of cotton fabrics in place of woolen. Today it has flowered in the so-called 'fiber identification' movement.

Substitution or alternative demand is not limited in the textile industries to the displacement of one fiber by another. Often as significant in its consequences is the competition between a particular fiber and the waste derived from it. A notable example is the use of reworked wool as a substitute for raw wool. Frequently two or more grades of the same fiber may be suitable for the same purpose and therefore actively competitive among themselves. Then too, different yarn or fabric constructions of the same fiber often encroach on one another's markets even to virtual displacement, as when gingham fabric gave way to percales and other cotton prints. Still another form of substitution that warrants consideration in this connection is that between a textile fiber and non-textile materials; for instance, the growing use of paper in place of cotton for such purposes as towels and bags.

Since substitute materials and products cover a wide range of situations in the textile industries, the opportunities for price research in this area can best be discussed in terms of each general type of situation, beginning with inter-fiber and including inter-grade, inter-construction, and fiber waste competition.

COMPETITION AMONG DIFFERENT FIBERS

There has been much discussion about inter-fiber competition in the textile markets, but little has been done to measure either its extent or its consequences. It is customary to compare trends in, say, cotton consumption with those in the consumption of other fibers such as rayon, wool, and jute, and on the basis of such comparison to draw conclusions about the extent to which cotton has replaced or has been replaced by other fibers. Likewise, the price differentials between the various fibers are considered and conclusions drawn about their incidence upon fiber competition.

Such a composite approach seems quite inadequate because it treats all fibers as if competitive for all uses. Most fibers compete with others for only a part of their uses. For example, its peculiar properties of absorption and resiliency make wool the ideal fiber for use in the manufacture of woven felts for papermaking. It has no competition at present in this particular use. Likewise, cotton has currently practically none in sheets and pillow cases. In contrast, for certain uses, as in dress goods, a great deal of competition exists among the fibers.

What seems to be needed, therefore, is a series of studies of particular situations in which two or more fibers have been in active competition for the same specific use. Several may be mentioned: silk vs. rayon in dress goods; spun rayon and cotton vs. wool in men's summer suitings; rayon vs. mohair and cotton in linings; cotton vs. jute for bagging. Furthermore the competitive situations in other periods should be studied as well as those of the current decade. The replacement of cotton hosiery by silk in the War era and the decline of cotton-wool men's wear fabrics in favor of all wool fabrics in the 1900's are examples of shifts in the use of fibers in earlier periods that deserve study.

In every case of inter-fiber competition there will undoubtedly be unusual features requiring special consideration, but in general attention should be directed to four objectives:

- 1) To what extent was one fiber actually substituted for another? Even if the consumption of one fiber increased relatively to that of the other, what evidence is there of displacement? Could the relative increase have been due wholly or in part to the widening of the market through tapping new demand?

- 2) What was the price relationship of the competing fibers? To what extent was there a price differential? How persistent? How important when translated into users' costs?

- 3) What role was played by consumers' choice? To what extent did the substitution originate at the retail counter and to what extent at prior market levels? Where consumers had

opportunity to choose, upon what basis were their decisions apparently made? To what degree were these decisions influenced by sales promotion? By the specific labeling of fiber content?

4) If substitution persisted for any length of time, were there any noticeable reactions in the price behavior of the fibers affected?

For the most part few or no data are readily available that will contribute materially to answering these questions in any particular case of inter-fiber competition. That largely explains why discussions of fiber substitution have been limited to a comparison of general price and consumption series. To make further progress it is essential that data be obtained directly from a particular market, including information from both buyers and sellers.

Changes in the relative positions of the various fibers being consumed in any market should not be accepted as conclusive evidence of substitution. The consumption of a given fiber may show little or no change when measured in pounds but an increase when measured in yards. Shifts from heavier to lighter weight fabrics and vice versa can render poundage data alone quite deceptive, especially over a period of years. Weight, of course, is important to the fiber producer and to all concerned with the raw fiber market, but yardage is more significant to those concerned with subsequent processes.

Even when yardage changes have been taken into account, an increase in the relative consumption of one fiber may not always mean that it is being substituted for those which compete with it. Rather an increase in relative consumption may indicate that a new demand level has been tapped. Perhaps a new technique in the manipulation of the fiber has given it new properties and thereby opened a wider field for its use. Perhaps its cost of production has been so reduced in comparison to that of other fibers that its price could be lowered, which stimulated buying. Thus inter-fiber competition is really a question of whether the

fiber showing the increase is cutting into the market the other fibers had or might have had, or whether it has widened its own market by tapping new demand.

COMPETITION AMONG DIFFERENT TYPES AND GRADES
OF THE SAME FIBER

Just as one fiber competes with another for particular uses, so even more do the different types and grades of the same fiber compete among themselves. Medium wool may be used in place of fine; short staple cotton in place of long; 78 per cent seriplane silk in place of 92 per cent seriplane; 75 denier rayon in place of 150 denier. Although substitution among grades of the same fiber is common, it is by no means universal since for certain purposes a particular grade alone is suitable. Aside from this limitation, however, competition is usually quite rife among grades of the same fiber. What part do price differentials play in this competition? Upon what bases have such differentials been established? To what extent do they change with market activity? Are they influenced by style changes? By consumer choice? These and similar questions about the behavior of grade differentials are worthy of study in each of the major fiber fields.

In contrast to the paucity of data bearing on inter-fiber competition, many series relate to inter-grade competition. The reports of the Bureau of Agricultural Economics and the publications of the New York Cotton Exchange provide much information on the price behavior of various grades of cotton. The information on stocks and consumption of raw cotton by grades is less satisfactory but, with proper qualification, may be used. Turning to rayon and silk, one finds about the same situation as in cotton: fairly complete price data by grades but scattered information on stocks and consumption by grades. The picture is brighter in wool. For a considerable time the Bureau of Agricultural Economics has published the weekly range of wool prices on the Boston market by grades and lengths; the Bureau of the Census has published the monthly mill consumption of

wool by grades, and the stocks of wool held by dealers and manufacturers, by grades, at the end of each quarter.

COMPETITION AMONG DIFFERENT YARNS OR FABRICS
OF THE SAME FIBER

Probably as prevalent as the competition among different grades of the same fiber is that among different yarns and fabrics of the same fiber. These yarn and fabric differences arise in the course of processing and may range all the way from those growing out of different treatment at each stage of manufacture, such as results in woolens and worsteds, to those growing out of different treatment at but one stage of manufacture, such as results in plain shades and prints. These are but two of the more widely known of the hundreds of cases of inter-fabric competition during recent years. Some should be studied with a view to discovering to what extent price played a major and a minor role in whatever displacement of one construction by the other may have occurred. Furthermore, the part played by consumer choice and the trend of fashion should be considered.

Material for a study of almost any case of the substitution of one yarn or fabric construction for another will have to be obtained from selected buyers and sellers in the market concerned. In a few instances, the Census of Manufactures gives information concerning production trends, and trade association reports on weekly or monthly changes in production. Even together, however, these two sets of data would in all probability have to be supplemented by interviews in the market, if not by the collection of original data. This would be especially true of price information. Trade journals could be used if standard gray yarn or standard fabric constructions were involved, but almost any other price series would have to be built up through first-hand contact with buyers or sellers in the market.

COMPETITION BETWEEN FIBER AND WASTES

In the processing of any textile fiber, wastes occur as by-products, and in the case of wool and rayon it has been

profitable to reclaim the fiber from the discarded garments and other goods into which they were originally made. What then is the relation of the price of the waste or reclaimed fiber to that of the fiber in its original state? Does the waste or reclaimed fiber tend to sell at a more or less constant differential under that of the original fiber? If variations occur, what accounts for them? To what extent is there a relation between the spread of waste and regular fiber prices and the volume of waste fibers that will be substituted? How effective is the limited supply of waste fibers in checking this substitution? Does it tend to narrow the spread as demand increases and thereby to check substitution?

Such questions need to be answered about cotton and cotton waste including linters, about woolen type wools and noils, about woolen type wools and reworked wools, about rayon staple and rayon waste, to name only a few instances of fiber and waste competition. Few data are available except quotations in the trade press. Most of the markets involved, however, are extremely localized, with Boston the market center for practically all textile wastes. Consequently, intensive field work among the dealers in that market, including both those handling the original fiber and those handling 'waste' fiber, should go a long way toward providing the requisite data.

COMPETITION BETWEEN TEXTILE AND NON-TEXTILE MATERIALS

As pointed out earlier, substitution may involve textile and non-textile products. The use of paper instead of cotton bags in the cement industry, of paper towels in offices and kitchens, and venetian instead of cotton shades are examples of the textile product being displaced by the non-textile. While these seem more frequent, there are instances of textile products displacing non-textile. One instance is the substitution of pyroxylin-coated fabrics for leather in handbags and similar articles.

Does price or cost play any part in these shifts from

textile to non-textile products or vice versa? On the basis of the shoe illustration it might be assumed that style was the essential factor. In the case of cement bags, it is said that cotton provides the cheapest container because it can be used for ten to twelve trips on the average, whereas the paper bag cannot be reused even once. Does price account for the use of the paper bag? Is the paper bag also more convenient? Do the users of cement prefer paper bags? Answers to questions like these will contribute to an understanding of why price or cost advantages may be offset by other considerations in the substitution of non-textile for textile products. Whoever undertakes this task will have to depend almost entirely upon contact with individual companies for data, and that means to a considerable extent with companies outside the textile industries.

Without doubt the textile markets afford a rich field for the study of rival or alternative demand, providing as they do cases involving both joint and independent supply; for example, cotton vs. cotton waste, and cotton vs. spun rayon; and both derived and direct demand, for example, cotton vs. paper cement bags and cotton vs. paper towels. Furthermore, the textile markets afford opportunity for evaluating the role played by consumer choice in product substitution as contrasted with trade choice. This is true of both products for which service life may be important, as cotton and wool blankets, and products for which style life may be paramount, as silk and rayon daytime frocks.

PRICES AND COSTS

Of vital concern to both managers of industry and interpreters of economic phenomena are price-cost relationships. So basic are these relationships that each might be treated as a phase of the other 'areas' discussed here. That procedure would make it difficult, however, to give adequate treatment to:

- 1) Vertical relationships in prices
- 2) Prices, labor costs, and wage rates

- 3) Prices and raw material costs
- 4) Prices, costs, and rate of production.

A great variety of other subjects warranting exploration in this area might be listed, but circumstances of the last decade have served to emphasize these four. Thorough study of any one would result in a major contribution which would both enlighten management and widen the economist's understanding of price behavior.

VERTICAL RELATIONSHIPS IN PRICES

In thinking of price behavior in the textile industries one should keep in mind that usually there are several different market levels at which textiles are priced on the way from their raw material state to final consumer use. Thus, with every appreciable change in price at some particular level, especially if it is an increase, great concern arises over the extent to which the change can and will be passed on to subsequent levels, and to the consumer. This happened with the processing tax on cotton, and more recently with the application of the national wage and hour law. But a change in price or cost at one level may work backward in its effects as well as forward, as is reported to have occurred in 1936 when wage rates were increased in the men's clothing industry. The increase tended to reflect itself for some time prior to its effective date in efforts by clothing manufacturers to secure offsetting concessions in fabric prices from mills; and some clothing manufacturers found it necessary to shift to fabrics at the next lower price 'niche'.

The 'ebb and flow' of price changes through a complex system of vertically related markets represents a fundamental aspect of price behavior in the textile industries which has yet to be analyzed systematically. Now and then some sudden or dramatic change in cost has brought forth special studies by the interests affected; for example, the reports of the Bureau of Agricultural Economics and of the Cotton Textile Institute concerning the processing tax. Such studies have naturally been sporadic; moreover they tend to be transitory in value since their main purpose is to

provide information as a basis for action in a particular situation. There is need for more general and continuing studies that would compare and contrast vertical relationships in prices and costs not only for different kinds of textile products but also for different periods.

What questions should studies of vertical relationships in textile prices seek to answer? It is not known in any comprehensive fashion what relation, if any, exists among prices at each of the major price levels of textile production and distribution. Some comparisons of cotton and cotton cloth prices have been made, and in the case of one or two staple articles of cotton apparel, such as overalls, the relation between the price of the finished garment and of the cotton fiber has been measured.¹ These plane-to-plane analyses of price movements have been severely handicapped by lack of adequate data. Progress is being made in this direction, however, with the revision of its textile wholesale price series by the Bureau of Labor Statistics. It is to be hoped that in this revision the various marketing levels in textiles will be recognized with appropriate indexes for each.

Comparative analyses of level-to-level textile price relationships are needed not only for different periods but also for different classes of textile products. For example, to what extent does the vertical pattern of sheet prices correspond to that of overalls? Both are staple cotton products but one is household and the other, apparel. Studies of this character should raise more questions than they answer. Although they will reveal what relation tends to prevail between prices at one level of production and those at another, they will not reveal the reasons or forces behind these relationships. Those will call for further study, on a more intensive basis.

PRICES, LABOR COSTS, AND WAGE RATES

While one must of necessity be aware of cost changes in any study of vertical price relationships, it would not be

¹ Special studies by the Cotton Garment Code Authority, the Bureau of Agricultural Economics, and the Cotton Textile Institute.

practical from a research standpoint to study intensively at the same time the relation of any particular cost element to price behavior. Furthermore, certain aspects of price and cost relationships, as between a product's price and its labor costs, are largely horizontal rather than vertical. It is suggested, accordingly, that studies of prices in relation to particular cost elements be made not as a part of some general study of vertical price relationships but as major studies in their own right.

There is great need today for understanding the relation between wage rates and labor costs as well as between labor costs and prices in the textile industries. The effects not only of wage rates and labor costs upon prices should be considered but also of prices upon labor costs and wage rates. Such effects should be traced both through the markets vertically related to the market where the change occurs and to competing markets at the same level and even within different branches of the same industry.

An analysis of prices, labor costs, and wage rates opens up many lines of study. In evaluating current price and wage theories it would be particularly useful if we knew more precisely what long run relationships tend to prevail among wage rates, earnings, and prices. This field has been virtually neglected so far as the textile industries are concerned. If we are really to understand the role of wage rates in price behavior, however, we must go beyond wage rates to labor costs. After all, wage rates are but one factor in labor costs, which are affected also by hours of work, work load, labor and plant efficiency, quality of materials, and other factors. How much each influences labor costs and how in turn they may be affected by wage rates deserves serious consideration. It is sometimes said, for example, that low wage rates tend to be accompanied by high labor costs. To what extent can this be verified in the experience of the several textile industries?

The dual role of prices as both cause and effect should also be considered. As with other elements of cost the question arises whether increases in labor costs tend to be

passed on to the consumer and whether consumers really benefit from wage decreases. Though changing labor costs may affect prices, situations frequently arise in which price changes bring pressure upon wage rates, especially during periods of falling prices when management may seek to reduce costs by cutting wage rates.

How extensive an investigation into the relation of prices, labor costs, and wage rates may be worth while would depend largely upon the contacts, experience, and resources of the person or persons undertaking the task. So far as the relation between labor costs and wage rates is concerned, several case studies would be highly useful, particularly if chosen with an eye to representing various types of products and competitive situations within the textile industry. Such studies could well be undertaken by an individual.

Despite the vast amount of material in one form or another that has been accumulated relative to wages and hours in the textile industries during the last decade, virtually none bears on the relation of wage rates to labor costs and of labor costs to prices. Much information has been collected about the number of persons employed in the textile industries and what they earned, but we know little about what they did when they were employed, the rates they were paid, or how much they produced for their wages in terms of specific jobs and products.

PRICES AND DISTRIBUTION COSTS

Probably next to wage rates and labor costs no element of cost is receiving as much consideration today as distribution. In both the popular mind and among textile executives a feeling is growing that something needs to be done to reduce the cost of distribution. It would seem highly desirable, therefore, that distribution costs be closely examined to see to what extent some of the charges now being made about the inefficiency of the distribution of textile products are warranted. This would call for comparison among various classes of textile products of the costs of

getting them into the hands of consumers. It would not be enough to concentrate on the retail costs. There is need of a complete picture of what it costs to market goods at each level of production as distinct from what it costs to process them at each level. To what extent do costs vary with the methods used and the services rendered? Frequently the charge is made that distributive costs, particularly as they are now computed, tend to be pyramided because of the practice of figuring mark-on in terms of a percentage. How prevalent is such practice and to what extent does it tend to maximize cost increases?

While any major study of the costs of marketing textile products would entail the collection of additional data, a worth while start could be made simply through co-ordinating the various pieces of research that have already been done in the field, such as the studies by the Bureau of Business Research at Harvard University and by the Bureau of Foreign and Domestic Commerce. But whether started on a large or small scale, further analysis of the costs of textile marketing are greatly needed, and are likely to have increasing significance in the future from the standpoint of both industry and public interest. While textile executives have paid little attention to distribution problems in the past, they will undoubtedly give more thought to them in the future. The growing use of brand promotion by manufacturers is an evidence of this change in attitude.

PRICES AND RAW FIBER COSTS

Raw fibers have always played a major role in the costs of textile industries and, except for rayon, their continually fluctuating prices have been a major source of both profits and losses to textile manufacturers. In any study of the relation between fiber costs and price behavior, interest centers largely in the vertical relationships; that is, in the degree to which changes in fiber costs are transmitted through the successive markets. How responsive are prices at other levels to changes in prices in the fiber markets?

Unlike labor or overhead costs, fiber prices are in a sense an external rather than an internal factor in prices.

Two types of change in raw material prices may be differentiated: the usual cyclical fluctuations and extraordinary changes which frequently present themselves in some form of taxation, as the processing tax and the wool tariff. Most studies of the incidence of raw material cost changes have dealt with a particular situation; there is need of more general studies that would co-ordinate what has been done and critically appraise the methods followed.

Concerning the relation of cyclical changes in raw material prices to the price behavior of yarns and fabrics considerable work has been done, particularly in the cotton industry. Several series have been compiled showing for a period of years the spreads between the prices of raw cotton and of selected standard fabric constructions. These analyses should be extended and similar studies made in other textile industries. Through such studies we should be able to ascertain what lead or lag, if any, tends to prevail between prices of fiber and of the products into which the fiber is made. For example, one investigator has found a fairly high correlation between the prices of overalls and of raw cotton, with a lag of about three months in the former.² Once such relationships are observed statistically, they should be put to qualitative tests and the intermediate steps considered by which the movement of fiber prices is transmitted into price changes at a level several markets removed.

PRICES, OVERHEAD COSTS, AND RATE OF PRODUCTION

It may be questioned whether prices, overhead costs, and the rate of production should be studied separately from the more general problem of prices and capacity, to which attention is given in the next section. Undoubtedly overhead costs could not be overlooked in any searching analysis of prices and capacity, but that area has been outlined

² Peter Parenty, *Consumer Demand for Overalls* (International Association of Garment Manufacturers, 1935).

here largely in terms of market and industry-wide reactions. It seems, however, if we are to understand their true significance as a price-determining factor, that overhead costs should be considered also on a company basis.

What rate of production is necessary to cover out-of-pocket costs? To cover all costs? Does this relation vary from one period to another? From one plant to another? Is it affected by size of plant or of order; by work load? These are the sorts of questions continually being asked about the relation of rate of production to overhead costs. It would be highly enlightening to know what rates of production are assumed among mills in a particular industry in figuring their overhead costs and to what extent this influences their decision about the price they accept.

Obviously any study of this sort that included even two mills would depend upon the reconciliation of accounting procedures. It would be a highly technical investigation requiring a combination of accounting and statistical techniques. Perhaps a start should be made with an experimental study in some relatively staple line of products. Most of the requisite data have never been collected and probably could be obtained only through direct plant co-operation. Such co-operation might be facilitated if the study were undertaken together with a group of cost accountants or industrial engineers.

PRICES AND CAPACITY

By capacity, in general, is meant the maximum physical volume of goods an industry can turn out under a given set of conditions. These conditions in the textile industries include, in addition to number of machines, their age and state of repair; usual schedule of hours operated; nature of the product; quality of material from which produced; the size of units or orders in which produced; labor efficiency; general plant efficiency as determined by layout, power facilities, and other factors; and the managerial ability of those directing the enterprise. Thus to study the relation of price behavior to capacity one would seem to

be faced with the task of studying the relation of price behavior to each of the many elements that, taken together, determine productive capacity. The close interrelationship of these determinants makes it impractical to study each separately.

When one considers the role of price behavior in relation to capacity, it is not so much some particular element of capacity that assumes significance as the relation of prices to the utilization of available capacity and to its expansion or contraction. To some extent 'utilization' involves both short term 'expansion and contraction' and long term considerations, but this distinction cannot always be made satisfactorily. Keeping in mind that capacity is a combination of various elements, it seems best to consider the relation of price and capacity in terms of:

- 1) Prices, profit margins, and machine activity, i. e., how the utilization of textile capacity varies with prices and profit margins
- 2) Prices, profit margins, and the transfer of machinery from one product to another; frequently therefore from one market to another
- 3) Prices, profit margins, and capital flow

PRICES, PROFIT MARGINS, AND MACHINE ACTIVITY

During the last twenty years many textile industries have undergone the apparent paradox of a marked reduction in key machinery in place with but little change in actual capacity. Several conditions serve to explain this paradox, including the substitution of new machinery for old, such as the automatic for the non-automatic loom. But more far reaching in its consequences has been the change in industry operating schedules.

During the World War the pressure to get out goods resulted in night operation, a practice not at all common up to that time. Following the War, the practice of running nights continued in some sections, particularly among the cotton mills of the South and in other sections where regulations did not prohibit night work of women and children.

Furthermore, sharp competition during the late '20's caused an increasing number of plants to operate on a multiple-shift basis. Then came the New Deal with NRA and other measures that have virtually established a permanent forty-hour week, with the result that two forty-hour shifts have become the goal of nearly all textile mills, almost regardless of product or industry.

While the growth of multiple-shift operation has represented a major secular change it has also had cyclical aspects that warrant study. In bringing about a drastic change in machine utilization it seems to have tended to make machine activity much more sensitive to market conditions, and it is out of such conditions that questions like the following arise concerning the relation of prices, profit margins, and machine activity in the current decade:

1) Falling prices and shrinking margins might be assumed to bring about a curtailment of productive activity. To what extent does this follow in the various textile industries?

2) When activity does not contract as might be expected, what forces are responsible? Are the costs of idleness a more effective determinant of mill policy than the costs of operating at a loss? What conditions cause this? For example, the statement was frequently made during the depression that companies with mill villages had to keep operating rather than face the responsibility of throwing their workers out of jobs.

3) Are there significant variations in the response of productive activity to lower prices? By products? By stages of production? Is activity more likely to decline in the face of lower prices if the product normally carries a high profit margin than if it carries a low margin?

4) What part has price and margin behavior played in the growth of multiple-shift operation during the last two decades?

5) Is it correct to conclude that machine operation in the textile industries tends to be elastic with rising prices and inelastic with falling prices? Situations like that mentioned above with reference to mill villages are said to play a part in preventing the contraction of machine operation during a weak market. On the other hand, it can be argued that mills cannot go to three-shift operation overnight, but require a con-

siderable period to assemble and adjust a working force to such schedules.

Several studies have been made by trade associations and other agencies of the course of machine activity in the textile industries during recent years. In the main these have dealt merely with what has happened rather than why. In none has the relation of machine activity to price behavior been adequately explored. Although data on the activity of various kinds of key textile machinery are available in the monthly reports of the Bureau of the Census, they are more likely to be useful for cursory than for penetrating analysis, since they do not afford classification of activity by products. In the cotton and silk industries trade associations compile statistics of machine activity in conjunction with those of production.

PRICES, PROFIT MARGINS, AND TRANSFER OF MACHINERY

Industry policy relative to number of shifts operated, although a material factor, is by no means a dominant reason why the capacity of any particular textile industry at any given time is fairly indeterminate. There is an uncertain line between any textile industry's actual and potential capacity that cannot be precisely defined even though the industry may have a settled policy regarding operating schedules. This is largely because there is such a wide opportunity in the textile industries for machines making goods for one market to be transferred to making goods for another market if conditions warrant. In other words, textile machinery to a considerable extent is general rather than special purpose. Although there are limits beyond which machinery cannot be transferred, they seem to be flexible. That is, market conditions seem to have much to do with determining the effectiveness of a limit. Probably of major importance in setting limits to machine transferability is the fact that most textile machinery is built for the purpose of processing some particular fiber. This limitation grows less and less effective, however, as one moves from the

fiber preparatory operations to those responsible for the finished fabric. For example, the range of fabrics that can be handled in finishing is quite broad. At the spinning level, mills are presumably set up to handle a particular grade of fiber, but shifts are made under certain market conditions. The balance between operations is in some respects the most compelling limiting factor, but even that is quite flexible. Some mills are set up on an unbalanced basis with the deliberate policy of supplementing their operations by purchases or sales outside.

Technical developments may at any time eliminate conditions that in the past have served to prevent the transfer of machinery from one product to another. At one time it was considered impractical to weave woolen cloth on worsted-type looms. Today it is not at all uncommon, largely because the quality of woolen yarn has been so improved that it is able to stand the strain of the faster operation of the worsted looms. Much, of course, depends upon the particular mill, its management, and the traditions of its workers. For example, workers who have long associated with wool manufacturing are said to be very reluctant to have anything to do with cotton processing.

It should not be supposed, however, that there are no special purpose machines in the textile industries. Certain finishing machines can be used for only a very limited line of products and certain knitting machines, such as the full-fashioned hosiery machine, can be used for but one grade of a particular product. One can detect, however, a rather general trend throughout to more general purpose equipment. This is particularly exemplified in the new equipment machinery manufacturers are offering. The spinning frames being built today are designed to spin a wide range of counts rather than a restricted range, as in earlier days. Similarly, looms are being designed to produce a wider range of fabrics.

How do the diverse policies of a large number of mills in transferring equipment from one product to another combine to affect the supply of goods of a specific type that reaches the market? What effects do changes in profit mar-

gins have upon the transferring of machinery from one product to another and upon the amount of goods produced for a given market?

Another phase of this problem of transferability is the effect of retail price brackets upon demand. Frequently during a rising or a falling market, the bulk of the demand for a given type of goods may shift from one construction to another, because of the need for cutters-up to hold their garments to certain price brackets. At times a situation of this kind may lead to a shift away from one type of fabric to other types. Just how has this operated in the past, and what are the criteria for judging the probable behavior of price and demand under such conditions?

On the whole it seems that any studies of prices, margins, and transferability of machinery would have to be made in terms of some particular situation; for example, the shift of mills making coarse cotton goods to fine goods, of cotton mills to cotton-worsted fabrics, of wool mills weaving women's wear to men's wear fabrics. Almost innumerable cases could be found. The data would have to be obtained largely from trade association and mill sources. Except for background purposes there are no official statistics that would contribute to these studies.

PRICES, PROFIT MARGINS, AND CAPITAL FLOW

What role do prices play in the expansion and contraction of productive capacity? On theoretical grounds it might be assumed that a period of declining prices would result in the contraction of capacity and a period of rising prices in the expansion of capacity. For this to happen, of course, capital must flow either out of or into the industry. What then is the relation of capital flow and price behavior in the textile industries?

The last two decades have seen vast changes in the capacity of the textile industries as represented by machinery and plant—the decline of the Philadelphia area as a center of wool fabric manufacture and of Fall River and New Bedford as centers of fine cotton goods manufacture, the

rise of the South as a producer of fine goods, and the growth of Los Angeles as another 'Brooklyn' in the knitted outerwear industry. Besides such geographical shifts, the last two decades have seen the automatic loom supplant the non-automatic in the woolen and worsted industry, the adoption of long draft spinning in cotton, and the virtual displacement of 39-gauge hosiery machinery by finer gauge equipment in the full-fashioned hosiery industry. All these changes have represented capital flow in some form. To what extent, if any, has price behavior played a part? About these situations and others like them such questions as the following develop.

1) Where chronic idle capacity develops, how effective are falling prices and decreased margins in bringing about its liquidation? What other forces, if any, enter the picture to retard or delay liquidation? What about the secondhand machine? Though lack of profit may force their original owner out of the business, this does not mean that the machinery is lost to the industry. What part have secondhand machines played, therefore, in prolonging the adjustment of capacity during the last two decades?

2) By what means does capital 'flow out' of the textile industries? By transfer to other uses? By depletion? Is the transformation of fixed assets into current through operating at a loss for several seasons a necessary concomitant to the flow of capital out of textile industries when no longer needed? Buildings can be put to other uses but what about machinery? That can sometimes be transferred to other markets. To what extent has the capital flow of the equipment in liquidated mills been depleted? Has much of it actually been used beyond its reasonable operating life? There are stories of fifty-year-old spinning frames in some of the mills that have gone out of business.

3) What is the relation of price and margin behavior to the establishment of new or the expansion of old plants in old areas? In new areas? As represented by the introduction of more productive machinery, processes, or methods of manufacture?

4) From what sources has additional or new capital been obtained? To what extent have the textile industries depended upon financing new capital outlays from earnings?

5) In what way have taxation, wage rates, interest rates, and other cost factors facilitated or retarded new capital outlays?

A whole series of studies could be made concerning capital flow in the textile industries. Probably more information could be obtained with less effort on this subject than on any other phase of price and capacity study. Undoubtedly the co-operation of machinery manufacturers could be obtained and, for the most part, their manufacture is in the hands of relatively few companies. Much information is to be found in the biennial and monthly reports of the Census; and trade directories and trade magazines would provide data on the rise of new mills and the passing of old. Second-hand machinery dealers could provide a picture of what happened to the old equipment.

PRICES AND MARKETING METHODS

May one assume that prices have no necessary relation to merchandising methods? That hardly seems a tenable assumption in the light of the references made in the foregoing discussion to certain merchandising practices of retailers, particularly price lining, and their repercussions upon the wholesale textile markets. In other words, price-demand relationships and price-supply relationships tend to be colored by the manner in which business is carried on. Probably many practices now common in the distribution of textile products affect and are affected by price behavior, but two seem particularly significant at present: price lining and brand promotion.

PRICE LINING

Among the forces influencing price behavior to which attention has been called none has been more continually in the background than the practice of price lining, or selling goods at certain fixed price intervals or brackets. While peculiarly characteristic of the retailing of textile products, it has some use at prior levels of marketing, perhaps in large measure as a reflection of retail methods. Whether one is

concerned with the relation of prices to buying movements, the role of prices in fiber substitution, the interrelations of price changes, or with the relation of price movements to transfer of machinery from one product to another, always in the picture is the question of how price lining affects the situation. While the influence of price lining in particular situations can no doubt be studied most effectively in terms of those situations, e. g., machine transferability, such analyses do not enlighten us about price lining itself. Clearly there is need for an examination of this marketing practice from the standpoint of both its bases and its relation to price behavior.

When the manufacturers' price of a given textile article is raised above, say, a point where it fits into the \$1.00 retail bracket, there is a disposition among retailers to believe that there is no price at which it can be merchandised successfully short of \$1.19 for some articles, \$1.39 for others, and even \$1.95 for still others. If one were to express doubt that the curve for consumer demand is actually as discontinuous as this suggests, one would be met in most retail quarters by the response that tests have shown that intermediate brackets simply do not produce sales; that consumers are suspicious of them or do not react favorably to them; or that you can sell more of the same article at \$1.19, for example, than at \$1.10.

The faith in retail price brackets evidenced in some quarters, however, does not, even among the retail trade, obtain universal support. A few department stores as well as certain mail order and chain organizations have found it possible to merchandise textile products more nearly as groceries are merchandised, at whatever prices the cost and required mark-on dictate. Thus some odd and intermediate price lines have been established by such stores, which seems to indicate consumer willingness at least to go along with other than conventional price lines.

Under a system of retail price brackets, adjustments to changing prices in the wholesale markets may be made either by shifting the merchandise to another price bracket

or by changing the quality or amount offered. In such articles as thread, the adjustment of price can be made by simply changing the yardage on the spool. But for most textile articles it is not so simple; the only way may be by changes in cloth construction, a process requiring time and expense and incurring considerable risk for all concerned. Under just what conditions such changes of quality occur, how extensive they are throughout the trade, and on what products this method is most frequently employed, are matters of genuine interest to both economists and the industries concerned.

Just what consumers actually do when faced by a price change over a period remains to be explored over a wide enough range of textile products for the answers to be conclusive. It is not certain that consumers are always aware that prices have risen for specific goods and that prices are higher for the same quality of goods. Lack of consumer standards of quality and frequent changes of brands offered by stores make it difficult, if not impossible, for the average layman to make any check on quality. Furthermore, style considerations frequently make direct comparison on a utility basis meaningless.

One phase of analysis that certainly should be taken into account is the shift in the price brackets in which the largest volume is obtained in its relation to changes in national income and the income of certain wage groups, occupations, or specific communities. During the last decade the relation of consumer income to the quality of goods demanded has been particularly evident. It has seemed that increased prices have not of themselves led to decreased demand when national income has been rising and that increasing national income may actually stimulate demand for better quality and, therefore, usually higher-priced products.

In short, the question of consumer reaction to price changes must be answered finally in terms of the character of price adjustments made by retail stores, the size of individual price adjustments, and the extent to which quality changes are used as a substitute for changes in price. All

these factors are integral parts of retail merchandising policy. They have a direct bearing upon merchandising by textile manufacturers on the one hand and are also tied up closely with consumer buying habits. Under a given set of conditions and within the limitations of these merchandising methods, how is consumer demand affected by price changes?

Such work as has been done on price lining has been limited chiefly to the use of the product for merchandising purposes. Relatively little objective study has been devoted to the problem in its broader aspects, probably in part because of the lack of readily available sources of material. With existing data in the manufacturing and retail trades a reasonable start could, however, be made. Possible ways to get additional information would be through personal interviews with retailers, particularly those in merchandising and sales promotion positions; the analysis of retailers' records and of records of those selling to retailers. Still another approach would be to analyze retailers' price policies as reflected by advertised prices of specific commodities.

PRICE BEHAVIOR OF BRANDED AND UNBRANDED PRODUCTS

Frequently the study of price lining leads into the study of brand promotion. Whether merchandise selling at one particular retail price is shifted to another depends in part on how extensively and for how long that price has been advertised to consumers. This is well illustrated in the experience of the chain stores selling men's suits at fixed prices, which postponed price decreases as long as they possibly could during the depression, partly because they had a fixed investment in signs and other advertising material all carrying the set price. But brand promotion and its relation to price behavior is a far bigger subject than mere price lining.

As used by some manufacturers, brand promotion becomes an informal method of vertical integration by which they direct the pricing, inventory, and promotion policies of the retailers associated with them. Thus instead of there being pricing at three levels, namely, manufacturing, whole-

saling, and retailing, it in reality occurs at only one. At the same time large distributors have undertaken private branding programs which have not only tended to forestall manufacturer branding but have led the distributor into close relationships with producers in order to ensure sources of uniform quality. Even where brand promotion has not developed into close manufacturer-retailer relationships, it may still have an important bearing upon price behavior. A manufacturer may elect to sell aggressively through extensive brand promotion, without any restrictions on resale price, in an effort to develop volume which may result in turn in his product being widely used as a 'loss-leader' by retailers. This may mean at times that the product is offered to the consumer at less than the price of similar unbranded merchandise.

The subject is one of unusual interest at present both because of the upholding of price-fixing laws by the Supreme Court and the growing interest among textile executives in advertising and promotion. To what extent, for example, has branding enabled manufacturers to obtain a higher return for both themselves and their distributors, and to what extent has it resulted simply in consumer acceptance of their product when priced at the same level as competitive goods? The answer may not be the same on all levels. Fabric manufacturers may succeed in getting no more for their product than competitors for theirs despite brand policies, whereas cutters or retailers may be able to obtain a substantial price differential on their advertised lines.

Although there is much interest in the branding of textile merchandise today and a good deal of promotional activity on the part of both manufacturers and distributors, most of it is too recent to yield more than tentative conclusions. For certain textile products, however, promotion would seem to have a sufficiently long history to justify a comparative analysis of the behavior of branded and unbranded lines. This would include such household textiles as sheets and blankets; such knitted apparel as hosiery, underwear, and bathing suits; and such cut and sewn

apparel as men's suits and shirts. Care must be taken to distinguish between merchandise that merely carries some name or trade mark and that which is continuously kept before the consumer by some form of advertising or promotion. Those goods which are merely named or trade marked are usually merchandised in about the same fashion as those which carry no name, and frequently in some lines of merchandise like shirts, all carry a name or label. For purposes of the comparative study suggested here, only merchandise that is actively advertised or promoted to the consumer warrants consideration as 'branded merchandise'.

The price behavior of branded textile merchandise such as sheets or hosiery may afford conclusions little different from those which might be obtained by studying non-textile branded merchandise which was likewise ready for consumer use. There is, however, a growing use of brand promotion, which, if not unique, is represented to an unusual degree in the textile industries. This is the practice that some yarn and cloth producers follow of advertising their goods directly to the ultimate consumer as well as to their immediate mill, converter, or cutter customers. Presumably by this method they gain a competitive advantage over their competitors, if they are able to convince their own customers that their promotion has 'pulling power' with consumers. Promotion of this type has had unexpected consequences. In some cases, the mill has found itself having to assume responsibility for the workmanship of those who made garments from its fabrics in order to protect its investment in consumer goodwill; in one instance this actually led a mill into the manufacture of garments. In other cases, problems arose over advertising allowances because they tended to become nothing more than price rebates.

What are the possibilities for mill yarn and fabric promotion that extends all the way to the consumer? Do prices behave any differently under these programs than under traditional methods? Are producers with branded yarns or fabrics able to secure any differential over their competitors? To the extent that differentials cannot be secured,

how can the promotion be supported? Through increased volume? Is there any difference in the reaction of branded and unbranded lines to a rising market? To a falling market? These are but a few of the questions to which answers are needed about the relative price behavior of branded and unbranded yarns and fabrics. The task is by no means easy. One should be concerned with prices not only at the fabric level but also at all subsequent levels, including retail. Furthermore only a few cases extend over a long enough period to justify analysis in rayon filament yarn, percales, woolen specialty fabrics, and summer men's wear fabric.

PRICES AND INDUSTRIAL ORGANIZATION

In the study of textile prices over a period account should be taken of changes in the structure for producing and marketing textile products. The significance of any intermediate textile market depends upon the volume of goods that passes through it as compared with the volume of the same goods that moves directly from one stage to another without change in ownership. Wherever manufacturers or distributors are increasing the number of functions under their control in the direction of either their source of material or the final consumer, the markets involved are vitally affected and are usually reduced in importance. Contrariwise, where firms dispense with some of the functions they have been accustomed to perform and buy or sell instead in the open market, the significance of the market concerned is materially enhanced.

The organization tendencies in textiles today are quite mixed. A casual survey of developments would indicate that the efforts toward integration may be more numerous than those toward specialization, particularly when one considers the various indirect means of accomplishing much the same ends without actual integration. For example, a weaving mill need not take over a cutting factory to avoid selling its goods in the open fabric market. It may have its fabrics cut up on contract and sold as finished garments or it may make

arrangements with one or two cutters whereby it confines its fabrics to them exclusively. Such arrangements take the goods out of the fabric market and make their pricing less subject to the play of the forces of demand and supply in that market.

WHERE INVESTIGATION SHOULD POINT

What happens to prices when an intermediate market is curtailed or eliminated? For example, what effect has the withdrawal of mail order houses from certain garment markets had upon the behavior of prices in those markets? In other words, what effect is the tendency of mail order houses and other large retail distributors to go around the garment markets and buy either gray or finished cloth having upon the garment markets, and also upon the cloth markets? Another instance that warrants study is the backward integration of tire companies into the manufacture of tire cord: what happened to prices? To what extent did the market 'dry up'? In all such cases it would be desirable to identify and evaluate the factors or conditions that favor the 'bridging of a market'. Also account should be taken of what happens to costs and if there were savings, what happened to them? Did the consumer benefit?

What happens to prices when a new intermediate market arises, for example, the wool top market during the last decade? Such tendencies warrant study. They provide excellent material for studying how markets come about. It is especially important that some attempt be made to evaluate the effect that the development of these markets may have upon prices in subsequent markets. Does specialization make for more or less price flexibility when it is introduced into the production and distribution chain in such a way that new markets result?

In those markets where both integrated and specialized firms operate, as in cotton gray goods, how do the results obtained by these two types of organization compare? In terms of profits and losses? Of costs? Does a firm only partly integrated adjust more quickly to changing market condi-

tions than one completely integrated across the market in question?

What relation, if any, is there between price flexibility and degree of vertical integration? Are prices of woolen and worsted dress goods, for example, necessarily less flexible than those of filament rayon dress goods just because woolen and worsted goods are produced by completely integrated mills, and rayon by a series of specialized mills? It has been suggested that the shortening of the manufacturing cycle, induced by conditions in the worsted cloth market, has been made possible only because of the high degree of integration of spinning and weaving in worsted cloth manufacture. Are prices more sensitive as a result?

Integration is presumably often undertaken to avoid the price-cutting tactics of competitors. In other words, it is a device for taking one's product out of competition at a given stage. This means taking one's product out of competition at one stage and putting it into competition in a different form at some later stage. What happens at the later stage? Is price pressure avoided? May it not prove to be cumulative?

What relation, if any, is there between price behavior and degree of intra-market integration (that is, the extent to which manufacturing and merchandising are united under one control)? In some markets direct selling prevails while in others selling is in the hands of agents and brokers. What differences, if any, in price behavior grow out of such arrangements? Again integration may take the form of ownership of materials and goods, processing being done on a commission basis: when this change occurs does it have any influence upon prices? An opposite step in the direction of less integration is factoring: what is its extent and relation to price behavior?

METHODS

In seeking to reveal the relation of structural changes to price behavior, the investigator can hardly hope to study more than a few situations. To a considerable extent the

data have to be created, that is, the companies will have to be solicited for the information required. Little can be gleaned either from the reports of governmental agencies or the files of trade associations. Clues will be found in the market news reports of trade papers. Of some help as background material will be the study recently published by the Industrial Research Department, University of Pennsylvania, under a grant from the Textile Foundation entitled Vertical Integration in the Textile Industries, "primarily an appraisal of how the combining of successive steps in the production and distribution of textiles has worked in the case of selected present-day textile companies".

PRICES AND BUSINESS CYCLES

The foregoing areas, including that relating to buying movements, deal with special aspects of business fluctuations. Furthermore, the current decade has been emphasized not only because of its immediate interest but also because of the greater opportunity for assembling data where gaps are substantial. Neither current interest nor relative availability of data, however, should blind investigators to the need for a broad study of the relation of prices to business cycles in the textile industries, a study that should cover the history of textile manufacture in this country since its establishment upon a factory basis. Without this background, intensive studies of the current scene, fertile as they might seem in worth while findings, would still be incomplete.

Probably in no industrial field can long time cycles in prices and activity be studied to greater advantage than in the older textile industries such as cotton or woolen and worsted manufactures. Their industrial life closely parallels that of the country, their price and activity record, though broken and inadequate, is still probably as complete as that of any industry, and the files of several companies with more than a century's history afford rich material.

A major contribution to the price record of the textile field is being made by the price history work now in progress under Anne Bezanson's direction at the Industrial Research Department, University of Pennsylvania. Three volumes have already been published giving indexes of the monthly prices of important commodities, including textile products for the later years of the colonial period, and for the early national period in the Philadelphia area, and a fourth volume is in preparation which will continue the record to 1896. These together with the price series of the Bureau of Labor Statistics dating back to 1890 will give more than a 200-year record of price cycles in textile products.

Comparable price series for Philadelphia, Boston, New York, Charleston, New Orleans, and Cincinnati have been assembled in the summary of *Wholesale Prices in the United States, 1700-1861* by A. H. Cole, published in 1938 by the Harvard University Press. Other data, as well as price series, some of which relate to textiles, appear in *Fluctuations in American Business, 1790 to 1860* by W. B. Smith and A. H. Cole, published in 1935.

These works, some of which summarize special studies available in more detail, give prices of the leading fibers and of some manufactured products. Fiber prices, especially, have been assembled for many regions. The prices of cotton, for example, date from 1731 in the Philadelphia series, from 1752 in Boston, 1786 in New York, 1796 in Charleston, 1800 in New Orleans, and 1816 in Cincinnati. After the Revolutionary War cotton was roughly graded first by regions and later by quality of staple. Thus, after 1792, in the New York and Philadelphia series prices of specified grades of raw cotton can be used. Prices of cotton cloth of domestic manufacture, namely, $\frac{3}{4}$ checks, begin as early as 1818 in Philadelphia and by 1825 several grades are available for the New York market. Flax, hemp, cordage, several grades of duck, and brown and white sheeting start as early as 1784 in Philadelphia and the prices of many similar textile products have been traced from at least 1797, in New

York. Consecutive prices for wool start somewhat later than the cotton or flax series. Grading by full-blood, three-fourths, one-half, etc., was effective when the Philadelphia series began in 1813. A similar grading prevailed in New York in 1815 and 1816 and in Boston in 1827 when the regular reporting of wool prices starts. Cincinnati prices for an unspecified grade of wool date from 1816 to the outbreak of the Civil War. Thus, the preliminary task of assembling prices of the leading textile fibers and some manufactured products has been done for several important markets for the years preceding the Civil War. Work is in process for more textile items which will fill the gap from 1861 to 1896.

Surely this record of price history is enough stimulus for some investigator to undertake the task of assembling both quantitative and qualitative data on the textile trade during these years as a basis for a thoroughgoing study of the role of textile prices in business cycles. This may seem a far cry from such issues as the influence on price behavior of the buying practices of large distributors but we must view the present scene in its perspective. In terms of long time price cycles, we seem to have been in a deflationary phase for perhaps two decades. Surely it would help the thinking of all observers of the current scene whether in public or private life, in business or academic work, if a longer perspective could be obtained.

HOW PRICES ARE MADE IN TYPICAL TEXTILE MARKETS

Although the study of the behavior of textile prices in relation to costs, capacity, or some other economic factor could give a much needed insight into the functioning of the textile industries, it could not be expected to reveal in their true proportion the price-determining forces in any particular market. It would probably show the relation of the economic factor to prices rather than how prices themselves behave. Certainly no general study of this character could adequately interpret the role management might play in

price determination. For that it would seem one could most fruitfully turn to the restricted but intensive study of selected markets.

WHAT MARKET STUDIES SHOULD TAKE INTO ACCOUNT

Much of the preceding discussion of the relation of prices to other economic factors is pertinent to the study of price behavior in particular markets, especially that dealing with prices and buying movements and prices and costs. In addition such points as the following should be considered.

1) Character of the product: its seasonal, cyclical, and secular demand; breadth of market, i. e., degree to which it is multi-purpose; nature of styling and operation where styled.

2) Elasticity of supply: extent to which machinery can be transferred into and out of the market; policy of shift operation; industry practice concerning goods in process and finished inventories: are goods made to stock, on order only, or are goods made and sold at the market almost regardless of price?

3) Extent of producer specialization by product and by market level. Degree of inertia among producers with respect to changes in product construction.

4) Degree of uniformity in the offerings of different producers. (This is not so much a question of knowing what mills produce the best or poorest qualities as the extent of variation vs. homogeneity of products.)

5) Number and relative size of sellers in the market—extent and character of price leadership.

6) Procedures by which sellers claim to arrive at selling prices; attention given to market information, probable action of competitors, statistical appraisal of market prospects, own costs, etc.

7) Number and relative size of buyers in the market; extent and character of their domination of the market; procedures by which they claim to arrive at prices they will pay.

MARKETS WARRANTING STUDY

It is hard to say that one textile market is more deserving of study than another. Much depends upon the contacts and resources of the investigator. A thorough analysis of how

prices are made in one particular market, even though the product itself is inconsequential in our economy, might tell us more about the working of the price system than a superficial analysis of a series of markets. On the assumption that these analyses might be made by individual investigators working with small resources, the following markets are suggested:

Men's Worsted Suitings. To a considerable extent this is a 'market within a market' since many houses sell both woolen and worsted fabrics, and manufacturers of men's suits commonly buy both, varying their proportions as style and price considerations dictate. Nevertheless, this continual competition between the two types of fabrics, as well as the domination of the 'worsted' end of the market by a few relatively large producers would justify emphasis upon worsted suitings. Furthermore, worsted fabric constructions are more easily identified for price study purposes than woolen.

Denim. From the standpoint of styling, denims are staple fabrics and to a considerable extent single purpose in use. Their market is dominated, relatively speaking, by both large buyers and sellers, chain stores and mail order houses wielding an important influence.

Auto Cloths. This market, together with woven wool felts, is suggested to represent the industrial field. Both specification and style play a part in this market. Many producers, some of whom make only pile fabrics while others make only flat goods, compete for the business of relatively few customers.

Woven Wool Felts. These fabrics are used almost entirely as accessory equipment in the manufacture of paper. There are not more than eleven producers. The product requires great technical skill in manufacture and must meet exacting specifications. It has no direct substitute.

Cotton Print Cloths. It is not easy to suggest a market at this level that would not severely tax the resources of one investigator working alone. The cotton print cloth market is by no means simple, but no other gray market is so wide-

spread in its influence, or better illustrative of the price behavior of a multi-purpose product.

Filament Rayon Yarn. In this market technology has much to do with price behavior, partly because it is still developing and therefore subject to improvements that materially lower costs, and partly because the nature of the process and the investment required tend to make for continuous operation.

Woolen Carpet Sales Yarn. In contrast to the rayon market, which producers dominate, the wool carpet yarn market approaches the other extreme—domination by few purchasers. Furthermore, in contrast to rayon filament, it represents a shrinking market, partly because purchasers of woolen yarn are now making some of their own requirements.

The list by no means exhausts the possibilities; in fact the number of markets that might be analyzed intensively is legion, especially if one defines them narrowly. It is therefore the intent here to mention merely a few that might be studied by one investigator as illustrative of the rich field for research on price determination in the textile industries.

IMPROVEMENT OF THE PRICE RECORD

The serious inadequacy of the record of textile prices from the standpoint of economic research has been pointed out over and over again in the preceding discussion. While some improvement of price data would naturally accrue as a result of any studies undertaken in the areas herein suggested, such efforts cannot be relied upon to give widespread improvement. There must be in addition continual effort by those concerned with the collection and use of textile price data to see that the record grows in usefulness from the standpoint of coverage, representativeness, and reliability.

A most encouraging recent development has been the co-operation of the United States Bureau of Labor Statistics with the Textile Statisticians Group in revising the price specifications for textile materials and products included in

its index of wholesale prices. While work of this sort is less price research and more statistical administration, both this kind of improvement and the usefulness of the resulting price statistics would be greatly enhanced by certain corollary research activities.

- 1) Study of prices quoted in trade journals and governmental reports to determine the extent they represent actual changes in the market
- 2) Measurement of quality and style changes in textile products over the last few decades as an aid to the study of price movements
- 3) Development of methods for taking account of changes in quality and style in both wholesale and retail indexes of textile prices

QUOTED PRICES

What is the relation of 'quoted' prices to prices actually paid for goods? Are the prices quoted merely 'ask' or 'bid' prices or do they represent sales? To what extent are they 'list' prices subject to modification by terms, advertising allowances, or other forms of discount? Questions of this sort are continually rising about most textile price series now available. Undoubtedly the compiling agencies, whether trade journals or governmental bureaus, have given considerable attention to these problems. But the necessities of day-to-day reporting or of statistical collection do not always allow the thoroughgoing analysis these questions merit if the true worth of various textile price series is to be established.

The collection of data on sales by certain trade associations during the NRA made possible some comparison between prices realized by mills and prices quoted in trade journals. In one instance, for example, the Cotton Textile Institute found that during 1933 the difference between prices based on actual sales and market quotations was not more than 4 per cent. It is hard to say, however, whether this relation is typical even of combed cotton yarn over a period of years, let alone of textile yarn price series gen-

erally. Further investigation is needed, series by series. Such study would not be justified, however, if it were directed merely to measuring the adequacy of present series in terms of realized prices. In addition as much, or possibly even more consideration, should be given to possible means of improving quoted price series in the future. That is, the investigator should assume responsibility for working out possible methods by which quotations might approximate prices at which goods actually change ownership.

MEASUREMENT OF QUALITY AND STYLE CHANGES

Changes in quality can be regarded as of two types: substitution of one yarn or cloth construction for another, and changes in the quality of a specific construction. As an example of the former there is the trend from 64x60 percales to 80x80 percales during the last 15 years. At the same time the quality of both 64x60 and 80x80 percales has been improved. Such improvements of quality in a specific construction are of at least three kinds: improvements in the cloth itself and in the types of colors used in decoration, and reduction of shrinkage. How are these elements to be measured?

Tensile Strength

In a specific construction of cloth, improvements consist essentially in greater uniformity of yarn whereby unevenness and corresponding weak spots are reduced. Measuring changes in tensile strength accordingly gives some measure of changes in the quality of a specific type of fabric. For fabrics subject to heavy wear, such as frequent laundering, results from a rubbing test should also be used, since tensile strength is of itself not an infallible guide to actual wearing quality. The tensile strength of constructions made 10 or 15 years ago can undoubtedly be compared with similar constructions today for a fairly wide range of fabrics. The old Cotton Research Company and the commercial testing companies, as well as individual mills, should have records for what was average strength then and what is

average tensile strength today on given constructions. The United States Bureau of Agricultural Economics, for example, has made studies of tensile strength of sheets and of other cotton fabrics.

Improved color fastness

Fast colors have been adopted throughout the entire range of women's wear fabrics within the last fifteen years. Today, in both plain shades and prints fast colors predominate in women's cotton fabrics except in the 60x48 percales sold by a few low-end converters. Details of the stages of this transfer and the costs of producing fast colors today as compared with commercial colors 15 years ago could undoubtedly be worked out in conjunction with the technical research staff of organizations like the DuPont Company. It is believed that a measure of the increased consumer value arising from the use of fast colors can be determined from the increased expenditure by manufacturers for fast colors as compared with commercial colors. This is a cost-of-production measure and overlooks the increase in subjective consumer utility. A similar measure of increased consumer value may be determined for pre-shrunk goods. Improved quality resulting from the Sanforizing process applies so far to only certain types of goods, but for these types, the percentage of goods so processed can be determined and a measure arrived at. The same can be said for other patented processes such as Trubenizing and anti-crease.

Style changes

Changes in style form another necessary modification of price series if prices are to show changes in comparable items. There are essentially two aspects to this question: style in fabrics and in garments. They represent rather different things, since the finished product in styling cloth is the same thing quantitatively one time as another, whereas in styling a garment, especially women's apparel, the final product may represent something quantitatively different

one time than another—more yards of cloth, more labor, or more trimming.

For styling cloth, it is believed that it should be possible to arrive at estimates for the amount spent today by given divisions of the industry as compared with 15 years ago. In the mill field the cost of styling can be worked out by co-operation with the leading brokers, selling houses, mills, etc. Such figures will again represent not intangible consumer value but the actual cost of producing style effects in comparable cloths. It is assumed that novelty weaves, that is, goods 'styled in the loom', carry an extra charge comparable to the extra cost of weaving them. Similarly, changes in the styling of printed designs and plain shades might be approximated through changes in production costs. Thus it is believed that the total styling bill for each textile industry is susceptible of estimate, at least in comparison with 15 years ago. When obtained it could then be related back to appropriate price series. Changes in styling garments and household articles present problems to which at present no solution is seen in terms of measurable quantities.

TECHNIQUES FOR TAKING ACCOUNT OF QUALITY AND STYLE CHANGES IN PRICE INDEXES

Once the trend of quality and style changes is measured, there is still the question of how price indexes are to be adjusted for such changes. It may be argued, of course, that no adjustment should be made; that users of textile price indexes should be provided with a record of quality and style changes, and left to make such allowance for those changes as they see fit. Though this might make for a wider appreciation of the role played by quality and style in textile price behavior, it does seem that it would unnecessarily increase the opportunity for confusion and misunderstanding among persons using such generally accepted indexes as those compiled by the United States Bureau of Labor Statistics. The techniques to use is a problem to challenge the ablest student of index numbers. It enters every stage

of textile pricing, retail as well as wholesale. Can nothing more satisfactory be devised than the use of chain index numbers? One of the great needs of those undertaking price research in the textile industries today is for a comprehensive index of retail prices comparable to that now compiled for wholesale prices by the Bureau of Labor Statistics.

APPENDIX I

Textile Price Series
Compiled by the
Wholesale Price Division
Bureau of Labor Statistics

THE Bureau of Labor Statistics has been collecting wholesale prices for an expanding list of commodity items since 1890. This work has been carried on by the Wholesale Price Division of the Bureau which both collects the data and calculates index numbers of prices. At present prices are being collected and published for 813 individual items of which 130 are textiles. In addition to these series, the Bureau collects prices on certain additional items but, owing to lack of funds, does not publish them. The information is, however, available from records in the Bureau's files.

The textile price series used by the Bureau in computing its wholesale price index have recently been made the subject of joint review by representatives of the Bureau and the Textile Statisticians Group. It was desired to ensure adequate coverage of the industry and representativeness of the series for the markets from which they are drawn. It was found that some price series should be changed and that some series should be added. The general principle involved in this review was that all important textile markets should be represented in the index. The recommended list of markets and specific products from each market on which it was suggested prices be collected is given in the text above.

A further recommendation called for the regrouping of tex-

tile price series according to the flow-of-goods concept described above in this report. The present grouping throws the textile fibers partly into agricultural products and partly into a group of textile products. Additional textile series occur in the House Furnishings Group. The Textile Product group is based upon industries: Cotton Goods, Silk and Rayon, Woolens and Worsteds, Clothing, etc. This grouping, which puts yarns, gray cloth, and finished goods into a single group, was felt to be illogical because it throws together products whose price movements are fundamentally different in timing and amplitude. A much better arrangement for the significant study of prices would be to group textiles according to the flow of goods, with five textile sub-indexes: (1) textile fiber prices, (2) yarn prices, (3) gray goods prices, (4) finished goods prices, (5) fabricated product prices.

A further aim of revision was to bring about a high degree of comparability between the Bureau's wholesale and retail price indexes, so that studies of the effects of price movements on one level could be carried through to retail distribution. Comparability of this sort involves problems of setting up specifications that will apply to related products on the various levels. Efforts to develop specifications of this kind are now being made, and while the problems presented are unusually difficult, it is believed that persistent efforts along these lines will make it possible to work out specifications over an increasing part of the field that can be used in this way.

Since May 1922 the Bureau has issued a monthly pamphlet 'Wholesale Prices' containing current prices for all items in the series of weighted index numbers. Prior to July 1935 each monthly publication included prices for the current, the preceding, and the corresponding month of the preceding year. Since July 1935 the December and June issues have contained prices for the six-month period ending with the respective month. Data for the current month are issued in mimeographed form.

In the table below are listed the price series compiled by the Wholesale Price Division of the Bureau. The available price data for these series have been published in the following Bulletins of the Bureau: Numbers 27, 39, 45, 51, 57, 63, 69, 75, 81, 87, 93, 99, 114, 149, 181, 200, 226, 269, 296, 320, 335, 367, 390, 415, 440, 473, 493, 521, 543, and 572.

In the table, items carrying whole numbers, such as 231, are used in this series of weighted index numbers.

Items carrying whole numbers with a code, A, B, etc., such as 231A, which indicates the Bureau's group of price series, represent individual series which are combined to give composites having the full number (as 231).

Items carrying notations, such as A1-U, are supplementary, unweighted series; the first part of the designation indicates the sub-group and number, as, in this case, cloth material item number 1.

The letter 'R' used as the last letter of designation indicates that the item is one of a revised series under consideration for inclusion in the weighted index numbers, as C9-R, which is item 9 under sub-group C.

All items include the specification 'for delivery within the United States', unless otherwise stated.

I TEXTILE FIBERS

A COTTON

Per lb., baled, no quantity specified; market price; weekly, Tuesday, from trade journal (except as otherwise indicated)

- 24 Upland, middling. F.o.b. Galveston. Series begins 1913.
- 25 Middling. F.o.b. New Orleans. Series begins 1913.
- 26 Upland, middling. F.o.b. New York. Series begins 1890.
- C1-U Upland, middling. F.o.b. Charleston, South Carolina. Series begins 1934.
- C2-U Upland, middling. F.o.b. Houston. Series begins 1934.
- C3-U Middling. F.o.b. shipping point; market price (average of 10 markets, Savannah, Norfolk, Augusta, Montgomery, New Orleans, Memphis, Little Rock, Dallas, Houston, Galveston); weekly, Tuesday, from Department of Agriculture. Series begins August 1915.

B RAYON STAPLE FIBER

Per lb., no quantity specified, f.o.b. plant, minimum freight allowed to destination; producer to spinners; transaction price; weekly, Tuesday, from trade organization

- D1-R Acetate, 5 denier. Series begins April 1936.
- D2-R Viscose, 1½ denier. Series begins 1928.

C RAW SILK

Per lb., no quantity specified, f.o.b. New York; market price; weekly, Tuesday, from trade journal (except as otherwise indicated)

- E1-U Japan, 13/15, white, 83%, grand. Series begins 1936.
 E2-U Japan, 13/15, white, 85%, special grand. Series begins 1936.
 E2a-R Japan, 13/15, white, 87%, superior grand. Series begins 1937.
 E3-U Japan, 13/15, white, 73%, double extra. Series begins 1936.
 E4-U Japan, 13/15, white, 81%, special crack. Series begins 1936.
 E5-U Japan, 20/22, white, 83%, grand. Series begins 1936.
 E5a-U Japan, 20/22, white, 81%, special crack. Series begins 1936.
 E6-U Japan, 20/22, white, 85%, special grand. Series begins February 1936.
 E7-U Japan, 20/22, yellow, 83%, grand. Series begins 1936.
 E8-U Japan, 20/22, yellow, 85%, special grand. Series begins February 1936.
 299 China, Canton, 14/16, white, double extra A, crack. Series begins 1913.
 E9-U China, 13/15, white, 85%. Series begins March 1937; no quotations September 1937 to February 1939.
 E10-U China, steam filature, 20/22, white, 85%. Series begins 1936; no quotations September 1937 to November 1938.
 E11-U China, steam filature, 20/22, white, 83%. Weekly, Tuesday, from importers. Series begins 1936.
 E12-U Shanghai, steam filature, 20/22, white, 83%. Weekly Thursday, from market report. Series begins July 1936.
 300 Japan, 20/22, white, 81%, special crack. Series begins 1926; change in series 1936.
 301 Japan, 13/15, white, 78%, double extra crack. Series begins 1890; changes in series 1916 and 1936; prior to 1916, Italian, classical, New York.
 E13-U Japan, 13/15, white, 78%. Series begins October 1928.
 302 Japan, 20/22, yellow, 81%, special crack. Series begins 1926.
 E13a-U Italian, 20/22, yellow, 83%. Series begins July 1936.

D RAW WOOL

Per lb., no quantity specified, f.o.b. Boston; market price (average of high and low)

- F10-U Carpet, Aleppo (Syrian), in bond, clean basis. Weekly, Tuesday, from trade journal. Series begins 1926; prior to 1937, washed.
 F11-U Carpet, Cordoba or Criolla (Argentine), in bond, clean basis. Weekly, Tuesday, from trade journal. Series begins 1926.
 F12-U Carpet, Scotch black-face (Scotland), in bond, grease basis. Weekly, Tuesday, from trade journal. Series begins 1926.

- 59 Ohio, fine clothing, unwashed, combing. Distributor to jobber; weekly, Tuesday, from distributor. Series begins 1890; prior to 1917, X and XX grades, scoured; 1917-23, fine clothing, scoured; 1913-17, unwashed; 1938, combing added.
- 60 Ohio, fine delaine, unwashed, combing. Distributor to jobber; weekly, Tuesday, from distributor. Series begins 1913; prior to 1917, territory, staple, F and FM, unwashed; 1938, combing added.
- C14-U Ohio, fine delaine, greasy, class 1. Weekly, Tuesday, from trade journal. Series begins 1913.
- 61 Ohio, $\frac{1}{2}$ blood, unwashed, combing. Distributor to jobber; weekly, Tuesday, from distributor. Series begins 1913; prior to 1917, territory, combing, $\frac{1}{2}$ blood, unwashed; 1938, combing added.
- C15-U Ohio, fleece, $\frac{1}{2}$ blood, greasy, combing, class 10. Weekly, Tuesday, from trade journal. Series begins 1913.
- 62 Ohio, $\frac{1}{4}$ and $\frac{3}{8}$ grades, unwashed, medium grade, combing. Distributor to jobber; weekly, Tuesday, from distributor. Series begins 1890; 1938, combing added.
- C16-U Ohio, fleece, $\frac{1}{4}$ blood, greasy, combing, class 15. Weekly, Tuesday, from trade journal. Series begins 1913.
- C17-U Ohio, fleece, greasy, $\frac{3}{8}$ blood, combing, class 13. Weekly, Tuesday, from trade journal. Series begins 1913.
- 63 Staple, fine and fine medium, scoured, territory, class 1. Weekly, Tuesday, from trade journal. Series begins 1913; 1938, class 1.
- 64 Staple, $\frac{1}{2}$ blood, scoured, territory, good to choice, class 10. Weekly, Tuesday, from trade journal. Series begins 1913; 1936, good to choice; 1937, class 10.
- 65 Argentine crossbreds, IV's, grease basis, in bond. Weekly, Saturday, from trade journal. Series begins 1913; 1936, in bond.
- 66 Foreign, Australian (Geelong), 56s, scoured basis, super combing. Weekly, Saturday, from trade journal. Series begins 1913.
- 67 Montevideo, II's, 50s, grease basis, in bond. Weekly, Saturday, from trade journal. Series begins 1913; 1936, in bond.

E CORDAGE FIBERS

Per lb., f.o.b. New York

- G2-U Abaca (Manila hemp), Davao 'T'. Transaction price subject to current cash discount; weekly, Tuesday, from importer. Series begins 1926.
- 328 Abaca, Manila 'T', fair, current shipment. Market price (average of high and low); weekly, Friday, from trade journal. Series begins 1913.
- 329 Jute, raw, native firsts, actuals. Car lots; transaction price; weekly, Tuesday, from importer. Series begins 1890.
- 335 Sisal, Mexican, current shipment, c.i.f. New Orleans. Market price; weekly, Thursday, from trade journal. Series begins 1913.

II PROCESSED FIBERS

COTTON LINTERS

Per lb., car lots, f.o.b. mill; Southwestern Valley and Western area; transaction price; weekly, Saturday, from U. S. Department of Agriculture (B.A.E.)

- B26-U No. 2, U. S. standard grade, not compressed. Series begins 1936.
 B27-U No. 6, U. S. standard grade, not compressed. Series begins 1936.

III YARN

A COTTON YARN

Per lb., no quantity specified, f.o.b. mill; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer

- 281 Carded, 10s, cones, white, mulespun, Northern. Series begins 1890.
 282 Carded, 22s, cones, white, mulespun, Northern. Series begins 1890.
 B28-U Combed, peeler, knitting, cones, 30s, Northern. Series begins 1926.
 284 Carded, weaving, 20s, 2 ply, twisted, cones. Series begins 1913; change in series 1918, Southern.
 285 Carded, weaving, 40s, 2 ply, twisted, cones. Series begins 1913; change in series 1918, 50s, 2 ply, Eastern peeler, combed, cones.

Per lb., no quantity specified, f.o.b. Philadelphia; market price; weekly, Tuesday, from trade journal

- B29-U Carded, knitting, 10s, cones, ordinary quality. Series begins October 1928.
 B30-U Carded, knitting, 22s, cones, ordinary quality. Series begins October, 1928.
 B31-U Carded, 20s, skeins, cones, or tubes, warp, Southern 2 ply. Series begins October 1928.
 B32-U Carded, 30s, skeins, cones, or tubes, warp, Southern 2 ply. Series begins October 1928.

Per lb., no quantity specified, f.o.b. mill; market price (average of high and low); weekly, Saturday, from trade journal

- 283 Carded, 40s, skeins, Southern. Series begins 1913; change in series 1933.

B RAYON YARN

1 *Filament Yarn*

Per lb., no quantity specified, f.o.b. plant, minimum freight allowed to destination; manufacturer to knitters and weavers; transaction price; weekly, Tuesday, from trade organization (except as otherwise indicated)

- D3-U 75 denier, 30 filament, bright, 1st quality, viscose. Series begins February 1929.
- D4-U 100 denier, 40 filament, bright, 1st quality, viscose. Series begins 1927.
- 295 150 denier, 20-40 filament, 1st quality, viscose. Weekly, Tuesday, from trade journal. Series begins 1913.
- 296 150 denier, 20-40 filament, 2d quality, viscose. Weekly, Tuesday, from trade journal. Series begins 1913.
- 297 300 denier, 44 filament, 1st quality, viscose. Weekly, Tuesday, from trade journal. Series begins 1913.
- 298 300 denier, 2d quality, viscose. Series begins 1913.
- D5-R 100 denier, acetate, skeins, 1st quality, minimum filament. Series begins 1926.
- D6-R 150 denier, acetate, skeins, 1st quality, minimum filament. Series begins 1926.
- D7-R 100 denier, viscose, skeins, 1st quality, minimum filament, bleached. Series begins October 1920; prior to 1921, not bleached.
- D8-R 150 denier, viscose, skeins, 1st quality, minimum filament, bleached. Series begins December 1911; prior to 1921, not bleached.
- D9-R 150 denier, viscose, skeins, 2d quality, minimum filament, bleached. Series begins October 1919; prior to 1921, not bleached; formerly delivered New York.
- D10-R 300 denier, viscose, skeins, 1st quality, minimum filament, bleached. Series begins October 1919; prior to 1921, not bleached.
- D11-R 300 denier, viscose, skeins, 2d quality, minimum filament, bleached. Series begins October 1919; prior to 1921, not bleached.

2 *Spun Rayon Yarn*

Per lb., cones, tubes, or skeins, under 5,000 lb., delivered; manufacturer to weaving trade (North Atlantic area); transaction price subject to current cash discount; weekly, Tuesday, from manufacturer

- D12-R 12s, 2 ply, cotton system, domestic viscose staple, 1½" staple, 1½ denier. Series begins April 1938.
- D13-R 20s, 2 ply, cotton system, domestic viscose staple, 1½" staple, 1½ denier. Series begins April 1938.
- D14-R 24s, cotton system, domestic viscose staple, 1½" staple, 1½ denier. Series begins October 1938.

Per lb., cones, no quantity specified (except as otherwise indicated) f.o.b. mill less freight to destination; manufacturer to knitters and weavers; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer

- D15-R 20s, 2 ply, cotton system, 1½" staple, 1½ denier. Series begins May 1935.
- D16-R 20s, 2 ply, cotton system, 1½" staple, 1½ denier. 3,000 lb. and over. Series begins February 1937.
- D17-R 248, 1 ply, cotton system, 1½" staple, 1½ denier. Series begins May 1935.
- D18-R 24s, 1 ply, cotton system, 1½" staple, 1½ denier. 3,000 lb. and over. Series begins February 1937.

C SILK YARN

1 Spun Silk

Per lb., no quantity specified, f.o.b. mill; manufacturer to knitters and weavers; market price subject to current cash discount; weekly, Tuesday, from trade organization

- 303 Domestic, gray spun, 62s, 1 ply, No. 1. Series begins 1913; prior to 1930, 60s; changes in series 1932 and 1937.
- 304 Domestic, gray spun, 60s, 2 ply, No. 1. Series begins 1913; changes in series 1932 and 1937.
- 305 Imported, gray spun, 200s, 2 ply, No. 1. Series begins 1913; change in series 1932; no quotations after June 1937.

2 Thrown Silk

Per lb., no quantity specified; f.o.b. mill; thrower to knitters and weavers; transaction price subject to current cash discount; weekly, Tuesday, from thrower (except as otherwise indicated)

- E16-U Crepe, 2 thread, on bobbins, 60-65 turns per inch, 20/22 denier, Japan white, 81%. Series begins 1938.
- E16a-R Crepe, 2 thread, on bobbins, 60-65 turns per inch, 20/22 denier, Japan white, 83%. Series begins 1938.
- 306 Crepe, 3 thread, on bobbins, 60-65 turns per inch, 13/15 denier, Japan white, 81%. Series begins 1926; change in series 1931.
- E17-U Crepe, 3 thread, on bobbins, 81%. Series begins 1938.
- E18-U Organzine, 2 thread, in skeins, 16-14 turns per inch, 13/15 denier, Japan white, 81%. Series begins 1938.
- E19-U Organzine, 2 thread, in skeins, 16-14 turns per inch, 13/15 denier, 85%. Series begins 1938.
- E20-U Organzine, 2 or 3 thread, in skeins, 13/15 denier, 85%. Series begins 1938.

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- 307 Organzine, 3 thread, in skeins, 16-14 turns per inch, 13/15 denier. Japan white, 85%. Series begins 1926.
- E21-U Tram, 3 thread, in skeins, 5 turns per inch, 13/15 denier, 78%. Series begins 1938.
- E22-U Hosiery tram, 3 thread, 20 turns per inch, 87%. Weekly, Friday, from trade journal. Series begins December 1937.
- E23-U Hosiery tram, full-fashioned, on cones, 4 thread, 15 turns per inch, 13/15 denier, Japan white, 85%. Series begins 1938.
- E24-U Hosiery tram, 4 thread, 15 turns per inch, 87%. Weekly, Friday, from trade journal. Series begins 1938.
- E25-U Hosiery tram, full-fashioned, on cones, 4 thread, 15 turns per inch, 13/15 denier. Japan white, 87%. Series begins 1938.
- 308 Hosiery tram, 5 thread, 85%. Weekly, Friday, from trade journal. Series begins 1926; prior to 1931, 3 thread, Japan, hosiery tram.
- E26-U Hosiery tram, full-fashioned, on cones, 6 thread, 5 turns per inch, 13/15 denier, Japan white, 78%. Series begins 1938.
- E27-U Hosiery tram, full-fashioned, on cones, 6 thread, 5 turns per inch, 13/15 denier, Japan white, 81%. Series begins 1938.
- E28-U Hosiery tram, full-fashioned, on cones, 7 thread, 5 turns per inch, 13/15 denier, Japan white, 78%. Series begins 1938.
- E29-U Hosiery tram, full-fashioned, on cones, 7 thread, 5 turns per inch, 13/15 denier, Japan white, 81%. Series begins 1938.

D WORSTED YARN

Per lb., no quantity specified, f.o.b. mill; spinner to knitters

- 324 2/32s, cross-bred, white, skeins. List price subject to current trade discount; weekly, Tuesday, from manufacturer. Series begins 1890; prior to 1907, 2/40s, XXX and XXXX.
- 325 2/40s, 1/2 blood (60s), Bradford, weaving. Market price (average of high and low); weekly, Saturday, from trade journal. Series begins 1890; monthly average 1913 on; prior to 1916, 2/40s Australian fine.
- 326 2/50s, fine domestic (64s), Bradford, weaving. Market price (average of high and low); weekly, Saturday, from trade journal. Series begins 1913.
- F13-U 2/30s, fine, worsted, in the color. Transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1936.

E CORDAGE, TWINE, AND THREAD

1 Rope

Per lb., no quantity specified; manufacturer to jobber (except as otherwise indicated)

- 332 Cotton, commercial, 5/16", 2d grade, 35 lb. tubes or coils. F.o.b. mill, freight allowed up to \$1 per cwt; transaction price subject

- to current cash discount; weekly, Tuesday, from manufacturer, Series begins 1926.
- 333 Manila, No. 1, $\frac{3}{4}$ ". F.o.b. New York; list price subject to current cash and trade discounts; weekly, Tuesday, from trade organization. Series begins 1926.
- G7-U Manila, No. 1, $\frac{3}{4}$ " and larger. F.o.b. New York; list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1913.
- G8-U Manila, 1st grade, $\frac{3}{4}$ " and larger. F.o.b. New York; jobber to retailer; transaction price; weekly, Tuesday, from trade journal. Series begins 1890; prior to 1926, $\frac{5}{8}$ " and larger.
- G9-U Manila, No. 1, $\frac{3}{4}$ " and larger. F.o.b. mill; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- G10-U Manila, No. 1, $\frac{3}{4}$ " and larger. F.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1913; no quotations January through May and September through December 1915; prior to August 12, 1918, $\frac{5}{8}$ " and larger.
- G11-U Manila, No. 1, $\frac{3}{4}$ " and larger, 45 thread. F.o.b. mill; seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1926.
- G12-U Manila, No. 1, $\frac{3}{4}$ " and larger. F.o.b. New York; list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins September 1918.
- G13-U Sisal, No. 1, Java, $\frac{3}{4}$ " diameter. F.o.b. New York; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1934.
- G14-U Sisal, No. 1, $\frac{3}{4}$ " and larger. F.o.b. mill; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- G15-U Sisal, No. 1, $\frac{3}{4}$ " and larger, 45 thread. F.o.b. mill; seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1926.
- 334 Sisal, No. 2, Mexican, $\frac{3}{4}$ ". F.o.b. New York; list price subject to current cash and trade discounts; weekly, Tuesday, from trade organization. Series begins 1926.
- G16-U Sisal, No. 2, $\frac{3}{4}$ ", 45 thread. F.o.b. mill; seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1926.

Thread

No quantity specified; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer

- 336 Cotton, 6 cord, white, tickets 40, 50, or 60, 150 yd. spool. Per 100 yd., packaged, f.o.b. mill; manufacturer to jobber. Series begins 1890; January 1, 1926, 100 yd. spool; February 6, 1933, 125 yd. spool; June 11, 1934, 150 yd. spool; August 1, 1935, 200 yd. spool.

- 337 Linen shoe, 10s. Per lb., packaged, f.o.b. New York. Series begins 1890.

3 Twine

Per bale (except as otherwise indicated), one or more bales, f.o.b. mill; manufacturer to retailer; transaction price subject to current cash discount; weekly Tuesday, from manufacturer

- 338 Twine, binder, standard, 50 lb. bale. Series begins 1913.
 G17-U Twine, binder, standard, 50 lb. bale. Series begins 1928.
 G18-U Twine, binder, 50 lb. bale. Per lb. Series begins 1928.

Per lb.; manufacturer to jobber

- 339 Twine, cotton, wrapping, No. 1, 8s, yarn about $\frac{7}{8}$ " staple, white, balanced twist. No quantity specified, f.o.b. mill; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
 340 Twine, hard fiber, No. 1, Java sisal, medium, twisted. Reels, 500 lb. or more, f.o.b. New York; list price subject to current cash and trade discounts; weekly, Tuesday, from trade organization. Series begins 1926.
 G19-U Twine, hard fiber, wrapping, No. 1, Java. No quantity specified, f.o.b. mill; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.

4 Jute Yarn

Per lb., no quantity specified, f.o.b. mill; from manufacturer; transaction price; weekly, Tuesday, from manufacturer

- 341 Carpet, No. 1, 14-16. Series begins 1926.
 342 Carpet, No. 2, 14-16. Series begins 1926.

IV GRAY GOODS

A COTTON WOVEN GOODS

Per yd., bolt, no quantity specified, f.o.b. mill

- 254 Drill, gray, 30" 72x60 2.50 yd. Mill to jobber and converter; transaction price; weekly, Tuesday, from manufacturer. Series begins 1929; prior to 1935, 76x58.
 255 Drill, gray, 30" 72x48 2.50 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1890; prior to January 1936, 2.85 yd.

- B7-U Drill, gray, 30" 72x48 2.50 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1935.
- B8-U Drill, gray, 37" 2.35 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1935.
- B9-U Drill, gray, 37" 2.75 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1935.
- 256 Duck, army, 28½" 54x40 8 oz. Market price subject to current trade discount, weekly, Tuesday, from trade journal. Series begins 1913.
- 257 Duck, wide, No. 8, 36" 46x28 .8888 yd. Manufacturer to jobber; market price; weekly, Tuesday, from trade journal. Series begins 1913; change in series 1918.
- B10-U Duck, sail, No. 4, gray, 22". Market price subject to current trade discount; weekly, Tuesday, from trade journal. Series begins 1922.
- 259 Flannel, cotton, not bleached, 33" 66x42 8 oz., 62x40 1.91 yd. Manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1890; 1890-1920 3½ yd; 1920-23 3.80 yd; 1923 36" 3.20 yd; 1927 33" 8 oz.
- 265 Osnaburg, 30" 40x30 7 oz., part waste. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1926.
- B13-U Osnaburg, 40" 32x28 7 oz., part waste. Market price (average of high and low); weekly, Wednesday, from trade journal. Series begins 1926.
- 267 Print cloth, 27" 64x60 7.60 yd. From manufacturer; market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1890; 1890-1913, 28" 64x64 7 yd.
- 268 Print cloth, 38½" 64x60 5.35 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1925.
- B17-U Print cloth, 38½" 64x60 5.35 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1913.
- 272 Sheeting, brown, series 1, 45, 4 ply; 36" 48x48 2.85 yd. Manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1890.
- 273 Sheeting, brown, series 2, 36" 64x68 3.50 yd. Market price (average of high and low); weekly, Tuesday, from trade journal. Series begins 1890; prior to 1937, 64x64 3.72 yd.
- 274 Sheeting, brown, series 3, 36" 56x60 4.00 yd. Manufacturer to jobber, transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1890; changes in series 1901, 1907, and 1910.
- Per lb., no quantity specified, f.o.b. mill; market price (average of high and low); weekly, Tuesday, from trade journal)*
- B22-U Tire-cord fabric, carded, Egyptian. Series begins 1926; changed from uppers to cord March 1938.

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- 278 Tire-cord fabric, carded, peeler, 23/4/3. Series begins 1926.
 279 Tire fabric, chafing, carded, American, 60" 23x23 14 oz., 10/4.
 Series begins 1926; prior to 1937, builders, carded, peeler, 10/5.

B JUTE FABRICS

Per yd., no quantity specified, ex-dock, New York; market price; weekly, Tuesday, from trade journal

- 327 Burlap, 40" 10½ oz. Series begins 1913.
 G1-U Burlap, 40" 8 oz. Series begins 1919.

V FINISHED GOODS

A CONVERTED COTTON FABRICS

Per yd., bolt, no quantity specified, f.o.b. mill; manufacturer to jobber or cutter; transaction price (except as otherwise indicated) subject to current cash discount (also subject to trade discounts)

- B1-U Broadcloth, combed (all Pima cotton), bleached, mercerized, white, gray construction 37" 152x80, finished 35-36". Weekly, Tuesday, from manufacturer. Series begins 1935.
 251 Broadcloth, combed, bleached, mercerized, white, gray construction 37" 128x68 4-4.20 yd., finished 36" approximately 5.00 yd. Weekly, Tuesday, from manufacturer. Series begins 1926; no quotations January 1927 through December 1929.
 258 Flannel, cotton, bleached, white, gray construction 41-43" 40x44, finished 36" 46x42-44 4.50 yd. Weekly, Tuesday, from sales agency. Series begins 1926.
 261 Muslin, bleached, series 1, gray construction 40" 80x92 3.50 yd., finished 36" 4-42 yd. Weekly, Tuesday, from manufacturer. Series begins 1890.
 262 Muslin, bleached, series 2, gray construction 39" 80x80 4.00 yd., finished 36" 88x76 4.50 yd. Weekly, Tuesday, from sales agency. Series begins 1890; change in series 1910.
 263 Muslin, bleached, series 3, gray construction 39" 84-86x76-74 4.00 yd., finished 36" 80x80. Weekly, Tuesday, from manufacturer. Series begins 1890; change in series 1909.
 264 Muslin, bleached, series 4, nainsook, gray construction 40" 96x100 7.00 yd., combed lawn, finished 36", not mercerized. Weekly, Tuesday, from manufacturer. Series begins 1890; change in series 1922.
 B12-U Muslin, bleached, finished construction 36" 76x70 4.87 yd. Weekly, Tuesday, from manufacturer's agent. Series begins 1924.
 266 Percalé, printed, gray construction 38½" 64x60 5.35 yd., finished 35-36". Weekly, Tuesday, from manufacturer. Series begins 1913.
 B14-U Percalé, printed, gray construction 39" 80x80 4.00 yd., finished 35-36". Weekly, Tuesday, from manufacturer. Series begins 1933.

- B15-U Percalé, printed (formerly listed as calico), gray construction 27" 64x60 7.60 yd., finished 24-25". Weekly, Tuesday, from manufacturer. Series begins 1890; 1890-1906, Cocheco prints.
- B16-U Percalé, printed, gray construction 39" 80x80 4.00 yd., finished 35-36". Same as B14-U but from another source. Series begins 1935; no quotations February through December 1935.
- 269 Sateen, filling, dyed, any color, gray construction 37½" 64x104 4.37 yd., finished 36". Weekly, Tuesday, from manufacturer. Series begins 1926; prior to 1936, black.
- B18-U Sateen, filling, dyed, black, gray construction 37½" 64x104 4.37 yd., finished 36". Weekly, Tuesday, from manufacturer. Series begins 1926; no quotations 1927 and 1928.
- B19-U Sateen, filling, dyed, black, gray construction 37½" 64x88 4.70 yd., finished 36". Weekly, Tuesday, from manufacturer. Series begins 1926; no quotations 1927 and 1928.
- 270 Sheeting, wide, bleached, series 1, gray construction 99" 64x64 1.38 yd., finished 90" 1.49 yd. Seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1890.
- 271 Sheeting, wide, bleached, series 2, gray construction 99" 68x72, finished 90", approximately 75x68. Seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1926.
- B20-U Sheeting, wide, bleached, finished 90". Seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1890; 1913-23, S. T.; 1923-39 P. L.
- B21-U Sheeting, wide, bleached, gray construction 97" 68x76, finished 90" 1.22 yd. Seller's list price subject to current cash and trade discounts; weekly, Tuesday, from manufacturer. Series begins 1928.
- 276 Shirting, printed percalé, gray construction 39" 68x72 4.75 yd., finished 35-36". Weekly, Tuesday, from manufacturer. Series begins 1926.

B FINISHED FABRICS SOLD BY WEAVING OR KNITTING MILLS

1 Cotton Woven Goods

Per yd., bolt, no quantity specified (except as otherwise indicated), f.o.b. mill; manufacturer to jobber or cutter; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer or sales agent

- B2-U Chambray, blue, carded, yarn dyed, gray construction 37½" 68x46 3.70 yd., finished 36" 71x44 3.90 yd., not mercerized. Series begins 1933.
- B3-U Chambray, blue, combed, yarn dyed, gray construction 38" 88x76 4.80 yd., finished 35-36" 92x80 5.60 yd., bleached, mercerized. Series begins June 1934.

- B4-U Chambray, blue, combed, yarn dyed, gray construction 38" 96x100 5.30 yd., finished 35-36" 100x104 6.10 yd., bleached, mercerized. Series begins May 1933.
- B5-U Chambray, combed, yarn dyed, gray construction 38" 132x120 5.46 yd., finished 35-36" 140x124 6.20 yd., bleached, mercerized. Series begins May 1933.
- 252 Damask, Table, cotton, mercerized, 58" 66x56 1.92 yd. Series begins 1926.
- B6-U Damask, Table, cotton, mercerized, 58". Series begins October 1930.
- 253 Denim, blue, white backed, 28", not sanforized. Series begins 1890; 1915-38, carded yarn, colored, not mercerized, yarn dyed, gray construction, 28" 70x44.
- 260 Gingham, carded, gray construction 34-35" 64-65x52, finished 32", not bleached or mercerized. 600 yd. Series begins 1890; 1890-1926, Lancaster, staple, 26½" 6.50 yd.; 1926, 32" 64x56 5.60 yd.
- B11-U Gingham, 25-26" 62x48 7.40 yd. Series begins November 1933.
- 275 Shirting, Madras, combed, gray construction 38" 120x114 5.39 yd., finished 35-36". Series begins 1926; changes in series 1932 and 1935.
- 277 Ticking, 32" 2 yd. Series begins 1890; change in series 1935.
- 280 Toweling, cotton, carded, gray construction 20" 29x31 4 oz., finished 18", not colored. Case lots (60-25 yd. pieces). Series begins 1926.
- B23-U Toweling, cotton, 16" 46x34 5.50 yd., standard patterns. Case lots. Series begins 1936.
- B24-U Toweling, cotton, 16" 5.78 yd., twill crash. Case lots (2,000 yd.). Series begins 1926.
- B25-U Trousering, all cotton, 36" 7½ oz. Series begins 1937.

2 Woolen and Worsted Goods

Per yd., bolt, no quantity specified, f.o.b. mill; manufacturer to jobber or cutter; transaction price subject to current cash discount (except as otherwise indicated); weekly, Tuesday, from manufacturer

- 309 Dress goods, women's, broadcloth, 54-56" 9¼ oz., worsted and wool. Series begins 1890; prior to 1914, cashmere, cotton warp; 1914-1918, 53-54" 10½ oz.
- 310 Dress goods, women's, crepe, all worsted, 54" 5.2 oz. Series begins 1923; prior to 1930, flannel, 12 oz.
- 311 Dress goods, women's, flannel, all wool, 54" 6 oz. Series begins 1890; prior to 1907, Franklin sackings, 54"; 1907-13, Panama cloth, 54"; 1913-30, storm serge, all wool, double warp 50"; 1930, flannel, 54".
- 312 Dress goods, women's, suiting, worsted, standard mixture, ¾ blood; 56" 12 oz. serge. Series begins 1926.

- 313 Dress goods, women's, serge, French, all wool, 54" 7 oz. Series begins 1890; prior to 1907, cashmere, 10-11 twill, 38"; 1907-14, cashmere, 8-9 twill, all wool; 1914, French serge, all wool; 1926, 39"; 1930, 54".
- F1-U Dress goods, women's, serge, cotton warp, worsted filled, 54" 7-7.5 oz. Series begins 1930.
- F2-U Dress goods, women's, serge, cotton warp, worsted filled, fancy plaid and plain serge, 36". Series begins 1926.
- 314 Dress goods, women's, Sicilian cloth, cream, cotton warp, 54" 6.2 oz. Series begins 1890; prior to 1904, alpaca, 22"; 1904-07, Danish cloth, worsted filling, 22"; 1907, Sicilian cloth, colored; 1926, 54"; 1931, cream.
- 315 Dress goods, women's, flannel, all wool, 54" 7 oz. Series begins 1913; prior to October 1930, 6½ oz.
- 316 Overcoating, heavy, Melton, 56-58" 28 oz. Series begins 1897; prior to 1911, Kersey, 27-28 oz; 1911, soft faced, black, plain twill, 24 oz; 1921, Waterloo, 30-31 oz; 1929, 30 oz; 1932, Melton, 28 oz.
- F3-U Overcoating, heavy, Melton, piece dyed, 60" 30-32 oz. Series begins October 1932.
- F5-U Topcoating, hair and wool blend, 17-18 oz. Series begins 1934.
- F5a-U Topcoating, all virgin foreign wool, knitted, finished 55" 17 oz. Contract price. Series begins 1938.
- 318 Suiting, serge, 56-58" 15 oz. Series begins 1892; prior to May 1, 1933, 11 oz. serge; change in series 1909.
- 319 Suiting, serge, 58" 16 oz. Series begins 1926.
- 320 Uniform Serge, fine grade, 56-58" 12 oz. Series begins 1926.
- 321 Uniform Serge, medium grade, 56-58" 12 oz. Series begins 1926.
- 323 Trousering, cotton warp, worsted filled (20% wool), 36" 8½ oz. worsted face, French back, blue serge. Series begins 1926.
- F9-U Trousering, cotton warp, wool filled, 57-58" 12 oz. (50% cotton, 50% wool). Series begins October 1934.
- F6-U Uniform Serge, Australian, 12 oz. Series begins October 1921; no quotations July 1925 to 1929; prior to 1929, Wamskuck, warp, 56" 12 oz.; 1921-24, Wamskuck serge, warp, ends 2/41, full blood, 56" 12 oz., filling 64 picks, 2/42, full blood.
- F7-U Uniform Serge, 13 oz. Series begins 1927; prior to 1937, 12 oz.
- 322 Uniform Serge, unfinished, worsted, 13 oz. Series begins 1923.
- F8-U Uniform Serge, wool dyed, blue, 55-56", 16 oz. Series begins 1890; prior to 1912, 14 oz.

3 Knit Cloth

Per yd., bolt, no quantity specified, f.o.b. mill; manufacturer to jobber or cutter; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer

- F-4U Overcoating, heavy, all wool, knitted, 56" 32 oz. Series begins 1936.

- 317 Topcoating, men's, knitted, hair cloth, 56" 18 oz. Series begins 1923; 1923, 16 oz. covert cloth; 1930, 17½-18 oz.; changes in series 1928 and 1934.

C COMPOSITION FABRICS

Per yd., no quantity specified (except as otherwise indicated), f.o.b. mill; manufacturer to jobber; transaction price subject to current cash discount (except as otherwise indicated); weekly, Tuesday, from manufacturer

- G4-U Leather, artificial, heavy, 50", napped back. Series begins 1926.
 G5-U Leather, artificial, light, pyroxylin coated, 50" drill back. Series begins 1926.
 G6-U Leather, artificial, light, 54", drill back. Series begins 1926; prior to 1938 50".
 331 Leather, artificial, light, pyroxylin coated, 36", finished weight 7 oz. per linear yd., base fabric 40" 3.60 yd. sheeting. Minimum quantity 500 yd.; also subject to trade discount. Series begins 1926.
 G3-U Leather, artificial, pyroxylin coated, 50", heavy napped back. Series begins 1926.
 330 Leather, artificial, heavy, pyroxylin coated, 50", finished weight 17.5 oz. per linear yd., base fabric, 52" 1.32 yd., warp sateen. Minimum quantity 250 yd.; also subject to trade discount. Series begins 1926.

VI FABRICATED TEXTILE PRODUCTS

A CLOTHING

- A1-U Bathing suits, men's, all worsted, one piece. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price (average of high and low for complete line) subject to current cash discount; monthly, from manufacturer. Series begins 1936.
 A2-U Bathing suits, men's, trunks. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price (average of high and low for complete line) subject to current cash discount; monthly, from manufacturer. Series begins 1936.
 A3-U Bathing suits, women's, worsted, one piece. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price (average of high and low for complete line) subject to current cash discount; monthly, from manufacturer. Series begins 1936.
 A4-U Bathrobes, men's, all wool flannel. Per bathrobe, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins July 1933; changes in series May 1938 and April 1939.

- A5-U Caps, boys', cotton material, cotton lining. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1933.
- A6-U Caps, boys', all wool mixture, rayon lining. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A7-U Caps, men's, cotton material, cotton lining. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1933.
- A8-U Caps, men's, all wool mixture, rayon lining. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 231 Collars, soft (composite). Per doz., delivered; manufacturer to dealer; transaction price, average of 2 quotations; weekly, Tuesday, from manufacturer. Series begins 1926; change in series 1937.
- 231-A Collars, starched. Per doz., packaged, no quantity specified, delivered; manufacturer to dealer, New York, San Francisco, and Chicago areas; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; prior to 1937, soft.
- 231-B Collars, soft. Per doz., packaged, no quantity specified, delivered; manufacturer to dealer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A9-U Collars, men's, soft, webbing and twill, fine weave. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A10-U Collars, men's, soft, webbing and twill, light weave. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A11-U Collars, men's, semi-stiff. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A12-U Collars, flexible. Per doz., packaged, no quantity specified, delivered; manufacturer to dealer, New York, Chicago, and San Francisco areas; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1937.
- 232 Collars, stiff. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.

TEXTILE PRICE SERIES

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- A13-U Garters, children's, 2 year, elastic top, non-elastic bottom. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A14-U Garters, men's. Per doz., packaged, no quantity specified, f.o.b. factory, delivered New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1934.
- A15-U Garters, men's, satin pad, single grip, rayon-silk web. Per gross, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A16-U Garters, men's, satin pad, single grip, wide web. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 233 Handkerchiefs, cotton, men's, white, cut 18", 64x60, print cloth. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations January 1927 through December 1929.
- 234 Handkerchiefs, cotton, women's, white, cut 12", 64x60. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations January 1927 through December 1929.
- 235 Handkerchiefs, linen, men's, white, cut 18". Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations January 1927 through December 1929.
- 236 Handkerchiefs, linen, women's, white, cut 12". Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations January 1927 through December 1929.
- 237 Hats, men's, finished, fur felt, unlined. Per doz., no quantity specified, f.o.b. factory; from manufacturer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations after April 1937.
- 238 Hats, men's, unfinished, fur felt, 3 $\frac{7}{8}$ oz., rabbit coney, various sizes and colors, silk band trimming, sheep skin leather, no silk or satin lining. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations July to December 1935 or any month thereafter except January 1936.
- 239 Overalls, 2.20 white back denim, with apron, 47 yd. per doz. on 34-42 waist size. Per doz., 5 doz. or more, delivered; manufac-

- turer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A17-U Overalls, 2.20 unshrunk blue denim, with apron and bib. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926; prior to 1937, with bib and jacket overall.
- A18-U Overalls, blue denim, extra full cut, 8 pockets, faced fly, all seams turned. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1931; prior to 1935, 2.20, with bib.
- A19-U Overalls, 2.20 white back denim, waist band, 36½ yd. per doz. on 28-42 waist size. Per overall, 60 or more, freight prepaid; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A20-U Overcoats, boys', 4-10 years, all wool, 30-32 oz., wool plaid lining. Per overcoat, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A21-U Overcoats, boys', junior, wool mixture, 28-30 oz., lined. Per overcoat, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 240 Overcoats, men's, heavy weight, 30 oz., 3 button, double-breasted, yoke lined, regular O. S. patches. Per overcoat, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations 1935.
- A22-U Overcoats, men's, 30 oz., double- or single-breasted, Melton, oxford gray, full acetate lining. Per overcoat, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926; change in series May 1936 from 32 oz. blue.
- A23-U Overcoats, men's, 31-32 oz., double-breasted, Melton. Per overcoat, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A24-U Overcoats, men's, 32 oz., double-breasted, wool and alpaca knitted hair cloth. Per overcoat, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A25-U Overcoats, youths', 13-18 years, all wool, 30-32 oz., wool plaid lining. Per overcoat, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926; no quotations 1932.
- A26-U Overcoats, youths', students', 32 oz., all wool, lined. Per overcoat, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.

- A27-U Shirts, boys', blouse, 4-10 years, button-on. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; change in series 1934.
- A28-U Shirts, boys', blouse, 6-14 years, broadcloth. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 241 Shirts, men's, dress, 136x60 combed white broadcloth, 6 buttons, sanforized soft collar. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; change in series 1937.
- A29-U Shirts, men's, dress, 100x60 printed broadcloth or 80 square percale, fast colors, fused collar. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A30-U Shirts, men's, dress, 128x68 white broadcloth, neckband or collar. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A31-U Shirts, men's, dress, 136x60 white broadcloth, with or without collar, combed yarn; full shrunk, cellophane wrapped. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; change in series 1932; prior to 1932, 128x68.
- A32-U Shirts, men's, dress, 144x76, 2x2 white broadcloth, with or without collar, combed yarn, shrunk, cellophane wrapped. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A33-U Shirts, men's, dress, madras, fine woven. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 242 Shirts, men's, work, medium weight, blue chambray, without pocket flaps, 3.85 yd., 31 yd. per doz. on sizes 14-17. Per doz., packaged, 60 or more, delivered; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A34-U Shirts, men's, work, heavy weight, blue chambray, flaps on pockets, 3 yd., 31½ yd. per doz. on sizes 14-17. Per shirt, bundled, 60 or more, f.o.b. factory, freight prepaid; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1933; prior to December 15, 1938, made of 29" material, 3.85 yd.

- A35-U Shirts, men's, work, blue chambray, 3.20-3.25 yd. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A36-U Shirts, men's, work, 3.80 yd., coarse yarn, chambray. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A37-U Shirts, men's, work, 3.90 yd., fine yarn, chambray, fullest standard make. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A38-U Shirts, men's, work, blue chambray, 4 yd. Per doz., no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A39-U Suits, boys', 3 piece (coat and 2 pair golf trousers), 6-15 years, wool, rayon lined. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins June 1935.
- 243 Suits, boys', 4 piece (coat, vest, 1 pair long and 1 pair golf trousers), all wool, 12-14 oz. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 244 Suits, men's, 3 piece, blue serge, 13 oz., 3-button coat, notch lapel, half-lined with rayon and celanese. Per suit, no quantity specified, f.o.b. Chicago; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A40-U Suits, men's, 3 piece, blue, 13 oz., unfinished worsted. Per suit, no quantity specified, f.o.b. Chicago; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A41-U Suits, men's, 3 piece, blue serge, 14 oz., zipper fly. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins July 1930; no quotations January through June 1931; changes in series January 1932 and January 1934.
- A42-U Suits, men's, 3 piece, unfinished worsted, 14 oz. Per suit, no quantity specified, f.o.b. Chicago; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; change in series June 1935; prior to 1934, 15 oz.
- A43-U Suits, men's, 3 piece, double-breasted, blue serge, 14, 15, or 16 oz., plain model. Per suit, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A44-U Suits, men's, 3 piece, blue serge, 15 oz. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction

- price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 245 Suits, men's, 4 piece, blue serge, 15 oz. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A45-U Suits, men's, 4 piece, pure worsted, gray clay and other staples of same value. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A46-U Suits, men's, 4 piece, blue serge, 13 oz., 3-button coat, notch lapel, half lined with rayon and celanese. Per suit, no quantity specified, f.o.b. Chicago; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A47-U Suits, men's, 4 piece, unfinished worsted, 14 oz. Per suit, no quantity specified, f.o.b. Chicago; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; 1933, 13 oz.; January 1, 1933, 15 oz.; 1934, 14 oz.
- A48-U Suits, men's, 4 piece, blue serge, 15 oz., hand tailored, sizes 34-42. Per suit, no quantity specified, f.o.b. New York; manufacturer to dealer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1936.
- 246 Suits, youths', 4 piece, blue cheviot, 12-14 oz., machine tailored, size 30-38. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926; change in series 1932 and 1935.
- A49-U Suits, youths', 4 piece (2 pants), blue cheviot, 13 oz. Per suit, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935; prior to June 2, 1936, 13½ oz.
- A50-U Suits, youths', 4 piece (2 pants), blue cheviot, 13½ oz. Per suit, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- A51-U Suits, youths', 4 piece (2 pants), standard woolen fabric, fancy suiting, 13½ oz. Per suit, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- A52-U Suits, youths', 4 piece (2 pants), 14-20 years; wool, rayon lining. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A53-U Suits, youths', students, 4 piece (2 pants), all wool, 12-14 oz. Per suit, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.

- A54-U Suspenders, men's. Per doz., packaged, no quantity specified, f.o.b. factory, delivered metropolitan area of New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1934.
- A55-U Suspenders, men's, $\frac{7}{8}$ ", English style, rayon web. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- A56-U Suspenders, men's, plain weave. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A57-U Sweaters, children's, 3-6 years, all worsted, coat or slip-over. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- A58-U Sweaters, men's, all worsted, slip-on. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price (average of high and low for complete line) subject to current cash discount; monthly, from manufacturer. Series begins 1936.
- A59-U Sweaters, men's, all wool, slip-on or button. Per sweater, packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A60-U Sweaters, men's, wool, pull-over. Per sweater, packaged, no quantity specified, f.o.b. distributing points; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A61-U Sweaters, misses', slip-on, blue, Zephyr, all wool, yarn dyed, sizes 12-20. Per sweater, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1937.
- A62-U Sweaters, women's, all worsted, slip-on. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price (average of high and low for complete line) subject to current cash discount; monthly, from manufacturer. Series begins 1936.
- 247 Topcoats, men's, 18 oz., 3-button, single-breasted, yoke lined, regular O.S. patches. Per topcoat, no quantity specified, f.o.b. Chicago; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A63-U Trousers, boys', knee, cashmere, mixture wool and cotton, mixed colors. Per doz., no quantity specified, f.o.b. New York; manufacturer to chain store and jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins June 1933.

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- 248 Trousers, boys', knee, all wool cashmere. Per doz., no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A64-U Trousers, men's, dress, cotton, silk mixture, French back, 14 oz. Per pair, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 249 Trousers, men's, dress, serge, 12½ oz. Per pair, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A65-U Trousers, men's, work, 8 oz. cottonade, napped back, plain or striped. Per doz., 6 doz. units, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins July 1937.
- A66-U Trousers, men's, work, 2.50 drill, vat dyed. Per doz., 6 doz. units, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins July 1937.
- 250 Trousers, men's, work, khaki, heavy weight, 8 oz. Per doz., packaged, 6 doz. units, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; changes in series 1931 and 1936.
- A67-U Trousers, men's, work, khaki, gray material 30" 2.85 yd. per lb., finished approximately 28" 36 yd. per doz. on 28-42 waist size. Per pair, 60 or more, f.o.b. factory, freight prepaid; manufacturer to retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- A68-U Trousers, men's, work, cotton and woolen mixture. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer and jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1931.
- A69-U Trousers, men's, work, wool serge. Per doz., no quantity specified, f.o.b. factory; manufacturer to retailer and jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1931.
- A70-U Uniform, maids', cotton. Per doz., no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price (average of high and low) subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A71-U Uniforms, men's, white duck, coat and trousers. Per doz., no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- A72-U Uniforms, nurses', cotton broadcloth. Per doz., no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price

subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.

B HOSIERY AND UNDERWEAR

- 286 Hosiery, men's, cotton, 176 needle, cotton random, 16 oz. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber and retail chain store; seller's list price; weekly, Tuesday, from manufacturer. Series begins 1890; 1890-1903, 2 thread; 1903-07, single thread; 1906-17, half hose, seamless, black, 160 needle, 20-22 oz.; 1917, 188 needle, 17 oz.; 1930, 164 needle, 16 oz.; 1935, present series.
- C1-U Hosiery, men's, cotton, 176 needle, all cotton, carded yarn, sewed toes, 11¾ oz. per doz. pairs. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1933.
- C2-U Hosiery, men's, cotton, work, 84 needle. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1926.
- C3-U Hosiery, women's, cotton, mercerized, 240 needle, double sole, seamless, 60s, 2 ply mercerized yarn, 8½-10, current shades. Per doz. pairs, packaged, no quantity specified, 15, 30, or 60 doz. cases, f.o.b. factory; manufacturer to jobber and chain store; transaction price; weekly, Tuesday, from manufacturer. Series begins 1938.
- 287 Hosiery, women's, cotton, mercerized, 200 needle, seamless, 50s, 2 ply yarn in leg, 30s, 2 ply yarn in heel and toe, 80s C. P., double sole and high spliced heel, 8½-10, all colors. Per doz. pairs, packaged, 15 doz. minimum, f.o.b. factory; manufacturer to jobber; list price; weekly, Tuesday, from manufacturer. Series begins 1893; 1935, 220 needle; 1893-1919, 220 needle, 1 lb., 5 oz., mock seam, combed peeler yarn.
- 288 Hosiery, women's, rayon, full-fashioned, 39 gauge. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1924; prior to 1928, 220 needle, 19" boot of artificial silk, combed cotton top, heel and toe.
- 289 Hosiery, men's, silk, 240 needle, 12 thread, mercerized top, heel, toe, and instep, split sole construction. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1913; change in series 1931.
- C4-U Hosiery, women's, silk, 4 thread, full-fashioned, 39 gauge. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1937.
- C5-U Hosiery, women's, silk, 4 thread, full-fashioned, ringless, 42 gauge. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1933; change in series 1937.

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- C6-U** Hosiery, women's, silk, 4 thread, full-fashioned, ringless, high twist with triple carrier attachment, 42 gauge. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber and chain store; transaction price; weekly, Tuesday, from manufacturer. Series begins 1934.
- C7-U** Hosiery, women's, silk, 4 thread, full-fashioned, chiffon, plaited foot, silk top, 42 gauge. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1929; 1932 to September 3, 1935, 45 gauge.
- 290** Hosiery, women's, silk, 7 thread, full-fashioned, tram silk, 13-15 denier, pure dye, mercerized, lisle sole, toe, and heel, 26" boot, 4" hem, 39-42 gauge. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price; weekly, Tuesday, from manufacturer. Series begins 1913; prior to July 1938, 25" boot; prior to 1918, pure dye silk, full-fashioned, 10 thread, mercerized top, double sole, lisle foot, high spliced heel, Japan tram silk, 39 gauge.
- C8-U** Underwear, men's, cotton, drawers and shirts, flat fleece, 12 lb. weight. Per doz., packaged, one case or more, f.o.b. factory; manufacturer to jobber, except Southern area; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1913; 1913-22, 12½-13 lb. per doz.; 1922-37, 12-12½ lb. per doz.; 1937 on, 12 lb. per doz.
- 291-3** Underwear, men's, cotton, shirts, knitted athletic, pull-over, combed yarn, average weight finished 2 lb. per doz. (composite). Per doz., packaged, f.o.b. factory; manufacturer to retailer or jobber; seller's list price or transaction price (average of 3 quotations); weekly, Tuesday, from manufacturer. Series begins 1930; changes in series 1934 and 1938.
- 291-3-A** Underwear, men's, cotton, shirts, knitted athletic, pull-over, combed yarn, with collarette, size 42, white, average weight finished 2 lb. per doz. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to jobber and large retailer; seller's list price, subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 291-3-B** Underwear, men's, cotton, shirt, knitted athletic, pull-over, combed yarn, size 42, white, average weight finished 2 lb. per doz. Per doz., packaged, 6 doz. or more, f.o.b. factory; manufacturer to jobber; seller's list price; weekly, Tuesday, from manufacturer. Series begins 1930.
- 291-3-C** Underwear, men's, cotton, shirt, knitted athletic, pull-over, combed yarn, size 42, white, average weight finished 2 lb. per doz. Per doz., packaged, 6-24 doz., f.o.b. factory; manufacturer to jobber; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1930; changes in series 1934 and 1938.
- 291-4** Underwear, men's, cotton, shorts, woven, carded 100x60 broadcloth, various patterns and styles (composite). Per doz., packaged;

- manufacturer to jobber; seller's list or transaction price (average of 4 quotations); weekly, Tuesday, from manufacturer. Series begins 1933.
- 291-4-A Underwear, men's, cotton, shorts, woven, cut and sewn, carded 100x60 broadcloth, sizes 28-44, fast colors, covered elastic on sides, pearl buttons (snap fasteners 10c extra). Per doz., packaged, minimum 24 doz., delivered; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1928.
- 291-4-B Underwear, men's, cotton, shorts, woven, cut and sewn, carded 100x60 broadcloth, sizes 28-44, fancy prints, Shirred sides, balloon seat. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to jobber, east and midwest areas; list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 291-4-C Underwear, men's, cotton, shorts, woven, cut and sewn, carded 100x60 broadcloth, size 34, fancy patterns. Per doz., packaged, 6-24 doz., f.o.b. factory; manufacturer to jobber; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1930.
- 291-4-D Underwear, men's, cotton, shorts, woven, cut and sewn, carded 80x60 broadcloth, size 34, striped. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1933.
- C10-R Underwear, men's, cotton, shorts, woven, cut and sewn, carded 80x60 broadcloth, sizes 28-42, white, solid, or stripes. Per doz., packaged, case of 36 doz., delivered; manufacturer to jobber; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1932; prior to July 1, 1938, sizes 28-44.
- C11-R Underwear, men's, cotton, shorts, woven, cut and sewn, carded 80x60 broadcloth, size 34, striped. Per doz., packaged, no quantity specified, f.o.b. factory; commission merchant to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1934.
- C12-R Underwear, men's, cotton, shorts, woven, cut and sewn, carded 80x60 broadcloth, size 34, striped. Per doz., packaged, no quantity specified, f.o.b. factory; commission merchant to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- C9-R Underwear, men's, cotton, shorts, woven, cut and sewn, carded 60x48 percale, size 34, striped. Per doz., packaged, no quantity specified, f.o.b. factory; commission merchant to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1934.
- 291-5 Underwear, boys', cotton, union suits, knit, ribbed, long sleeves, ankle length (composite). Per doz., packaged, f.o.b. factory; manufacturer to jobber; seller's list price (average of 2 quota-

- tions) subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1930.
- 291-5-A Underwear, boys', cotton, union suits, 10 lb., ribbed, long sleeves, ankle length, carded, 15/16" strict middling western cotton, good quality trimmings, size 34, ecru. Per doz., packaged, 6 doz. or more, f.o.b. factory; manufacturer to jobber; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 291-5-B Underwear, boys', cotton, union suits, 10 lb., ribbed, long sleeves, ankle length, carded yarn, average grade, strict middling, size 34, gray random. Per doz., packaged, 6-2½ doz., f.o.b. factory; manufacturer to jobber, except southern area; seller's list price; weekly, Tuesday, from manufacturer. Series begins 1930.
- 291-6 Underwear, men's, cotton, union suits, knit, 14-lb., ribbed, carded yarn (composite). Per doz., packaged, f.o.b. factory; manufacturer to jobber; seller's list price (average of 2 quotations) subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1930.
- 291-6-A Underwear, men's, cotton, union suits, 14 lb., ribbed, long sleeves, ankle length, carded, 15/16" strict middling western cotton, grade quality trimmings, size 42, ecru. Per doz., packaged, 6 doz. or more, f.o.b. factory; manufacturer to jobber; seller's list price; weekly, Tuesday, from manufacturer. Series begins 1926.
- 291-6-B Underwear, men's, cotton, union suits, 14 lb., ribbed, carded yarn, long sleeves, ankle length, size 42, white. Per doz., packaged, 6-12 doz., f.o.b. factory; manufacturer to jobber, except southern area; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1930.
- C17-U Underwear, men's, rayon, drawers, plain knit. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C18-U Underwear, men's, rayon, shirts, plain knit. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C19-U Underwear, men's, rayon, union suits, plain knit. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C20-U Underwear, men's, wool and wool mixed, shirts and drawers, 50% wool, 12 lb., to doz. Per doz. pairs, packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1918.
- C21-U Underwear, men's, wool and wool mixed, shirts and drawers, 60% wool, 40% cotton, full-fashioned, 21 gauge. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to

- retailer; transaction price; weekly, Tuesday, from manufacturer. Series begins 1890; 1890-1912, all wool, white; 1912-18, full-fashioned, natural color, 50% wool; 1918 on, 60% wool, 40% cotton.
- C22-U Underwear, men's, wool and wool mixed, union suits, spring needle ribbed, 15-16 lb. to doz., 50% wool. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1890; 1890-1902, shirts and drawers, Merino, white, 52% wool, 24 gauge; 1902-12, 60% wool; 1912-17, natural color, 40% wool, circular knit, light weight; 1917-18, 33 $\frac{1}{3}$ % wool; 1918, 33% worsted; 1930 on, 50% wool.
- C23-U Underwear, women's, cotton, corset, 14" wrap-around, brocade with knitted elastic, average boning front and back. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C24-U Underwear, women's, cotton, girdle, cotton brocade. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C25-U Underwear, women's, cotton, combination lace top, brocade body. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926; prior to 1937, rayon figured cotton cloth, piece dyed brocade, strength 65-75 lb. to sq. inch.
- C26-U Underwear, women's, cotton, combination, brocade, inner belt, improved material. Per doz., packaged, no quantity specified, f.o.b. warehouse; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins July 1934.
- C27-U Underwear, women's, cotton, union suits, 11 $\frac{1}{2}$ lb. per doz., ribbed, carded, regular size, ankle length, white. Per doz., packaged, 6-24 doz., f.o.b. factory; manufacturer to jobber, east of Rockies; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1913; changes in series 1922 and 1924.
- C28-U Underwear, women's, cotton, vests and pants, 7 $\frac{1}{2}$ lb. per doz., ribbed, carded, regular and extra sizes (average), ankle length pants, white. Per doz., packaged, 6-24 doz., f.o.b. factory; manufacturer to jobber, east of Rockies; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1930.
- 291-1 Underwear, women's, rayon, bloomers, circular knit, 150 or 100 denier (composite). Per doz., packaged; manufacturer to retailer or jobber; seller's list or transaction price (average of 4 quotations); weekly, Tuesday, from manufacturer. Series begins 1931.

- 291-1-A Underwear, women's, rayon, bloomers, circular knit, 1st grade, 150 denier, 60 filament, peach, medium size, weight approximately 2¾ lb. per doz. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; published price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 291-1-B Underwear, women's, rayon, bloomers, circular knit, 150 denier, tea rose, medium size, plain tailored, weight approximately 3¼ lb. per doz. Per doz., packaged, 1-25 doz., no limit, f.o.b. Chicago; manufacturer to retailer; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1931.
- 291-1-C Underwear, women's, rayon, bloomers, circular knit, 100 denier, pink, medium size. Per doz., packaged, ½ doz. minimum, no maximum, f.o.b. New York; manufacturer to retailer; seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1927.
- 291-1-D Underwear, women's, rayon, bloomers, circular knit, 150 denier, medium size, pastel colors, elastic top and bottom, weight approximately 2 lb., 6 oz. per doz. Per doz., packaged, no quantity specified, f.o.b. factory; manufacturer to jobber; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1931.
- C29-R Underwear, women's, rayon, bloomers, circular knit, 150 denier, size 6, peach or pink, narrow band front, elastic back. Per doz., packaged, 1 doz. minimum, no maximum, f.o.b. factory; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- C30-U Underwear, women's, rayon, bloomers, plain knit, cellophane wrapped. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C31-U Underwear, women's, rayon, nightgowns, plain knit rayon, lace trim. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins February 1935.
- C32-U Underwear, women's, rayon, nightgowns, made on glove silk machine. Per doz., packaged, lots of 4, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1933.
- C33-U Underwear, women's, rayon, step-ins, plain knit, cellophane wrapped. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C34-U Underwear, women's, rayon, step-ins, wide open leg pantie, size 6, pink. Per doz., packaged, half dozen lots, f.o.b. New York; manufacturer to retailer; transaction price subject to current

- cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C35-U Underwear, women's, rayon, union suits, plain knit. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C36-U Underwear, women's, rayon, vests, pink. Per doz., packaged, half dozen lots, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- C37-U Underwear, women's, rayon, vests, plain knit, cellophane wrapped. Per doz., packaged, no quantity specified, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1926.
- 291-2 Underwear, women's, silk, bloomers, warp knit, pure silk, 2-4 thread (composite). Per doz., packaged; manufacturer to retailer; seller's list or transaction price (average of 3 quotations); weekly, Tuesday, from manufacturer. Series begins 1933; change in series 1935.
- 291-2-A Underwear, women's, silk, bloomers, tricot warp knit, pure silk, 4 thread, pink, medium size, approximately 13 yd. per doz., finished at waist and knee by attaching $\frac{5}{8}$ " woven elastic. Per doz., packaged, $\frac{1}{4}$ doz. minimum, no maximum, f.o.b. New York; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1932; change in series 1935.
- 291-2-B Underwear, women's, silk, bloomers, warp knit, pure silk, 4 thread, sizes, 34-42, pink and peach. Per doz., packaged, no quantity specified, f.o.b. distributing points, delivered New York, Milwaukee, San Francisco, and Philadelphia; manufacturer to retailer; transaction price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1935.
- 291-2-C Underwear, women's, silk, bloomers, warp knit, pure silk, 4 thread, tricot, pink, approximately 12-14 yd. per doz. Per doz., packaged, $\frac{1}{2}$ doz. minimum, f.o.b. New York; manufacturer to retailer, seller's list price subject to current cash discount; weekly, Tuesday, from manufacturer. Series begins 1929; prior to July 1, 1936, 2 thread, all gum.

APPENDIX II

Textile Price Series
Compiled by the
Retail Price Division
Bureau of Labor Statistics

RETAIL prices for a selected list of textile products are collected by the Bureau of Labor Statistics quarterly for use in computing changes in the cost of living. All together retail prices collected by the Bureau on textiles include 100 articles of clothing and footwear for men and women and boys and girls; 14 articles of yard goods and textile furnishings; 18 furniture and floor covering items; and 112 other items including household equipment, rugs, toilet articles, and special services such as laundry, medical and dental services.

In the past it has been the practice of the Bureau, after tabulating and arranging reported prices, to file the schedules and tabulations in the Archives. In the autumn of 1934 all the retail price schedules and tabulations then in the Bureau were assembled and it was found that *all data* for prices collected by field representatives had been destroyed for years prior to 1926. Retail price data in the files of the Bureau accordingly cover only the years since 1926.

Since 1933 certain important changes and improvements have been made by the Bureau in its method of collecting retail prices. Whereas previously prices had been collected semi-annually, in June and December, this practice was changed so that prices are now obtained quarterly. Consultation with retail executives indicated that January, April, July, and October

would be satisfactory for this purpose and reports for July and October 1935 and January, April, and July 1936 were made on that cycle. The results obtained during these months proved to be in some ways unsatisfactory, and beginning with September 1936, a change was made to the cycle of December, March, June, and September with special arrangements for completing the December work in the stores well before December 15.

In March 1935 written specifications were introduced covering details of material and construction of items priced. This was part of a general improvement on the part of the Bureau toward more precise statistical procedure. As now drawn up, these written specifications represent distinct qualities of goods and serve to limit the range of quality upon which prices are quoted. They are not intended to establish quality standards.

The foundation of the specifications now in use by the Bureau was laid in the summer of 1933, when the Federal Inter-departmental Retail Price Committee, organized by the Central Statistical Board and consisting of representatives of several government agencies, developed a set of preliminary specifications for use as a basis of price collection. These specifications were first used when some members of the Committee and its staff collected prices for experimental purposes in the District of Columbia and the immediate vicinity. In November 1933 the specifications were first used officially to serve as a basis for prices collected for computing changes in the cost of living of federal employees in the District of Columbia. They were then revised on the basis of the knowledge gained through this use and were next used in a price project, financed by CWA funds, in the early part of 1934. This project covered four cities. The results were used to revise the specifications further.

In June 1934 the specifications developed up to that time were used in 15 cities scattered throughout the United States to make a test collection of prices from one or two selected retailers in each city. The work was done by the field representatives of the Bureau.

During January and February 1935 all the available data were correlated and additional specifications developed for commodities and services priced by the Bureau. The specifications written at this time were first used in the March 1935 price

collection. Since that time, pricing by specifications has been the policy of the Bureau in the collection of retail prices.

It should be noted that the retail price data collected by the Bureau are not published by commodities. Unlike the price records of the Wholesale Price Division, the published retail price records of the Bureau do not furnish basic data on individual commodities. Recently the Bureau has developed a retail commodity price series on a few men's and women's clothing items which were published in Bulletins 449 (August 1936), and 551 (March 1937). Owing to lack of funds, publication of retail price data in this form has not been extended over the entire textile list.

The cities in which retail prices are regularly collected by field representatives of the Retail Price Division are listed in Section A together with certain additional cities in which prices were collected in March 1935. It is the practice of the Bureau to take four price quotations for each item in each city. In New York City five quotations are obtained for each textile item.

In Section B are given the textile items for which retail prices are currently collected by the Bureau, together with those series for which prices have been obtained since 1926.

SECTION A

CITIES IN WHICH RETAIL PRICES ARE COLLECTED REGULARLY BY FIELD REPRESENTATIVES	ADDITIONAL CITIES INCLUDED IN THE BLS-FERA COLLEC- TION IN MARCH 1935
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New England

Boston	Bridgeport
Manchester ¹	Fall River
Portland, Maine	Providence

Middle Atlantic

Buffalo	Scranton
New York	Binghamton
Philadelphia	Newark
Pittsburgh	Rochester

East North Central

Chicago	Indianapolis
Cincinnati	Columbus
Cleveland	Milwaukee
Detroit	Peoria

¹ Regular collections begun in March 1935

West North Central

Kansas City	Omaha
Minneapolis	Sioux Falls
St. Louis	Wichita
Cedar Rapids	

South Atlantic

Atlanta	Savannah
Baltimore	Washington
Jacksonville	Clarksburg, W. Va.
Norfolk	Columbia, S. C.
Richmond	Winston-Salem, N. C.

East South Central

Birmingham	Louisville
Memphis	Knoxville
Mobile	

West South Central

Houston	El Paso
New Orleans	Little Rock
Dallas	Oklahoma City

Mountain

Denver	Salt Lake City
Albuquerque	Tucson
Butte	

Pacific

Los Angeles	San Francisco
Portland, Oregon	Seattle
Spokane	

SECTION B

Goods and Services for which the Bureau of Labor Statistics
obtains Quarterly Retail Prices

MEN'S AND BOYS' CLOTHING

Men's

YEAR-ROUND	
Hat, felt, medium quality	Undershirt, knit cotton, medium quality
Shirt, business, collar attached, cotton, medium quality	Shorts, woven cotton, medium quality
Shirt, business, collar attached, cotton, inexpensive quality	Socks, dress, cotton, medium quality
Pajamas, cotton, medium quality	Necktie, medium quality

TEXTILE PRICE SERIES

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- *Handkerchief, cotton, medium quality
- *Shirt, work, cotton, medium weight
- Overalls
- Trousers, work, cotton
- *Socks, work, cotton, medium quality
- *Gloves, work, cotton

SPRING

- *Topcoat, medium quality, light weight
- *Topcoat, inexpensive quality, light weight
- *Suit, medium quality, light weight
- *Suit, inexpensive quality, light weight

SUMMER

- Hat, straw
- *Suit, medium quality, light weight
- *Suit, inexpensive quality, light weight
- Suit, good quality, Palm Beach
- *Suit, inexpensive quality, cotton wash material

FALL

- *Topcoat, medium quality, light weight

YEAR-ROUND

- Suit, wool, medium quality, size 14 years
- Shirt, medium quality, size 14 years or 12½" neck
- Pajamas, medium quality, size 14 years
- Shorts, woven cotton, size 14 years
- Undershirt, knit cotton, size 14 years or 32" chest
- Neckties, rayon, medium quality

SUMMER

- Trousers, wash material, medium quality, size 14 years

FALL

- Trousers, wash material, medium quality, size 14 years

- *Topcoat, inexpensive quality, light weight
- Suit, medium quality, heavy weight
- Suit, inexpensive quality, heavy weight
- *Sweater, wool, pull-over style, medium quality
- *Sweater, wool, coat style, inexpensive quality

WINTER

- Overcoat, medium quality, heavy weight
- Overcoat, inexpensive quality, heavy weight
- *Topcoat, medium quality, light weight
- *Topcoat, inexpensive quality, light weight
- Suit, medium quality, heavy weight
- Suit, inexpensive quality, heavy weight
- *Jacket, wool
- *Sweater, wool, pull-over style, medium quality
- *Sweater, wool, coat style, inexpensive quality
- Unionsuit, knit cotton, heavy weight, medium quality

Boys'

- Trousers, wool, medium quality, size 14 years
- *Sweater, wool, pull-over style, medium quality, size 14 years
- Unionsuit, knit cotton, heavy, size 14 years or 32" chest

WINTER

- Jacket, wool, size 14 years
- Jacket, leatherette, medium quality, size 14 years
- *Sweater, wool, pull-over style, medium quality, size 14 years
- Trousers, wool, medium quality, size 14 years
- Unionsuit, knit cotton, heavy, size 14 years or 32" chest

WOMEN'S AND GIRLS' CLOTHING

Women's

YEAR-ROUND

- Slip, silk, medium quality, size 36
- Slip, woven rayon, good quality, size 36
- Nightgown, cotton, medium quality, size 16
- *Stepin or Pantie, knit rayon, medium quality, size 6
- Hose, silk, chiffon
- Hose, silk, semi-service
- Girdle, medium quality, regular size
- Foundation Garment, medium quality, regular size
- Brassiere, medium quality, size 36
- *Gloves, cotton fabric

SPRING

- Dress, silk medium quality, size 18 or 36
- Dress, silk, inexpensive quality, size 18 or 36
- Housedress, cotton sheers, medium quality, size 36
- Unionsuit, knit cotton, light weight, size 6
- *Hat, felt, light weight, inexpensive quality

SUMMER

- Dress, silk, medium quality, size 18 or 36
- Dress, silk, inexpensive quality, size 18 or 36
- *Dress, cotton sheers, medium quality, size 18 or 36
- Housedress, cotton sheers, medium quality, size 36
- Unionsuit, knit cotton, light weight, size 6
- *Hat, felt, light weight, inexpensive quality

FALL

- Coat, heavy weight, fur trimmed, medium, size 18 or 36
- Dress, wool, medium quality, size 18 or 36
- Dress, silk, medium quality, size 18 or 36
- Dress, silk, inexpensive quality, size 18 or 36
- Housedress, cotton prints, medium quality, size 36
- Robe, flannel, medium quality, medium size
- Bloomers, knit rayon, medium quality, size 6
- Unionsuit, knit cotton, medium weight, size 6
- *Hat, felt, heavy weight, inexpensive quality
- *Gloves, leather, dress, medium quality

WINTER

- Coat, heavy weight, fur trimmed, medium quality, size 18 or 36
- Dress, wool, medium quality, size 18 or 36
- Dress, silk, medium quality, size 18 or 36
- Dress, silk, inexpensive quality, size 18 or 36
- Housedress, cotton prints, medium quality, size 36
- Robe, flannel, medium quality, medium size
- Bloomers, knit rayon, medium quality, size 6
- Unionsuit, knit cotton, medium weight, size 6
- *Hat, felt, heavy weight, inexpensive quality
- *Gloves, leather, dress, medium quality

Girls'

YEAR-ROUND

- *Dress, cotton, medium quality, size 8 years
- Bloomer or Pantie, knit rayon, medium quality, size 8 years

SPRING

- Pajamas, cotton, light weight, size 8 years
- Unionsuit, knit cotton, light weight, size 8 years
- Socks, cotton, size 7½
- Anklets, cotton, size 7½

- *Sweater, wool, medium quality, size 8 years

SUMMER

- Pajamas, cotton, light weight, size 8 years
- Unionsuit, knit cotton, light weight, size 8 years
- Socks, cotton, size 7½
- Anklets, cotton, size 7½

FALL

- Pajamas, cotton, light weight, size 8 years
- Unionsuit, knit cotton, light weight, size 8 years
- Socks, cotton, size 7½
- Anklets, cotton, size 7½
- *Sweater, wool, medium quality, size 8 years

WINTER

- Coat, wool, medium quality, size 8 years
- *Dress, wool, medium quality, size 8 years
- Pajamas, cotton, heavy weight, size 8 years
- Unionsuit, knit cotton, heavy weight, size 8 years
- Socks, cotton, size 7½
- Anklets, cotton, size 7½

YARD GOODS

YEAR-ROUND

- *Rayon Crepe, medium quality, per yard
- Silk Crepe, inexpensive quality, per yard
- Silk crepe, medium quality, per yard
- Percale, 80x80, per yard
- Towel, cotton, terry
- Sheet, medium weight
- Pillowcase, medium weight
- Tablecloth, linen, medium quality

- *Table Oilcloth, per yard

SUMMER

- Voile, printed cotton, medium quality, per yard
- *Dimity, cotton, medium quality, per yard

WINTER

- Wool Dress Material, medium quality, per yard
- Blanket, wool, medium quality
- Blanket, cotton, good quality

FURNITURE

YEAR-ROUND

- Rug, wool, Axminster, medium quality, 9x12
- Rug, wool, Axminster, inexpensive quality, 9x12
- *Rug, felt base, good quality, 6x9

- *Felt Base Floor Covering, good quality, 8/4 per sq. yard
- Linoleum, inlaid, straight line, standard household gauge, 8/4 per sq. yard

*Items were added in March 1935. Prices on the other items are available back to 1926.

APPENDIX III

Textile Price Series
Compiled by the
Bureau of Agricultural Economics

The Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics, in addition to its primary function of estimating the size of crops grown and number of livestock raised by farmers, has served as the main price collecting agency of the Department of Agriculture. Prices collected have included both prices paid to farmers for their crops and livestock, and, since 1909, retail prices paid by farmers for goods and services used in family maintenance and in production. These retail prices are currently collected quarterly in March, June, September, and December.

The Bureau's retail price series include numerous textile items which are itemized below. Prices for individual series have not been published, although 'national' average prices for individual items have been computed in the compilation of the index for clothing. This index, as well as those for other groups priced, appears first in the form of a mimeographed release and subsequently in the monthly publications, *The Agricultural Situation and Crops and Markets*.

In addition to its regular published series the Bureau of Agricultural Economics has tabulated prices on textile items in Sears, Roebuck and Company catalogues for several years. The items for which prices have been collected are listed below.

The Division of Cotton Marketing has also computed indexes of margins on several basic cotton cloths since 1925-26.

**Retail Price Series collected by the Bureau of Agricultural
Economics for its Index of Retail Clothing Prices**

ITEM	DATA AVAILABLE FOR
<i>Men's Clothing</i>	
Suits	1912-21
Suits, wool, serge	1922
Trousers, extra, woolen fabric	1927
Overalls	1909
Jumpers	1909-21
Shirts, flannel	1909-21
Shirts, work	1927
Socks, cotton, work	1922
Gloves, cotton	1918-34
Gloves, canvas, knitted wrists	1934
B.V.D.'s	1927-28
Union suits	
Athletic	1928
Fleece lined	1927-28
Winter	1928-35
Heavy winter	1935
<i>Women's Clothing</i>	
Dresses, house	1927
Bloomers, rayon knit	1930
Hose, silk	1927-34
Hose, silk, service weight	1934
Slips, rayon	1934
<i>Yard Goods</i>	
Gingham, apron domestic	1922
Muslin	1909-22 and 1927
Calico	1909-22
Toweling, 16" extra quality, bleached cotton	1927

Items in Sears, Roebuck and Company Mail Order Catalogues
for which Prices have been compiled by the Bureau
of Agricultural Economics

ITEM	DATA AVAILABLE SINCE	FALL AND WINTER SPRING AND SUMMER
<i>Coarse Cotton Piece Goods</i>		
Indian Head (white and colored)	1926-27 ¹	FW
Same	1929	SS
Flannel, outing and Canton	1926-27 ²	FW
Same	1929 ³	SS
Denim, 2.45 and 2.20	1926-27 ⁴	FW
Same	1929	SS
Licking, 'Tried and True'	1926-27 ⁵	FW
Same	1929	SS
<i>Medium Cotton Piece Goods</i>		
Muslin, 'Needlecraft,' 80x80, 72x76, 64x60	1926-27 ⁶	FW
Same	1929 ⁷	SS
Percalé, 'Paradise,' 80x80	1926-27 ⁸	FW
Same	1929	SS
Gingham, 'Amoskeag Clan Loch'	1926-27 ⁹	FW
Same	1929 ¹⁰	SS
Birdseye, 'Angel'	1926-27 ¹¹	FW
Same	1929	SS
<i>Fine Cotton Piece Goods</i>		
Nainsook, 64x60 and 72x76	1926-27 ¹²	FW
Same	1929 ¹³	SS
Pongee, Soisette and Pongette	1926-27 ¹⁴	FW
Same	1929 ¹⁵	SS
<i>Cotton Sheets and Pillowcases</i>		
Sheets, 81x99 (3) ¹⁶	1926-27 ¹⁷	FW
Same	1929	SS

¹ Prices missing for 1927-28, 1929-30, 1931-32, and 1936-37.

² Outing and Canton prices missing for 1927-28; Canton prices missing for 1929-30 and 1931-32.

³ Canton prices not listed in spring and summer catalogues.

⁴ Prices missing for 1927-28, and of 2.45 denim for 1929-30 and 1931-32.

⁵ Prices missing for 1927-28.

⁶ Prices missing for 1927-28 and 1936-37; 80x80 and 72x76 prices missing for 1929-30 and 1931-32.

⁷ Price missing for 1936.

⁸ Prices missing for 1926-27, 1927-28, and 1931-32.

⁹ Prices missing for 1927-28, 1929-30, 1931-32, and 1936-37.

¹⁰ Prices missing for 1929, 1930, 1931, and 1936.

¹¹ Prices missing for 1927-28 and 1929-30.

¹² Prices of 64x60 missing for 1927-28 through 1931-32; 72x76 prices missing for 1927-28, 1929-30, and 1931-32.

¹³ Prices of 64x60 missing for 1929 through 1931; 72x76 price missing for 1936.

¹⁴ Prices missing for 1927-28, 1929-30, 1931-32, and mercerized Soisette price missing for 1936.

¹⁵ Mercerized Soisette price missing for 1936.

¹⁶ 'Lady Fair', 'Launderite', and 'Wonder Value'.

¹⁷ Prices missing for 1927-28, 1929-30, and 1931-32.

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ITEM	DATA AVAILABLE SINCE	FALL AND WINTER SPRING AND SUMMER
Pillowcases, 45x36 (3) ¹⁸	1926-27	FW
Same	1929 ¹⁹	SS
<i>Cotton or Part Cotton Blankets (5) ²⁰</i>		
70x80	1926-27	FW
Same	1929 ²²	SS
<i>Men's Work Clothing</i>		
Overalls (3) ²³	1926-27	FW
Same	1929	SS
Pants, Moleskin, cottonade, corduroy	1926-27	FW
Same	1929 ²⁶	SS
Shirts, 'Hercules' and 'Sturdy Oak'	1926-27	FW
Same	1929	SS
<i>Men's Cotton Clothing</i>		
Dress Shirts, 'Royal Ascot', 'Our Best'	1926-27	FW
Same	1929	SS
<i>Underwear</i>		
Pajama check union suits		
Balbriggan shirts and drawers, combed and carded	1926-27	FW
Fleece-lined union suits		

¹⁸ Prices of 'Lady Fair' and 'Launderite' missing for 1927-28, 1929-30, and 1931-32; 'Wonder Value' prices missing for 1926-27 through 1933-34.

¹⁹ 'Wonder Value' prices missing for 1929 through 1934.

²⁰ 'Nashua Coverwarm' 4 lb.; 'Nashua Durawarm' 4 lb.; 'Nashua Econowarm' 4 lb.; 'Nashua Econowarm' 1 lb.; 'Nashua Inalatex' 2 lb. 13 oz.

²¹ 'Coverwarm' prices missing for seasons 1927-28 through 1931-32, and 1936-37; 'Durawarm' prices missing 1927-28, 1929-30, 1931-32, 1932-33, and 1936-37; 'Econowarm' 4 lb. prices missing for 1927-28, 1929-30, 1930-31, 1931-32, and 1936-37; 'Econowarm' 1 lb. prices missing for 1927-28, 1929-30, 1930-31, 1931-32, and 1936-37; 'Inalatex' prices missing for 1927-28, 1929-30, 1931-32, and 1936-37.

²² 'Coverwarm' prices missing for 1929 through 1933, and 1936; 'Durawarm' prices missing for 1930, 1933, 1934, and 1936; 'Econowarm' 4 lb. prices missing for 1929, 1930, 1933, and 1936; 'Econowarm' 1 lb. prices missing for 1930, 1933, 1934, and 1936; 'Inalatex' prices missing for 1930, 1933, and 1934.

²³ 'Sturdy Oak', 'Pacemaker', and 'Hercules'.

²⁴ Prices of 'Sturdy Oak' missing for 1927-28, 1929-30, and 1931-32; 'Pacemaker' prices missing for 1927-28, 1929-30, 1930-31, 1931-32, 1932-33, 1933-34, and 1935-36; 'Hercules' prices missing for 1927-28, 1929-30, 1931-32.

²⁵ Prices missing for 1927-28, 1929-30, and 1931-32.

²⁶ Corduroy prices missing for 1933 through 1936.

²⁷ Prices missing for 1927-28, 1929-30, and 1931-32.

²⁸ Prices missing for 1927-28, 1929-30, and 1931-32.

²⁹ Prices of pajamas, fleece-lined union suits, and ribbed brushed union suits missing for 1927-28, 1929-30, and 1931-32; prices of Balbriggan shirts and drawers, combed and carded, missing for 1927-28.

ITEM	DATA AVAILABLE SINCE	FALL AND WINTER SPRING AND SUMMER
Pilgrim ribbed union suits	1928 ³⁰	SS
Pajama check union suits		
Balbriggan shirts and drawers, combed and carded		
Socks, 'Uncle Sam', black carded, mer- cerized, 2 ply	1926-27 ³¹	FW
Same	1928 ³²	SS
<i>Women's Cotton Clothing</i>		
Nightgowns, 'Fruit of the Loom'	1926-27 ³³	FW
Same	1929 ³⁴	SS
Union suits, 'Lady Pilgrim'	1926-27 ³⁵	FW
Same	1929	SS
Hose, combed, mercerized, 2 ply, medium and cheap	1926-27 ³⁶	FW
Same	1929	SS

³⁰ Prices of pajama check union suits missing for 1928 and 1936; prices of fleece-lined gray union suits and of ribbed brushed union suits not listed in spring and summer catalogues.

³¹ Prices of 'Uncle Sam' and black carded missing for 1927-28, 1929-30, and 1931-32; price of mercerized 2 ply missing for 1927-28.

³² Prices of 'Uncle Sam' and black carded missing for 1928.

³³ Prices missing for 1927-28, 1929-30, and 1931-32; 'Fruit of the Loom' price missing for 1936-37 only.

³⁴ Price missing for 1934.

³⁵ Prices missing for 1927-28, 1929-30, and 1931-32.

³⁶ Prices missing for 1927-28, 1929-30, and 1931-32.

Staple Cotton Cloth Construction for which Gray Goods
Manufacturers' Margin is computed

(data available 1925-26 to date)

Average for 17 constructions

Print Cloths, average for 6 constructions

38½" 44x40 8.20 yd.

38½" 60x48 6.25 yd.

38½" 64x60 5.35 yd.

39" 68x72 4.75 yd.

39" 72x76 4.25 yd.

39" 80x80 4.00 yd.

Sheetings, average for 3 constructions

36" 48x40 5.50 yd.

37" 48x48 4.00 yd.

40" 48x48 2.85 yd.

Twill, 39" 68x76 4.00 yd.

Drills, average for 4 constructions

30" 2.85 yd.

30" 3.25 yd.

37" 2.75 yd.

37" 3.95 yd.

Sateen, 37½" 64x104 4.37 yd.

Duck, average for 2 constructions

8 oz. S. F. Grade A

8 oz. Army

APPENDIX IV

Federal Trade Commission Data
on the
Textile Industry



FROM time to time the Federal Trade Commission conducts investigations of industries in the course of which a considerable body of economic data is collected. The Commission has made two studies involving the textile industry. In 1921 a report was submitted to the House of Representatives pursuant to a resolution (H.R. 451, 66th Cong., 2d Sess.) requesting the Commission "to inquire into the increase in the price of combed cotton yarns during the years 1914 to 1919, inclusive. . . ."

The report on combed cotton yarn (April 14, 1921) contains:

- a) averages on various cost items
- b) monthly average prices on upland short staple, upland long staple, sea island, and imported Egyptian cotton from August 1913 through December 1920
- c) monthly average prices on single-combed cones, 2-ply combed peeler skeins, and southern 2-ply warps, skeins, and cones from August 1913 through December 1920
- d) costs and prices of combed yarn manufacturers for combed peeler cotton yarns, by counts, 1914-19

On September 26, 1934, following the textile strike of that year, the Federal Trade Commission was directed by an executive order of the President to make an investigation of the textile

industry. Pursuant to the authority vested in the President under the National Industrial Recovery Act, this order directed that "in order to furnish a basis for determining whether wage increases based upon reduction of hours or otherwise can, under prevailing economic conditions be sustained, the Federal Trade Commission shall undertake an investigation of, and report on, labor costs, profits and investments of companies and establishments in the textile industry", etc.

On January 25, 1935, the President issued a supplemental direction for the continuance of these reports. Subsequently, on the recommendation of the Textile Cabinet Committee, the Commission continued the reports on its own authority, additional funds having been provided by Congress.

The following statement with respect to these reports was prepared at the request of this Committee by W. H. S. Stevens, Assistant Director, Bureau of Statistics, Interstate Commerce Commission; formerly Assistant Chief Economist, Federal Trade Commission:

"Following the original presidential order the Commission undertook conferences with the textile industries and accounting experts from those industries. As a result of these conferences there was formulated a report form consisting of three schedules, together with a limited amount of other data. These three main schedules called by six-month periods for (1) balance sheets, (2) expense, income and earned surplus, (3) raw material and inventory data. The general information asked for included (1) manufacturing processes performed on various raw materials, (2) mills included in the report with the principal products manufactured by each, (3) spindle and loom operating data, and (4) notes and loans payable and bonds and mortgages outstanding at the end of each month.

The manufacturing cost information was made a part of schedule 2. It consisted of (1) wages to include all mill payrolls, but excluding superintendents', labor applicable to plant construction, officers', directors', general and mill office salaries, (2) power purchased, (3) fuel consumed, (4) dyes and chemicals, (5) supplies, repairs and maintenance, (6) taxes, except federal income, and processing, (7) depreciation on mill plant and equipment, (8) mill office expense, (9) rents, and (10) other. The inventory data, commodity future profits and losses, processing tax and the like were then combined with the total manufac-

turing expenses to derive the cost of sales. Selling commissions, bad debts, and other selling expenses, officers' and directors' salaries, commissions, and bonuses, and all other general expenses, excluding interest, were added to obtain the total for selling, administrative, and general expenses.

Under the original executive order the cost and profits data were used chiefly to estimate the effects on net profits, labor cost, cost of sales and prices of given reductions in hours without change of pay, or of corresponding increases in wages without change in hours, all other conditions being assumed to remain unchanged.

The first Commission reports also showed the investment and rate of return and rate of net profit on sales. Originally the breakdowns of the foregoing data were very limited. In cotton the first studies were made simply for spinning, for weaving, and for spinning and weaving companies combined, and dyeing and finishing companies. Later a finer classification of companies by kind of product was undertaken with the participation of the study sub-committee of the Textile Cabinet Committee. This classification set up for reporting purposes twenty-odd classes of products manufactured for sale and provided spaces for reporting by range of yarn numbers, the goods produced for sale in pounds for yarn and pounds and square yards for woven fabrics. These classifications by kind of goods were based upon a single type of goods if that type constituted as much as 95 per cent of the total; otherwise, companies were distributed according to the combinations of goods which were produced. These classifications by kind of product made possible more significant and satisfactory figures in the later reports. Thus it has been possible to show cost in the details above specified by pounds or by pounds and square yards of product for special groups of companies engaged in manufacturing various specified cotton textiles.

Prior to the making of this finer classification by kind of product the Commission had undertaken to show various important cost and profit items for companies grouped according to the size of the investment, the rate of return on the investment, and the rate of net profit on sales. Those distributions were, of course, made at first for only the large groups of companies, spinning, weaving and combined spinning and weaving, dyeing and finishing, etc. Classification of companies by kind

of product made it possible also to show similar analyses according to the finer classification referred to above.

The report, published November 20, 1936 on the Cotton Textile Industry, showed sales per dollar of textile investment, rate of return on investment and percentages of raw material, labor, selling, general and administrative expense, the total cost of goods sold and the net profit or loss on sales for companies grouped according to the kind of goods manufactured, as well as by size of investment, rate of return, and rate of net profit on sales. In many cases the number of companies was too few to permit grouping by size of investment, rate of return and net profit or sales without disclosure of individual results.

One of the chief difficulties that arises in the use of the Federal Trade Commission's figures for price analysis is the fact that the reports are all furnished on a company basis. Many plants produced more than one kind of product, but it is, of course, obvious that the number of cases in which costs can be related to prices is likely to be substantially less where the results are on a company basis rather than on a mill basis. However, in the case of any mill producing more than one kind of goods there is some difficulty in using costs for price or other similar analysis because of the necessity of splitting overhead expenses between products. While it is possible to make such proration or allocations according to various more or less well recognized principles of accounting, this practice is particularly questionable where the matter of price is involved. Selling expense particularly is a factor which may, if actual records are carefully kept, show very great divergence from any figures resulting from the customary methods of accounting proration or allocation. It is this situation that suggests that cost data for price analysis should be based upon representative or selected companies where so large a proportion of the total product is of a single kind of goods or single type of construction that the figures would not be substantially affected by the inclusion of a small quantity of other products.

The commission in its report for the last half of 1935 was able to show detailed operating expenses and net profit per unit for certain companies producing carded yarn, 40's or coarser, and combed yarn, 40's or coarser, and finer than 40's, together with the average selling price on the same basis. Similar

figures were shown for certain companies producing towels and toweling, upholstery fabrics and tapes. Other groupings for the combined spinning and weaving companies included sheetings, drills and jeans combined, print cloth yarn fabrics, fine cotton goods, coarse colored cottons, gingham, and chambrays, napped goods, and rayon fabrics. In several of these groups, however, the representation was small.

So far as price analysis is concerned, however, these figures possess considerable value because they do show exactly the composition of the price on a unit basis. If the various companies could be induced to furnish more adequate classification data, it would be possible to expand some of these groups. Even then, however, there would remain outside many companies whose lines of production are too composite to permit their allocation to any single group. If the Trade Commission textile reports are continued, the members of the industry interested in the price analysis aspects of these reports might well endeavor to arrange for certain of these composite companies to cooperate in furnishing supplementary reports by such individual plants as produce particular products or constructions. Such data should necessarily be accompanied by sales realizations and whatever other information may be available regarding the distribution of the general selling and overhead expenses of the organization by the products which the company sells. These plant figures could probably be used to supplement the company information for those concerns manufacturing a single line or construction, thus enlarging the size of the usable sample.

It may be suggested that for purposes of adequate price analysis not only the costs but also the selling prices must be considered in the light of the investment and net profits involved. The reason for additional investment is frequently to reduce cost. High investment per unit of production is frequently compensated by low cost of production and vice versa, though this, of course, is subject to great variations depending upon the character of the industry. This would lead to the conclusion that investment data and net profit should be tabulated and analyzed for those groups of companies for which any unit cost and price data are available. So far as the Federal Trade Commission reports are concerned this could, no doubt, be done provided funds are available for such a purpose."

The reports prepared by the Commission have been issued in semi-annual series as follows:

First Series

Preliminary report covering the three six-month periods and the two-month period, January 1933 to August 1934

Part

- I Investment and Profit
- II Cotton Textile Industry
- III Woolen and Worsted Industry
- IV Silk and Rayon Textile Industry
- V Thread, Cordage, and Twine Industries
- VI Financial and Operating Results for textile companies according to rates of return on investment, rates of net profit, or loss on sales, and amount of investment

Second Series

Textile Industries in 1933 and 1934

- I Cotton Textile Industry
- II Woolen and Worsted Industry
- III Silk and Rayon Textile Industry (Appendix tables were issued separately for the above, showing Financial and Operating results for textile companies grouped according to rates of return on investment, rates of net profit, or loss on sales, and amount of investment)
- IV Thread, Cordage, and Twine Industries

Third Series

Textile Industries in the first half of 1935

- I Cotton Textile Industry (incl. Thread, Cordage and Twine)
 - II Woolen and Worsted Textile Industry
 - III Silk and Rayon Textile Industry
- This series introduced the presentation of detailed cost per pound or square yard for a closely related group of products of a general type, constituting the entire output of certain mills.

Fourth Series

Textile Industries in the second half of 1935

- I Cotton Textile Industry
- II Woolen and Worsted Textile Industry
- III Silk and Rayon Textile Industry

Fifth Series

Textile Industries in the first half of 1936

- I Cotton Textile Industry
- II Woolen and Worsted Textile Industry
- III Silk and Rayon Textile Industry

Each report issued subsequent to the Second Series contains data not only applicable to the period covered but also for comparative purposes for the preceding six-month periods.

The following outline listing the data contained in the report for the Cotton Textile Industry (including Thread, Cordage and Twine) for the first half of 1936 summarizes the general character of the data collected by the Commission.

- 1 Rates of Return on Investment; Distribution of Mill Cost, Proportion of Sales Dollar Represented by Cost, Expenses, and Profit. These data are presented for spinning companies; weaving companies; combined spinning and weaving companies; stock dyeing and finishing companies; commission dyeing and finishing companies; thread manufacturing companies; companies finishing and spooling thread; and companies manufacturing cordage and twine.
- 2 Detailed costs, expenses, and profits per pound or square yard for a closely related group of products of a general type, constituting the entire, or substantially entire, output of certain mills:
 - a) Spinning companies manufacturing carded cotton yarn coarser than 40s
 - b) Spinning companies manufacturing combed cotton yarn coarser than 40s (5 companies in the second half of 1935)
 - c) Spinning companies manufacturing combed 40s or finer
 - d) Weaving companies manufacturing 'towels' and 'towel-ing' and 'upholstery fabrics'
 - e) Combined spinning and weaving mills manufacturing cotton duck; sheetings; drills and jeans; print-cloth-yarn fabrics; fine goods; coarse colored cottons, napped goods; and rayon fabrics
- 3 Sales per dollar of textile investment; rates of return and *specified costs*, expenses, and profit to sales, in cents, are presented for each group enumerated under (1) above.

APPENDIX V

**Textile Data in Cost Investigations
Made by the
United States Tariff Commission**

THE United States Tariff Commission has been engaged in the investigation of production costs on various products of the textile industry since 1922, primarily under the flexible provisions of the tariff acts. Such a provision was first contained in the Tariff Act of 1922 and was known in that Act as Section 315. A similar provision, more precisely worded, constitutes Section 336 of the Tariff Act of 1930, still in force. The principle of the flexible provision is that the tariff applying to imports of specified articles from foreign countries should equalize the differences in production costs in the United States and the principal competing foreign country.

Investigations are made by the Tariff Commission upon request of the President, upon resolution of either or both Houses of Congress, upon the Commission's own motion, or upon application of interested parties, approved by the Commission. The work remains entirely within the hands of the Commission during the course of the investigation.

Upon completion of the investigation the Commission reports its findings to the President. These findings relate primarily to the ascertainment of differences in production costs and may indicate the advisability of an increase in duty, a decrease in duty, or no change. The information collected by the Commission in its cost inquiries is ultimately summarized in a report.

Inasmuch as the Act requires that the cost comparison shall relate to like and similar articles, precise specifications are needed in the establishment of definite costs. In other words, it is not sufficient to compare random average costs of domestic knit gloves made of woolen and worsted for men, women, and children, etc. The cost data tabulated in the wool-knit glove investigation, for example, concerned women's and misses' sizes of wool-knit gloves of a ribbed wristlet length cuff type made of worsted yarn. Even this is only an approximate specification and costs were actually established for eight domestic samples and six foreign samples, which were further identified in terms of the number of courses and the number of needles used in the cuff, hand, and second finger, the number of courses and wales per square inch, and the finished weight per dozen pairs.

This instance is cited to show the detail to which these investigations go in arriving at the cost of specific products. The reports covering textile products, which include important data on production costs, are summarized in the accompanying table. Copies of these reports can be obtained from the Superintendent of Public Documents, at a cost of 5 or 10 cents each.

**Reports Published by the Tariff Commission That Contain Information Relating to the Cost
of Production of Textile Products**

NAME OF INVESTIGATION	TARIFF COMMISSION REPORT NO.	DATE OF REPORT	TARIFF PARAGRAPH	COST PERIOD	NO. OF DOMESTIC MILLS	NO. OF FOREIGN MILLS	REMARKS WITH SPECIAL REFER- ENCE TO CLASSES AND SPECIFICA- TIONS OF COMMODITIES COVERED BY REPORTS
Investigations under Sec. 315 of the Act of 1922:							
Cotton hosiery		1926	916	1923	32	7	Full-fashioned, seamless and cut
Cotton warp-knit fabrics		1926	914	1923	5	6	Warp-knit fabrics made of 78s to 80s yarn
Cotton warp-knit fabric gloves		1926	915 & 1430	1923	5	6	Single fold and duplex; shrunk and unshrunk; embroidered, tamboured, appliqued, or not
Laces and lace articles ¹	83	1934	920	1923	9	18	Nottingham lace curtains and nets
			1430	1923	18	11	Levers lace
			1430	1923	7	5	Bobbinets
			1430	1923	4	11	Barmen lace
			1430	1923	1	7	Swiss embroidered curtains
Rag rugs		1928	1022	1924	14	2	
Handkerchiefs							Investigation interrupted by passage of the Act of 1930
Investigations under Sec. 336 of the Act of 1930							
Wool felt hat bodies and hats	15	1931	1115 (b)	1929	7	2	
Hemp cordage	26	1931	1004 and 1005 (a)	1930	3	2	

Wool felt hat bodies			1115 (b)	1931	6	3	Investigation not completed but merged in investigation under Sec. 3 (e) of NIRA shown hereafter
Flax upholstery tow and crin vegetal	35	1932	1001	1930	4	2	
Infants' wool knit outerwear	48	1932	1114 (d) & 1529 (a)	1930	18	7	Embroidered and unembroidered
Cocoa-fiber mats	53	1933	1022	1931-32	2	2	Pile mats and floor coverings of cocoa fiber. Costs confidential and not published
Cotton velveteens and velvets	68	1933	924	1930-31	7	5	Plain-back and twill-back velveteens and cotton velvets
Cotton cloth	1112	1936	904	1933-34	21	2	Cotton print cloth, in the gray and finished
Wool knit gloves and mittens	108	1936	1114 (b)	1935	8	2	Women's and misses' ribbed, wrist length, cuff type gloves and mittens made of worsted yarn
Investigations under Sec. 3 (e) of the National Industrial Recovery Act							
Wool felt hat bodies	93	1935	1115 (b)	1933	5	2	
Cotton rugs	95	1935	921		8	2	Chenille, hit-and-miss rag, imitation oriental and other cotton rugs

1 COSTS were obtained in connection with an investigation ordered under Sec. 315 of the Act of 1922. This investigation was not completed but some of the cost data are published in the survey 'Laces and Lace Articles' prepared under the general powers of the Commission.

2 Foreign costs not being readily ascertainable, invoice prices were used in lieu thereof.

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