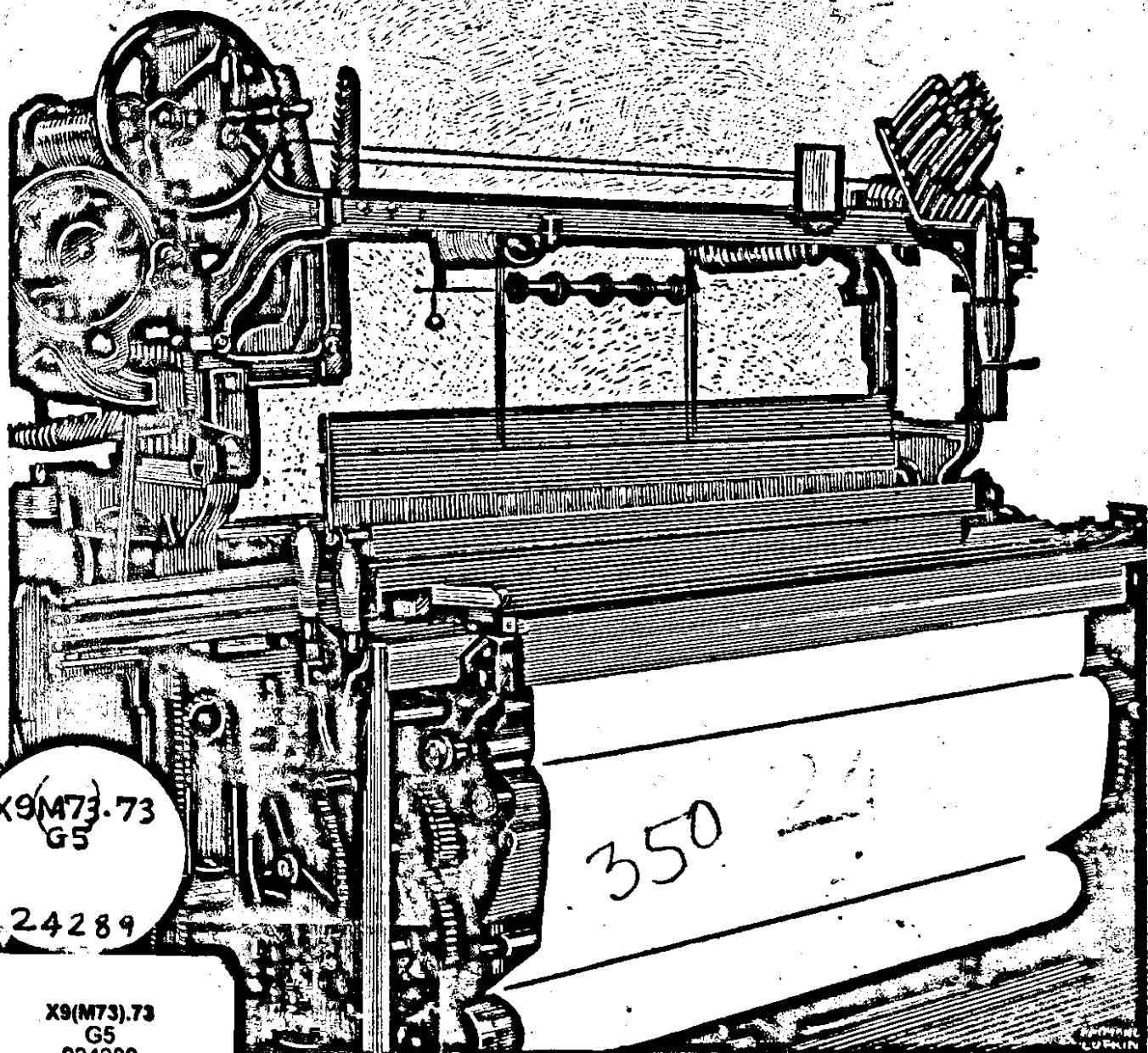


PRODUCTION *and* DISTRIBUTION OF SILK *and* RAYON BROAD GOODS



X9(M73).73
G5
24289

X9(M73).73
G5
024289

THE TEXTILE FOUNDATION INC.

and
THE NATIONAL FEDERATION of TEXTILES INC.

ALVIN T. COPLAND

W. HOMER TURNER

This is Copy
Number 2879
of the
First Edition

PRODUCTION *and* DISTRIBUTION
of
SILK *and* RAYON BROAD GOODS

Prepared by
Melvin T. Copeland
W. Homer Turner



For
THE TEXTILE FOUNDATION, Inc.
THE NATIONAL FEDERATION OF TEXTILES, Inc.

COPYRIGHT, 1935, BY
THE NATIONAL FEDERATION OF TEXTILES, INC.
TEN EAST FORTIETH STREET
NEW YORK, N. Y.

Foreword

THE ECONOMIC position of the silk and rayon industry led The Silk Association of America, Inc., predecessor of The National Federation of Textiles, Inc., to submit research suggestions to The Textile Foundation, Inc. The Foundation, recognizing the value of these suggestions, asked the Association to appoint a committee for the development of a study of production and distribution problems. Work on this study subsequently was begun through funds obtained from The Textile Foundation, Inc., and by special contributions from individuals and corporations.

With the selection of Dr. Melvin T. Copeland of the Harvard University Graduate School of Business Administration as consultant, the collection of data and the assimilation of facts and opinions from the trade was started by the Planning and Research Bureau of the present National Federation of Textiles, Inc. As the collection of material neared completion, there occurred, in 1933, economic changes of a momentous nature followed by the preparation and installation of the various textile codes pursuant to the National Industrial Recovery Act. Because of the significance of these developments and their immediate influence upon both production and distribution problems, publication of the study was delayed until the present.

This study embraces the most economically important segment of the silk and rayon branches of the textile industry—that of broad fabrics made in whole or in part of silk and/or rayon. Under the production section is included the weaving of fabrics and, under the distribution section, the study deals with the movement of these woven goods from producing mills and converters to trade and consumer outlets. Although incidental attention is given to merchandising and selling problems, including such matters as price policies, styling, methods of selling, etc., no attempt is made to concentrate the study on any one of these points. It was felt that the unsatisfactory conditions prevailing in the silk and rayon industry best could be analyzed by a broad consideration of all the problems of the industry, which would indicate the desirable future course of economic study and marketing research.

The response of the industry to requests for data was gratifying; more than 5,000 special and thousands of general questionnaires were filled out; 300 interviews were held and tabulated figures represent at least 85 per cent of the industry. The data in most instances embrace operators interested in silk and rayon broad goods who now report to the Silk Textile and to the Cotton Textile Codes.

In the early stages of preparatory work, aid was given by a committee representing the various classes of manufacturers and distributors. George G. Sommaripa, formerly

of The Silk Association of America, was responsible for the partial origination of the material. W. Homer Turner, research director of The National Federation of Textiles, Inc., and formerly economic and industrial editor of the Encyclopaedia Britannica, was editor-in-chief. Frank J. G. Duck, also of the Federation staff and formerly an editor with the McGraw-Hill Publishing Co., was associate editor.

The preparation of a study of this nature obviously has required the assistance of numerous persons and, for the generous cooperation afforded, the editors and the Federation are grateful.

PETER VAN HORN, President
The National Federation of Textiles, Inc.

January 1, 1935

Subscribers to the Survey Fund

A LARGE share of the financial assistance required for the execution of the task of gathering and interpreting the survey data was contributed through a special grant of The Textile Foundation. But the generous support of the following organizations and individuals enabled the work to be undertaken on a scale and with a thoroughness that otherwise would not have been possible. The thanks of the entire industry should be extended to those who, with The Textile Foundation, made this survey possible.

American Bemberg Corporation
American Glanzstoff Corporation
Asahi Corporation
Atwood Machine Company
Belding Heminway Corticelli Co.
Berizzi Brothers Co., Inc.
Bloomsburg Silk Mill
Cheney Brothers
Commercial Investment Trust, Inc.
Crompton & Knowles Loom Works
Dai-Ichi Raw Silk Corporation of America
Du Pont Rayon Company, Inc.
C. K. Eagle & Company, Inc.
Garino & Sons Piece Dyeing & Finishing Co.
E. Gerli & Company, Inc.
Vve. Guerin & Fils of New York, Inc.
Hess, Goldsmith & Company, Inc.
Jas. G. Johnson & Company
G. Kattermann, Inc.
Klein Brothers
H. R. Mallinson & Company, Inc.

Marian Silk Mills, Inc.
Onondaga Silk Company, Inc.
Portland Silk Company
Chas. Rudolph & Co.
Salembier & Villate, Inc.
Sauquoit Silk Manufacturing Co.
Schwarzenbach Huber Company
Shapiro Brothers Factors Corporation
R. & H. Simon Corporation
Stehli Silks Corporation
D. I. & C. H. Stern, Inc.
L. & E. Stirn, Inc.
Strahler & Company, Inc.
Stunzi Sons Silk Company, Inc.
Textile Banking Company, Inc.
United Piece Dye Works
Wahnetah Silk Company
Waypoyset Manufacturing Company
John C. Welwood Corporation
Widder Brothers, Inc.

THE TEXTILE FOUNDATION, INC.

Organized, by Act of Congress, for scientific and economic research for the benefit and development of the textile industry and its allied branches

OFFICERS *and* BOARD OF DIRECTORS

FRANKLIN W. HOBBS *Chairman*
Arlington Mills, Boston, Mass.

STUART W. CRAMER *Treasurer*
Cramerton Mills, Charlotte, N. C.

HENRY A. WALLACE *Secretary of Agriculture*

DANIEL C. ROPER *Secretary of Commerce*

FRANK D. CHENEY
Cheney Brothers, New York City

EDWARD T. PICKARD, *Secretary and Assistant Treasurer*

THE NATIONAL FEDERATION OF TEXTILES, INC.

*The Trade Association for the Silk and
Rayon Industry and Allied Industries*

OFFICERS *and* BOARD OF DIRECTORS

ARNOLD ARONSOHN Samuel J. Aronsohn, Inc.	*NATHAN LEWIS Kahn & Feldman, Inc.
W. ROBERT BLUM United Piece Dye Works	WILLIAM MENKE Menke, Kaufmann & Co., Inc.
*G. H. CONZE Susquehanna Silk Mills	JAMES P. QUINN The Taylor-Friedsam Co.
*B. EDMUND DAVID David Silks, Inc.	BEN REIS G. Reis & Brother, Inc.
*PAUL C. DEBRY Duplan Silk Corporation	WALTER H. RICHTER Warner Woven Label Co.
NOBUSUKE EGAWA Morimura, Arai & Co., Inc.	EDWARD ROBERTS Roberts, Cushman & Co.
OTTO FROELICHER Schwarzenbach Huber Co.	*E. C. ROSSMASSLER Sauquoit Silk Mfg. Co.
*PAOLINO GERLI E. Gerli & Co., Inc.	HENRY SCHROTH Zollinger & Schroth, Inc.
A. W. HAMILTON Commercial Factors Corporation	HENRY E. STEHLI Stehli Silks Corporation
RAYMOND C. KRAMER Belding Heminway Corticelli Co.	*W. STUNZI Stunzi Sons Silk Co., Inc.
R. K. LAROS R. K. Laros Silk Co.	*PETER VAN HORN Chairman of the Board
*IRVING LEVY Century Ribbon Mills, Inc.	IRVING H. VERRY Crompton & Knowles Loom Works

PETER VAN HORN, *President*
G. H. CONZE, *Vice-President*
I. L. BLUNT, *Secretary*
A. A. CLUNE, *Assistant Treasurer*

* Executive Committee

Contents

	Page
BACKGROUND AND FUTURE.....	1
By Melvin T. Copeland	
I. PRODUCTION	9
1. Interchangeability of Silk and Rayon Equipment.....	9
2. Installed and Efficient Looms.....	9
3. Type of Equipment Owned.....	9
4. Utility of 1 x 1 Plain Looms Owned.....	12
A. By Operators Under the Silk Textile Code.....	12
B. By Operators Under the National Rayon Weavers Association (Cotton Textile Code)	12
5. Utility of Box Looms Owned—Under 49 Inches Reed Width.....	12
A. By Operators Under the Silk Textile Code.....	12
B. By Operators Under the National Rayon Weavers Association.....	12
6. Utility of Box Looms Owned—Over 49 Inches Reed Width.....	12
A. By Operators Under the Silk Textile Code.....	12
B. By Operators Under the National Rayon Weavers Association.....	13
7. Age of Installed Looms	13
8. Equipment of Stock-Carrying Mills and Commission Weavers.....	13
9. Structural Analyses of Ordinary and Jacquard Looms.....	14
10. Organization and Economic Significance of the Silk and Rayon Industry....	14
A. Organization	14
B. Changes in the Last Decade	18
a. Growth of the Rayon Industry.....	18
b. Increase in Commission Weaving	18
c. Activity of Converters and Cutters-Up.....	18
11. Ownership of Equipment and Buildings.....	18
12. Geographical Distribution of Operators and Looms.....	20
13. Distribution of Looms by Size of Establishment.....	20
14. Changes in Silk and Rayon Manufacturing Firms.....	20
15. Capital Investment and Profits.....	21
16. Cost of Production.....	23
17. Employment and Wages.....	23
18. Loom Operation	33
19. Effect of Japanese Fabric Production on American Manufacturers.....	39
20. Control of Production.....	40
A. Production and Consumption.....	40
B. Nature of Overproduction.....	43
C. Plans for Production Control.....	43
21. Research	44
22. Challenge of Self-Government.....	44
23. Self-Government and Market Conditions.....	48

	Page
II. DISTRIBUTION	49
1. Interrelationships of Production and Distribution.....	49
2. Changes in Production and Distribution Practices.....	49
3. Changes in Financing	50
4. Changes in Organization Structure.....	51
5. Advent of Rayon.....	51
6. Distribution by Trade Outlets.....	53
7. Comparison of Raw Material Prices.....	56
8. Importance of Style.....	60
9. Style Protection	65
10. Type of Fabrics Distributed	65
11. Relationships Between Cutters and Retailers.....	67
12. Methods of Distribution.....	67
13. Price Control	69
14. Distribution as a Basis for Regulating Production.....	71
15. Trade Practices and Distribution.....	74
16. Promotional Activity	75
17. Problem of Management.....	75
18. Future of the Silk and Rayon Industry.....	75
APPENDIX	78
BIBLIOGRAPHY	97
INDEX	103

List of Tables

Table	Page
I Looms Owned by Operators Reporting to the Silk Textile Code—Stock-Carrying Mills and Commission Weavers.....	10
II Looms Owned by Operators Reporting to the National Rayon Weavers Group of the Cotton Textile Code—Stock-Carrying Mills and Commission Weavers	11
III Age of Installed Silk Looms.....	14
IV Composite Summary of the Silk and Rayon Industry.....	15
V Change in Quantity and Value of Products.....	15
VI Ownership of Buildings and Machinery in the Silk and Rayon Industry—Silk Textile Code	19
VII Geographical Analysis of Looms Installed—1934.....	21
VIII Estimated Distribution of Silk and Rayon Looms by Size of Establishment—Under the Silk Code and Rayon Weavers.....	19
IX Ownership of Looms in Paterson, N. J.—Including Family Shops (Silk Textile Code).....	21
X Changes in Broad Goods Manufacturing Firms—1921-1929.....	22
XI Stock-Carrying Mill Overhead.....	23
XII Financial Trends in the Silk Industry.....	23
XIII Cost Analysis of Three Fabric Constructions Based on Manufacturing Cost	24
XIV Analysis of Broad Loom Operation Under the Silk Textile Code.....	26
XV Employment, Wages and Hours of Labor Operations in the Silk Textile Industry	28
XVI Geographical Analysis of Wages by Occupations.....	29
XVII Comparative Analysis of Wages.....	32
XXVIII Degree of Skills in Silk and Rayon Mills.....	32
XIX (a) Earnings and Time Worked in Plants With Unlimited and Limited Looms per Weaver.....	36
XIX (b) Labor Effort Required for Various Fabrics and Different Number of Looms per Weaver.....	36
XX Broad Loom Activity—Stock-Carrying Mills and Commission Weavers.....	38
XXI Effect of Code on Identical Firms (1932-1933).....	40
XXII (a) Exports of Fabrics Wholly or Chiefly Silk.....	41
XXII (b) Imports of Broad Silk Fabrics Into the United States.....	41
XXIII Broad Goods—Yards per Loom Owned.....	42
XXIV Geographical Analysis of Production—Mills Under the Silk Textile Code	43
XXV Potential Loom Production—Yards per Year.....	46
XXVI Trade Opinion as to Advantages and Disadvantages of Suggested Methods for the Control of Production.....	47
XXVII Size Grade and Filament Count of Rayon Yarns	51

Table	Page
XXVIII	Distribution of Broad Goods by Type of Fabric..... 52
XXIX	Distribution of Broad Goods to Trades by Type of Producer..... 52
XXX	Fiber Consumption, Prices and Value in the United States..... 57
XXXI	Chief Events in the Seasonal Progression of the Clothing Trades and Industries 61
XXXII	Number of Different Constructions Woven During 1932—Stock-Carry- ing Mills and Commission Weavers..... 63
XXXIII	Number of Designs Registered..... 64
XXXIV	All-Silk Dress Goods Produced by Mills Under the Silk Textile Code... 65
XXXV	Production of Broad Goods by Fibers and Weaves—Mills Under the Silk Textile Code 65
XXXVI	Price Ranges in Cutting-Up Trade to Which Mills Sell..... 67
XXXVII	Label Sales to Dress Firms According to Price Range..... 69
XXXVIII	Sales Made by Mills or Their Selling Agents—Stock-Carrying Mills and Commission Weavers..... 70
XXXIX	Ratio of Stocks to Net Sales-Shipments—Broad Goods..... 71
XL	Cases Handled by the Arbitration Bureau..... 74
XLI	Terms Under Various Textile Codes..... 75
XLII	Model and Reed Widths of Looms Owned by Reporting Silk and Rayon Broad Goods Manufacturers 78
XLIII	Silk and Rayon Fabric Production..... 80
XLIV	Wholesale and Retail Silk Goods Price Index..... 80
XLV	Consumers by Intelligence Levels and Ages..... 81
XLVI	Consumer Use of Silk and Rayon Products..... 81
XLVII	Value of Women's Clothing..... 85
XLVIII	Percentage of Manufacturers in Various Sales Groups..... 86
XLIX	Statistical Summary 87

List of Charts

Chart	Page
A. Looms Installed by Years Since 1923 in the Silk and Rayon Industry.....	16
B. Number of Looms Accumulatively Installed Since 1923 in the Silk and Rayon Industry	17
C. Geographical Analysis of Looms Installed—1934.....	20
D. Average Distribution of the Manufacturing Dollar.....	25
E. Changes in Manufacturing Conditions Since Adoption of the Silk Textile Code	27
F. Average Hourly Wages by Occupations—Silk and Rayon Industry.....	30
G. Weavers in Different Wage Classes After the Code.....	31
H. Comparison of Mill Employment Before and After Silk Code.....	34
I. Weekly Labor Hours—Silk and Rayon Mills.....	35
J. Labor Effort by Varying Number of Looms Operated.....	37
K. Weekly Hours of Machine Operation per Loom Owned.....	39
L. Average Monthly Sales, Stock and Production of Broad Goods.....	44
M. Silk and Rayon Fabric Consumption, 1933-1934.....	45
N. Influence of World War and Scientific Advance on Fashions in Women's Clothing	50
O. Distribution of Broad Goods by Type of Fabric—Stock-Carrying Mills and Commission Weavers	53
P. Distribution of Total Production—Stock-Carrying Mills.....	54
Q. Distribution of Finished Goods—Stock-Carrying Mills.....	55
R. Distribution of Raw Goods—Commission Weavers	56
S. Textile Fiber Consumption in the United States.....	58
T. Textile Fiber Prices in the United States.....	59
U. Number of Constructions Woven During 1932.....	62
V. Production of Broad Goods by Class of Material—Stock-Carrying Mills and Commission Weavers	66
W. Department Store Piece Goods Sales According to Fabric and Weave.....	68
X. Average Annual Stock Turnover	72
Y. Monthly Ratio, Stocks to Sales.....	73
AA. Monthly Variation in Employment and Available Machine Hours Operated Before the Code	88
BB. Wages Paid per Hour to Various Textile Workers	90
CC. Expenditure for Clothing in Different Income Groups.....	91
DD. Per Capita Consumption of Textiles in the United States.....	92
EE. Retail Value of Wearing Apparel Sold to American Consumers.....	93
FF. Raw Silk Imports from the Orient to United States Markets.....	94

Glossary of Special Terms

BROAD GOODS. This embraces all *woven* fabrics 24 inches and over in width. It includes tie fabrics 24 inches wide and excludes the so-called narrow fabrics, such as ribbons and hat bands

COMMISSION WEAVERS. Those who weave goods on commission as a usual practice. Commission weavers seldom, if ever, purchase raw stocks on their own account

CONVERTERS. Those whose business, largely, is the buying of cloth in the greige (unfinished) and finishing or "converting" it (dyeing, printing, etc.). Converters may buy raw materials and have the goods woven by commission weavers

INTEGRATION. The combination of the related functions of production, merchandising and selling (marketing), under the control of a single business organization

MARKETING. Activities concerned with product planning, selection of distribution channels, sales solicitation and promotion, advertising and pricing, to effect the distribution of goods and services from manufacturer to consumer

RAYON. A general term applied to all synthetic goods whether made by the viscose, acetate, nitrocellulose or cuprammonium process

STOCK-CARRYING MILLS. Regular mills which buy their own raw material and weave their own cloth to fill bona fide orders or for their own account. A stock-carrying mill may or may not finish its own cloth

Background and Future

By

Melvin T. Copeland

IT IS desirable to begin with a snapshot of the organization of the broad goods industry. On one side are 35 mills with at least 1,000 looms each, owning 35 per cent of the total installed looms. Then there is a middle group of about 325 mills, with from 100 to 1,000 looms each, owning 48 per cent of the total looms. Finally, there are about 840 firms with less than 100 looms each, owning a total of 17 per cent of the loomage and an average of about 28 looms to a firm. The large and medium size firms typically own the materials on which they work and manufacture for stock as well as on order. Some of these mills also carry on a converting business. The small mills, many of which are located in Paterson, N. J., typically are commission weavers, working on materials furnished them by merchant converters or others. These are the manufacturing groups.

On the marketing side the most prominent factors are the converters, who buy raw (greige) goods from stock-carrying mills or have them woven by commission weavers and who send these goods to job-finishing plants for finishing or printing. Over half of the goods produced in the industry is sold to converters. The finished goods are sold to garment makers, department stores, other retail establishments and to various other customers. The cutting-up market predominates. The statistics covering these points are given in the appended tables; it is not necessary to repeat them here. There are, furthermore, certain other parties active in the broad goods industry, such as selling agents, brokers (who solicit orders) and factors (who aid in financing the operations of mills which are short of working capital). However, I shall not discuss the activities of all these parties for, as previously stated, I am attempting to give here a snapshot of the industry.

FIRMS CHANGE FREQUENTLY

In this industry, as in others where there are numerous small-scale operators, new firms continually are coming in and others are dropping out. By buying second-hand looms and renting space in a loft or even using a garage, a man can enter the weaving business with little capital. As a commission weaver, he does not find it necessary to make any investment in raw materials or maintain any marketing organization. Not infrequently, I am informed, a man starts a weaving business with half a dozen second-hand looms and employs only his family as operatives.

As a check on the rate of change or turnover of firms in this industry, a tabulation was made of the number of firms in the broad goods manufacturing business in 1929, the number going out of business and the number entering business from 1921 to 1929. In New Jersey there were 749 firms listed in 1921 and 609 in 1929. During the nine years, however, 964 firms were recorded as having entered the business in that State and 921 as having gone out of busi-

ness. These figures show that, of the firms which were engaged in the broad goods industry in New Jersey sometime between 1921 and 1929, only 34 per cent still were active in the latter year. For every one that remained, almost two others had come and gone. In Pennsylvania, Rhode Island, and New York the rate of change also was high.

The foregoing figures do not tell the whole story, however, for they include only firms whose names got on the records. It is said that, at the present time in Paterson alone, it is not uncommon to have fifteen or twenty changes in a week among the silk and rayon weaving firms. Hence, undoubtedly, there were many firms that tried their hand at silk weaving during the period from 1921 to 1929 (when no continuous record was maintained) whose names were never on the published lists and, therefore, not included in the statistical tabulation.

All these facts are, of course, well known in the industry; I am not stating them as a new discovery. They are not generally known outside the industry, however, nor does their full significance seem to be appreciated within the industry itself.

FASHIONS DICTATE BUSINESS POLICIES

The broad goods industry is divided from the production standpoint in two groups: (1), The stock-carrying mills, some of which are large establishments; and (2), the commission weavers, usually small firms and, not infrequently, firms operated by former unsuccessful stock-carrying mill owners. The inevitable conflicts between these two types of operation, and the nature and extent of commission weaving, naturally tend to cause a good deal of instability in the business. The fact that the silk and rayon industry is in the forefront of style and fashion movements means that it is subject to a continual changing of market conditions. These factors of instability are even more disturbing when there is a large surplus producing capacity. It is small wonder that the broad goods industry has been full of tribulations.

Despite these conditions, however, numerous plants have been struggling to continue their competitive existence with obsolescent equipment. One of the outstanding facts brought out in this survey is the number of looms installed in broad goods weaving mills that are too plain, too narrow or too antiquated to be possible of economical operation. The figures are given in detail in a subsequent section of this report. It is not reasonable to expect that such equipment can be operated profitably except in periods when demand is so feverish as to be unhealthy. Nevertheless, this obsolescent equipment is constantly a disturbing factor in the industry.

EFFECTS OF RAW MATERIAL PRICES

In attempting to understand the basic problems of the broad goods industry we should recognize, furthermore, the effects of changes in the prices of raw materials, particularly silk. From 1923 to 1929, the price of raw silk was tending almost steadily downward; in 1923, the average price of raw silk was \$8.65 per pound; in 1929, it was \$4.93. This decline from 1923 to 1929 was part and parcel of a world-wide fall in the prices of basic raw materials.

During this period of falling raw materials prices, some stock-carrying mills succeeded in operating regularly at a profit. Many stock-carrying mills, however, enjoyed only occasional seasons of prosperity. Style changes always involve a large element of risk in this industry. As raw material prices declined, furthermore, inventory losses had to be absorbed. The market price tended continually to be lower than the cost price. The declining raw material market led to more hand-to-mouth buying by customers. It also encouraged price cutting by competitors who were in a position rapidly to make up popular styles from materials bought at prices lower than those paid by the manufacturers who were carrying stocks. This situation favored the commission weaver. In a further effort to lower costs to meet cut prices, numerous mills were tempted to increase their output, thus adding greater pressure to the downward movement of finished goods prices.

INDUSTRY WAS DEMORALIZED

This had been going on prior to 1929. Then came a more rapid decline in raw silk prices, from an average of \$4.93 in 1929 to \$1.56 in 1932. Price cutting became more and more widespread; inventories accumulated and caused additional losses; working capital was greatly depleted; and the industry became thoroughly demoralized. The important effect of raw silk prices on the consumption of various textile fibers and the consequent shift in production from silk to rayon and rayon to silk fabrics are discussed in this survey.

In this demoralized situation, some of the stock-carrying mills began to employ commission weavers, rather than

operate their own looms, in the expectation of cutting costs thereby. Other mills that normally operated on their own account accepted commission weaving orders. Style piracy and shading of quality, long major problems of the industry, became even more acute during the demoralized period from 1930 to 1933. The supply of second-hand looms, always available for purchase at lower and lower prices during these years, and the lack of other opportunities for employment, kept many small operators in business who worked on commission at cut rates. A more desperate competitive condition is difficult to imagine.

The "family shop," in which three or four workers operate, say, twenty looms for a net weekly "pot" of perhaps \$40, apparently has been spreading and seems to threaten the welfare of the more stable mills and their employees. Whether these family shop workers can be brought under effective labor jurisdiction, or other means found for combatting their "sweat-shop" competition, constitutes a very perplexing question. Several schemes for dealing with this situation are discussed in this survey, but no satisfactory solution yet has been found.

CONDITIONS IMPROVE AFTER BANK HOLIDAY

After the Bank Holiday in March, 1933, conditions in the broad goods industry began to improve. Raw material prices started to advance. Stocks of finished goods were lower. Demand improved. Finally, the Silk Textile Code helped to bring about greater standardization of working conditions and served to lessen some of the other abuses in the industry. The outlook is favorable to further gradual improvement, provided common sense is shown in not again piling up large inventories and also provided that manufacturing costs are not unduly enhanced.

Such is the snapshot picture of the industry that I have obtained. The industry unquestionably has made notable progress in the last 25 years. Future progress depends, however, upon the recognition and solution of the problems that now face the firms operating in this industry. Consequently, in this survey, emphasis is placed not upon the accomplishments already achieved, but upon the difficulties to be surmounted. The purpose is not to belittle past achievements but to focus attention on the opportunities for further improvement. In the main body of this report the views of various executives, as stated to members of the survey research staff of The National Federation of Textiles, Inc., are summarized. My own conclusions are not entirely in accord with all those views.

The problems which face the industry today are of two sorts—immediate and long range. The immediate problems seem to center particularly around the administration of the N.I.R.A., and the labor situation which is largely a product of recovery measures. At the outset, the Silk Tex-

tile Code appeared to yield benefits to the broad goods industry, especially with regard to the standardizing of working conditions. It undoubtedly has various meritorious features and temporarily has alleviated some acute situations. On the general question of the advantages of extensive regulation of industry by the Government or under government auspices, however, I find myself in disagreement with the views held, at least temporarily, by many business men. Until we have learned far better how to manage our businesses privately, I am skeptical as to the possibilities that government officials or representatives will be able to do a better job. Although regimentation temporarily may be advantageous, sooner or later it will encounter especially serious obstacles in an industry, such as broad goods manufacturing, where fashion dominates.

FUTURE DEPENDS ON LEADERS

From what has been stated previously, it is apparent that the broad goods industry is suffering from a variety of afflictions, some of which had their origin within, others without, the industry. Under these circumstances it is useless to pretend that there can be any simple, easy means of curing all these troubles. At best, it will be a somewhat slow process. Moreover, I believe that the major part of the task of putting this business into a healthy condition must be borne by the individual companies. This task calls for a particularly high order of business management. The competitive situation, the multiplicity of interests, the style factor, the vagaries of the raw material market and the interrelationship of the silk and rayon industry with other textile industries make the task of successfully running a broad goods business an especially difficult one. The future of the industry, in my opinion, depends largely on whether the industry can produce leaders of the insight, foresight, judgment and courage to surmount these obstacles.

MERCHANDISING IS PREEMINENT

From a long-range viewpoint, the most significant facts brought out in this survey, it seems to me, are those which relate to merchandising—that is, to styling, determination of fabric quality, inventory policy and pricing. The importance of effective styling in the broad goods business is too obvious to need further comment here. On the success that is being attained in checking style piracy, concrete evidence is presented in the following pages. The subject of inventory policy is also dealt with at some length. There are three other aspects of merchandising in the broad goods industry, however, on which I wish to make special comment: (1), The placing of the merchandising function in the industry; (2), standards of fabric quality; and (3), price policies. These topics all have a direct bearing on the broader question: What use will the industry make of prosperity?

The merchandising job is in a particularly chaotic state in the broad goods industry. In the case of the commission weavers the entire merchandising function—the planning of fabric construction, as well as styling and finishing—is done by the converters. In fact, the existence of commission weaving apparently is the result of the efforts of the converters to enjoy almost complete independence in securing their supplies of raw goods without assuming the burden of plant investment or manufacturing overhead. In a declining market, with excess manufacturing capacity available, the employment of commission weavers has enabled the converters to take advantage of falling raw material prices and low production costs; the weavers have been dependent on the converters whose merchandising activities placed them in a dominating position. The converters also buy goods in the greige from mills manufacturing on their own account, and the mills frequently originate the fabric constructions. At the other end of the scale are mills which convert the fabrics they produce, thus combining the merchandising job with manufacturing.

As has been stated previously, some mills—while operating on their own account—also employ commission weavers or accept commission weaving in their own plants, thus competing with themselves. In some cases, too, mills which undertake to convert their own fabrics also sell in the greige, thus again competing with themselves.

REORGANIZATION OF INDUSTRY IMPERATIVE

The key to the future set-up of the broad goods industry lies, I believe, in the performance of the merchandising job. The merchandisers will be the masters of the industry. At the present time it is not clear whether or not the merchant converters are to maintain such a strategic position that practically all the weavers, large as well as small, will work for them, either on commission or on similarly favorable terms. The alternative is the development of manufacturing units which carry on a full converting business. I seek to present no argument for one of these set-ups as against the other; I merely aim to show that, in my judgment, healthy conditions will not be established in the industry on a lasting basis so long as the present chaotic methods of handling the merchandising job continue to be the order of the day.

As regards commission weaving, however, I wish to add this further observation. The continual influx of new firms into the commission weaving industry, with a correspondingly high mortality of other commission weaving firms, suggests the existence of a good deal of ignorance and inefficiency. It reminds one of the situation in the retail grocery trade before the advent of the chain stores. If the converters extensively rely upon transitory commission weavers, often ignorant of costs and sound business prac-

tices, ultimately they are likely to find themselves in the same position as the wholesale grocers whose customers were killed off by the more efficient chain stores.

The converter cannot build a basically successful business by encouraging the continual entrance into the industry of small commission weaving firms which do not have the knowledge and ability that will enable them to exist for more than a few years. The converter also cannot expect to prosper permanently by playing off the commission weavers against the stock-carrying mills. The stock-carrying mill, on the other hand, cannot count upon establishing itself firmly in the industry unless it builds a merchandising organization and develops plans for distributing its products which will make its merchandising so effective that it is not forced into make-shift arrangements during temporary periods of hard times.

SOUNDER BUSINESS TECHNIQUE NEEDED

My first major conclusion, therefore, is that the firms operating in the broad goods industry must develop sounder, more clear-cut and more effective merchandising methods in order to establish a firm foundation for prosperity.

The second point to which I wish to call especial attention is that of fabric quality. Information has come to the Survey Committee which indicates some dissatisfaction among consumers with the wearing qualities of the fabrics which they buy. Consumers can judge the satisfactoriness of style at the time of purchase but they are not able at the same time to determine the quality of the fabric. Consequently, the intense price competition which has resulted from general business conditions, and from the chaotic merchandising situation in the broad goods industry, occasionally has induced some mills and converters to skimp the quality of fabrics while maintaining style appearance. If such a practice were to grow, it would mean industrial suicide for the industry as no industry can hope to survive which does not enjoy the confidence of consumers.

RELATIONSHIP OF PRICE, STYLE AND QUALITY

An important fact brought out in this survey is that a considerable portion of the goods sold to cutters is sold in the raw state. The interpretation of the significance of this development is one of the most debatable questions encountered in this survey. My own conclusions, unhappily, are not in accord with those of various men in the industry whose opinions I thoroughly respect. Whereas they ascribe this development entirely to a desire for lower prices, it appears to me that cutters have been prompted to take over the fabric merchandising job on the scale indicated largely because of a desire for exclusive designs or because of the poor quality of finished goods offered them.

On the first point, a desire for exclusive designs on the part of the cutters that has been sufficiently strong to lead

them extensively into the converting business must be indicative of serious dissatisfaction with some of the marketing policies of the mills and converters. On the second point, although there is an appreciation in some quarters of the importance of establishing and maintaining standards of quality in silk and rayon fabrics, it appears to me that this appreciation is by no means universal in the broad goods industry. Whether or not my conclusions as to the reasons for this shift of merchandising responsibility are correct, the shift seems to me to be highly significant and I apprehend that unless the operators heed the handwriting on the wall, mastery of the industry will pass from their hands to others more alert.

PRICE-CUTTING EVIL MINIMIZED

For reasons already stated, price cutting has been prevalent in the broad goods industry. One of the worst aspects of price cutting has been the practice of numerous mills of selling to different customers at different prices. Such a practice encourages the less-favored customers to seek opportunities to buy similar fabrics at cheaper prices from other sources and adds to the temptation to skimp quality, thus lowering fabric standards. In a buyer's market the pressure to grant price concessions is tremendous, but the practice adds to the demoralization. Such selling practices today are discouraged and minimized by the textile codes under which the silk and rayon broad goods industry operates. On the other hand, the prescription of widely different terms under the N.R.A. codes for similar or identical merchandise produced by manufacturers operating under different codes, has created a new problem with regard to price policies.

PRODUCTION AND DISTRIBUTION INTERRELATED

The problems of managing a broad goods business successfully, as has been stated, are particularly difficult and some of them have been acute during the last few years. To quote a statement by one executive: "The problem of overproduction is influencing every other problem in the industry. Efficient mill operation requires steady production. Efficient and profitable distribution requires policies based on the seasonable requirements of the public. The industry deals in seasonable merchandise and cannot expect the public to buy equal amounts each month of the year. Since the requirements of production and distribution are diametrically opposed to each other, one has to give way. Only one thing can be done: Production must be adapted to distribution. This means that in the off season, production must be drastically reduced. Unfortunately, no common solution applicable to everyone has been found for this production problem. The seriousness of the problem has been increased because codes, as approved by the Administration, do not recognize the unity of the textile

field. If any attempt is made to regulate production through code control, it only can be done if all textile industries are considered as one and one central code authority issues curtailment orders applicable to the various textile fields according to their needs."

The foregoing statement indicates forcefully that, on the basis of present consumption, the manufacturing capacity needed for the seasonal peaks cannot all be operated profitably in the off-peak seasons. The members of the industry have been unable to agree on a formula for the proper adjustment of their operations to meet this situation. Eventually, it will be found to be sound policy, I believe, for each mill to regulate its production according to its sales and to avoid such excessive inventory accumulations as have occurred in the past. The cost accounting methods should, of course, be adjusted to allow for the inevitable seasonal variations in production. Although it has not been possible in this survey intensively to examine cost accounting methods in the industry, I judge that faulty cost accounting and failure to utilize cost accounts properly have contributed substantially to the existing demoralization. The chronic overproduction in the industry has been rendered worse by the failure of operators to scrap obsolescent equipment promptly. Here, too, the cost accounting methods may have played a part by not providing adequately for obsolescence.

OPERATORS IMITATE INSTEAD OF CREATE

The productive capacity also is rendered excessive by the manner in which it is used. In style merchandising, imitation is inevitable, but too many operators in the broad goods industry primarily are imitators not creators. It is by no means certain that the existing capacity could not be operated profitably in normal times if it were modernized, if the seasonal fluctuations were allowed for intelligently, and if more of the operators were doing an independent creative merchandising job and handling their distribution in an effective manner.

PRESENT SAMPLING METHODS CAUSE LOSSES

One of the effects of excess capacity and the prevalence of imitative merchandising is well presented in the following statement by an executive in the industry: "One practice now exists in the industry which is disturbing to accurate forecasting, but for which I confess I do not see the cure. I refer to the practice the cutters have of buying large numbers of sample cuts from many sources—frequently many more cuts than they make up into garments. We have a fabric-producing industry which is operating on the basis of mass production and which distributes more or less piecemeal to the dress manufacturing industry. The only measure in advance of actual volume sales which the fabric manufacturer has of his potential distribution is

the extent of his sampling, which is an indication of the acceptance which his fabric receives by the trade. If he samples a fabric badly, the probabilities are that the fabric will not be a success; if he samples it too widely, he may kill it by making it too common; if he samples it in sufficient volume and bases a production forecast upon the results of that sampling, he may find that his volume does not materialize for any one of many causes—such as the fact that many cutters who have bought goods have not made them up, or because fabrics have been substituted on account of concessions in price, and so on—with the result that the manufacturer has an inventory of merchandise on hand upon which he has to make a reduction in price in order to move it and which results in financial loss. This condition is, to a considerable extent, brought about by the fact that the cutter has no stake in the success of a fabric because he only has bought a cut representing an investment of \$5.00, \$6.00 or \$7.00. This is a condition the fabric manufacturers have brought upon themselves."

SIMPLE CURE FOR ALL ILLS IMPOSSIBLE

Under these conditions it is apparent, as has been stated before, that there is no simple remedy for curing all the ills of the industry. Nor do I believe that any formula can be found that automatically will solve the industry's problems. Rather, the evidence indicates the need for prolonged and extensive educational work in cost accounting, in inventory control, in merchandising and distribution, and in general policies. The executives in the industry typically seem to have their attention focussed almost entirely on the problems of the moment which, of course, constantly are changing, with the result that their plans usually are not based on farsighted policies.

FURTHER RESEARCH INDISPENSABLE

For such an educational program, which well might be undertaken by the Federation, further research will be needed. In this survey, a large amount of valuable information has been assembled but it has not been possible to probe each problem to the bottom. For example, the cost accounting procedure of the industry at large should be investigated with a view to the possibility of developing standard methods and securing their intelligent utilization. The question of effective methods of merchandising organization has not been thoroughly explored. In connection with merchandising, an examination also should be made of the possibilities of developing products which could be manufactured advantageously during the off-peak seasons to level out plant operations, thereby rendering a large social service and, at the same time, solving a troublesome business problem.

The handling of the style problem deserves a thorough-going investigation. Style is the crux of this industry, yet

the failure to observe the principles of style merchandising and the lack of recognition of market limitations for style goods and for price classes result continually in heavy losses from price-cuts and mark-downs. It never will be possible, to be sure, to discover hard and fast rules that will regulate styles, but I believe that there is an exceptionally fruitful field for pioneer investigation of the principles of style merchandising in this industry. The opportunities for the effective use of brands and advertising also might well be explored with full recognition, of course, of the peculiar conditions which exist in an industry dominated by fashion. These are some of the major questions on which further research seems likely to be worth while as a basis for a broad educational program. Such work is slow, to be sure, but by one means or another the operators in the industry must learn the lessons contemplated in such a program and without organized guidance their progress will be even slower.

At present, the industry is faced by perplexing difficulties and troublesome problems. The fact that the industry seems likely to enter presently on a period of improved business conditions means that a better opportunity than has existed for several years eventually will present itself for a constructive solution of these problems. This leads to my final question. How will the members of the industry use prosperity? Heretofore, in good times, most firms in this industry (like others) have made little preparation for future emergencies. If this same course is followed, demoralized conditions will recur. It seems to me to be inevitable that in the future, as in the past, periods of prosperity will be followed by periods of falling prices and slackened demand. Hence, it behooves the members of the industry to utilize periods of favorable business conditions to strengthen their financial positions and to adopt sound and farsighted operating policies which will enable them to withstand the shocks of business reactions.

Production and Distribution

By

W. Homer Turner

Production

BECAUSE of the nature of the silk and rayon industry, it is desirable to begin this study with a consideration of the type of productive equipment owned and operated by the industry. It is a seasonal industry, highly sensitive to style changes; operation of its productive weaving equipment has resulted, at times, in serious overproduction; and, in the final analysis, the quantity and quality of merchandise produced are contingent upon the type of equipment owned and operated. Important factors include the interchangeability and efficiency of installed looms.

INTERCHANGEABILITY OF SILK AND RAYON EQUIPMENT

In this survey, full recognition is given to the fact that no longer is there a distinct silk weaving industry or a distinct rayon weaving industry. The looms and other productive equipment of the operators who formerly dealt solely in silk goods and of those who dealt solely in rayon goods are considered jointly. Obvious as this statement seems, probably it is the first formal acknowledgment of the absence of any basic distinction between these two classes of manufacturers. The looms producing silk, rayon or mixed silk and rayon goods, largely are interchangeable and the production of many manufacturers frequently is changed overnight from one raw material to another or to a combination of raw materials. Naturally, this has intensified old and introduced new production problems. At the same time distribution, including the merchandising and selling of goods, has been affected by the converging of markets for all textiles—silk, rayon, cotton and wool.

Some difficulty has been encountered in making composite studies for this survey as, unfortunately, the theoretical distinctions between some silk and rayon manufacturers and some rayon operators have been maintained since the formation of the N.R.A. Wherever possible, data on productive equipment—whether owned by silk, rayon or cotton mill operators manufacturing silk and rayon goods—have been treated collectively. For convenience in comparison, that branch of the industry operating (as this survey is written) under the Cotton Textile Code is distinguished from the principal part (under the Silk Textile Code) by the use of the classification “National Rayon Weavers Association.” The looms of cotton manufacturers, devoted to cotton production only, of course are excluded.

INSTALLED AND EFFICIENT LOOMS

Figures obtained from loom manufacturers, from government studies and from special questionnaires tabulated for this survey, show a variance as to total number of installed looms. The number of looms installed is the customary criterion for analyses of production problems in this industry. For those who are accustomed to analyze problems of productive capacity, extent and control of production from such a base, there have been included

some tabulations utilizing as an index the number of looms installed as reported on the survey questionnaires. Throughout the survey, distinction is made between total *installed* loomage and total *efficient* loomage; it is on the latter base that most of the conclusions as to production problems have been reached. The term “efficient loomage” designates equipment economically sound to operate.

TYPE OF EQUIPMENT OWNED

An analysis of Tables I to III, inclusive, and supplementary detailed tables in the Appendix, as well as other facts disclosed, indicates that the silk and rayon industry, with a total loomage of 140,083, as a whole does not own modern equipment. Lack of modernization is equivalent to saying that the industry owns many inefficient machines. This conclusion is based on the belief that the high-quality merchandise demanded today requires equipment which will not reveal “stop marks,” will eliminate human error and otherwise produce faultless material. Since 1924, many progressive manufacturers largely have agreed that quality goods in quantity can be produced at low cost and at an efficient rate of production only through the use of some type of automatic loom. Automatic looms are of the shuttle-changing and bobbin-changing types—the former is the most recent development. Semi-automatic devices—involving “feeler” motion—installed by many manufacturers on old looms in their plants, to some extent have met the need for modern equipment.

Based on the tables, the following analysis is designed to show the number of efficient looms as compared with the total installed looms in the silk and rayon industry. All figures on reed widths represent measurements between swords. The practical width is approximately 4 inches less than the between-swords distance. There is no mathematical nicety with which this difference in width can be calculated; its variation is influenced by the contexture of the cloth. Many narrow, plain, outmoded looms (less than 48 inches in reed width) have been rebuilt into wide box looms. Machinery manufacturers’ records indicate that a large part of their business has been in the rebuilding of looms. The statement that operators under the Silk Textile Code have approximately 27,000 obsolete or obsolescent looms is substantiated by data which follow.

TABLE I

LOOMS OWNED BY OPERATORS REPORTING TO THE SILK TEXTILE CODE*

(Adapted for Silk and Mixed Production)

STOCK-CARRYING MILLS

	<i>Under 41"</i>	<i>41" - 44"</i>	<i>45" - 48"</i>	<i>49" - 60"</i>	<i>Over 60"</i>	<i>Total</i>
SILK LOOMS						
2 x 2 Box	42	186	205	1,062	1,439	2,934
4 x 4 "	1,343	831	1,220	5,466	2,498	11,358
2 x 1 "	185	859	4,615	36,320	3,359	45,338
4 x 1 "	81	4	1,465	2,280	622	4,452
1 x 1 Plain	1,884	1,655	4,265	2,635	1,084	11,523
TOTAL	3,535	3,535	11,770	47,763	9,002	75,605
COTTON LOOMS ADAPTED FOR MIXED PRODUCTION						
2 - 4 - 6 x 1, 2 x 2, 4 x 4.....	282	708	335	162	.....	1,487
1 x 1.....	235	.....	.....	61	.....	296
TOTAL	517	708	335	223	.....	1,783
ALL LOOMS						
2 - 4 - 6 x 1, 2 x 2, 4 x 4.....	1,933	2,588	7,840	45,290	7,918	65,569
1 x 1.....	2,119	1,655	4,265	2,696	1,084	11,819
TOTAL	4,052	4,243	12,105	47,986	9,002	77,388

COMMISSION WEAVERS

SILK LOOMS						
2 x 2 Box .....	.....	.....	.....	32	.....	32
4 x 4 "	82	67	82	654	102	987
2 x 1 "	133	119	934	10,818	213	12,217
4 x 1 " .....	.....	.....	19	498	39	556
1 x 1 Plain .....	.....	647	469	59	.....	1,175
TOTAL	215	833	1,504	12,061	354	14,967

COMBINED TOTALS

2 - 4 - 6 x 1, 2 x 2, 4 x 4.....	2,148	2,774	8,875	57,292	8,272	79,361
1 x 1.....	2,119	2,302	4,734	2,755	1,084	12,994
GRAND TOTAL	4,267	5,076	13,609	60,047	9,356	92,355

*If operators report to both the Silk Textile Code and the National Rayon Weavers Group of the Cotton Textile Code, they are reported here

SOURCE: The National Federation of Textiles, Inc.

TABLE II

LOOMS OWNED BY OPERATORS REPORTING TO THE NATIONAL RAYON
WEAVERS GROUP OF THE COTTON TEXTILE CODE

(Adapted for Rayon and Mixed Production)

STOCK-CARRYING MILLS

	<i>Under 41"</i>	<i>41" - 44"</i>	<i>45" - 48"</i>	<i>49" - 60"</i>	<i>Over 60"</i>	<i>Total</i>
SILK LOOMS USED PRINCIPALLY FOR RAYON						
2 x 2 Box .....	.....	33	.....	85	.....	118
4 x 4 " .....	.....	.....	230	45	59	334
2 x 1 " .....	.....	202	338	1,214	14	1,768
4 x 1 "	424	292	693	1,075	141	2,625
1 x 1 Plain	2,234	976	1,152	176	.....	4,538
TOTAL.....	2,658	1,503	2,413	2,595	214	9,383
COTTON LOOMS ADAPTED FOR MIXED PRODUCTION						
2 - 4 - 6 x 1, 2 x 2, 4 x 4.....	3,687	3,758	1,134	762	798	10,139
1 x 1.....	10,285	14,015	2,014	349	1,042	27,705
TOTAL.....	13,972	17,773	3,148	1,111	1,840	37,844
ALL LOOMS						
2 - 4 - 6 x 1, 2 x 2, 4 x 4.....	4,111	4,285	2,395	3,181	1,012	14,984
1 x 1.....	12,519	14,991	3,166	525	1,042	32,243
TOTAL.....	16,630	19,276	5,561	3,706	2,054	47,227
COMMISSION WEAVERS						
SILK LOOMS USED PRINCIPALLY FOR RAYON						
4 x 4.....	.....	.....	19	12	.....	31
2 x 1.....	.....	.....	317	153	.....	470
TOTAL.....	.....	.....	336	165	.....	501
COMBINED TOTALS						
2 - 4 - 6 x 1, 2 x 2, 4 x 4.....	4,111	4,285	2,731	3,346	1,012	15,485
1 x 1.....	12,519	14,991	3,166	525	1,042	32,243
GRAND TOTAL.....	16,630	19,276	5,897	3,871	2,054	47,728

SOURCE: The National Federation of Textiles, Inc.

So that the true relationship between the productive capacity and other factors influencing production and distribution of broad goods fully may be understood, a somewhat detailed analysis of types of looms owned necessarily is given in the beginning of this section. Prior to this study, there has been no publication which embraced an analysis of equipment. The details given should be helpful in dispelling the confusion which has existed on the matter of weaving equipment.

UTILITY OF 1 X 1 PLAIN LOOMS OWNED

By Operators Under the Silk Textile Code. Table I shows a total of 92,355 looms. Of this number, 14 per cent (12,994) are of the oldest type—the 1 x 1 plain loom. The economic life of this type of loom was prolonged, during the early 1920's, by the introduction of flat rayon. With the coming of rayon crepes, however, the use of this loom no longer economically was justified. As a result, many of the 1 x 1 looms have been idle for years. Neither silk nor rayon crepes today are made on 1 x 1 plain looms. Occasionally, these looms have a mild season of activity when fashion swings to such fabrics as taffeta or other weaves not requiring box looms.

The long-time trend for soft, non-crushable textures—of which crepe is the most common type—generally limits manufacture to looms having reed widths of 49 inches and over. Therefore, the 1 x 1 plain looms, largely of narrow reed width, can be eliminated from consideration of available efficient looms for the manufacture of modern, high-quality fabrics at reasonable cost.

By Operators Under the National Rayon Weavers Association (Cotton Textile Code). Of the total of 47,728 looms owned by this group (Table II), 32,243 are 1 x 1 plain looms (about 68 per cent). Of these, 27,705 (86 per cent) are cotton looms adapted for mixed production and 4,538 (14 per cent) are silk looms. On the basis of reed width, only 5 per cent of these 1 x 1 looms (1,567) are 49 inches and over, 9.5 per cent (3,166) are from 45 to 48 inches and 85.5 per cent (27,510) are less than 44 inches.

When the figures for 1 x 1 looms owned by both the silk and rayon groups are compared, it will be seen that of the looms most adaptable for present-day requirements—reed widths of 49 inches and over—the greater percentage is owned by operators under the Silk Textile Code. Nevertheless, "rayon weavers" have gained some business from the "silk weavers" by turning out quantities of materials on the old 1 x 1 looms, mostly taffetas and other staples which do not require wide reed.

UTILITY OF BOX LOOMS OWNED— UNDER 49 INCHES REED WIDTH

By Operators Under the Silk Textile Code. Table I shows that there are 8,875 looms (11 per cent of the total of 79,361 box looms owned by this group) having reed

widths of from 45 to 48 inches; 4,922 (6 per cent) of 44 inches and less; and 65,564 (83 per cent) of 49 inches and over in this group.

The 4,922 looms, varying in reed width up to 44 inches, only rarely can be used for present-day broad goods requirements because of the desired width of finished merchandise. These looms largely are confined to the production of narrow goods. They present limited possibilities of profits and are competitively obsolete.

The 8,875 looms having reed widths of between 45 and 48 inches are more adaptable than those under 45 inches. Nevertheless, modern demands for crepe and other constructions requiring considerable shrinkage in manufacture, exclude the extensive use of looms having reed widths of less than 49 inches. Unfortunately, it is not possible to say with certainty just how many of the looms between 45 and 48 inches are 45, 46, 47 and 48 inches wide, but individual analyses of reports from various operators owning some of these looms indicate that the whole class is obsolescent and that at least 4,400 (50 per cent), which are under 47 inches, now are obsolete.

By Operators Under the National Rayon Weavers Association. Of the 15,485 box looms owned by this group (Table II), 10,139 (65 per cent) are cotton looms adapted for mixed production and 5,346 (35 per cent) are silk looms. Of the total, 8,396 (54.5 per cent) have a reed width of 44 inches or less (7,445 cotton and 951 silk looms); 2,731 (17.5 per cent) are from 45 to 48 inches (1,134 cotton and 1,597 silk looms); the remaining 4,358 looms (28 per cent) have reed widths of 49 inches and over (1,560 cotton and 2,758 silk looms).

By comparing these figures with those in the corresponding classes of looms owned by operators under the Silk Textile Code, it will be seen that, whereas only 11 per cent (8,875) of the total box looms owned by the silk group have reed widths of 45 to 48 inches and 6 per cent (4,922) are 44 inches and less, 17.5 per cent (2,731) of the total box looms owned by the rayon group have reed widths of 45 to 48 inches and 54.5 per cent (8,396) are 44 inches and less. When it is realized also that of these two classes of looms in the rayon group, 8,579 (77 per cent) are cotton looms adapted for mixed production and 2,548 (23 per cent) are silk looms, whereas in the silk group only 1,325 (10 per cent) are cotton looms and 12,472 (90 per cent) are silk looms, it will be seen that operators under the Silk Textile Code have a decided advantage even in these obsolescent classes of looms.

UTILITY OF BOX LOOMS OWNED— OVER 49 INCHES REED WIDTH

By Operators Under the Silk Textile Code. The 65,564 looms having reed widths of 49 inches and over owned by this group represent the most desirable equipment of the

industry. But, even here, there is a wide difference in the economic significance of the automatic and the non-automatic loom. The American consumer no longer is satisfied with materials which show stop marks caused by the running out of the filling. The delay and consequent increase in cost in picking up the end of the filling and starting a new bobbin manually is another important factor. During the last decade, machinery manufacturers as well as individual operators have developed several methods of overcoming these difficulties.

First, a feeler motion device was installed, by means of which the machine is stopped before the filling runs out. This speeds up the process of renewing the filling and eliminates stop marks in the middle of the fabric. Looms equipped with this device are known as semi-automatics. Obviously, although eliminating some returns of merchandise, the installation of this device did not greatly decrease costs. Subsequently, a somewhat complicated mechanism was developed for changing the bobbin without stopping the loom. The latest development is found in the completely automatic, simplified, shuttle-changing loom.

The automatic and semi-automatic looms make possible the operation of a larger complement of machines for a single weaver. The automatic feature of changing the filling, either by the shuttle-changing or bobbin-changing method, enables one man to handle as many as eight or more machines without increasing the manual labor.

It will be seen from Table I that 65,564 looms, or 83 per cent of the total of 79,361 box looms owned by operators under the Silk Textile Code, have reed widths of 49 inches and over. Only a few thousand of these (not more than 9 per cent) are equipped with shuttle-changing and bobbin-changing devices as compared with 54 per cent of the similar looms owned by operators under the National Rayon Weavers Association. This graphically illustrates—apart from the actual age of the machines based on date of installation—the extent to which members of the silk group are operating on obsolete equipment.

By Operators Under the National Rayon Weavers Association. Table II shows that 4,358, or 28 per cent of the total box looms owned by this group, have reed widths of over 49 inches. Of these, 2,798 (64.2 per cent) are silk, and 1,560 (35.8 per cent) adapted cotton, looms.

Bearing in mind the fact that the looms in this class are recognized as the most desirable for modern requirements, it is interesting to note that, so far as the percentages of totals are concerned, the members of the silk group, with 83 per cent of their total box looms in this class, are in a superior position to the rayon group with only 28 per cent of their total box looms of similar width.

In both the silk and rayon groups the productive equipment at the moment is sadly behind the times. Nevertheless,

the important thing to be noted here is that the rayon group rapidly is speeding ahead with a modernization program which cannot be ignored by the silk group if it hopes successfully to meet the increasing competition of the rayon weavers in its markets. An indication of the aggressive policy of the rayon group is contained in figures of loom manufacturers, showing that 69 per cent of the automatic looms installed by both groups in 1933 went to rayon weavers whereas only 31 per cent was installed in the plants of members of the silk group. Recognition of this modernization program and the taking of steps to emulate it alone will permit the maintenance by the silk group of supremacy in the field of productive equipment.

AGE OF INSTALLED LOOMS

Based on the production records of manufacturers, Table III, arranged by years, shows the age of American-built looms installed in the silk and rayon industry. The number of foreign-built looms owned by present operators is negligible, according to survey tabulations, and for that reason is disregarded. Although there are a number of looms in existence which were built prior to 1897, the data on them are so indefinite that they have been omitted from the table. The looms built or installed between 1897 and 1933 represent 100 per cent. Charts A and B show, respectively, the yearly and accumulative number of automatic and non-automatic looms installed by the two groups for each year since 1923.

EQUIPMENT OF STOCK-CARRYING MILLS AND COMMISSION WEAVERS

Of the total 1 x 1 plain looms utilized by Silk Textile Code operators, 9 per cent (1,175) are in the hands of commission weavers and 91 per cent (11,819) belong to stock-carrying mills. Of the total box looms held by these operators, 83 per cent (65,569) belong to stock-carrying mills and 17 per cent (13,792) to commission weavers. Of the box looms held by commission weavers, 80 per cent (11,031) are 2 x 1 looms having reed widths ranging from 49 to 60 inches.

In the rayon group, 97 per cent (14,984) of the total box looms are held by stock-carrying mills and 3 per cent (501) by commission weavers.

Of the box looms held by operators under the Silk Textile Code, 19 per cent (12,356) having reed widths of 49 inches and over belong to commission weavers and 81 per cent (53,208) are held by stock-carrying mills.

In the rayon group, 96 per cent (4,193) of these wide-reed looms are held by stock-carrying mills and 4 per cent (165) by commission weavers.

These figures would seem to indicate that commission weavers tend to concentrate on staple fabrics and are content to leave the bulk of the more complicated weaves to the stock-carrying mill operators.

TABLE III

AGE OF INSTALLED SILK LOOMS
(Not Including Looms Installed Before 1897)

YEAR	<i>Percentage of Total Looms Installed by Years</i>	<i>Accumulative Percentage of Looms Installed Since 1897</i>
1897	2.80	2.80
8	2.62	5.42
9	2.42	7.84
1900	1.23	9.07
1	2.04	11.11
2	3.06	14.17
3	1.17	15.34
4	1.66	17.00
5	2.98	19.98
6	1.22	21.20
7	1.70	22.90
8	2.25	25.15
9	3.69	28.84
1910	2.56	31.40
1	0.97	32.37
2	2.29	34.66
3	3.26	37.92
4	3.87	41.79
5	6.21	48.00
6	4.18	52.18
7	3.90	56.08
8	2.07	58.15
9	12.16	70.31
1920	0.45	70.76
1	0.90	71.66
2	2.31	73.97
3	1.75	75.72
4	1.86	77.58
5	7.78	85.36
6	3.20	88.56
7	2.46	91.02
8	2.34	93.36
9	2.24	95.60
1930	1.73	97.33
1	1.53	98.86
2	1.14	100.00
TOTAL	100.00	100.00

SOURCE: Crompton & Knowles Loom Works

**STRUCTURAL ANALYSES OF ORDINARY AND
JACQUARD LOOMS**

Table XLII in the Appendix gives actual figures taken from signed questionnaires on the various types of looms owned by both the silk and rayon groups. Under the several reed widths is shown the number of machines with head motion, multiplier, call-box devices, etc. The total number of Jacquards reported is 6,881.

**ORGANIZATION AND ECONOMIC SIGNIFICANCE OF THE
SILK AND RAYON INDUSTRY**

Organization. The silk and rayon industry is composed of more than 1,200 operators with products valued at over

\$400,000,000 annually. Table IV gives government statistics in summary form and Table V shows the quantity and value of products in all-silk, all-rayon and various combinations of these two raw materials. The industry is recognized as a producer for one of the major consumer goods industries (clothing), which long has occupied a preeminent position in American business. The broad silk industry has achieved its importance by continual growth, its roots being more than 100 years old. Because of its close relationship to style or fashion cycles, it has presented the most troublesome style problems and some of the most difficult marketing situations.

TABLE IV

COMPOSITE SUMMARY OF THE SILK AND RAYON INDUSTRY

ITEM	1933*	1931	1929	% Change 1931-33	% Change 1929-31	
Number of establishments.....	1,087	1,211	1,491	-10.2	-18.8	
Wage earners (yearly average).....	110,322	109,225	130,467	+ 1.0	-16.3	
Wages (excluding salaried employees) \$	74,098,215	97,409,008	137,547,146	-23.9	-29.2	Includes those engaged primarily in the manufacture of finished silk and rayon products (not including knit fabrics, hosiery and other knit goods), as well as those engaged primarily in the manufacture of silk yarn and of warps
Paid for contract work.....	\$ 17,626,353	\$ 32,694,532	\$ 36,799,952	-46.1	-11.2	
Cost of materials, fuel, etc.....	\$143,611,431	\$212,846,607	\$412,181,260	-32.5	-48.4	
Total value of products.....	\$290,577,662	\$422,771,960	\$731,200,231	-31.3	-42.2	
**Value added by manufacture.....	\$146,966,231	\$209,925,353	\$319,018,971	-30.0	-34.2	

TABLE V

CHANGE IN QUANTITY AND VALUE OF PRODUCTS
(Square Yards)

ITEMS COMPARED	1933*	1931	1929	% Change 1931-33	% Change 1929-31		1933*	1931	1929	% Change 1931-33	% Change 1929-31	
ALL-SILK PRODUCTS												
Production (Yards)	201,438,039	386,294,116	424,607,181	- 46.3	- 9.0	}						
Total Value	\$77,112,390	\$209,838,467	\$385,773,297	- 63.3	-45.6							
Value per Yard	\$0.38	\$0.54	\$0.91	- 29.6	-40.7							
SILK & COTTON PRODUCTS												
Production (Yards)	5,226,393	8,997,992	27,712,929	- 41.9	-67.5	}						
Total Value	\$2,582,965	\$7,401,141	\$17,781,357	- 65.1	-58.6							
Value per Yard	\$0.49	\$0.82	\$0.64	- 40.2	+28.1							
SILK & RAYON PRODUCTS												
Production (Yards)	30,183,095	13,370,659	31,739,493	+125.7	-57.9	}						
Total Value	\$13,356,019	\$8,645,957	\$24,428,490	+ 54.5	-64.6							
Value per Yard	\$0.44	\$0.65	\$0.77	- 32.3	-16.0							
ALL-RAYON PRODUCTS												
Production (Yards)	272,821,897	109,389,943	66,024,378	+149.4	+65.7	}						
Total Value	\$78,799,133	\$38,400,652	\$34,738,267	+105.2	+10.5							
Value per Yard	\$0.29	\$0.35	\$0.53	- 17.1	-34.0							
RAYON & COTTON PRODUCTS												
Production (Yards)	46,955,156	41,077,342	37,240,687	+ 14.3	+10.3	}						
Total Value	\$11,573,662	\$12,219,071	\$16,616,667	- 5.3	-26.5							
Value per Yard	\$0.25	\$0.30	\$0.45	- 16.7	-33.4							
							†TOTAL—ALL CLASSES SILK PRODUCTS					
Production (Yards)	236,847,527	408,662,767	484,059,603	- 40.6	-15.6							
Total Value	\$93,051,374	\$225,885,565	\$427,983,144	- 58.8	-47.2							
Value per Yard	\$0.39	\$0.55	\$0.88	- 25.5	-37.5							
							†TOTAL—ALL CLASSES RAYON PRODUCTS					
Production (Yards)	349,960,148	163,837,944	135,004,558	+113.6	+21.4							
Total Value	\$103,728,814	\$59,265,680	\$75,783,424	+ 75.0	-21.8							
Value per Yard	\$0.30	\$0.36	\$0.56	- 16.7	-35.7							
							†Includes silk and rayon products					

*Preliminary

**Value added by manufacture equals value of products less cost of materials, fuel, etc.

SOURCE: U. S. Census of Manufactures

CHART A

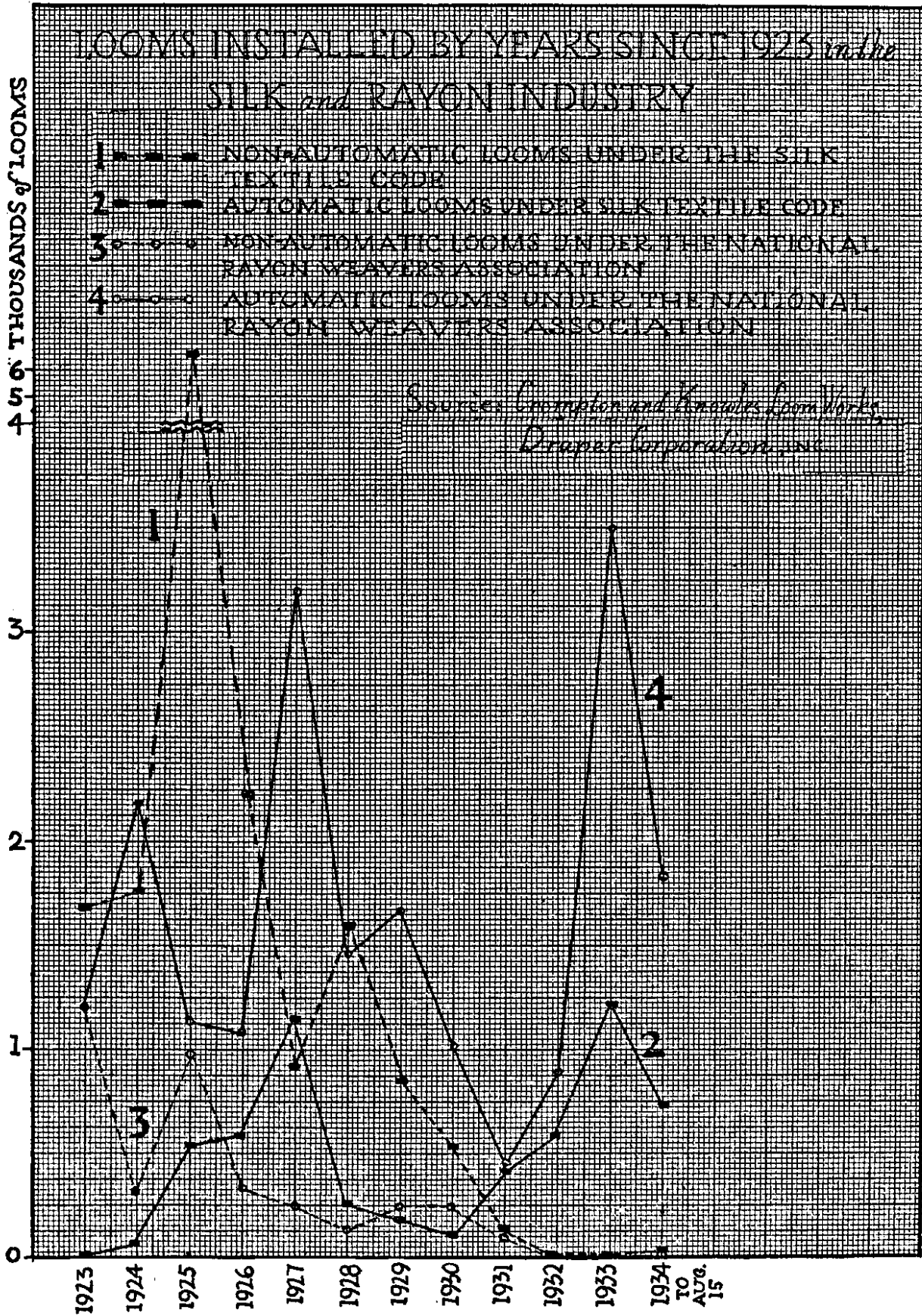
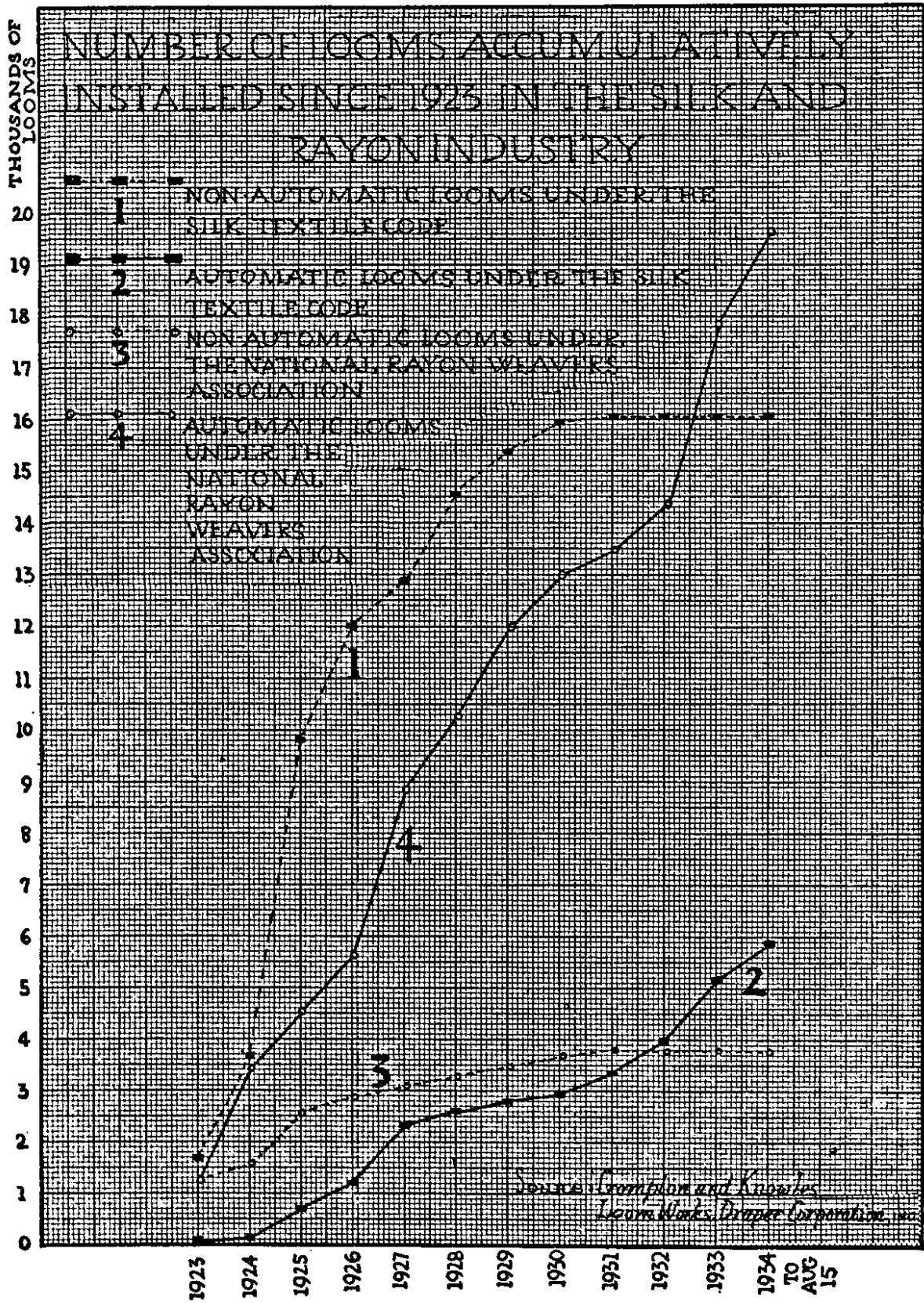


CHART B



Basically, the industry is composed of three elements, of which the stock-carrying mill is the most stable and significant. Operators of these mills usually buy their own raw materials (often having some part, such as throwing, in the preparation of these raw materials for manufacture) and weave cloth in the raw for distribution to converters or in the finished state for distribution to the cutting-up trade and retail outlets. Commission weaving operators produce goods on a commission basis from raw materials owned by others—usually converters. Converters function as merchandisers and sellers of finished goods procured (usually in the raw) from stock-carrying mills or commission weavers. Jobbers of converted merchandise, formerly an important group, now account for only a small part of the goods sold.

Another class of producers is the so-called "family shop" or similar group, principally located in Paterson, N. J., operating a small number of looms (usually less than 20) with the assistance of members of the family. The cost of producing goods under such conditions frequently forbids competition by the normal business operator. The continual increase in the number of family shop establishments (or variants of the same) threatens the welfare of the more stable mills, whether stock-carrying or commission weaving, and presents a continuous opportunity for exploitation of labor which is a menace to all elements of the industry.

The interrelationship of these various elements of the industry in the production, merchandising and selling of goods, is fully described in the section on distribution. It is important here to note the relative economic significance of these elements.

Changes in the Last Decade. (a), GROWTH OF THE RAYON INDUSTRY. It was not until the early twenties that rayon yarn became an important raw material for the weaving industries. The amazing development of synthetic yarns took place in 1927 with the introduction of crepe twist in rayon which permitted this yarn to be used for softer dress fabrics. With the development of the rayon industry in the United States, particularly after the introduction of rayon crepes, many operators who had been producing all-silk goods went into the production of all-rayon goods. Subsequently, the demand for rayon goods became firmly established and, as a result, nearly every manufacturer operating under the Silk Textile Code, or with the rayon group, now is engaged, at least partly, in rayon weaving. On the other hand, there are staple lines made of all-silk directly competing with others in the same price class made of all-rayon.

The principal goods manufactured by operators under the Silk Textile Code are the 50/64 class of fabrics, used for dresses and tailor's linings for suits and coats, and

french crepes used for underwear, negligees and like purposes. Similar staples made of rayon, competing in the same markets, are manufactured by rayon weavers.

In addition to the flexibility of weaving machinery and the creation of new style and fashion trends, an especially important factor in connection with the change of manufacturers from all-silk production to silk and rayon or all-rayon production has been the differential in price between the cost of raw silk and the cost of rayon yarn. Until recently, much of the emphasis on rayon production was attributable to the wide difference in the cost of the two raw materials. After proper allowance for varying consumer preferences, the price of the raw material has a direct bearing on the use to which machinery is put. This and other aspects of the relation of consumption of raw material and prices are discussed in the section dealing with distribution.

(b), INCREASE IN COMMISSION WEAVING. Paralleling the growth of the rayon industry has been the development of commission weaving. Today, about 40 per cent of the total broad goods production is from this type of operation. The growth in commission weaving has been made possible by the falling markets of recent years and the general shrinkage in working capital available.

Today, the commission weaver seldom has any investment except in looms. He operates at high speed, usually under the direction of converters. In dull seasons of recent times, commission weaving has been undertaken by stock-carrying mills and, during peak loads, when the latter do not have sufficient equipment in operating condition to meet demands, they have been served by commission weavers. Economically considered, commission weaving—whether done by stock-carrying mills or independent operators—is unsound and contrary to the principles of modern industrial operation.

(c), ACTIVITY OF CONVERTERS AND CUTTERS-UP. During the past ten years, the cutting-up industry has increased in importance to such an extent that, today, producers of goods sell most of their merchandise to such outlets. The converter buys from producers and sells to the trade consumer—principally cutters. Important as is the converter in distribution, generally he has no financial investment in the silk and rayon manufacturing industry and his economic significance is that of a fabricator.

OWNERSHIP OF EQUIPMENT AND BUILDINGS

Table VI shows investment in buildings and machinery by stock-carrying mills and commission weavers. The tabulations for the survey cover operators reporting to the Silk Textile Code Authority. Of the firms owning their own buildings, 65.7 per cent are regular mills and 34.3 per cent are commission weavers. Of the firms not owning their

TABLE VI

OWNERSHIP OF BUILDINGS AND MACHINERY
IN THE SILK AND RAYON INDUSTRY

(Operating Under the Silk Textile Code)

	STOCK-CARRYING MILLS					COMMISSION WEAVERS					TOTAL STOCK-CARRYING MILLS AND COMMISSION WEAVERS				
	No. of Firms	No. of Looms	Looms per Firm	Per Cent Firm	Per Cent Looms	No. of Firms	No. of Looms	Looms per Firm	Per Cent Firm	Per Cent Looms	No. of Firms	No. of Looms	Looms per Firm	Per Cent Firm	Per Cent Looms
Own buildings.....	182	58,295	320.3	35.4	78.4	94	6,815	72.5	15.6	37.9	276	65,110	235.9	24.7	70.5
Do not own buildings.....	333	16,071	48.3	64.6	21.6	510	11,174	21.9	84.4	62.1	843	27,245	32.3	75.3	29.5
TOTAL.....	515	74,366	144.4	100.0	100.0	604	17,989	29.8	100.0	100.0	1,119	92,355	82.5	100.0	100.0
Own machinery.....	502	71,126	141.6	97.6	95.6	590	17,210	29.2	97.6	95.7	1,092	88,335	80.9	97.6	95.6
Do not own machinery.....	13	3,240	249.2	2.4	4.4	14	779	55.6	2.4	4.3	27	4,020	148.9	2.4	4.4
TOTAL.....	515	74,366	144.4	100.0	100.0	604	17,989	29.8	100.0	100.0	1,119	92,355	82.5	100.0	100.0

19

SOURCE: The National Federation of Textiles, Inc.

TABLE VIII

ESTIMATED DISTRIBUTION OF SILK AND RAYON LOOMS BY SIZE OF ESTABLISHMENT*

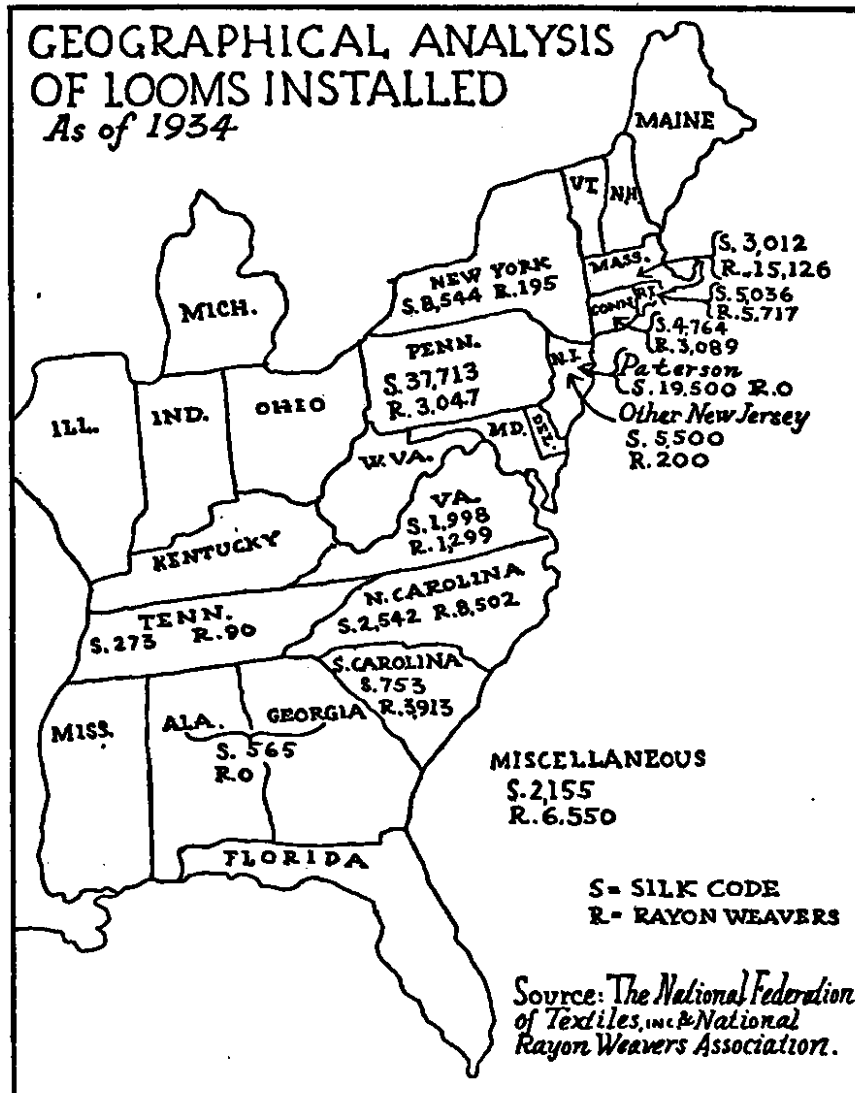
	SILK CODE**				RAYON WEAVERS				TOTAL			
	No. of Firms	Total Looms Owned	Per Cent Firms	Per Cent Looms	No. of Firms	Total Looms Owned	Per Cent Firms	Per Cent Looms	No. of Firms	Total Looms Owned	Per Cent Firms	Per Cent Looms
Up to 99 looms.....	832	23,031	74.4	24.9	10	503	12.3	1.1	842	23,534	70.2	16.8
100 - 299 "	208	26,393	18.6	28.6	26	4,986	32.1	10.4	234	31,379	19.5	22.4
300 - 499 "	41	11,286	3.6	12.2	11	4,263	13.6	8.9	52	15,549	4.3	11.1
500 - 999 "	19	9,724	1.7	10.5	18	11,008	22.2	23.1	37	20,732	3.1	14.8
Over 999 "	19	21,921	1.7	23.8	16	26,968	19.8	56.5	35	48,889	2.9	34.9
	1,119	92,355	100.0	100.0	81	47,728	100.0	100.0	1,200	140,083	100.0	100.0

*Estimates based on composite study of original data from manufacturers, textile directories and survey figures

**If operators report to both the Silk Textile Code and the National Rayon Weavers Group of the Cotton Textile Code, they are reported here

SOURCE: The National Federation of Textiles, Inc.
The National Rayon Weavers Association

CHART C



buildings, 39.3 per cent are stock-carrying mills and 60.7 per cent are commission weavers. Of the looms owned and operated by the industry, 80.5 per cent are held by regular mills and 19.5 per cent by commission weavers.

GEOGRAPHICAL DISTRIBUTION OF OPERATORS AND LOOMS

A geographical analysis of looms owned and firms active in the principal silk and rayon centers is shown in Table VII and Chart C. The figures cover operators reporting to the Silk Textile Code and to the National Rayon Weavers Association.

DISTRIBUTION OF LOOMS BY SIZE OF ESTABLISHMENT

The approximate distribution of silk and rayon looms (excluding those adapted from cotton production) is shown in Table VIII. It will be noted that mills owning 99 looms or less comprise over 70 per cent of the total

firms reporting and represent less than 17 per cent of the total looms. Table IX shows ownership of looms in Paterson, N. J., by size of mill. This tabulation includes regular mills and the so-called family shops operating on a commission basis. Over 94 per cent of the Paterson firms own less than 100 looms and represent about 73 per cent of all weaving equipment in that district.

CHANGES IN SILK AND RAYON MANUFACTURING FIRMS

The silk and rayon industry, especially that branch under the Silk Textile Code, has been characterized by frequent changes in operation of mills. The disintegration of the industry from the original set-up—regular mills producing, merchandising and selling goods—to the present three-way set-up—stock-carrying mill acting as producer and part distributor, the commission weaver acting as pro-

TABLE VII

GEOGRAPHICAL ANALYSIS OF LOOMS INSTALLED

Region	Silk Code	Rayon Weavers	Total
Paterson	19,500	.....	19,500
Other New Jersey	5,500	200	5,700
Pennsylvania	37,713	3,047	40,760
Massachusetts	3,012	15,126	18,138
Rhode Island	5,036	5,717	10,753
Connecticut	4,764	3,089	7,853
New York	8,544	195	8,739
Virginia	1,998	1,299	3,297
North Carolina	2,542	8,502	11,044
South Carolina	753	3,913	4,666
Georgia and Alabama	565	.....	565
Tennessee	273	90	363
Miscellaneous	2,155	6,550	8,705
TOTAL	92,355	47,728	140,083

SOURCE: The National Federation of Textiles, Inc.
The National Rayon Weavers Association

ducer and the converter acting as distributor—has operated, with various trade practices, to increase business failures for both large and small operators. Table X, although not entirely satisfactory from a statistical viewpoint, indicates the changes which have occurred even in good years. General statistics indicate that about 13 per cent of the total looms in New Jersey and 7 per cent of those in Pennsylvania change hands or go out of business annually. Between January 1, 1932, and January 1, 1933, the total looms owned fell off 11.3 per cent and the number of operators decreased 2.2 per cent. These changes are due, in part, to the fluctuation in the price of raw silk.

CAPITAL INVESTMENT AND PROFITS

The purchase by new operators of the plant and equipment of bankrupt operators at from 10 to 50 per cent of the normal value naturally has an important bearing on the capital invested in this industry. No data are available of the evaluation of establishments producing material for the broad goods market. Even if obtainable, such information would not be truly indicative because of conditions during the past few years. In 1929, one mill in New England reported a total valuation of over \$500 per loom, with machinery worth \$229 per loom. Today, judged by depreciation standards and price fluctuations in other industries, various estimates give an average value of 40 per cent of that of 1929. This statement also must be considered in connection with the obsolete nature of much of the machinery and the approaching obsolescence of many of the looms now in active use. One organization in Pennsylvania, with

TABLE IX

OWNERSHIP OF LOOMS IN PATERSON, N. J.
INCLUDING FAMILY SHOPS

(Silk Textile Code Only)

SIZE CLASS (LOOMS)	Number Firms in Class	Cumulative Total of Firms	Number Looms in Class	Cumulative Total of Looms
Over 249	3	3	1,500	1,500
200—249	3	6	682	2,182
175—199	3	9	556	2,738
150—174	3	12	468	3,206
125—149	5	17	712	3,918
100—124	11	28	1,401	5,319
80—99	14	42	1,391	6,710
60—79	33	75	2,334	9,044
40—59	81	156	3,918	12,962
30—39	54	210	1,988	14,950
20—29	100	310	2,664	17,614
10—19	111	421	1,429	19,043
Under 10	67	488	457	19,500
TOTAL		488		19,500

SOURCE: The National Federation of Textiles, Inc.

assets of \$13,000,000 in 1931, showed assets of only \$8,000,000 on a report in 1932—a decrease proportionate to the decline in dollar sales, which was 30 per cent.

Although figures on interest in invested capital, depreciation and the expense of idle machinery are not available, Table XI (compiled in a study of cost of production) indicates typical allowances for regular mill overhead.

This wide variation in fixed charges indicates the difficulties encountered in attempting to study investment aspects of the industry. However, Tables IV and V give a composite picture of the magnitude of the industry as shown by government figures for 1933, 1931 and 1929 (data for 1933 being preliminary).

Based on analyses of operators capitalized at from \$50,000 to over \$500,000, Table XII reflects changes in working capital, tangible net worth and profit or loss, for the years 1931-32 and 1933-34. Group A comprises 50 operators who reported profit and loss statements in addition to their working capital and net worth. Group B includes those 50 operators and 44 others who omitted profit or loss statements.

These figures show substantial decreases in both tangible net worth and working capital. Notwithstanding the slight profit for 1933, the decline in working capital has not been stopped. Judged by classes of operators, converters have made much greater improvement, according to working capital, net worth and profit and loss statements, than any other group. Commission weavers apparently have enjoyed some prosperity through increased business resulting

TABLE X

CHANGES IN BROAD GOODS MANUFACTURING FIRMS—1921-1929

	NUMBER OF FIRMS			BROAD LOOMS		
	1921	1929	Per Cent Change	1921	1929	Per Cent Change
New Jersey.....	749	609	- 18.7	33,480	33,140	- 1.0
Pennsylvania.....	167	216	+ 29.3	29,083	40,683	+39.9
Rhode Island.....	16	24	+ 50.0	6,120	9,121	+49.0
New York.....	38	33	- 13.2	6,950	7,107	+ 2.3
Massachusetts	9	19	+111.1	3,403	5,728	+68.3
Connecticut.....	11	16	+ 45.5	3,271	4,403	+34.6
TOTAL.....	990	917	- 7.4	82,307	100,182	+21.7

	Going Out of Business (1921-1929)		Entering Business (1921-1929)		Discontinued Branches or Moved to Other Cities or State (1921-1929)	
	Firms	Looms	Firms	Looms	Firms	Looms
New Jersey.....	921	30,175	964	24,856	90	8,514
Pennsylvania.....	107	22,801	155	23,083	41	4,446
Rhode Island.....	18	3,110	28	4,643	2	1,255
New York.....	36	3,403	41	3,916	9	713
Massachusetts	9	1,423	22	3,281	2	367
Connecticut.....	2	451	8	2,208	1	.....
TOTAL.....	1,093	61,363	1,218	61,987	145	15,295

SOURCE: The National Federation of Textiles, Inc.

from the shift to them of orders that normally went to regular stock mills. A composite balance sheet for the silk and rayon industry, based on compulsory information gathered and tabulated by the Federal Trade Commission, may be published in 1935.

The following conclusions may be drawn from the various tables on investment: Regular silk mills are much larger and more stable organizations than are commission weavers; the average stock-carrying mill owns nearly five times as many looms as the average commission weaver; the percentage of stock-carrying firms owning their buildings is more than twice that of the corresponding class of commission weavers. Based on these facts and on considera-

tions discussed elsewhere, it is evident that the commission weaver is a more disturbing factor in production than is the stock-carrying mill operator. The geographical distribution of mills—examined in the light of business progress, profits, responsibility to labor and community industrial importance—also indicates the distinction which exists between types of operations in different sectors.

As would be expected, studies indicate a clash of interest between large and small operators in a given area. Some run their looms for the commission charge on the machinery; to the small, independent operator working on a commission basis, merchandising and selling of high-quality goods is a secondary consideration. It is for this reason

that labor organizations in some communities have been forced to ask relief from conditions that arise from the necessarily opportunistic method of operation in the average mill in those localities. Other firms of various sizes, having concern for the distribution as well as the

TABLE XI
STOCK-CARRYING MILL OVERHEAD
(Per Yard of Goods Manufactured)

	Typical Silk Construction	Typical Rayon Construction	Average
A (North).....	\$0.0585	\$0.0585	\$0.0585
B (North).....	0.0871	0.0708	0.0789
C (North).....	0.0319	0.0364	0.0342
D (South).....	0.0396	0.0320	0.0358

SOURCE: The National Federation of Textiles, Inc.

production of merchandise, naturally view their problems from a different angle. The established operators, with available capital and with large investments, must look toward the solution of long-time problems as well as to the immediate opportunities for profit.

COST OF PRODUCTION

The data given in the preceding paragraphs, indicating the varied nature of operators and their investment, further are illustrated by Table XIII. This shows the wide difference, by type of operator, of the cost of producing merchandise. The figures in this table have been compiled for large and small stock-carrying mills and commission weavers. As will be seen in the distribution section, the cost of production plus the relationship between prices of raw materials and prices of finished goods have direct bearing on the marketing of goods. Table XIII gives data on typical constructions made of both rayon and silk; Chart D shows the distribution of the manufacturing dollar for the same constructions.

The economics of manufacturing, as varied by changes in labor costs, raw material costs and selling prices since the Code, are reflected in Chart E. This shows that, with but little increase in the selling price and only slight recession in raw material costs, all other factors have been adverse. Despite the situation indicated by this chart, labor leaders strongly have been advocating a further reduction of working hours at present rates of pay.

Chart FF in the Appendix shows the effect of change in freight rates on the transshipment of raw silk.

EMPLOYMENT AND WAGES

Table XIV shows the average number of employees in firms reporting to the Silk Textile Code Authority from November, 1933, to October, 1934. This table is based on actual operations. In the rayon weavers group, no data are available on total employment by months since the N.R.A.

Employment and wages by occupation before and after the advent of the Silk Textile Code are given in Table XV and Chart F. Wages paid after the Code are geographically presented in Table XVI. Table XVII compares the figures in Table XV with wages paid in 1926.

TABLE XII
FINANCIAL TRENDS IN THE SILK INDUSTRY

	PER CENT CHANGE 1931-1933		
	Converters	Stock Mills	Commission Weavers
GROUP A			
Working capital.....	+3.4	-43.8	+6.7
Tangible net worth.....	+3.0	-21.0	+7.1
Profit or loss (thousands L 154 (31) of dollars)	P 180 (33)	L 538 (31) P 162 (33)	P 96 (31) P 49 (33)
GROUP B			
Working capital.....	+3.5	-29.6	+11.6
Tangible net worth.....	+3.4	- 5.6	+ 9.5

SOURCE: Dun & Bradstreet, Inc.

(P—Profit; L—Loss)

Comparing the same firms or mills before and after the Code, these tables show that there has been a 6 per cent improvement in total employment (11 per cent for both broad and narrow looms); a 19 per cent increase in wages; a 45 per cent increase in weekly pay (adjusted to a 40-hour base); an 18 per cent decrease in total labor hours and an 11 per cent increase in the number of looms operated. Total payrolls show an increase of 32 per cent, the increment to annual payrolls of those coming under the Silk Textile Code being about \$14,000,000. The wages paid by occupations in cotton and rayon mills operating under the Cotton Textile Code were not available.

If the improvement in wages shown in Table XV is compared with the degree of occupational skill in Table XVIII, it will be noted that semi-skilled workers—the lowest paid groups before the Code—have received the greatest benefits from the Code followed, in order, by skilled and highly-skilled employees. The average wage increases (adjusted to a 40-hour base) in these classes has been 67.1, 55.7 and 37.2 per cent, respectively.

Chart G shows the percentage of weavers in each wage class, from the minimum to the highest wage paid, based on the total number of weavers employed in a 40-hour week. It covers a typical operating period after the Code and analyzes the percentage of weaver employment in each class and cumulatively by classes. It will be seen that over 75 per cent of the weavers are earning more than \$16.00 per week while the minimum wages prescribed for North and South are \$13.00 and \$12.00, respectively.

It is important to note that the increase in wages consistently has exceeded the general rise in commodity prices. The decline in the cost of living—cost of food, shelter,

TABLE XIII

COST ANALYSIS OF THREE FABRIC CONSTRUCTIONS BASED ON
MANUFACTURING COST (DOLLARS) PER 100 YARDS OF CLOTH

(Data Secured During June, 1934)

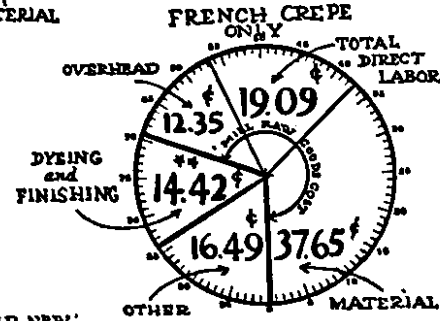
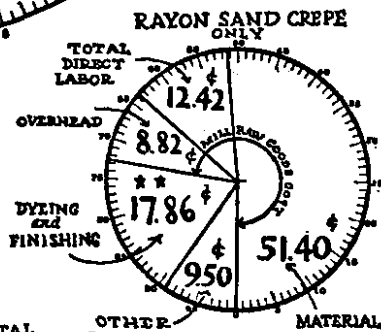
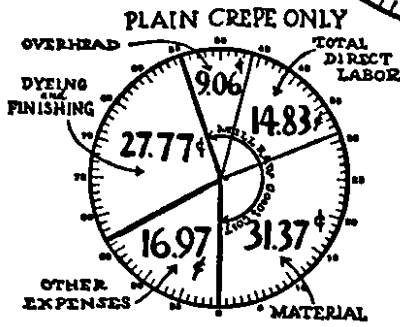
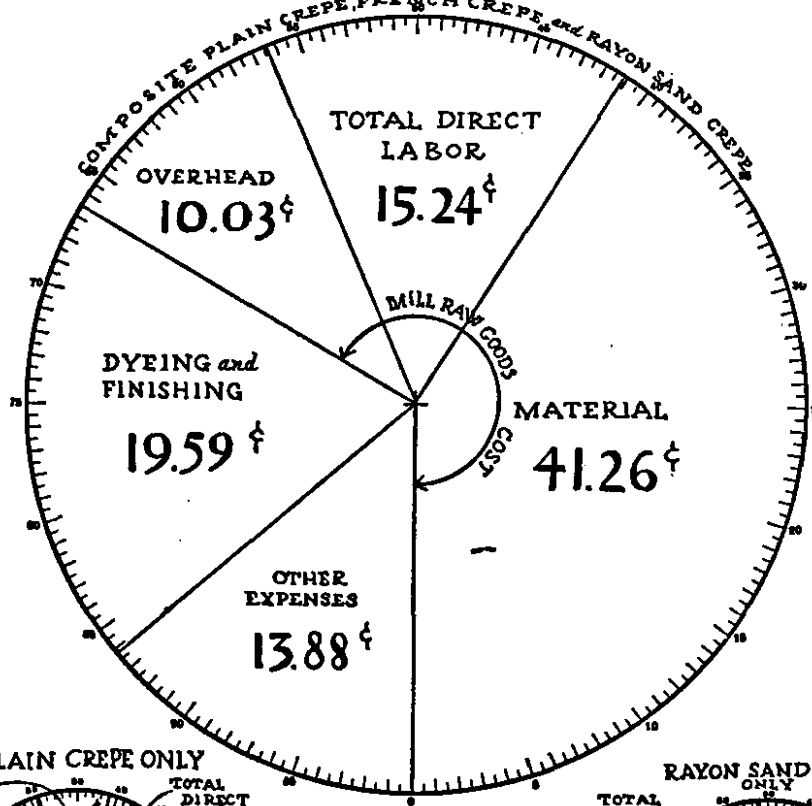
	PLAIN CREPE			FRENCH CREPE			RAYON SAND CREPE		
	43" reed 50-3-2, 20/22, 64 pick wheel 2 threads, 20/22, 60 turns. Raw silk figured in 20/22's warp and filling at the nominal price of \$1.25 per lb., throwing at \$0.80 and dyeing at \$0.11 per yard.			41" reed 60-3-2, 20/22, 104 pick wheel 2 threads, 20/22, 65 turns. Raw silk figured in 20/22's warp and filling at the nominal price of \$1.25 per lb., throwing at \$0.80 and dyeing at \$0.06 per yard.			46" reed 45-3-1, 100 denier 40 fl. Vis. 50 TT, 2/2-68 pick wheel, 100 denier 40 filament viscose, figured in the warp and filling at the nominal price of \$0.85 per lb., throwing at \$0.44 and dyeing at \$0.09 per yard.		
	REGION			REGULAR MILLS REGION			REGION		
	A	B	C	A	B	C	A	B	C
Warp.....	8.28	8.26	8.29	9.74	9.74	9.68	14.58	14.70	14.83
Filling.....	3.89	4.09	3.98	5.99	6.34	6.26	7.19	7.28	7.30
Throwing.....	2.49	2.62	2.54	3.93	4.16	4.11	11.27	11.37	11.46
Material costs.....	14.66	14.97	14.81	19.66	20.24	20.05	33.04	33.35	33.59
Weaving.....	3.75	4.47	4.68	5.50	7.26	7.63	5.00	4.99	5.62
Other direct labor.....	2.90	2.45	2.74	3.56	3.18	3.26	2.90	2.53	3.12
Total direct labor.....	6.65	6.92	7.42	9.06	10.44	10.89	7.90	7.52	8.74
Overhead.....	3.19	5.20	4.45	3.98	9.14	6.53	6.25	5.66	5.24
MILL RAW GOODS COST.....	24.50	27.09	26.68	32.70	39.82	37.47	47.19	46.53	47.57
Dyeing and finishing.....	12.84	12.84	13.64	7.70	7.70*	7.56*	9.00*	9.00*	16.74
Other expenses.....	37.34	39.93	40.32	40.40	47.52	45.03	56.19	55.53	64.31
TOTAL COST.....	44.95	47.54	49.14	48.60	55.72	54.88	58.40	57.74	78.38
COMMISSION WEAVERS AND CONVERTERS COSTS									
Material costs.....	14.66	14.97	14.81	19.66	20.24	20.05	33.04	33.35	33.59
Weaving.....	4.50	4.50	4.00	7.40	7.25	6.55	No Figures	5.25	4.90
Other direct labor.....	2.71	2.45	2.70	2.73	2.91	3.18	No Figures	2.22	2.88
Total direct labor.....	7.21	6.95	6.70	10.13	10.16	9.73	No Figures	7.47	7.78
Overhead.....	5.00	5.35	4.82	8.00	8.85	7.73	No Figures	6.15	5.31
MILL RAW GOODS COST.....	26.87	27.27	26.33	37.79	39.25	37.51	No Figures	46.97	46.68
Dyeing and finishing.....	13.65	13.65	13.65	8.88	8.88	8.88	14.75	14.75	14.75
Other expenses.....	40.52	40.92	39.98	46.67	48.13	46.39	8.82	61.72	61.43
TOTAL COST.....	46.42	46.82	45.88	54.57	56.03	54.29	No Figures	70.54	70.25

*Shrinkage, approximately 12%, excluded

SOURCE: The National Federation of Textiles, Inc.

CHART D

AVERAGE* DISTRIBUTION of the MANUFACTURING DOLLAR



** No shrinkage included

* AVERAGE for NEW ENGLAND, NEW JERSEY and PENNSYLVANIA
 Source: The National Federation of Textiles, INC.

TABLE XIV

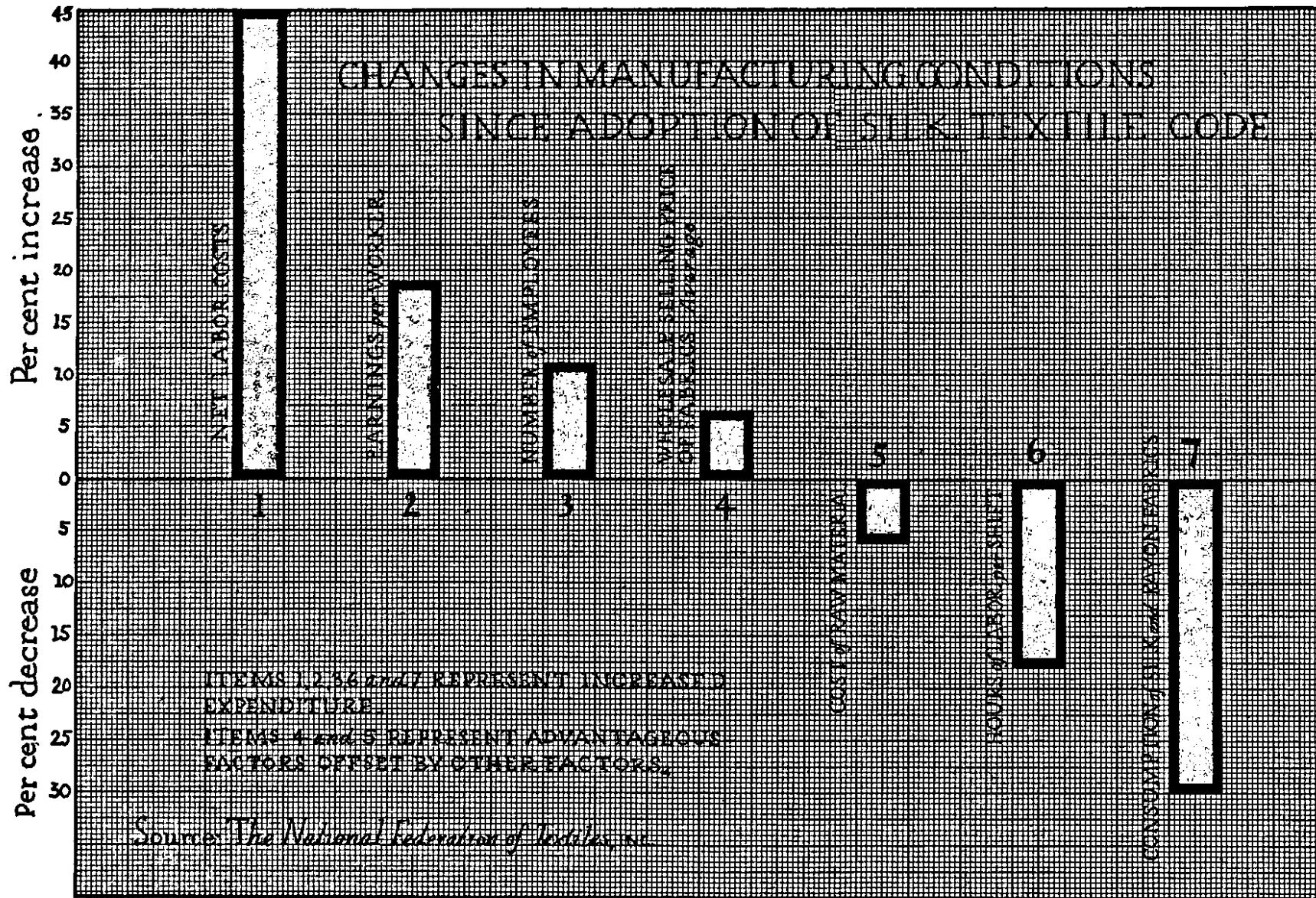
ANALYSIS OF BROAD LOOM OPERATION UNDER THE SILK TEXTILE CODE

	1933			(Four-Week Periods Ending)				1934					
	Nov. 11	Dec. 9	Dec. 31*	Jan. 27	Feb. 24	Mar. 24	Apr. 21	May 17	June 16	July 14	Aug. 11	Sept. 8	Oct. 6
Total looms owned by firms reporting.....	61,965	68,277	70,296	69,512	65,824	69,999	71,567	65,464	68,558	66,852	62,617	56,709	54,525
Number in running condition.....	59,351	65,941	67,193	66,283	63,035	67,063	68,821	62,243	66,051	64,428	59,783	54,862	52,998
Number dismantled.....	2,614	2,336	3,103	3,229	2,789	2,936	2,746	3,221	2,507	2,424	2,834	1,847	1,527
Average number in operation:													
1st shift.....	27,891	34,950	41,865	45,382	46,999	49,298	47,434	29,894	38,159	34,127	32,895	25,940	19,904
2nd shift.....	22,811	27,408	30,541	35,375	37,778	40,003	38,407	23,411	29,165	26,569	25,683	20,184	15,006
Average per shift.....	25,351	31,179	36,203	40,379	42,389	44,651	42,921	26,653	33,662	30,348	29,289	23,062	17,455
Total loom hours actually operated.....	1,877,152	2,268,328	2,460,570	2,743,998	3,241,526	3,388,743	3,136,521	1,922,090	2,469,302	2,169,890	2,196,916	1,570,661	1,221,532
Per cent operated of total looms owned.....	45.0	51.2	59.6	65.3	71.4	70.4	66.3	45.7	55.7	51.1	52.5	45.7	36.5
Per cent operated of looms owned in running condition.....	47.0	53.0	62.3	68.5	74.6	73.5	68.9	48.0	57.8	53.0	55.0	47.3	37.6
Average machine hours worked per operating loom.....	74.0	72.8	68.0	68.0	76.5	75.9	73.1	72.1	73.4	71.5	75.0	68.1	70.0
Per cent of available hours actually operated.....	39.5	43.0	45.8	51.8	64.3	63.2	57.0	38.6	46.7	42.1	45.9	35.8	28.8
Average number employees.....	28,776	36,622	39,722	42,357	42,850	46,599	45,077	31,482	39,909	37,327	34,809	29,425	27,539
Looms operated per employee**...	1.8	1.7	1.8	1.9	2.0	1.9	1.9	1.7	1.7	1.6	1.7	1.6	1.3
BUSINESS CONDITIONS	<i>Code Signed</i> October 7. Strike conditions	<i>Code</i> (strike cont. 40/40 basis)	<i>Code</i> (strike 40/40 basis ended Dec. 6)	<i>Code</i> Curtailment to 60 hr. Dec. 31, '33 to Jan. 20, '34				<i>Code</i> Complete shutdown May 14-31				<i>Code</i> (strike Sept. 1 to Sept. 22)	<i>Code</i> (strike cont.)

*Three-week period

**Includes all occupations, to be used as an index number only

SOURCE: The National Federation of Textiles, Inc.



(Comparing July, 1933, and February, 1934)

CHART E

TABLE XV

EMPLOYMENT, WAGES AND HOURS OF LABOR OPERATIONS IN THE SILK TEXTILE INDUSTRY

(Based on Returns From 707 Firms—Special Questionnaires—Four-Week Periods Ending July 1, 1933, and February 1, 1934)

BROAD AND NARROW LOOMS—TOTAL—NORTH AND SOUTH

OCCUPATION		Number of Employees	Weekly Hours of Labor Averaged By Employees	MINIMUM WEEKLY WAGES		AVERAGE WEEKLY WAGES		Actual Weekly Payroll
				Weighted By Employees	Adjusted To 40 Hours	Weighted By Employees	Adjusted To 40 Hours	
WINDERS	Before Code.....	4,057	43.34	\$ 8.74	\$ 8.07	\$ 9.68	\$ 8.93	\$ 39,271.76
	After Code.....	3,744	36.32	12.52	13.79	13.06	14.38	48,896.64
	% Change.....	- 7.7	-16.2	43.2	70.9	34.9	61.0	24.5
QUILLERS	Before Code.....	2,771	44.68	\$ 8.17	\$ 7.31	\$ 9.11	\$ 8.16	\$ 25,243.81
	After Code.....	3,150	37.76	12.48	13.22	13.34	14.13	42,021.00
	% Change.....	13.7	-15.5	52.7	80.8	46.4	73.2	66.5
WARPERS	Before Code.....	4,190	45.20	\$13.51	\$11.96	\$16.40	\$14.51	\$ 68,716.00
	After Code.....	5,952	23.73	10.45	17.61	12.66	21.34	75,352.32
	% Change.....	42.1	-47.5	-22.6	47.2	-22.8	47.1	9.7
TWISTERS	Before Code.....	2,598	44.81	\$12.86	\$11.48	\$16.17	\$14.43	\$ 42,009.66
	After Code.....	2,300	36.04	15.92	17.67	19.09	21.19	43,907.00
	% Change.....	-11.5	-19.6	23.8	53.9	18.1	46.8	4.5
WEAVERS	Before Code.....	22,644	46.90	\$11.47	\$ 9.78	\$13.63	\$11.62	\$308,637.72
	After Code.....	24,816	38.19	14.62	15.31	17.86	18.71	443,213.76
	% Change.....	9.6	-18.6	27.5	56.5	31.0	61.0	43.6
LOOM FIXERS	Before Code.....	2,187	49.25	\$23.90	\$19.41	\$27.07	\$21.99	\$ 59,202.09
	After Code.....	2,464	38.85	25.47	26.22	29.31	30.18	72,219.84
	% Change.....	12.7	-21.1	6.6	35.1	8.2	37.2	22.0
ALL OTHERS	Before Code.....	8,542	48.13	\$ 8.97	\$ 7.45	\$15.74	\$13.08	\$134,451.08
	After Code.....	9,724	37.49	12.67	13.52	17.66	18.84	171,725.84
	% Change.....	13.8	-22.1	41.2	81.5	12.3	44.0	27.9
TOTAL	Before Code.....	46,989	45.76	\$11.42	\$ 9.99	\$14.42	\$12.60	\$677,532.12
	After Code.....	52,150	37.51	14.07	15.00	17.21	18.35	897,336.40
	% Change.....	11.0	-18.0	23.2	50.1	19.3	45.6	32.4
		<u>LOOMS OWNED REPORTED</u>		<u>LOOMS OPERATED</u>				
	Before Code.....		71,952		47,147			
	After Code.....		73,345		52,549			
	% Change.....		1.9		11.5			

SOURCE: The National Federation of Textiles, Inc.

TABLE XVI

GEOGRAPHICAL ANALYSIS OF WAGES BY OCCUPATIONS
(As of February, 1934)

No. Firms Reporting	Total Looms Owned	Total Looms Operated	Average Hr. of Labor	Total All Classes Employees	Locality Reporting	AVERAGE WAGES WEIGHTED BY EMPLOYEES ON 40-HOUR BASIS							
						Weavers	Winders	Quillers	Warpers	Twisters	Loom Fixers	All Others	Average All Classes
NORTHERN													
319	12,116	10,192	37.7	7,517	Paterson	\$21.23	\$15.33	\$14.66	\$31.02	\$33.06	\$33.14	\$18.54	\$21.62
41	4,434	3,301	38.6	2,824	Other N. J.	17.76	15.03	14.17	22.58	23.81	30.52	20.61	19.07
23	3,381	2,200	38.9	2,628	Allentown	16.60	13.92	13.06	20.88	18.85	28.34	17.76	17.32
6	769	617	37.7	552	Scranton	18.00	13.80	13.37	19.31	17.15	27.41	21.09	18.54
131	26,746	17,257	37.4	19,147	Other Penn.	17.75	14.20	14.13	20.14	18.74	29.79	19.28	18.58
14	3,647	2,120	36.1	1,832	Mass.	21.24	14.76	15.10	21.42	24.40	32.03	18.79	20.45
20	6,306	5,261	39.7	3,728	Rhode Island	18.42	13.82	14.06	21.70	20.13	33.46	16.96	18.73
12	3,235	2,107	38.2	1,963	Connecticut	20.91	13.88	14.55	19.90	22.14	30.34	19.20	20.15
34	4,199	3,899	38.9	2,772	New York	17.14	13.82	14.35	21.22	19.16	26.14	17.65	17.75
600	64,833	46,954	37.9	42,963	WEIGHTED AVERAGE NORTHERN SECTION	18.76	14.46	14.16	22.05	21.24	30.51	18.97	19.17
SOUTHERN													
6	1,331	635	38.3	570	Virginia	14.52	12.43	13.61	18.59	16.45	24.85	17.25	15.79
3	1,154	1,154	35.1	890	No. Carolina	17.30	12.83	12.00	17.48	13.19	24.46	17.22	17.03
2	182	154	38.1	95	So. Carolina	14.87	12.00	.....	12.00	12.57	15.76	12.00	14.22
3	346	346	39.2	252	Tennessee	14.93	12.27	12.08	13.73	12.38	25.72	15.45	15.01
2	306	306	40.0	283	Ga. and Ala.	15.98	12.89	13.97	15.33	13.31	19.78	16.96	15.97
16	3,319	2,595	37.3	2,090	WEIGHTED AVERAGE SOUTHERN SECTION	15.81	12.64	12.89	16.72	13.66	23.61	16.86	16.14
616	68,152	49,549	37.9	45,053	WEIGHTED COMBINED AVERAGE	18.64	14.35	14.13	21.76	20.95	30.14	18.86	19.03

SOURCE: The National Federation of Textiles, Inc.

CHART F

AVERAGE HOURLY WAGES (by Occupations)
SILK and RAYON INDUSTRY

Source: The National Federation of Textiles and
Silk Textile Conc. Only

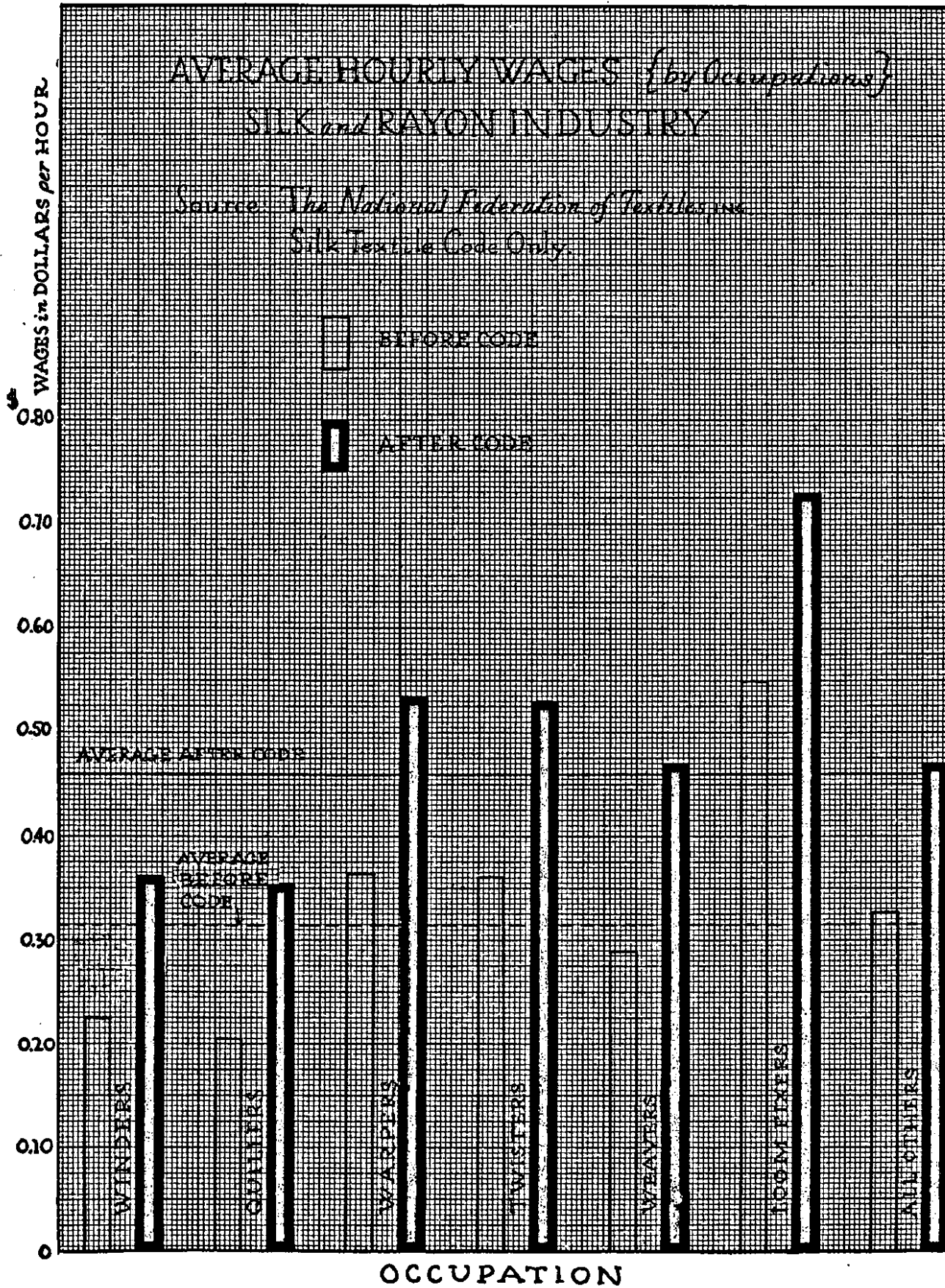


CHART G

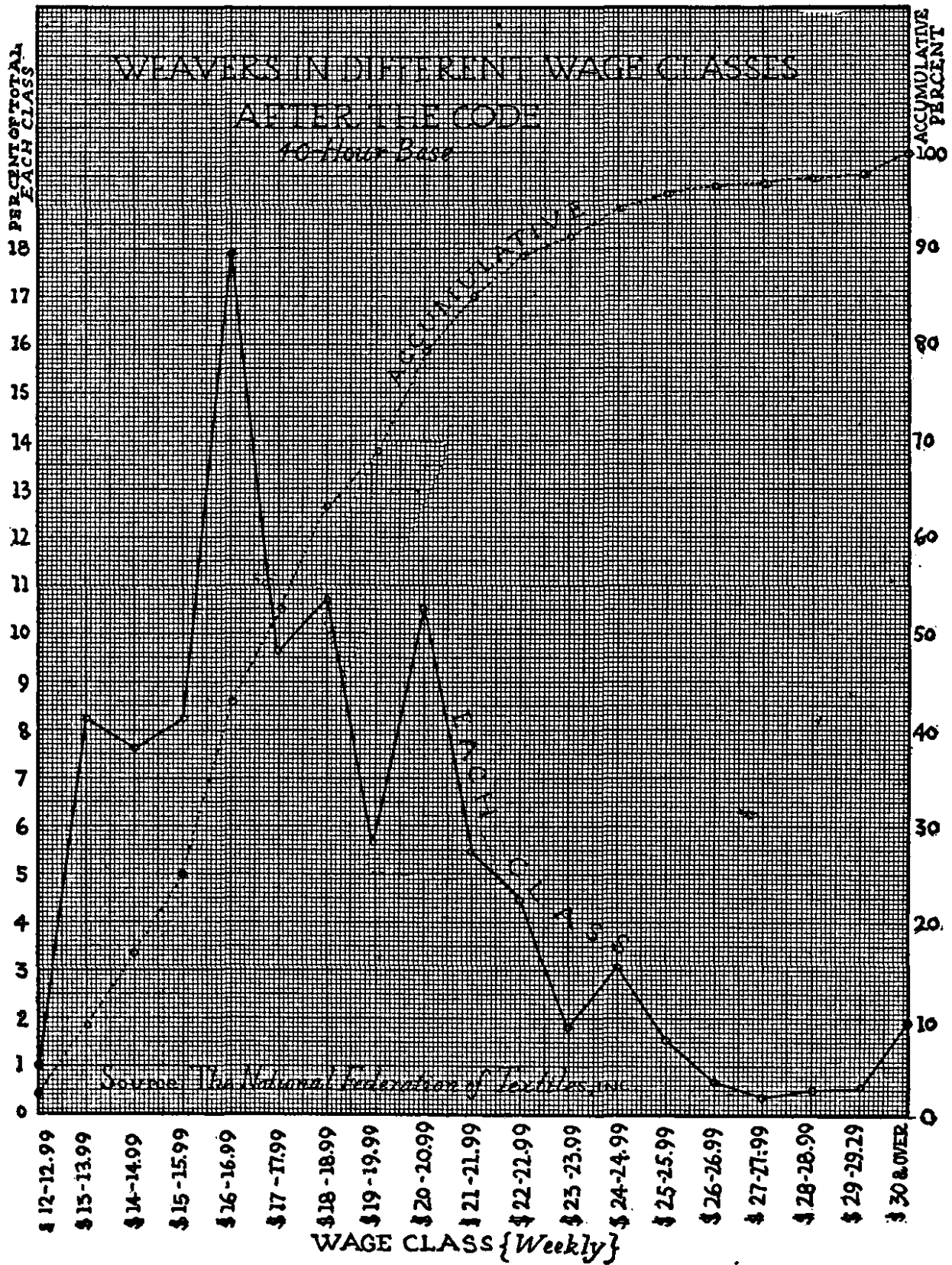


TABLE XVII

COMPARATIVE ANALYSIS OF WAGES

(Based on Payroll Studies)

	1926 AVERAGE		BEFORE CODE (July, 1933)		AFTER CODE (February, 1934)		IMPROVEMENT IN WAGES (Adjusted to a 40-hour Base)	
	<i>Per Hour</i>	<i>Per 40 Hr. Wk.</i>	<i>Per Hour</i>	<i>Per 40 Hr. Wk.</i>	<i>Per Hour</i>	<i>Per 40 Hr. Wk.</i>	<i>Per Cent Increase Since Code</i>	<i>Per Cent Increase or Decrease From 1926 Levels</i>
	Winders.....	\$0.380	\$15.20	\$0.223	\$ 8.93	\$0.360	\$14.38	61.03	- 5.39
Quillers.....	0.285	11.40	0.204	8.16	0.353	14.13	73.16	+23.95
Warpers.....	0.690	27.60	0.363	14.51	0.534	21.34	47.07	-22.68
Weavers.....	0.596	23.84	0.291	11.62	0.468	18.71	61.02	-21.52
Loom Fixers.....	0.774	30.96	0.550	21.99	0.754	30.18	37.24	- 2.52
AVERAGE.....	\$0.545	\$21.80	\$0.326	\$13.04	\$0.494	\$19.75	51.46	- 9.40

SOURCE: The National Federation of Textiles, Inc.

TABLE XVIII

DEGREE OF SKILLS IN SILK AND RAYON MILLS

(Opinion of Executives)

UNANIMOUS VOTE WOULD EQUAL 100%

	<i>Highly Skilled</i>	<i>Skilled</i>	<i>Semi-Skilled</i>	<i>Un-Skilled</i>
HIGHLY SKILLED				
Loom fixers.....	87.1	12.9	—	—
Machinists.....	50.0	46.2	3.8	—
SKILLED				
Weavers—broad silk..	23.3	76.7	—	—
Twisters-in, hand.....	16.7	66.6	16.7	—
Twisters-in, machine..	23.3	63.3	13.4	—
Carpenters.....	38.9	61.1	—	—
Electricians.....	40.0	60.0	—	—
Smash hands.....	40.7	59.3	—	—
Enterers.....	27.7	55.6	16.7	—
Warpers.....	46.4	53.6	—	—
Inspectors, cloth.....	44.8	44.8	10.4	—
SEMI-SKILLED				
Reelers.....	—	16.7	83.3	—
Pickers, cloth.....	—	13.3	80.0	6.7
Quillers.....	3.5	17.9	75.0	3.5
Winders—rayon.....	—	25.0	75.0	—
Coners.....	—	33.3	66.7	—
Winders—hard silk....	4.0	32.0	64.0	—
Doublers.....	—	36.4	63.6	—
Winders—soft silk....	7.7	30.8	61.5	—
Spinners.....	—	41.7	58.3	—
Enterers' helpers.....	—	13.6	54.6	31.8
Redrawers.....	—	13.6	50.0	36.4
UNSKILLED				
Other mill employees (excluding foremen, office and clerical)	—	—	11.8	88.2
Packers.....	—	9.5	14.3	76.2
Bobbin boys.....	15.4	—	11.5	73.1

SOURCE: The National Federation of Textiles, Inc.

clothing, heat, light, transportation, recreation and medical care—which began in 1930 and continued without abatement until the spring of 1933, indicates that the purchasing power of labor now is considerably higher than it was in 1926. This is attributed in part to the improvement in wages which, generally, has promoted stabilization and continuity of employment. Chart H reflects the influence of the N.R.A. on employment. Chart I shows the weekly labor hours in silk and rayon mills before and after the Silk Textile Code. Chart AA in the Appendix shows changes in seasonal employment prior to the Code.

As has been previously indicated, the interest in and responsibility to labor by operators varies. There has been considerable agitation to limit the number of machines operated, tended or watched by a single worker. In some localities, this problem has taken definite form with the result that, disregarding economic considerations of improvements in machines and actual decrease in manual operations per worker (with a consequent decrease in energy expended), there has been consistent effort on the part of labor to have established purely arbitrary "machine loads," rather than loads based on energy expended, to avoid exploitation through the "stretchout."

Any program which protects labor, whether in the matter of wages, hours or machine load, must proceed along economically sound lines if it is not to prove a boomerang. In the manufacture of silk and rayon broad goods, it is economically unsound, in many instances, to operate more than one or two looms per weaver; again, it may be economically desirable to operate six or eight looms per weaver. Varying factors, especially that of fabric construction, determine the practical working complement of machines per weaver.

Tables XIX (a) and (b), and Chart J, represent a scientific analysis of the energy expended by workers on varying machine loads and different as well as identical fabric constructions. This analysis shows that the amount of energy actually expended by the weaver virtually is independent of the number of machines tended.

For most operators reporting to the Silk Textile Code, with their poverty of modern equipment, it is not practical to arrange complements of more than four or six looms per weaver; a few operators working on less complex fabrics and/or possessing more modern machinery slightly increase the machine load. An arbitrary limitation of machine load would disregard technological progress, suspend sound economic laws and penalize good management. Moreover, varying conditions in plants manufacturing cotton goods (where usually many more looms per weaver are operated) present other reasons why an imperialistic approach to the machine load problem never can be successful in protecting the interests of labor or employers.

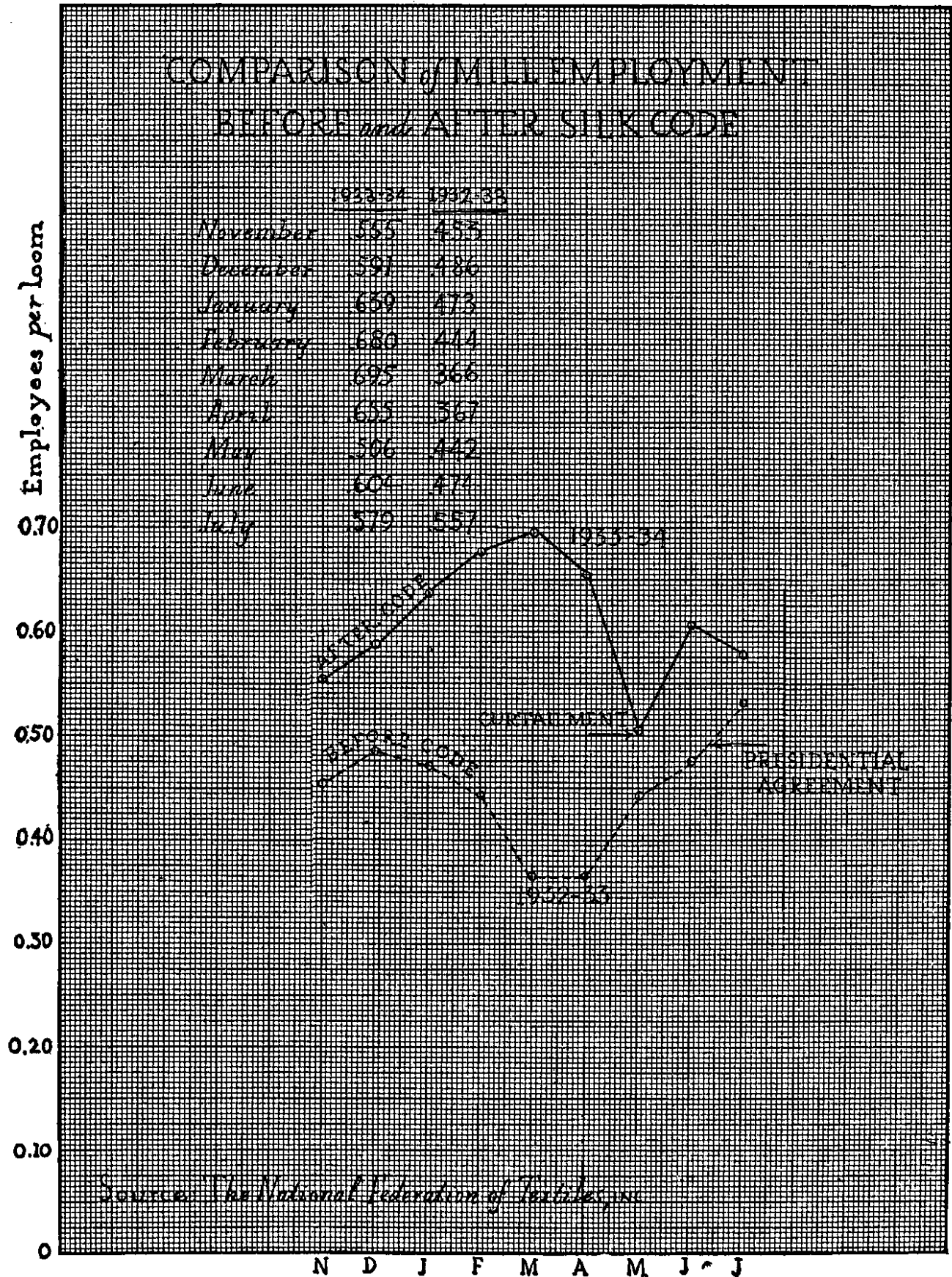
Operators under the Silk Textile Code have been especially active in urging the establishment of scientific criteria governing machine load. Practical measures suitable for adoption by industry and labor now are being drafted for consideration by governmental agencies actively studying this subject. It appears that these agencies may undertake a study of the industrial disturbances resulting from labor saving by both method and mechanism, with a view to seeking a permanent solution of the problem rather than to making temporary adjustments in line with present technological advances. Prevailing opinion indicates that an approach to a solution may be found through comprehensive studies of energy expended for given tasks.

The opportunist type of management—fortunately representing only a small part of the industry—with its short-sighted policy in regard to labor, the impetus given the "four-loom movement" by labor organizers and the generally one-sided interpretation of the New Deal have brought the industry to the verge of a critical struggle. On the other hand, we have the frank statement of labor that continued use of automatic machines eventually will decrease the number of weavers and that, in the meantime, pay envelopes for those who retain employment are being cut by unreasonable employers. Responsible employers point out that increased labor costs under the N.R.A., the converging of textile markets, the lack of legislative cooperation through the separation of the textile industry into as many as 24 major codes—all tend to make it impossible to bring back reasonable operating conditions for both employer and employee. In the absence of complete coordination of the operators under the Silk Textile Code and those under the National Rayon Weavers Association of the Cotton Textile Code, a disastrous policy may result.

LOOM OPERATION

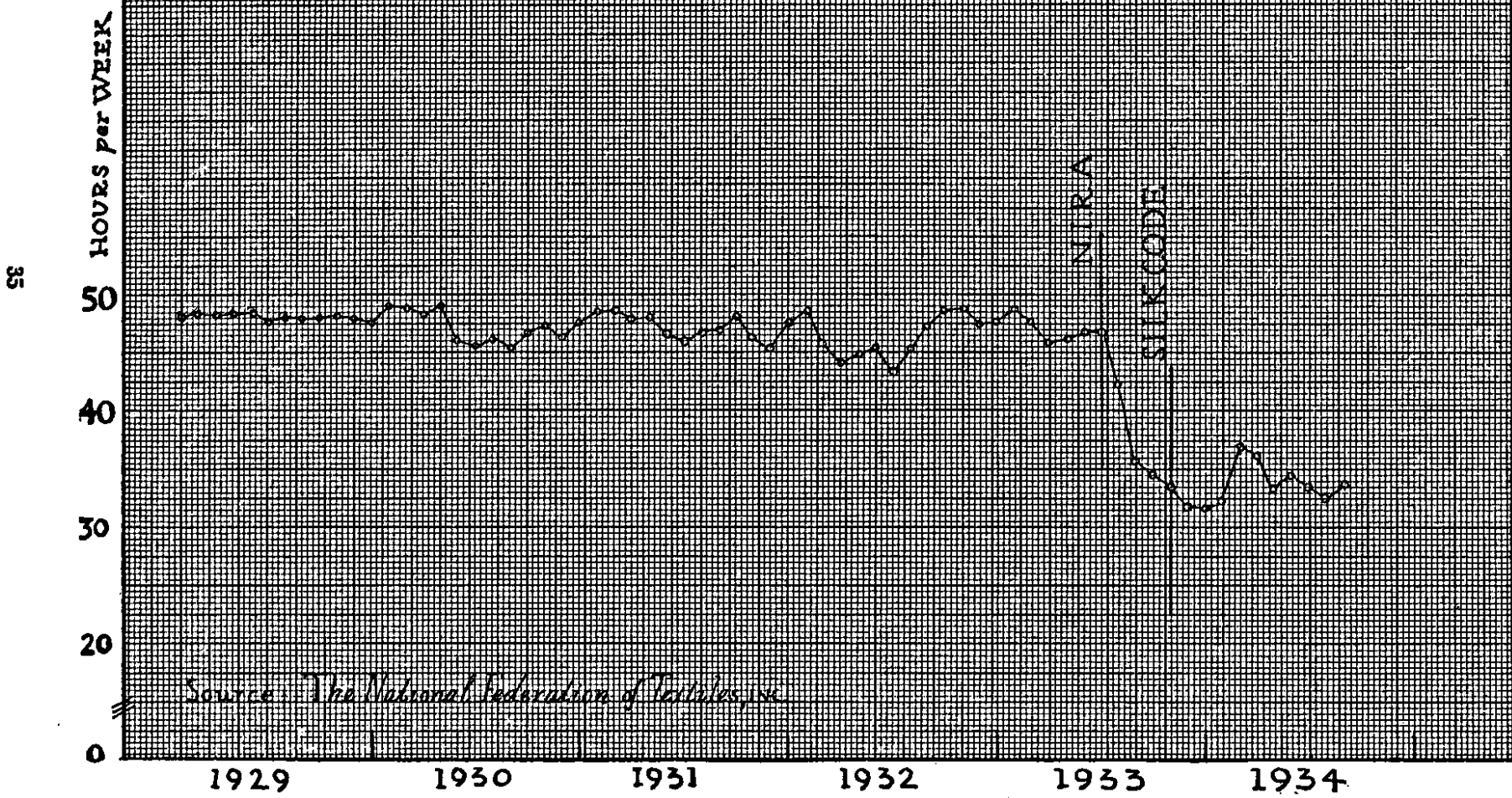
Having considered the type of looms owned and the characteristics of operators both as to their investment and their relations with labor, there remains the problem of analyzing the extent to which the looms have been operated. Prior to the Code, about 12 per cent of the total looms owned were operated on three shifts. Now, both the Cotton Textile Code and the Silk Textile Code limit production to two shifts of 40 hours each. Table XX, and Chart K, gives the hours of operation of broad looms, by months, since 1929; and Table XIV shows the extent of loom operation since the N.R.A. From these two tables it will be seen that, of the looms owned by manufacturers under the Silk Textile Code, not more than 70,000 have been in actual operation. The percentage of available hours used, based on two 40-hour shifts, also is given. The number of loom hours operated steadily was decreasing up to the advent of the Code; under the Code the number of loom hours operated increased to the level reached in 1929.

CHART H



WEEKLY LABOR HOURS - SILK and RAYON MILLS

Silk Textile Code Only



Source: The National Federation of Textiles, Inc.

CHART I

TABLE XIX (A)

EARNINGS AND TIME WORKED IN PLANTS WITH
UNLIMITED AND LIMITED LOOMS PER WEAVER

PLANT UNLIMITED AS TO LOOMS PER WEAVER					PLANT LIMITED TO 4 LOOMS PER WEAVER		
Type of Fabric	Looms per Weaver	Earnings 40-Hr. Wk.	Minutes per Weaver per 480 Min. Day (Inc. Watching)	% of Paid Time Actually Worked	Earnings 40-Hr. Wk.	Minutes per Weaver per 480 Min. Day (Inc. Watching)	% of Paid Time Actually Worked
1	6	\$27.40	358	74.6	\$23.00	251	52.3
2	6	27.40	358	74.6	23.00	251	52.3
3	7	28.15	374	77.9	23.00	248	51.7
4	7	28.15	376	78.4	23.00	261	54.4
5	8	29.00	362	75.5	23.00	224	46.7
6	8	29.00	398	83.0	23.00	203	42.4
7	8	29.00	379	79.0	23.00	216	45.0
8	9	29.95	398	83.0	23.00	222	45.3
9	10	31.80	346	72.1	23.00	165	34.4
AVERAGE			372	77.5		227	47.4

TABLE XIX (B)

LABOR EFFORT REQUIRED FOR VARIOUS FABRICS AND
DIFFERENT NUMBER OF LOOMS PER WEAVER

Type of Fabric	Looms per Weaver	M Picks per Loom per Hour	Minutes of Labor per M Picks (Inc. Watching)	Total Min. per Weaver per 480 Min. Day	% of Paid Time Actually Worked	Conditions
1	2	2.8	8.4	376	78.4	Normal
2	3	3.7	3.8	337	70.3	Normal
3	4	4.3	2.7	371	77.4	Normal
4	6	7.0	1.1	370	77.1	Speed looms
5	6	4.9	1.5	353	73.6	Piece quills 6"
5	8	5.0	1.1	352	73.4	Full quills 7"
6	6	5.1	1.5	367	76.5	Poor warp stock
6	8	4.6	1.2	353	73.6	Normal
7	4	4.5	2.4	346	72.1	Slack threads
7	6	4.8	1.5	346	72.1	Slack threads—drop wires off
7	8	4.6	1.2	352	73.4	Normal

SOURCE: The National Federation of Textiles, Inc.

CHART J

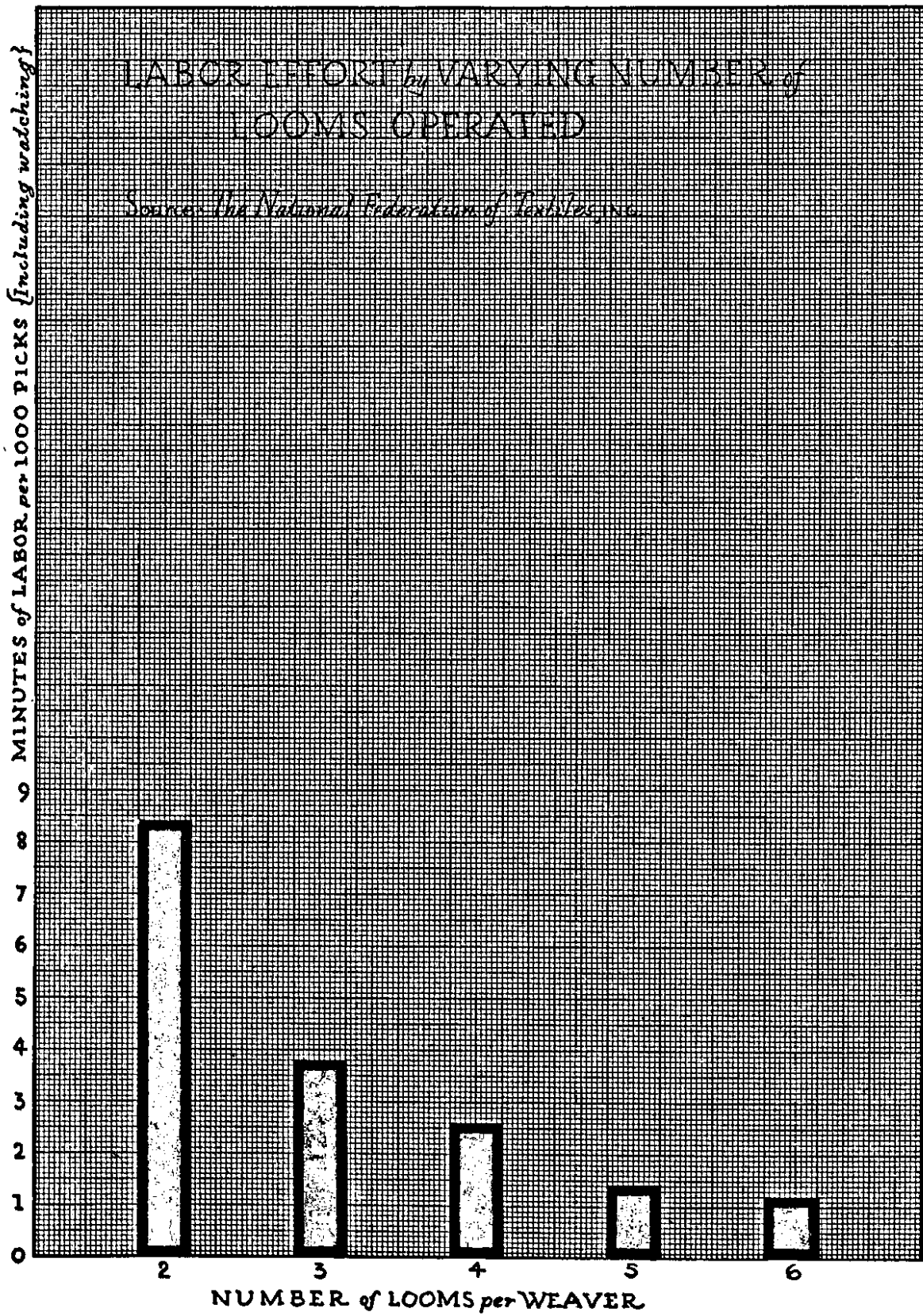


TABLE XX

BROAD LOOM ACTIVITY—STOCK-CARRYING MILLS AND COMMISSION WEAVERS
(Average Machine Hours Operated per Loom Owned per Week and Per Cent Available Machine Hours Operated*)

MONTH	1929		1930		1931		1932		1933		1934		MONTHLY AVG.	
	Average Mach. Hr.	% Avail-able Hr.	Average Mach. Hr.	% Avail-able Hr.	Average Mach. Hr.	% Avail-able Hr.	Average Mach. Hr.	% Avail-able Hr.	Average Mach. Hr.	% Avail-able Hr.	Average Mach. Hr.	% Avail-able Hr.	Machine Hours	% Avail-able Hr.
January.....	46.0	57.5	50.7	63.4	45.1	56.4	42.7	53.3	43.0	53.8	39.5	51.8	44.5	56.0
February.....	47.8	59.8	52.6	65.8	46.3	57.9	35.3	44.1	38.7	48.4	49.2	64.3	45.0	56.7
March.....	48.1	60.1	53.3	66.7	45.0	56.3	28.9	36.1	27.2	34.0	48.4	63.2	41.8	52.7
April.....	48.1	60.7	48.6	60.8	43.6	54.5	27.0	33.8	28.4	35.5	43.8	57.0	39.9	50.4
May.....	48.5	60.6	42.2	52.7	36.6	45.8	20.7	25.9	36.2	45.2	29.4	38.6	35.6	44.8
June.....	48.4	60.4	37.9	47.4	36.3	45.4	19.0	23.7	35.9	44.9	36.0	46.7	35.6	44.8
July.....	47.9	59.8	38.0	47.5	36.7	45.8	22.6	28.3	39.8	49.7	32.5	42.1	36.3	45.5
August.....	48.9	61.1	35.1	43.9	38.1	47.6	32.4	40.6	33.5	41.8	35.1	45.9	37.2	46.8
September.....	48.3	60.4	38.4	48.0	43.5	54.3	40.2	50.2	25.6	33.4	27.7	35.8	37.3	47.0
October.....	49.2	61.6	42.3	52.9	44.7	55.8	40.6	50.7	30.3	39.5	22.4	28.8	38.3	48.2
November.....	48.6	60.7	46.3	57.9	40.3	50.3	36.6	45.7	33.2	43.0			41.0	51.5
December.....	47.2	59.0	45.1	56.4	42.9	53.6	39.9	49.9	35.0	45.8			42.0	52.9
AVERAGE.....	48.1	60.1	44.2	55.3	41.6	52.0	32.2	40.2	33.9	42.9	36.4	47.4	39.5	49.8

*Based on two full-time shifts of 40 hours each

SOURCE: The National Federation of Textiles, Inc.

The fact that a maximum of 70,000 looms, of a total of 92,000 installed, have been operated since the Code appears to substantiate the accuracy of the conclusions reached regarding the obsolete nature of the equipment owned by silk operators. On this basis, discussions of productive capacity and overproduction—where installed loomage is taken as an index—clearly must allow for about 22,000 “fair weather” looms which are uneconomic to operate.

The Code influence on loom activity is shown by Table XXI, which compares identical firms before and after the National Recovery Administration.

EFFECT OF JAPANESE FABRIC PRODUCTION ON AMERICAN MANUFACTURERS

Tables XXII (a) & (b) show yardage and dollar-value quantities of United States exports and imports of broad

goods. The quantity of broad goods imported annually ranges from 1,000,000 to 3,000,000 pounds, while exports vary from 1,000,000 to 3,000,000 yards. The foreign invoice value of imported fabrics is from \$3,000,000 to \$9,000,000 whereas exports are valued at an average of \$3,000,000. Over three-fourths of all imported fabrics are from Japan. Broad goods exported from the United States chiefly are to the Philippine Islands and Canada.

These facts are to be considered in relation to the balance of trade between the United States and Japan. The latter country is a leading importer of our cotton; we are the largest user of her raw silk. The struggle for world textile markets by Japan aided, in competition with other nations, by her *extremely low cost of production*, has

CHART K

WEEKLY HOURS OF MACHINE OPERATION per LOOM OWNED {Monthly Average}

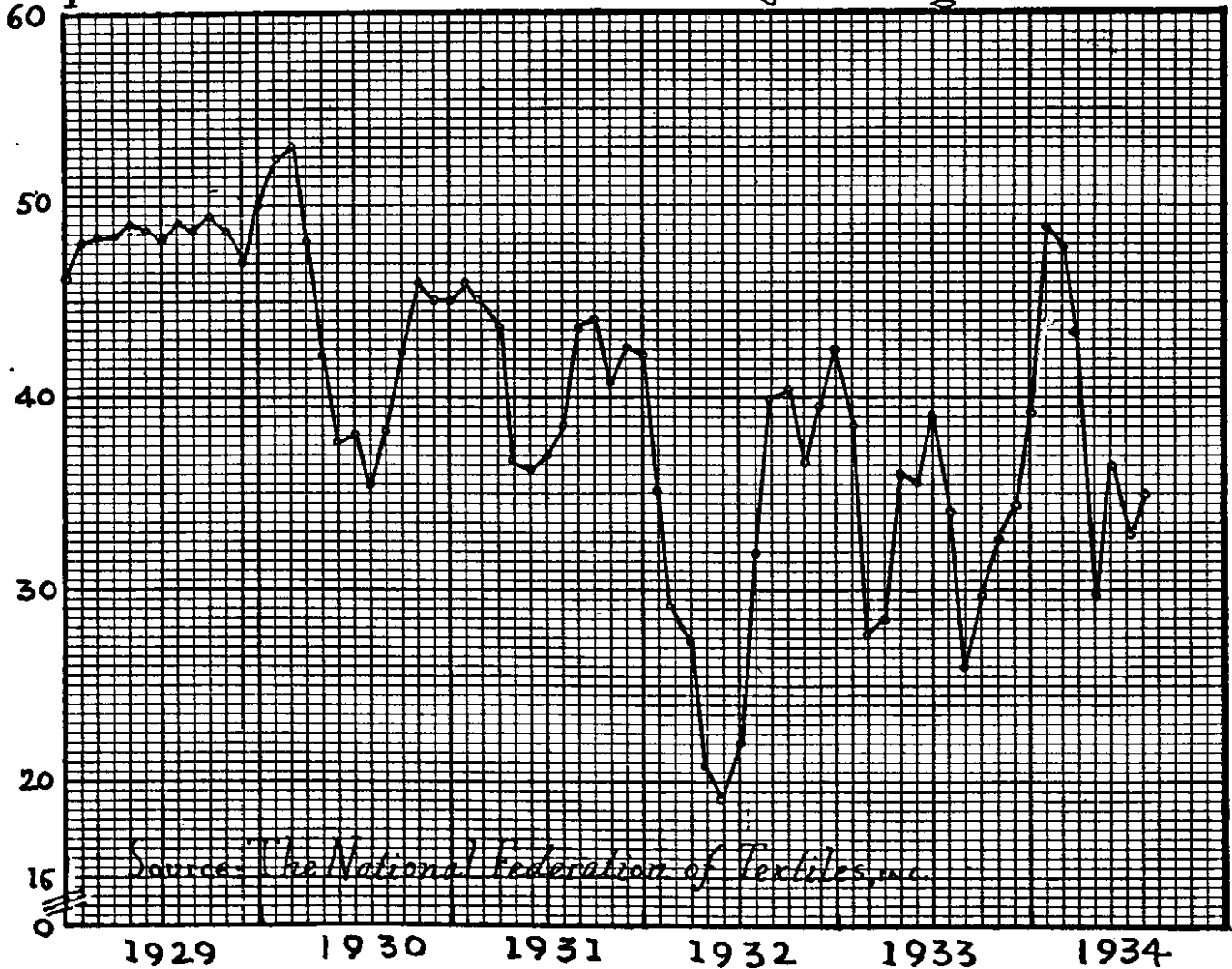


TABLE XXI

EFFECT OF CODE ON IDENTICAL FIRMS (1932-1933)

LOOM CLASS	LOOM ACTIVITY IN NUMBER OF SHIFTS OPERATED*						AVERAGE HOURS WORKED PER SHIFT	
	No. of Firms	Total Looms Installed	% Running Before Code	% Running After Code	TWO SHIFTS		Before Code	After Code
					Per Cent Before Code	Per Cent After Code		
2,000 and over.....	2	5,265	31.6	21.4	26.8	21.4	50.6	32.2
1,500 - 1,999.....	5	8,558	22.8	34.9	23.5	32.8	46.7	36.9
1,000 - 1,499.....	1	1,222	6.6	12.1	.....	12.0	50.0	39.7
750 - 999.....	3	2,990	49.7	67.8	38.4	67.7	46.6	33.9
500 - 749.....	3	1,824	13.2	51.8	8.1	49.8	40.7	26.6
250 - 499.....	6	2,767	46.4	54.8	41.3	51.7	53.9	35.0
100 - 249.....	1	150	12.5	21.3	.....	.....	36.0	34.7
50 - 99.....	1	99	94.9	94.0	92.9	91.0	56.2	37.2
TOTAL AND/OR AVERAGE.....	22	22,875	29.4	38.8	25.7	37.3	49.8	33.9

*One-third of the firms owning between 1,500 and 1,999 looms operated a third shift before the Code but discontinued it thereafter

SOURCE: The National Federation of Textiles, Inc.

brought about tariff barriers, trade agreements and other arrangements whereby the production and distribution of silk, rayon, wool and cotton textiles of all nations (except the United States) seriously have been affected.

Chart BB in the Appendix, shows the comparative wages paid skilled and unskilled labor for various silk weaving occupations in each of the principal textile producing countries and the United States. This is of interest in any analysis of foreign competition based upon the relative cost of production.

There is no present evidence of any important invasion of our domestic markets for silk and rayon dress goods. However, the market for other articles made of cotton has been invaded by Japan to such an extent that some American manufacturers are faced with a serious situation. Should a similar situation arise in connection with silk and rayon broad goods, the American manufacturers naturally would demand adequate protection. But many believe that the United States and Japan have interrelated interests in this field which will prevent the appearance of an era of destructive competition which would end only in the full protection of American markets—regardless of the source and use of textile fibers.

CONTROL OF PRODUCTION

References are made throughout this survey to the disparity between production and consumption. The moot

question as to whether this disparity results from excess production or underconsumption is not dealt with. For convenience in statistical analysis, only the former of these views is adopted.

Since the N. I. R. A., the maintenance, through definite planning, of a production level within the bounds of consumption has received important consideration. Traditionally, the subordination of production to distribution almost totally has been ignored in the silk and rayon industry. In this section is discussed the extent of production, the nature and effect of overproduction and proposals for the control of production.

Production and Consumption. No reliable figures exist as to total production and consumption. It must be assumed that the law of supply and demand has operated for long periods to keep production within the limits of consumption. There have been seasons—often lasting a year—in which production has out-stripped consumption. Table XXIII, and Chart L, gives the actual production of silk operators by months and years on a yard per loom basis. A geographical analysis of production by mills under the Silk Textile Code is given in Table XXIV.

For modern fabrics fewer picks are required. Consequently, the rate of production per hour per loom correspondingly is increased. Table XXV shows the theoretical and potential loom production at varying hours of opera-

TABLE XXII (A)

EXPORTS OF FABRICS WHOLLY OR CHIEFLY SILK

	1930		1931		1932		1933		1934*	
	Yards	Dollars	Yards	Dollars	Yards	Dollars	Yards	Dollars	Yards	Dollars
Canada.....	1,447,599	\$1,709,281	1,584,333	\$1,512,716	498,831	\$ 367,553	288,614	\$ 202,063	259,771	\$ 195,526
Cuba.....	696,791	667,413	343,277	259,101	231,803	119,280	152,909	60,531	133,749	64,193
Australia.....	186,444	267,403	100,489	110,206	143,703	88,316	84,024	47,240	176,607	119,315
Philippine Islands.....	110,612	117,145	194,208	128,414	539,361	245,754	768,485	324,401	421,073	208,441
Mexico.....	50,467	90,003	24,770	41,579	18,359	25,301	18,397	25,451	5,344	7,117
United Kingdom.....	75,966	139,074	76,154	77,580	39,112	26,249	56,096	49,977	49,740	43,888
Dominican Republic.....	25,166	23,375	24,829	17,739	24,062	14,403	16,298	10,595	10,390	6,403
Colombia.....	22,725	21,896	45,715	20,795	7,269	5,553	7,787	9,359	8,931	9,921
Argentina.....	50,783	79,475	30,610	42,819	32,723	26,686	4,666	8,562	1,948	1,814
Other Countries.....	220,562	307,704	169,992	153,871	138,932	98,202	118,899	72,069	77,977	51,473
Hawaii.....	.....	.....	.....	.....	.....	.....	270,121	147,756	186,226	110,835
Puerto Rico.....	.....	.....	.....	.....	.....	.....	193,698	64,891	161,002	65,729
TOTAL.....	2,887,115	\$3,422,769	2,594,377	\$2,364,820	1,674,155	\$1,017,297	1,979,994	\$1,022,895	1,492,758	\$ 884,655

TABLE XXII (B)

IMPORTS OF BROAD SILK FABRICS INTO THE UNITED STATES

	1930		1931		1932		1933		1934*	
	Pounds	Foreign Invoice Value	Pounds	Foreign Invoice Value	Pounds	Foreign Invoice Value	Pounds	Foreign Invoice Value	Pounds	Foreign Invoice Value
Japan.....	1,106,399	\$2,683,677	1,745,448	\$3,130,810	1,228,219	\$1,364,047	1,447,968	\$1,488,611	1,091,705	\$1,265,599
France.....	301,112	2,598,982	414,926	2,911,569	104,744	615,789	152,376	918,247	116,603	808,657
China**.....	273,206	551,415	568,470	814,671	96,662	141,226	23,430	49,979	27,683	47,697
Italy.....	119,547	629,199	150,464	738,099	61,001	281,000	71,344	286,135	40,439	217,134
Switzerland.....	100,417	728,017	113,865	730,405	65,122	348,186	83,953	400,265	17,531	143,488
Germany.....	38,107	166,025	63,103	154,224	22,952	56,839	21,565	58,525	3,230	8,009
United Kingdom.....	26,449	380,012	28,292	326,862	17,418	153,876	18,019	188,027	11,994	142,806
Austria.....	31,017	241,706	31,125	231,196	12,956	81,022	21,995	125,952	9,067	71,207
Other Countries.....	4,468	21,023	4,587	27,597	2,335	4,924	7,608	24,261	1,394	7,389
TOTAL.....	2,000,722	\$8,000,056	3,120,280	\$9,065,433	1,611,409	\$3,046,909	1,848,258	\$3,540,002	1,319,646	\$2,711,986

*Nine months only

**Including Hongkong

SOURCE: Bureau of Foreign and Domestic Commerce, Washington, D. C.

TABLE XXIII
BROAD GOODS—YARDS PER LOOM OWNED

	PRODUCTION											
	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923
February.....	364.0	497.2†	495.6†	475.3	494.3†	456.1	433.0	399.6	405.5	323.8	307.0	214.8*
March.....	446.6	390.6	374.8	497.6	491.6	440.3	444.6	444.7†	367.3	367.1	277.8	239.9
April.....	344.9	366.8	310.6	479.0	433.3	439.1	375.4	363.0	308.0	377.4	257.7	232.3
May.....	269.7	482.4	220.1*	418.7	406.7	453.1	403.1	373.1	301.6	327.9	253.3	274.2
June.....	296.3	480.0	223.0	392.6*	340.5*	442.5	391.4	381.8	297.1*	317.5*	240.6	268.5
July.....	270.0	419.1	238.9	406.1	348.6	428.0*	370.2*	320.2*	309.4	324.8	225.5*	246.7
August.....	292.0	400.2	383.5	395.5	358.5	463.3	415.8	371.9	322.3	366.4	264.3	249.2
September.....	174.7	331.1	488.6	480.3	376.7	461.3	392.7	352.0	365.8	348.4	271.0	258.0
October.....	320.2	283.1*	465.5	474.9	453.6	547.5†	489.8†	390.3	388.4	395.3†	332.2†	279.6†
November.....		323.2	458.3	414.7	413.7	467.9	442.0	420.7	377.6	355.4	300.0	266.2
December.....		327.0	485.8	482.7	462.4	440.1	419.2	417.1	446.7†	365.3	316.8	257.6
MONTHLY AVERAGE.....	319.4	395.4	381.8	451.4	420.7	456.9	419.5	385.1	355.5	350.1	276.3	250.7
NET SALES-SHIPMENTS												
January.....	458.5	515.3	478.8	561.0	549.2†	565.5	488.9	420.3	383.2	341.0	350.7†	265.8
February.....	412.4	450.4	416.0	514.9	495.4	506.9	482.8	440.2	372.2	393.9	293.6	255.6
March.....	445.8	472.9	503.3	590.7	544.2	579.7†	491.8†	487.3†	411.5†	407.1†	239.9	255.1
April.....	390.2	550.5†	453.9	599.5†	517.8	486.9	371.0	361.6	306.3	364.8	280.1	268.6
May.....	357.7	548.3	330.4	415.4	459.3	405.1	350.6	317.7	357.5	253.9	233.1	253.1
June.....	257.8	522.0	277.9	416.1	279.0*	391.4	328.7	377.6	265.6*	250.9	232.4*	285.8
July.....	286.9	509.6	268.2*	370.9*	311.1	365.1*	307.8*	316.5*	334.5	297.4	275.7	229.6
August.....	400.3	357.3	586.5	469.4	421.5	460.2	382.3	386.8	375.5	310.4	278.0	328.8†
September.....	318.5	351.5	591.3†	470.2	454.6	432.6	380.5	337.6	396.9	311.5	312.0	237.3
October.....	325.9	253.1*	426.0	379.7	429.1	452.3	387.0	349.4	308.5	231.2*	311.0	266.6
November.....		276.4	424.5	377.2	393.1	384.0	361.3	355.1	311.5	394.1	270.9	214.1*
December.....		333.0	468.7	471.8	434.8	412.0	414.6	391.4	408.8	354.2	310.2	228.0
MONTHLY AVERAGE.....	365.4	428.4	435.5	469.7	440.8	453.5	395.6	378.5	352.7	325.9	282.3	257.4
STOCK—END OF MONTH												
January.....	811.8	1,140.2	1,377.2	1,498.6†	1,769.2†	1,682.5	1,460.4	1,327.0	1,078.5	787.2	850.6	688.1
February.....	831.0	1,171.1†	1,428.6†	1,467.2	1,764.4	1,605.0	1,389.1	1,268.9	1,075.5	722.8	813.7	654.3
March.....	901.1	1,096.1	1,310.9	1,396.6	1,698.3	1,472.9	1,338.3	1,185.3	1,062.3	673.0	844.7	639.1
April.....	937.7	932.3	1,267.8	1,271.6	1,622.9	1,425.3*	1,335.4*	1,167.6*	1,067.4	671.2*	814.8	602.8*
May.....	890.3	902.9	1,203.1	1,283.1	1,443.3*	1,480.2	1,390.9	1,209.7	1,004.9	779.8	834.6	802.9
June.....	977.3	890.9	1,213.4	1,282.8	1,531.7	1,522.7	1,476.1	1,214.4	1,037.2	842.8	861.0†	785.6
July.....	1,004.5	818.6	1,240.5	1,318.3	1,658.2	1,622.6	1,536.5	1,229.0	1,019.9	870.0	802.6	802.7
August.....	952.2	771.8	1,072.5	1,242.0	1,557.0	1,632.7	1,583.1	1,215.8	961.9	931.8	769.4	723.1
September.....	818.6	726.3*	998.8*	1,234.5*	1,472.7	1,652.0	1,574.0	1,357.7	930.8*	943.1	734.2*	743.8
October.....	830.9	785.8	1,032.9	1,328.0	1,512.2	1,746.7	1,692.7	1,410.1	1,009.7	1,119.3†	763.1	756.8
November.....		880.3	1,081.9	1,357.8	1,525.7	1,796.6	1,803.4†	1,478.9	1,172.6	1,073.0	793.1	808.9
December.....		898.7	1,125.8	1,349.1	1,578.3	1,818.7†	1,799.4	1,500.2†	1,362.1†	1,082.5	804.7	838.5†
MONTHLY AVERAGE.....	895.5	917.9	1,196.2	1,335.8	1,594.5	1,621.5	1,531.6	1,297.1	1,065.2	874.7	807.2	737.2

† High * Low

SOURCE: The National Federation of Textiles, Inc.

tion and at varying rates of production per loom per hour on the basis of 100 per cent operation.

Nature of Overproduction. An appreciable part of the overproduction that has existed in the silk and rayon industry may be attributed to an excess of productive equipment. Unfortunately, loom operation records do not disclose the exact extent of "machine" overproduction. Overproduction very definitely springs also from another source. For convenience, this is called "operation of the style-cycle." Style or fashion, whether it be in color, con-

pronounced. These seasons occur when producers and distributors are gambling—albeit with mature judgment based on experience—on what will appeal to the trade and ultimate consumer four to six weeks from the time production starts. The periods of greatest seasonal overproduction are when consumers change from fall to spring buying habits and vice versa.

Plans designed to control production generally lay too much emphasis on one or the other cause of overproduction with the consequent neglect of the other cause. In some plans, there appears to be lacking the proper consideration of increased operating costs resulting from further curtailment of production to a point where it is not possible to compete at a profit. Again, many plans do not emphasize the absolute necessity for cooperation between the various branches of the textile industry before success can be achieved. At present, there is no vehicle such as a code authority, or other regulatory body, covering the entire textile industry, through which such cooperative measures could be taken.

Plans for Production Control. The many evils which are present or that have existed in the textile industry—design piracy, price cutting, financial losses and acceleration of styles (to name only a few)—may be attributed to the presence of excess goods. Many plans, both remedial and palliative, have been advanced for the elimination of overproduction. As this survey is being prepared, suggestions have been obtained from the industry itself and a tabulation of them indicates the variety of opinions that exist. Included are: elimination of double shift; limitation of hours of labor and plant operation; basic research on economic laws; plant production on seasonal basis; creation of special funds to buy worn-out equipment to prevent its reentry into the productive units of the industry; study of costs and depreciation with a view to price fixing; make manufacturing only against bona fide orders compulsory; and improvement of mill standards to avoid surpluses occasioned by low-quality goods.

The matter of controlling production now is important because, for the first time in the history of industry, legislative power for self-government through the codes provides the means for enforcing any plan which might be adopted. Therefore, in an industry with many recalcitrants, it no longer is impossible to secure the cooperation necessary to make the plan effective. Rather, the difficulty is to determine what plan would be most satisfactory in operation, speedy in effect and free from harmful after-effects.

It is impractical in this survey to more than mention the various proposals for controlling production. One plan, *inventory control*, used with success in a number of industries both before and after the N.R.A., basically is a plan by which each individual operator must keep his pro-

TABLE XXIV
GEOGRAPHICAL ANALYSIS OF PRODUCTION—
MILLS UNDER SILK TEXTILE CODE

	STOCK-CARRYING MILLS		COMMISSION WEAVERS		COMBINED TOTAL	
	Per Cent Total (1932)	Per Cent Total (1932)	Per Cent Total (1932)	Per Cent Total (1932)	Per Cent Total (1932)	Per Cent Total (1st 6 Mo. (1934))
NORTHERN						
Paterson	18.2	48.4	24.1	20.4		
Other, N. J.	2.2	4.7	2.6	6.1		
Allentown	2.7	12.0	4.5	6.8		
Scranton	2.3	0.8	2.0	1.5		
Other Penn.	34.4	13.6	30.4	37.1		
Mass.	3.7	6.0	4.2	3.7		
Rhode Island ..	9.3	3.1	8.0	9.5		
Conn.	12.0	0.2	9.7	4.1		
New York	4.4	4.3	4.4	3.8		
Ohio	—	—	—	2.0		
TOTAL	89.2	93.1	89.9	95.0		
SOUTHERN						
Virginia	2.7	4.3	3.1	1.5		
No. Carolina ..	6.4	2.6	5.7	1.8		
So. Carolina ..	1.5	—	1.2	0.1		
Ga. & Ala.	0.2	—	0.1	0.5		
Tenn.	—	—	—	1.1		
TOTAL	10.8	6.9	10.1	5.0		
GRAND TOTAL	100.0	100.0	100.0	100.0		

SOURCE: The National Federation of Textiles, Inc.

struction of the fabric when on the bolt or the use of the cloth after it has been cut and made into garments, causes surplus stock by change of consumer demand at a time or in a manner not anticipated by either the producer of the cloth or of the garment.

As a result, the industry constantly is faced with unusable goods. The operation of the style cycle, which is treated in the section on distribution, is not confined completely to any one time or period. There are definite seasons, however, when this type of overproduction is most

duction within prescribed limits as to relationship with his sales and stock. This plan is discussed in detail in the section on distribution. Another plan is control of production through *seasonal regulation* of hours. A third plan is *reduction of shifts*. This primarily is aimed at machine overproduction. A fourth plan is one of *variable hour reduction*. This proposal attacks the machine and style-change overproduction problems and is based on year-round adjustment of hours modified by market demand.

Table XXVI gives some of the advantages and disadvantages of the various methods proposed for the control of production. In studying this table *many inconsistencies will be found* if the reader attempts logically to analyze all of the points given. The *purpose of the table is to present prevailing trade opinions* on this moot problem and to *indicate the diversity of reasoning* in approaching a possible solution to it.

RESEARCH

The technological advances in the production of silk and rayon goods present an amazing record of achieve-

ment. It is especially interesting to note the effect on the equipment of silk manufacturers of advances made in the equipment of rayon manufacturers. The perfections obtained in the viscose and acetate processes in the late twenties encouraged the silk mill operator to produce goods of higher quality. In recent years, research activities of machinery manufacturers and mill operators, and the continual development of plant control methods, have brought into being an era of high-quality production for all types of silk and rayon goods.

THE CHALLENGE OF SELF-GOVERNMENT

At the time of the passage of the National Industrial Recovery Act, the President of the United States stated: "The N.R.A. is a challenge to industry which has long insisted that, given the right to act in unison, it could do much for the general good . . . today, it has that right."

A president of The National Federation of Textiles, Inc., in commenting on industrial self-government, said: "In the process of refitting our economic order to the evolution of the social order, it is essential that we be prepared to sub-

CHART L

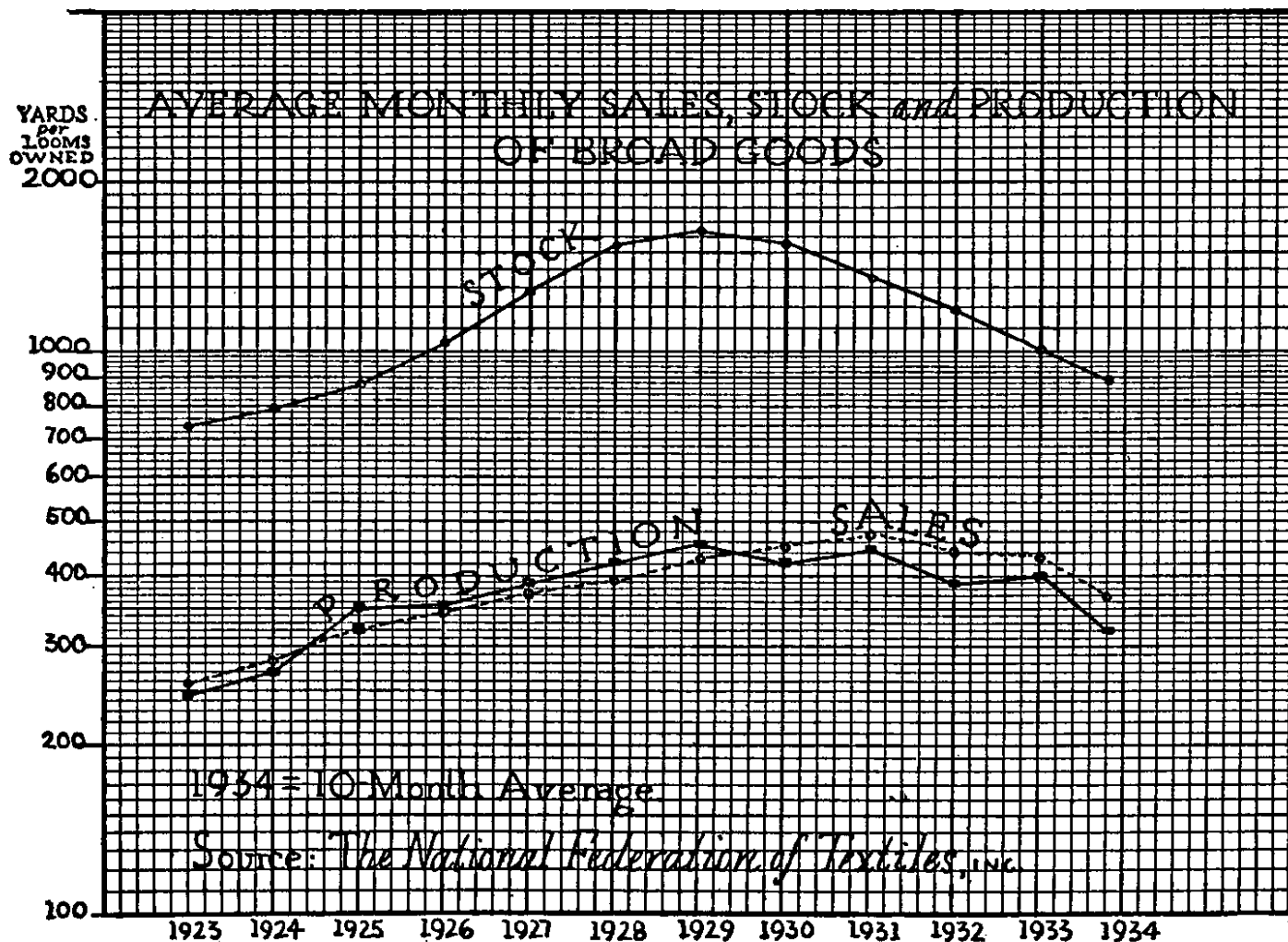


CHART M

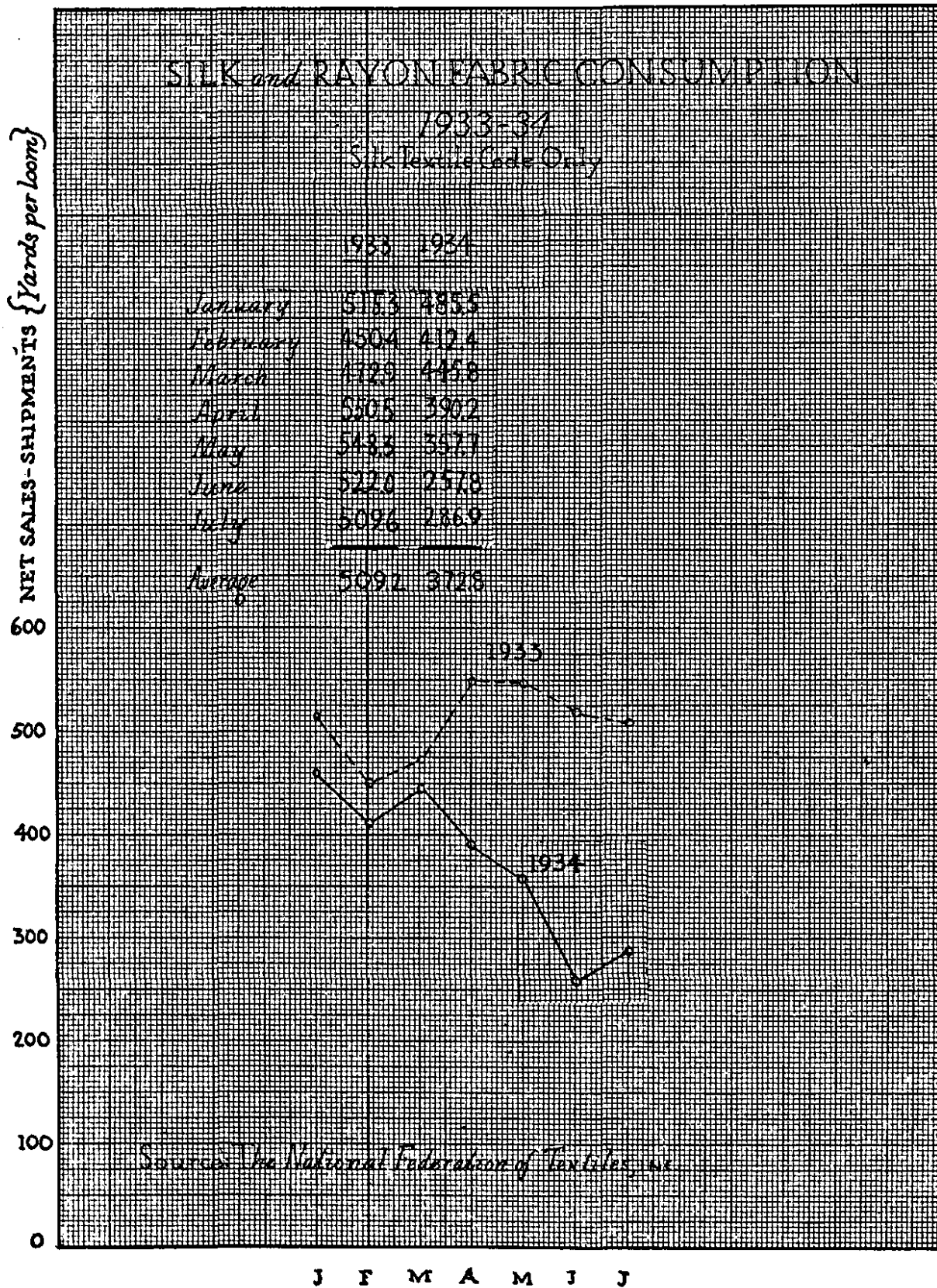


TABLE XXV

POTENTIAL LOOM PRODUCTION—YARDS PER YEAR

(Based on Operation at 100% Capacity for 250 Working Days, Running 80, 70, 60, 50 and 40 Hours per Week—Two Shifts of 40, 35, 30, 25 and 20 Hours)

PRODUCTION PER LOOM	Loom Hours per Week	NUMBER OF LOOMS OPERATED									
		140,000	130,000	120,000	110,000	100,000	90,000	80,000	70,000	60,000	50,000
1½ yards per hour	80	980,000,000	910,000,000	840,000,000	770,000,000	700,000,000	630,000,000	560,000,000	490,000,000	420,000,000	350,000,000
	70	857,500,000	796,250,000	735,000,000	673,750,000	612,500,000	551,250,000	490,000,000	428,750,000	367,500,000	306,250,000
	60	735,000,000	682,500,000	630,000,000	577,500,000	525,000,000	472,500,000	420,000,000	367,500,000	315,000,000	262,500,000
	50	612,500,000	568,750,000	525,000,000	481,250,000	437,500,000	393,750,000	350,000,000	306,250,000	262,500,000	218,750,000
	40	490,000,000	455,000,000	420,000,000	385,000,000	350,000,000	315,000,000	280,000,000	245,000,000	210,000,000	175,000,000
2 yards per hour	80	1,120,000,000	1,040,000,000	960,000,000	880,000,000	800,000,000	720,000,000	640,000,000	560,000,000	480,000,000	400,000,000
	70	980,000,000	910,000,000	840,000,000	770,000,000	700,000,000	630,000,000	560,000,000	490,000,000	420,000,000	350,000,000
	60	840,000,000	780,000,000	720,000,000	660,000,000	600,000,000	540,000,000	480,000,000	420,000,000	360,000,000	300,000,000
	50	700,000,000	650,000,000	600,000,000	550,000,000	500,000,000	450,000,000	400,000,000	350,000,000	300,000,000	250,000,000
	40	560,000,000	520,000,000	480,000,000	440,000,000	400,000,000	360,000,000	320,000,000	280,000,000	240,000,000	200,000,000
2¼ yards per hour	80	1,260,000,000	1,170,000,000	1,080,000,000	990,000,000	900,000,000	810,000,000	720,000,000	630,000,000	540,000,000	450,000,000
	70	1,102,500,000	1,023,750,000	945,000,000	866,250,000	787,500,000	708,750,000	630,000,000	551,250,000	472,500,000	393,750,000
	60	945,000,000	877,500,000	810,000,000	742,500,000	675,000,000	607,500,000	540,000,000	472,500,000	405,000,000	337,500,000
	50	787,500,000	731,250,000	675,000,000	618,750,000	562,500,000	506,250,000	450,000,000	393,750,000	337,500,000	281,250,000
	40	630,000,000	585,000,000	540,000,000	495,000,000	450,000,000	405,000,000	360,000,000	315,000,000	270,000,000	225,000,000
2½ yards per hour	80	1,400,000,000	1,300,000,000	1,200,000,000	1,100,000,000	1,000,000,000	900,000,000	800,000,000	700,000,000	600,000,000	500,000,000
	70	1,225,000,000	1,137,500,000	1,050,000,000	962,500,000	875,000,000	787,500,000	700,000,000	612,500,000	525,000,000	437,500,000
	60	1,050,000,000	975,000,000	900,000,000	825,000,000	750,000,000	675,000,000	600,000,000	525,000,000	450,000,000	375,000,000
	50	875,000,000	812,500,000	750,000,000	687,500,000	625,000,000	562,500,000	500,000,000	437,500,000	375,000,000	312,500,000
	40	700,000,000	650,000,000	600,000,000	550,000,000	500,000,000	450,000,000	400,000,000	350,000,000	300,000,000	250,000,000

SOURCE: The National Federation of Textiles, Inc.

TABLE XXVI

**TRADE OPINION* AS TO ADVANTAGES AND DISADVANTAGES OF SUGGESTED METHODS
FOR THE CONTROL OF PRODUCTION**

	REDUCTION OF SHIFTS (To One of 40 Hours)		PERIODIC SHUTDOWNS (Arbitrarily as Needed)		YEAR-ROUND REDUCTION OF HOURS (40 Hours to 30 or 35 Hours)		SEASONAL REDUCTION OF HOURS (During Slow Periods)		
	FOR	AGAINST	FOR	AGAINST	FOR	AGAINST	FOR	AGAINST	
EFFECT ON EMPLOYMENT	Employment would be stabilized through minimizing seasonal variation.	Total employment somewhat decreased. Most of industry now on double shift.	Tend to shorten seasonal lay-offs.	Interrupts employees' purchasing power and is conducive to unrest.	Would tend to increase and to stabilize employment.	In practice operations would continue much as at present.	Labor would be able to anticipate and "budget" itself for the slack period.	Slack seasons falling in different months in different years cause indefinite lay-off periods.	EFFECT ON EMPLOYMENT
COST OF PRODUCTION	Cost would be increased proportionately for operators in the same class.	Quotations on energy would be higher because of absorption of all mill overhead on one shift.	Prevent waste of capital invested in production of goods which are unneeded and may not be sold.	Savings in particular plants might be dissipated through unexpected arbitrary shut-downs.	There would be a tendency to more orderly, consistent use of machines with consequent savings.	Cost would be increased by increase in wages per hour of work.	Advance planning for shutdowns perhaps would effect some operating savings.	It is unlikely that the present operating method would appreciably be changed.	COST OF PRODUCTION
INSTALLATION AND USE OF MACHINERY	Single shift plan implies restriction of machinery installation except for modernization.	Modernization, although desirable, requires additional capital investment.	Operators not likely to invest in unneeded machinery, thereby decreasing overproduction threat.	Idle looms with no earnings on invested capital would increase mill overhead.	Would tend to increase efficient operation of machinery.	Would increase rather than diminish irritation over plant management.	Would not affect capital investment.	Induces wide variations in machine operation.	INSTALLATION AND USE OF MACHINERY
DELIVERY SCHEDULES	If style is correlated to production, would slow down style changes and encourage placing advance orders.	Would increase the gamble on advance planning of merchandise. Difficult to meet peak period demands without loss of business.	Shutdowns ordered by Code Authority may suspend the contract—as in the case of sat of God, strikes or Court order. Excused from performance.	Aside from problems of contract obligations, would increase difficulties in selling because of trade consumer irritations.	Would somewhat encourage placing of advance orders.	Would not shorten delivery schedules. Buyers continue to insist on short deliveries.	Would prevent excessive stock accumulations in weak seasons.	Would interfere with specialty goods production and between-season novelties.	DELIVERY SCHEDULES
EFFECT ON PRICES	Would increase prices by concentrating overhead on one shift and by the virtual elimination of overproduction.	The rise in prices might be disproportionate to the rise or fall of consumer purchasing power.	Psychological effect in a weak market would be to raise prices—at least to halt price cutting occasioned by overproduction.	Losses may be sustained on contracts for raw materials.	Price fluctuations should be less violent because of somewhat increased stabilization of production and slight decrease in stocks.	Prices would rise but profit margins would not be increased.	There would be a tendency for less severe breaks in off-season markets.	Prices would be unaffected.	EFFECT ON PRICES
GENERAL EFFECT ON CLASSES OF OPERATORS	Operators would utilize all available machinery. Production by stock-carrying mills would increase. Converters could assume more greige goods distribution.	Some commission weavers, unable to modernize old or invest in new looms, would lose business. Converters would rely more on stock carrying mills.	Periodic shutdowns are fair in that all equally are affected.	Do not solve the basic problem of excess stocks. Are a palliative rather than a preventative.	A 30-hour two-shift basis of operation would appreciably diminish overproduction and undermilling.	Experience shows an actual shortage of goods during some months.	Would prevent excessive operations at end of style cycle and end of season.	Production would be speeded up just prior to seasonal reduction. Therefore, stocks would not be reduced.	GENERAL EFFECT ON CLASSES OF OPERATORS
ENFORCEMENT AND PUBLIC POLICY	Code machinery is suitable for enforcement both as to restriction of machinery installation and operations. Public policy in favor of permanent solution of overproduction problem.	Complete cooperation with all branches of textile industry a requisite. This not likely to be attained under different textile codes as at present.	The problem of enforcement is relatively simple when there is a complete shutdown because of the conspicuousness of violators.	Periodic shutdowns not in accordance with recovery policies and offer no permanent solution.	A further reduction in hours could be as easily policed as is the present plan of two shifts of 40 hours each.	Year-round reduction of hours is a compromise which is satisfactory neither to labor nor to operators.	Gives relief when normally required and may be fairly well enforced.	Does not solve the permanent problem if overproduction is considered a year-round rather than a style-cycle condition.	ENFORCEMENT AND PUBLIC POLICY

*Published as received

SOURCE: The National Federation of Textiles, Inc.

ordinate our own particular interest, no matter how vital and sacred, to the common cause of the country."

These statements summarize both the challenge to the industry and the opportunity presented for self-government. Both must be squarely faced before there can be a substantial return to profits in the broad goods industry. The challenge of self-government and the opportunity to meet this challenge through the medium of code authorities or similar agencies have a two-fold aspect. The individual industries must find solutions to their problems. But there also must be widespread cooperation between code authorities or equivalent vehicles.

SELF-GOVERNMENT AND MARKET CONDITIONS

In the textile industry there are 66 distinct codes, and over 300 trade associations, all attempting some form of self-government largely without regard to the others. Many of the markets served by each largely are the markets for all. Formerly, cotton, wool and silk had marked advantages in the marketing of textiles in this country. These advantages were reflected in the conventional assurance of operators in each field of a certain portion of each year's consumer purchasing power. The advent of rayon, the superior merchandising methods of cotton and wool operators, changes in social customs and the remarkable diversification of modern wardrobes—all have minimized the former market distinctions based on the fibers used.

These facts have been paralleled in other countries, and foreign textile operators already are cooperating through

trade associations or with governmental assistance to serve the general market for the best interests of all operators. The viewpoint of textile operators in one foreign nation is expressed by the following quotation: "It is clearly our business to give the best possible textile service to every customer; to develop the most useful and competitive fabrics for their needs—regardless of the fibers used; to combine, where necessary, for the purposes of distribution and of international negotiation; to act together commercially and politically in our common interests instead, perhaps, of allowing one section to be played off against another. The field of mixtures, too, is now a wide one. Every effort should be made to exploit it to the full to standardize colours, for example, and to make textile manufacture and distribution efficient in every way. The old days of unfettered expansion in unsaturated markets are gone forever. Henceforward we must give attention to regulated production, and co-operative technical effort. Just as our navy, army and air force combined for action, so rayon, cotton, silk, wool and linen have everything to gain by co-operation and joint action in the field of trade."

In the section on distribution, some of the effects of the Silk Textile Code on industry are evaluated. But here, emphasis must be placed on the power—as yet largely unrealized—to solve once and for all, through self-government, the problems of production of textiles—problems which are at the root of many of the evils which have beset the industry for many years.

Distribution

THE DISTRIBUTION of textiles, involving both merchandising (mainly styling) and selling operations, is of greater significance today than the production of textiles. The subservience of production to distribution is not attributable solely to twentieth century trends in economic laws. Primarily, it is due to the intense competition in textile markets, to the lack of organization in merchandising and selling practices and to the essentially new marketing problems encountered during the past decade. This section deals with the changes that have occurred in the distribution of silk and rayon textiles, indicates major trends and comments upon their import to the future merchandising and selling practices of the industry. Of special importance is the consideration of the fair trade practices existing before and after the N.R.A. codes.

INTERRELATIONSHIPS OF PRODUCTION AND DISTRIBUTION

A statement of marketing principles, indicating the relationship between production and distribution, is less helpful than an illustration of what happens when these two phases of business are out of step with each other.

When there has been overproduction of goods, markets decline. This is true whether goods are sold to cutters, knitting manufacturers, converters, retailers or other outlets. Again, trade practices—such as advance buying or lack thereof—indicate the correlation between production and distribution. Many buyers and sellers of broad goods regret the passing of the days of advance orders, attributing the overproduction which exists today to the practice of manufacturing without orders; others approve the absence of advance buying in these days of falling markets, saying that this is the one thing that keeps production within reasonable control. The use of credit to finance manufacturing operations further illustrates the interrelationship of production and distribution. The correlation of cost of production to the price at which goods are quoted for sale has a direct bearing on general distribution problems. Changes in distribution methods during the past 15 years are described in the following pages.

CHANGES IN PRODUCTION AND DISTRIBUTION PRACTICES

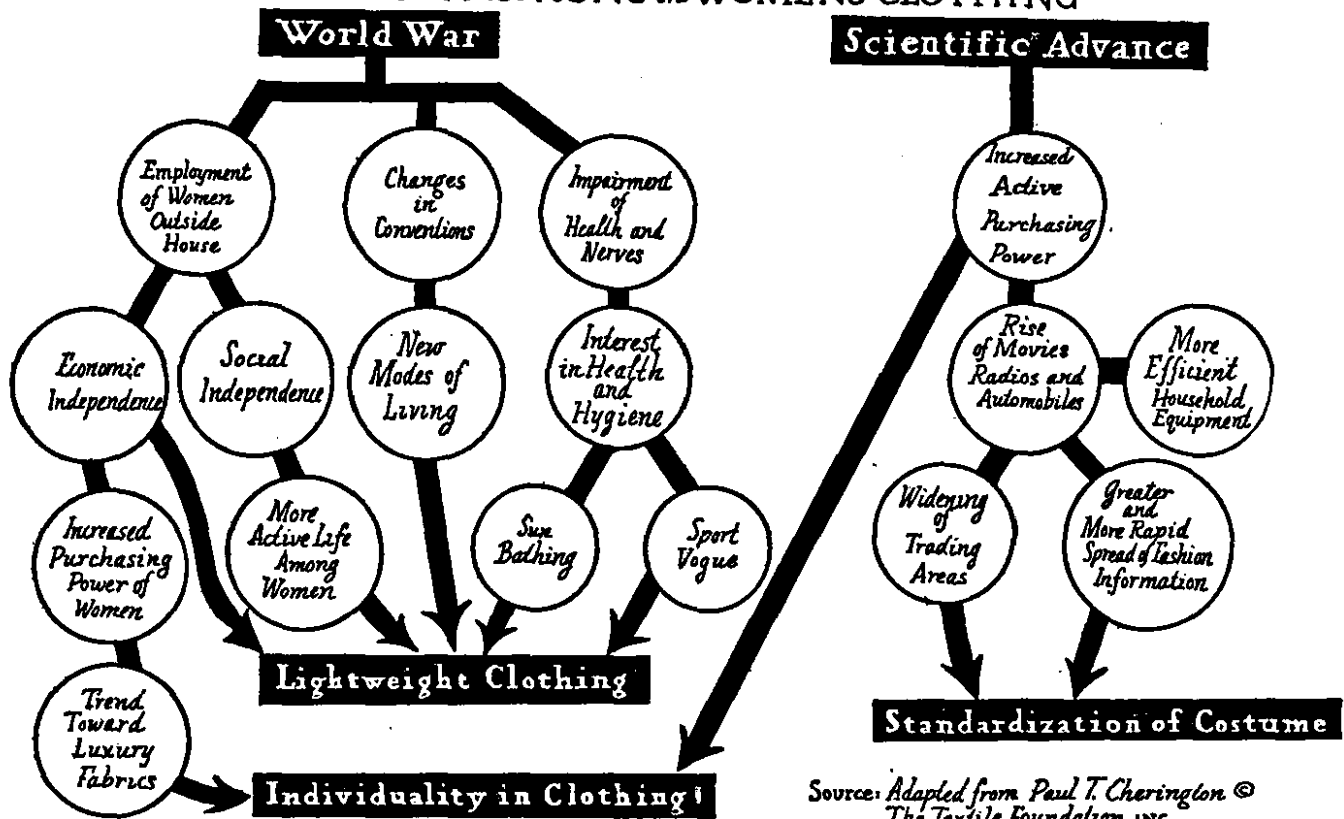
Since about 1920, there have been radical changes in the methods of manufacturing, merchandising and selling silk and rayon broad goods. Until then, manufacturers converted practically all of the goods they produced. They sold to cutters, large retailers and jobbers—especially out-of-town jobbers who covered the small communities. There were few greige goods transactions. After the financial difficulties of the textile industry in 1920, the basic capital investment structure of the industry was changed. Competition increased and it became necessary for manufacturers to have a faster turnover. Immediately, there developed the practice of selling raw or greige goods to a "converter" who finished and marketed it.

A large converting industry was established—encouraged by the manufacturer because of the assumption by the converter of the financial risk involved in finishing the raw goods. By disposing of his products in the raw state, the manufacturer was able to cut down the time his capital was tied up in merchandise and partially to avoid the hazards incident to style changes. On the other hand, the converter—frequently a former salesman or representative of the stock-carrying mill—was induced to remain in the converting business because of the large profits on finished goods supposed to have been made by manufacturers just prior to the financial difficulties of 1920. It soon became evident that increased competition in the converting field would operate to minimize the profits made on finished goods.

It was at this time that the cutting-up trade increased in importance—largely independent of the factors enumerated above. Mass production of ready-made garments at low cost followed upon the World War. Sociological changes and acceleration of style cycles brought about a considerable increase in the total yardage required. Chart N developed for The Textile Foundation's study of the wool industry, reflects the influence of the World War and scientific advance on fashions in women's clothing. Manufacturers in the silk and rayon industry have been alert to develop new fabrics to meet the changed living conditions and fashion trends.

Naturally, the converter handling the bulk of the finished goods was the most likely to profit by this increased activity. Then, too, his ability to turn quickly with market changes, his freedom from fixed investment and operating problems, enabled him to profit by popular appreciation of novelties or staple fabrics. If fashion swung from one type of textile product to another, the converter was in the best position to avoid loss on a bad commodity and follow the lead of a good one. Therefore, it is not surprising to find that today more than half of the total volume of goods sold in the finished state passes to the cutters-up from the hands of converters.

INFLUENCE OF WORLD WAR and SCIENTIFIC ADVANCE
ON FASHIONS in WOMEN'S CLOTHING



Source: Adapted from Paul T. Cherington ©
The Textile Foundation, Inc.

In addition to the development of the converting industry and the enormous growth of the cutting-up trades, commission weaving operators manufacturing staple lines constantly increased in importance. The operator of the stock-carrying mill, largely having surrendered his market control to the converter, was faced with the threat of increased purchases by converters from commission weaving operators. At present, up to 40 per cent of the total yardage produced comes from commission weaving operators. Most of this is plain, staple fabrics and is principally consumed by the underwear trade. This means that the converter, largely in control of distribution, may choose between two sources of supply—the commission weaver and the regular mill owning its raw material and operating generally under a large capital investment.

Until the present, the commission weaver's production presented serious competition only in active markets; today, he is operating at all times as a direct competitor of the regular mill.

Many commission weavers are former stock-carrying mill operators who failed to manufacture goods at a profit and who now subsist simply by the sale of weaving

services. Every serious economic upheaval in the industry has increased the ranks of commission weavers. Furthermore, the practice of weaving on commission for special customers has been adopted by certain regular mills.

CHANGES IN FINANCING

For several years prior to the N.R.A., general economic conditions in the textile industry were such that factors felt it too great a risk to advance money on merchandise inventories—whether in the hands of manufacturers of raw goods or with converters. Advances by factors on merchandise practically have ceased. Between 1925 and 1930, the factor used the device of "lien on inventory" to protect advances and seldom purchased merchandise himself.

The converter always has tended toward large overtrading in relation to capital employed. This speculative tendency is a predominant characteristic. Since the N.R.A., with its rigid rules as to sales terms, and fearful that the large volume sought could not be financed with small capital, converters increasingly have discounted sales through factors. Under such arrangements, factors cash and guarantee sales, releasing the proceeds of the accounts receivable to

the converter for payment of his merchandise obligations to regular mills or commission weavers.

There has been no radical change in the matter of terms or methods of financing raw silk sales since the N.R.A., or, in fact, since 1929. Two-thirds of such sales are made on terms of 60 days trade acceptance, with the other third on terms of cash 10 days or 30 days open account. A similar situation prevails in sales of thrown silk. About 60 per cent of these are on the basis of 60 days trade acceptance with about 20 per cent on 2 per cent 10 e.o.m., and 20 per cent on cash 10 days.

CHANGES IN ORGANIZATION STRUCTURE

All of these changes have brought about the separation of business functions, so that production, merchandising and selling have become distinct operations. There are two classes of producers of raw goods—the regular manufacturer and the commission weaver, the former buying his own raw material and the latter selling the services of his looms. There are two classes of distributors—the converter who finishes the raw goods produced, and the cutter-up who takes the finished merchandise and prepares it in the form of garments for the retailer. On the one hand, the producer of the raw goods largely has eliminated the inventory on finished goods; on the other, the transference of the marketing problem has removed from the producer the control of distribution.

A trend in recent times has been the assumption by a few cutters of the converter's function. Naturally, in the face of declining markets, the risk of assuming additional merchandising burdens has stopped this practice from spreading. Nevertheless, the quantity of goods so handled by cutters in 1933 was estimated at 35,000,000 yards.

ADVENT OF RAYON

Coincidental with the changes in the organization of the industry was the change brought about by the entry of rayon into general textile competition. There is much shifting from one textile raw material to another—depending upon prices, style changes and other factors—but the advent of rayon provides the most striking illustration of the effect on distribution of the use of a new raw material.

The economic history of the rayon industry roughly may be divided into five phases of development. First, the pre-war experimentation period which ended about 1910; from 1910 to 1920 constituted a second period, characterized by the steady growth of pioneer companies manufacturing yarn; the third period—from 1920 to 1925—was marked by the first outstanding commercial success and continued technical advances in production and quality control; the fourth period—from 1925 to 1929—occurring during the Coolidge prosperity era, typified the formation of many new rayon yarn manufacturing companies with much capital investment; and, the fifth period, running from 1929 to 1933, marked by consolidation and retrenchment to the status of a basic and sober unit of production and by outstanding success in the merchandising of rayon yarn, whether made by the viscose, acetate, cuprammonium or nitrocellulose processes. It is possible that the rayon industry now is entering a sixth phase of development, the chief characteristics of which will be continued advances in marketing, increase in the size of existing companies, continuation of position-consolidation and increase in installation of modern productive equipment.

The outstanding improvement of recent years in the development of rayon yarn has been the introduction of

TABLE XXVII

SIZE GRADE AND FILAMENT COUNT OF RAYON YARNS

YEAR	100 DENIER Filament Count	125 DENIER Filament Count	150 DENIER Filament Count	200 DENIER Filament Count
1926.....	18 40	18	24 36 60	30
1927.....	18 40	18	24 36 60	30
1928.....	18 40	18	24 36 60	30 60
1929.....	18 40	18 36	24 36 60	30 60 75
1930.....	18 40	18 36 48	24 36 60	30 60 75
1931.....	18 40 ....	.... 36 ....	.... .... 40 60	30 75
1932.....	18 40 ....	.... 36 ....	.... .... 40 60	30 75
1933.....	.... 40 60	.... 36 ....	.... .... 40 60	30 75
1934.....	.... 40 60	.... 36 ....	.... .... 40 60	30 75

SOURCE: Textile Organon. Tubize Chatillon Corporation

TABLE XXVIII

DISTRIBUTION OF BROAD GOODS BY TYPE OF FABRIC

(Stock-Carrying Mills and Commission Weavers)

	Per Cent
Dress Fabrics	
a. Goods woven to be used for prints and not suitable for plain fabrics.....	14.8
b. All other dress fabrics (plain, fancies and prints).....	51.0
Underwear and Negligees.....	13.6
Linings (Jacquard or plain)	
a. Women's Wear	10.4
b. Men's Wear	1.0
Neckwear	4.0
Fabrics for other than wearing apparel.....	5.2
TOTAL.....	100.0%

SOURCE: The National Federation of Textiles, Inc.

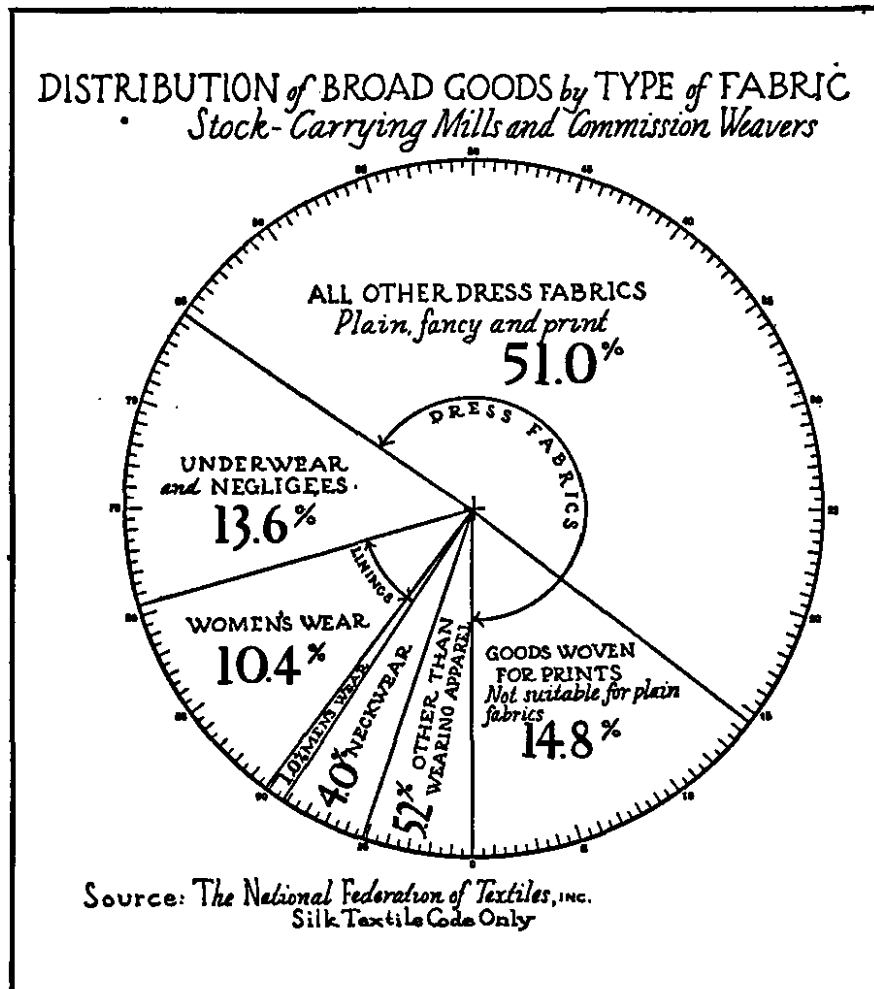
TABLE XXIX

DISTRIBUTION OF BROAD GOODS TO TRADES BY TYPE OF PRODUCER

TO	STOCK-CARRYING MILLS				TOTAL	COMMISSION WEAVERS
	Raw Goods	Finished Goods	Prints	Total Finished & Prints		Raw Goods
Converters, wholesalers and jobbers	81.1	7.7	2.0	7.0	50.8	58.7
Other mills	1.8	.....	.....	.....	1.1	37.6
Cutters-up:						
Dresses, women's wear.....	10.4	44.1	65.8	46.8	25.3	1.4
Cloaks & suits, women's wear	0.3	5.1	0.5	4.6	2.0	.....
Underwear & negligees.....	4.1	17.8	0.6	15.7	8.9	1.4
Men's wear	1.1	2.9	1.9	2.7	1.8	0.9
Retail outlets .....	.....	12.8	29.2	14.8	6.1	.....
Other outlets	1.2	9.6	.....	8.4	4.0	.....
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
GRAND TOTAL	59.1	35.8	5.1	40.9	100.0	100.0

SOURCE: The National Federation of Textiles, Inc.

CHART O



extremely fine filaments, in turn making possible the production of attractive, soft rayon fabrics of high quality. Well over half the total production of rayon yarn now is in this fine class. Table XXVIII shows the filaments in common use by years for different deniers. The experiments by which the technique for producing these fine yarns and filaments has been developed have cost large sums of money, justification for which has been found in the extension of the market for rayon products. Another comparatively recent technical improvement which has added to the rapid increase in the sale of rayon yarn has been the development of luster control.

DISTRIBUTION BY TRADE OUTLETS

More than 65 per cent of the total amount of silk and rayon broad goods produced goes into the manufacture of dresses. Table XXIX, and Chart O, shows percentages of broad goods sold by type of fabric. Table XXX, and Charts P, Q and R, show the distribution of production by type of producer.

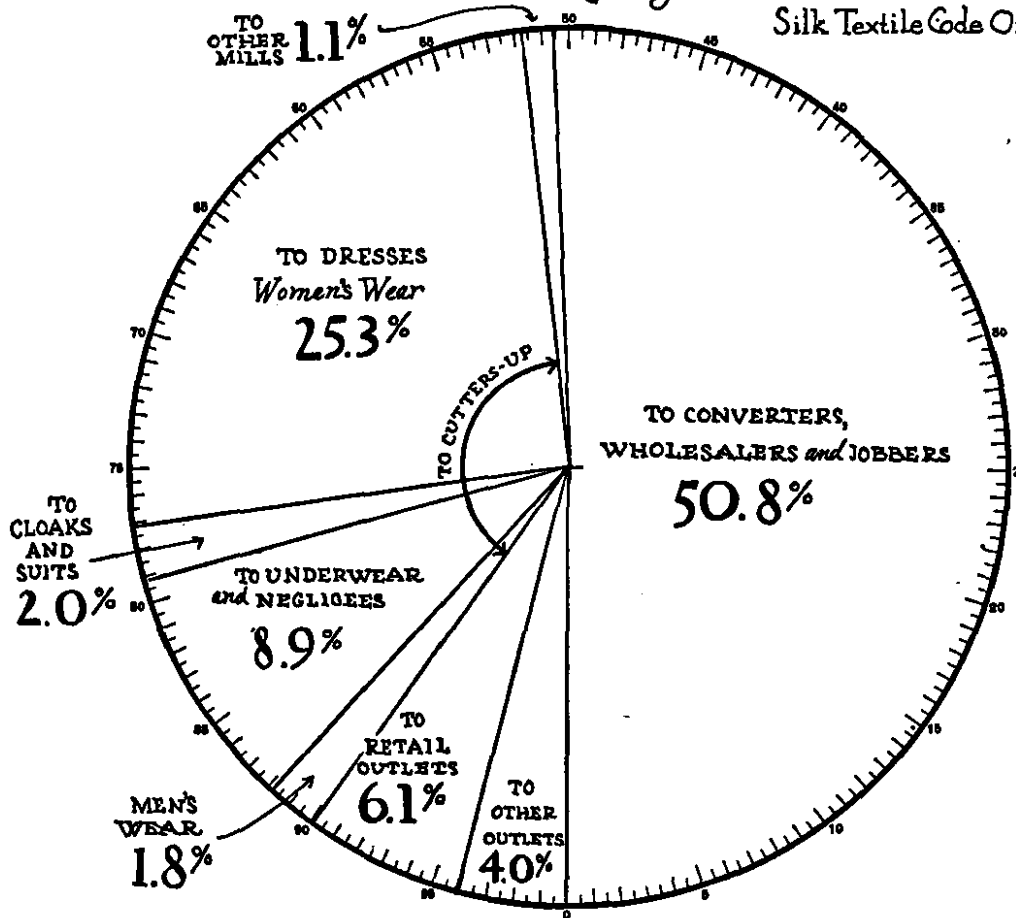
In recent years, the underwear manufacturing trade has become an important consumer of silk and rayon goods. Formerly, this trade took practically nothing but cotton goods, the change to silk and rayon being brought about through lower manufacturing costs, the selling of merchandise on a close basis, lower raw material costs and the "weighting" of silk fabrics. The changing silhouette of women's outer garments, creating demand for supple and clinging undergarments, also acted as an important factor in the use of silk for this purpose. Fine grades of rayon fabrics also are used in large quantities by this trade, the choice of one raw material or the other depending largely upon prevailing costs.

Competition between cotton and silk, even in the lower-quality materials, is of secondary importance. Far more important is the competition within the silk and rayon industry. As has been indicated in the section on production, the interchangeability of looms for rayon or silk fabric manufacture makes it possible for former silk mill

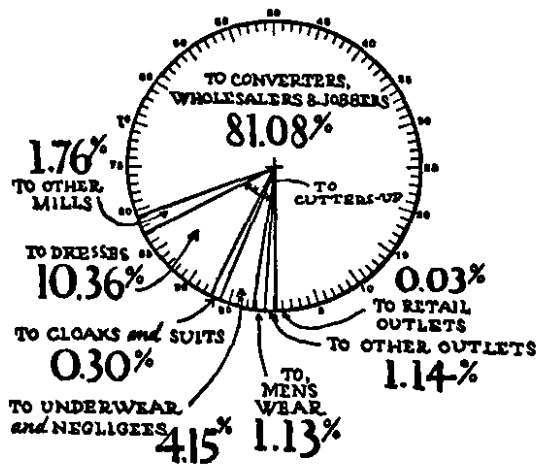
CHART P

DISTRIBUTION of TOTAL PRODUCTION Stock-Carrying Mills

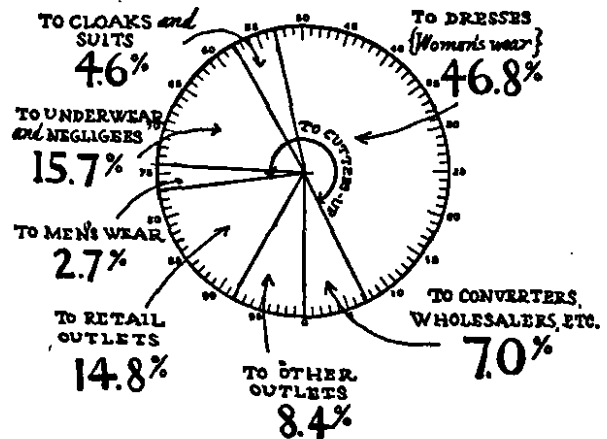
Silk Textile Code Only



RAW GOODS



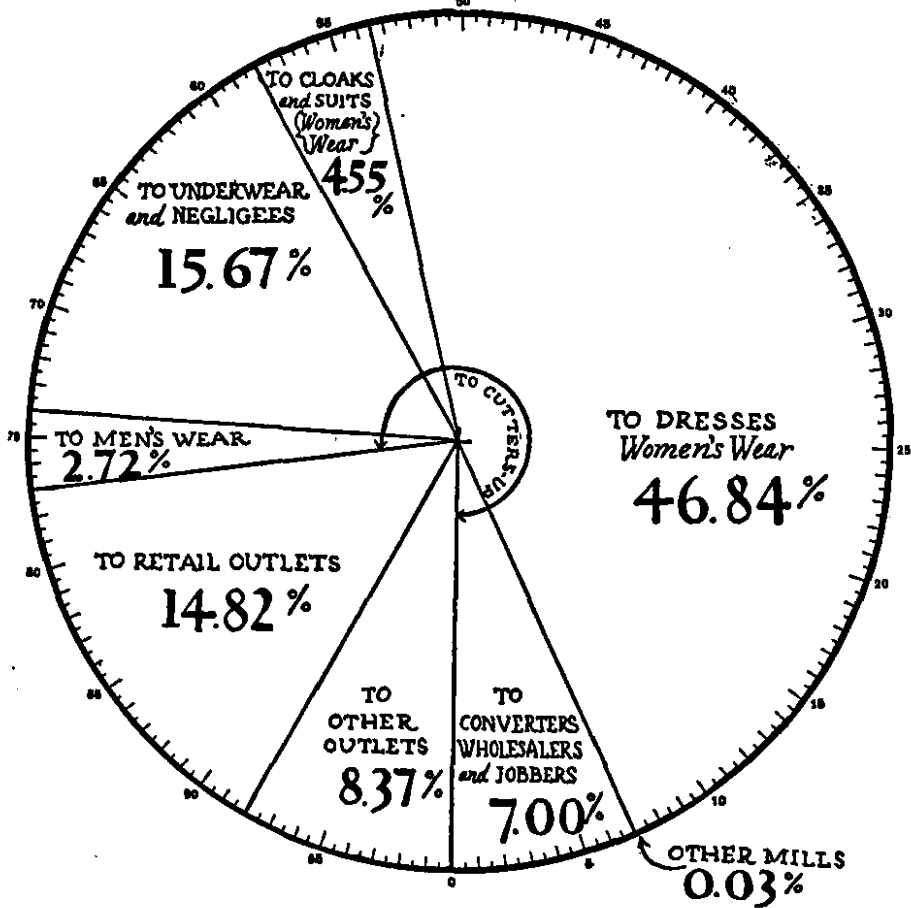
FINISHED GOODS



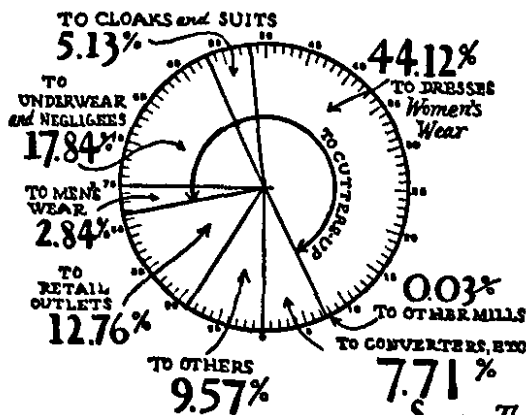
Source: The National Federation of Textiles, Inc.

CHART Q

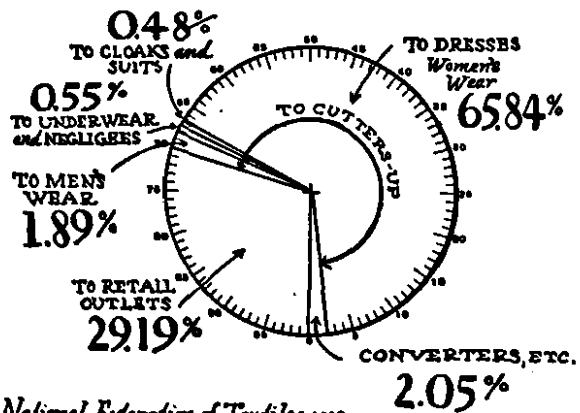
DISTRIBUTION of FINISHED GOODS
Stock-Carrying Mills



PLAIN GOODS

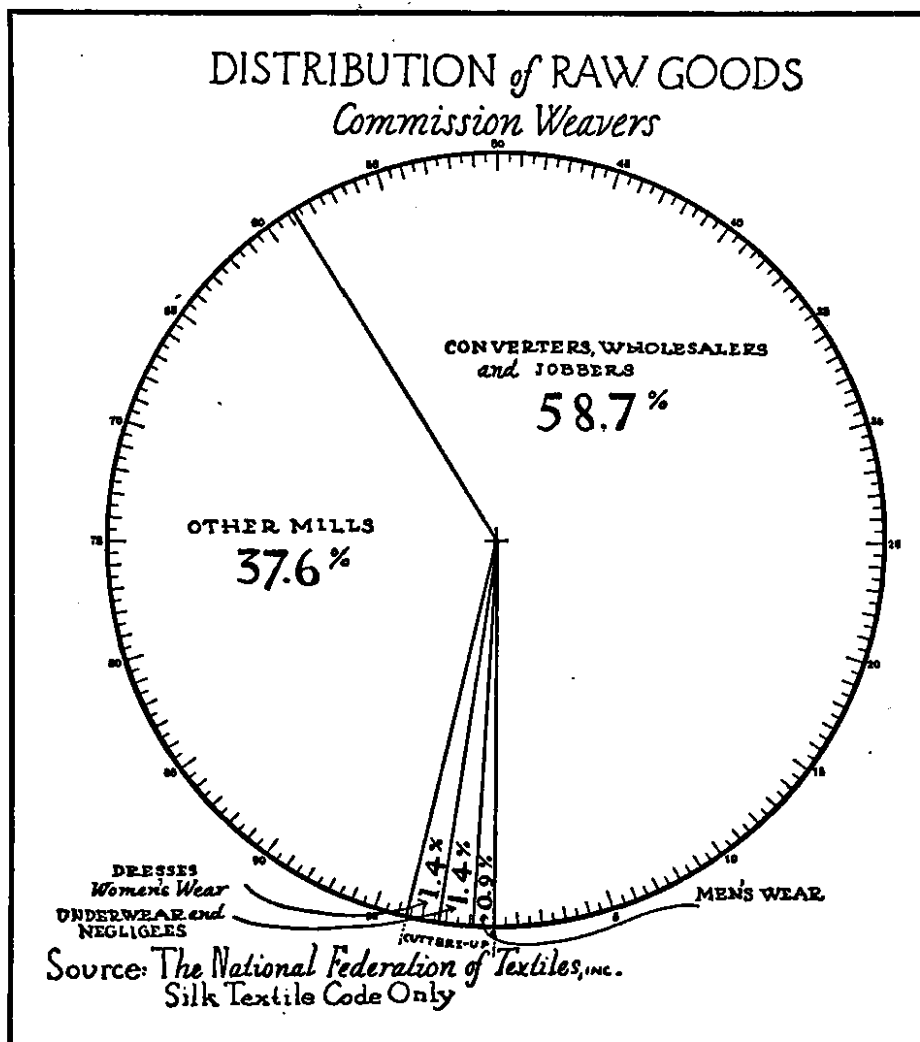


PRINTED GOODS



Source: The National Federation of Textiles, Inc.
Silk Textile Code Only

CHART R



operators to continue in business when rayon displaces silk or silk displaces rayon. This displacement of one material by the other formerly was the result of the operation of many influences; today, the shift in the consumption of these fabrics principally is attributed to one factor—the amount of the differential in the price of silk and rayon raw materials.

When raw silk prices rise without a corresponding rise in rayon yarn, the seller of the latter has a larger market; when the reverse is true, the use of rayon yarn in certain dress and underwear constructions decreases until prices become adjusted. Although merchandising and promotional activity eventually will have a definite bearing on the shift from one raw material to another, today the deciding factor is price.

COMPARISON OF RAW MATERIAL PRICES

Table XXX, and Charts S and T, shows the consumption trend in textile fibers and price relationships. Techno-

logical advances have been a decided factor in bringing about the marked changes indicated. The introduction of finer filaments—softening the rayon yarn—offered fabric manufacturers a means of making fine and pliant fabrics at prices which have been relatively constant.

The quantity of rayon yarn produced is influenced to a great degree by the output of a few large manufacturers; the control of raw silk production indirectly is supervised by the Imperial Japanese Government. These facts—subject to world economic disturbances involving monetary changes, tariffs, etc.—together with the interchangeability of weaving equipment and the process of convergence in the general textile market, should lead to price policies that will serve the best interests of both groups competing in the raw materials field. To the present, however, price movements—which cause temporary changes in distribution and consequent frequent loss—have continued to upset the distribution of silk and rayon broad goods.

TABLE XXX

FIBER CONSUMPTION, PRICES AND VALUE IN THE UNITED STATES

	COTTON					SILK						RAYON					
	Mill. Pounds	Index	Price \$ per Lb.	Value Mill. \$	Index	Mill. Pounds	Index	Price \$ per Lb.	Value Mill. \$	Index	% of Cotton Value	Mill. Pounds	Index	Price \$ per Lb.	Value Mill. \$	Index	% of Cotton Value
1920	2,822	88	.339	956	170	28.5	43	9.08	259	63	27.1	9.5	16	4.66	44	40	4.6
1921	2,422	75	.151	366	65	43.0	64	6.57	282	68	77.0	19.7	33	2.67	53	48	14.5
1922	2,910	91	.212	616	110	50.1	75	7.65	383	93	62.2	24.7	41	2.80	69	63	11.2
1923	3,117	97	.293	913	163	47.7	71	8.65	412	100	45.1	32.6	54	2.80	91	83	10.0
1924	2,639	82	.287	757	135	48.8	73	6.25	305	74	40.3	42.2	70	2.11	89	81	11.8
1925	3,075	95	.235	723	129	66.7	100	5.57	371	90	51.4	59.1	98	2.00	118	107	16.3
1926	3,215	100	.175	563	100	66.7	100	6.19	413	100	73.4	60.6	100	1.81	110	100	19.5
1927	3,584	112	.176	630	112	73.3	110	5.44	399	97	63.4	100.0	165	1.49	149	136	23.7
1928	3,187	99	.200	638	113	75.9	114	5.07*	385	93	60.4	100.1	165	1.50	150	136	23.5
1929	3,426	107	.191	655	116	82.4	124	4.93	406	98	62.0	131.3	217	1.24	163	148	24.9
1930	2,608	81	.136	355	63	77.4	116	3.42	264	64	74.4	117.2	194	1.05	123	112	34.6
1931	2,657	83	.086	228	40	79.1	119	2.40	190	46	83.4	157.3	260	.75	118	107	51.8
1932	2,457	76	.064	157	28	73.7	111	1.56	115	28	73.3	152.2	251	.64	97	88	61.8
1933	3,031	94	.107	324	58	62.4	94	1.61	100	24	30.9	206.8	341	.61	126	115	38.9
1934*	3,000	93	.170	510	91	65.0	97	1.30	85	21	16.7	190.0	319	.60	115	105	22.5

* Estimated

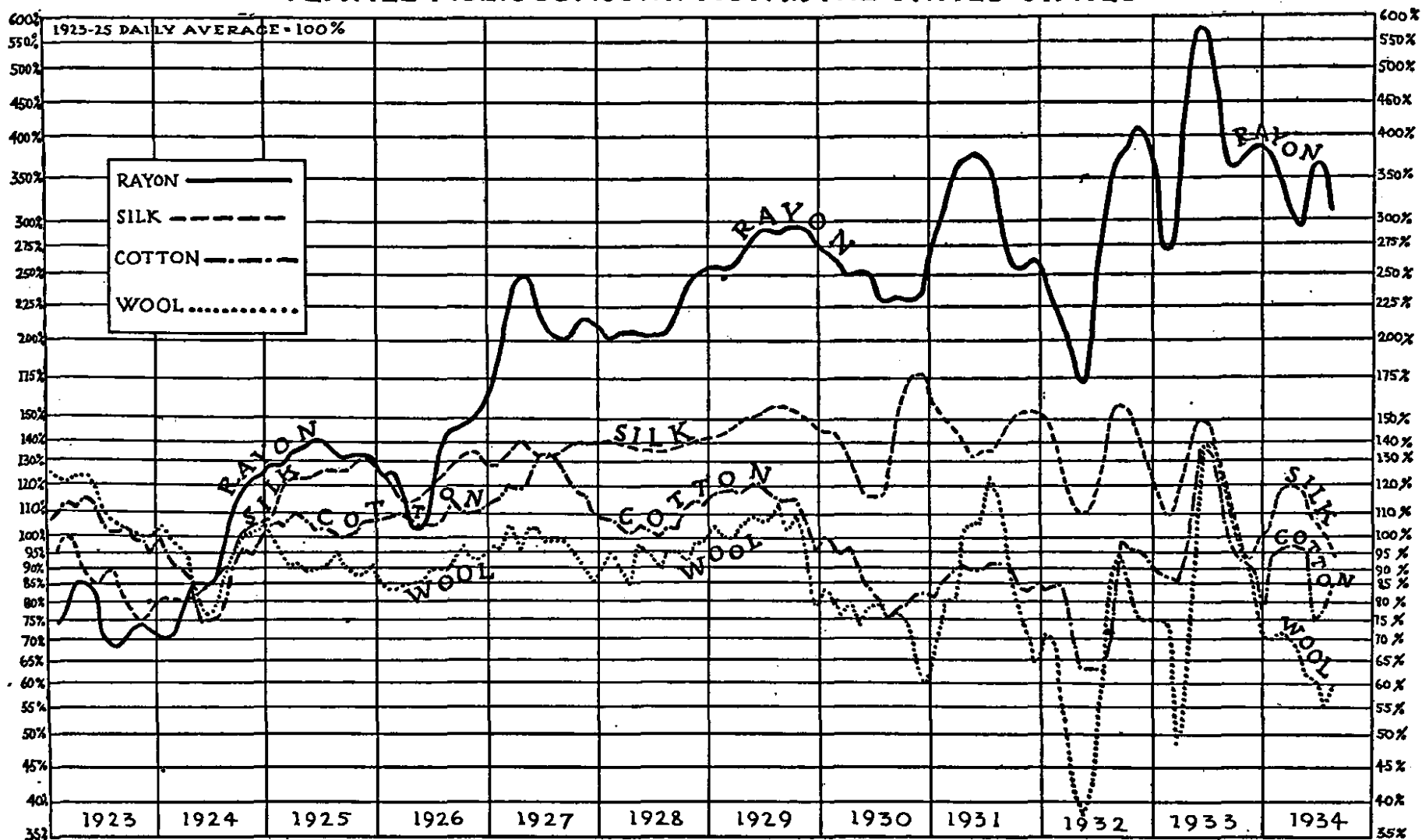
Index: 1926=100

Source: Textile Organon, Tubize Chatillon Corporation

CHART 5

TEXTILE FIBER CONSUMPTION in THE UNITED STATES

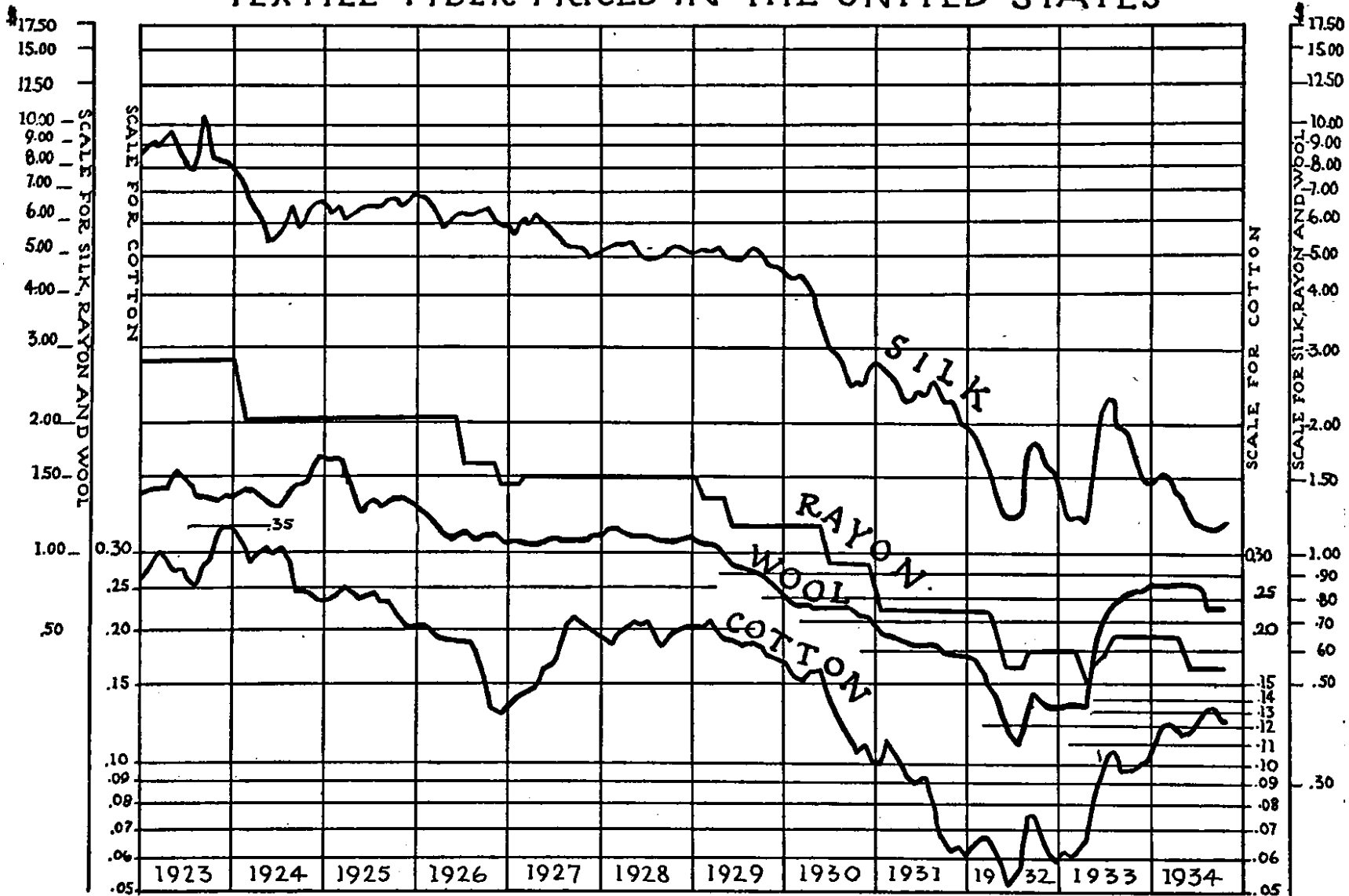
58



Source: Textile Organon. Tubize Chalillon Corporation

TEXTILE FIBER PRICES IN THE UNITED STATES

59



Source: Textile Organon. Tubize Chatillon Corporation

CHART T

IMPORTANCE OF STYLE

Style—more concretely, fashion trend—is of preeminent importance in the distribution of textiles. In the broad goods field style is expressed in four dimensions—material (fiber), weave, color and design. Style of fabric must be in keeping with the silhouette of the moment. It develops first in the high-quality, fashionable garment field and, within a short time, affects the price groups catering to mass consumption.

Style changes occur, or cycles are induced, by the following principal sources: commercial designers, foreign openings, fashion journals, resorts, foreign samples, style books, art museums, style juries, analysis of consumer acceptances and the analysis of information from various distribution channels.

Contrary to general opinion, style changes do not occur overnight. Much time elapses between the first appearance of a novelty and the establishment of a definite vogue. A style, in becoming widespread, establishes for the time being a new staple born of a so-called novelty, which new staple in time is displaced by another new staple also born of some season's novelty. This process goes on repeating itself indefinitely.

Table XXXI, especially prepared for The Textile Foundation, analyzes the chief events in the seasonal progression from couturiers to consumers.

The result of this continuous style-cycle operation is frequent overproduction on certain weaves toward the end of a season. Less well-informed operators, knowing the definite trend toward particular weaves, at once set about producing quantities of such merchandise on their own account. Special tabulations for the survey indicate that between 1930 and 1934 about 70 per cent of the production was on the manufacturing distributor's own account and about 30 per cent on bona fide orders. If the style cycle has run its course, it is likely that the entire lot of goods will be a loss as about six weeks is required from the start of production to distribution to the trade.

Many commission weavers and, in some cases, stock-carrying mills, depend entirely on trade rumor and gossip—rather than on more reliable trade guides—as the forecast upon which their broad loom production is planned. Where the crowd goes, they will go. If a staple is selling well, it is not unlikely that, late in the season, many operators greatly will increase their production of that article. This "sheep-like" practice generally leads to severe losses for the remainder of the season on the particular article involved and adversely affects the price of other goods.

The natural instinct of most business operators is to produce goods solely from the viewpoint of safety. They cannot afford to suffer frequent *style* losses; yet, by the very practice previously cited, overproduction and consequent price losses result.

The desire to emulate—to be in fashion, to keep up with others—is the basic emotional buying motive of the ultimate consumer. Nevertheless, every fashion, by its very popularity, carries with it the germ of its own destruction. As soon as the motive of emulation has made a fashion widely popular, the style leaders who are influenced by the motive of distinctiveness want no more of it; it has become too common. They want something new. Anomalous as it may seem, furthermore, a new style is not assured of success until it nearly reaches the "too common" stage.

To the present, style control has been subjected to limited scientific analysis. Much forecasting is of little value. The paradoxical nature of the problem, with its conflict between distinctiveness and emulation, and the secrecy which characterizes style information between competitors, prevent practical achievement. Despite these facts, however, operators watch the fashion trend to advantage. If there are indications that long skirts and windblown effects are to be stylish, soft materials will be the advance word among producers and distributors of broad goods; if dresses are to be shorter, heavy goods with the proper "hang" will be required.

Even with due acknowledgment of the rapid progress made since 1930 by American designers—whether following Palm Beach or Hollywood—the formidable lead of European designers will not disappear for some years. Although the quantity of imported fabrics is small, American production largely is dictated by models imported from European markets. In recent years, high-quality manufacturers and converters have stimulated the development of American design. American styles, insofar as popular-priced garments are concerned, preponderantly are American interpretations of foreign developments. Converters, except a few of the leaders, do little or no styling although, technically, inasmuch as they finish the goods offered to trade and retail outlets, they perform the merchandising function. Styling done in America largely is the work of a few old-line houses.

Table XXXII, and accompanying Chart U, shows the number of cloth constructions or weaves developed by the principal stock-carrying mills and commission weavers both for experimental and commercial use. It will be noted that one manufacturer produced as many as 1,500 experimental constructions in a year. Commission weavers chiefly are dependent on stock-carrying mills for the production of new constructions, confining themselves as a whole to an average of not more than four per year.

These conditions seem to show the need for some sort of merchandising organization to inform the commission weaver of market demands, to provide styling facilities and protect his interest in selling his services.

An outstanding development of recent years has been the acceleration of styles through faster deliveries (multiple-

TABLE XXXI

CHIEF EVENTS IN THE SEASONAL PROGRESSION OF THE CLOTHING TRADES AND INDUSTRIES

MONTH	COUTURIERS		MILLS		CUTTERS		RETAILERS	CONSUMERS
	<i>Light-Weight</i>	<i>Heavy-Weight</i>	<i>Light-Weight</i>	<i>Heavy-Weight</i>	<i>Light-Weight</i>	<i>Heavy-Weight</i>		
January			Deliveries to cutters	Openings	Production in quantity	Final clean-up	Distress merchandise to take place of broken lines of heavy-weight	Bargain sales, heavy-weight
February	Spring showings in Paris		Production in quantity	Orders	Height of production		Clean-up of heavy-weight stocks; first light-weight orders	End of season clearances, heavy-weight
March	Mannequins at resorts		End of light-weight production	Deliveries to cutters	End of season		Light-weight stocks filled and advance orders placed	Early openings—light-weight
April	Tourist season		Designing for next year	Deliveries to cutters	Stray orders and refills	Goods in. Cutting begun	Stocks full, future commitments curtailed	Increasing sales light-weight, depending on date of Easter
May	Active tourist season		Designing	Production in quantity on re-orders	Deliveries active, production less	Production increased on steady lines	Stocks full, no further commitments; bargain lots sought	Volume sales high-style light-weight
June	Declining sales		Salesmen's view of new designs	End of production	End of production — jobs and distress merchandise	Production in quantity	Distress merchandise an increasing factor in stocks	Volume sales popular-priced; bargains offered light-weight
July	End of season		Salesmen and trade select new designs		Clean-up	Active sales, production in quantity	Clean-up light-weight stocks; first buying of heavy-weight	Bargains ended light-weight
August		Fall showing in Paris, mannequins at races	Sample lengths and books made up	Designing for next year	Final clean-up	Height of sales	Active early buying; early showings heavy-weight	Between seasons—some first showing heavy-weight
September		Tourist sales active	Openings	Designing		Deliveries active; production less	Heavy-weight goods received in quantity; heavy-weight re-orders	Openings, heavy-weight
October		Tourist sales	Initial orders	Salesmen view new lines		Production curtailed — jobs appear	Stocks full, bargain lots sought heavy-weight	Active sales style goods heavy-weight
November		End of season	Orders	Salesmen and trade select new lines		End of job lots and distress merchandise	Stocks full, few new orders placed	Volume sales, heavy-weight
December			Deliveries to cutters	Sample books made up		Clean-up	Stocks not filled when broken, peak heavy-weight sales passed	Christmas peak, volume sales heavy-weight

SOURCE: "The Commercial Problems of the Woolen and Worsted Industries"—The Textile Foundation

CHART U

NUMBER of CONSTRUCTIONS WOVEN DURING 1952
By Reporting Firms

EXPERIMENTAL WEAVES
 REGULAR MILLS
 COMMERCIAL WEAVES
 REGULAR MILLS
 COMMERCIAL WEAVES
 COMMISSION WEAVERS

Source: The National Federation of Textiles, Inc.

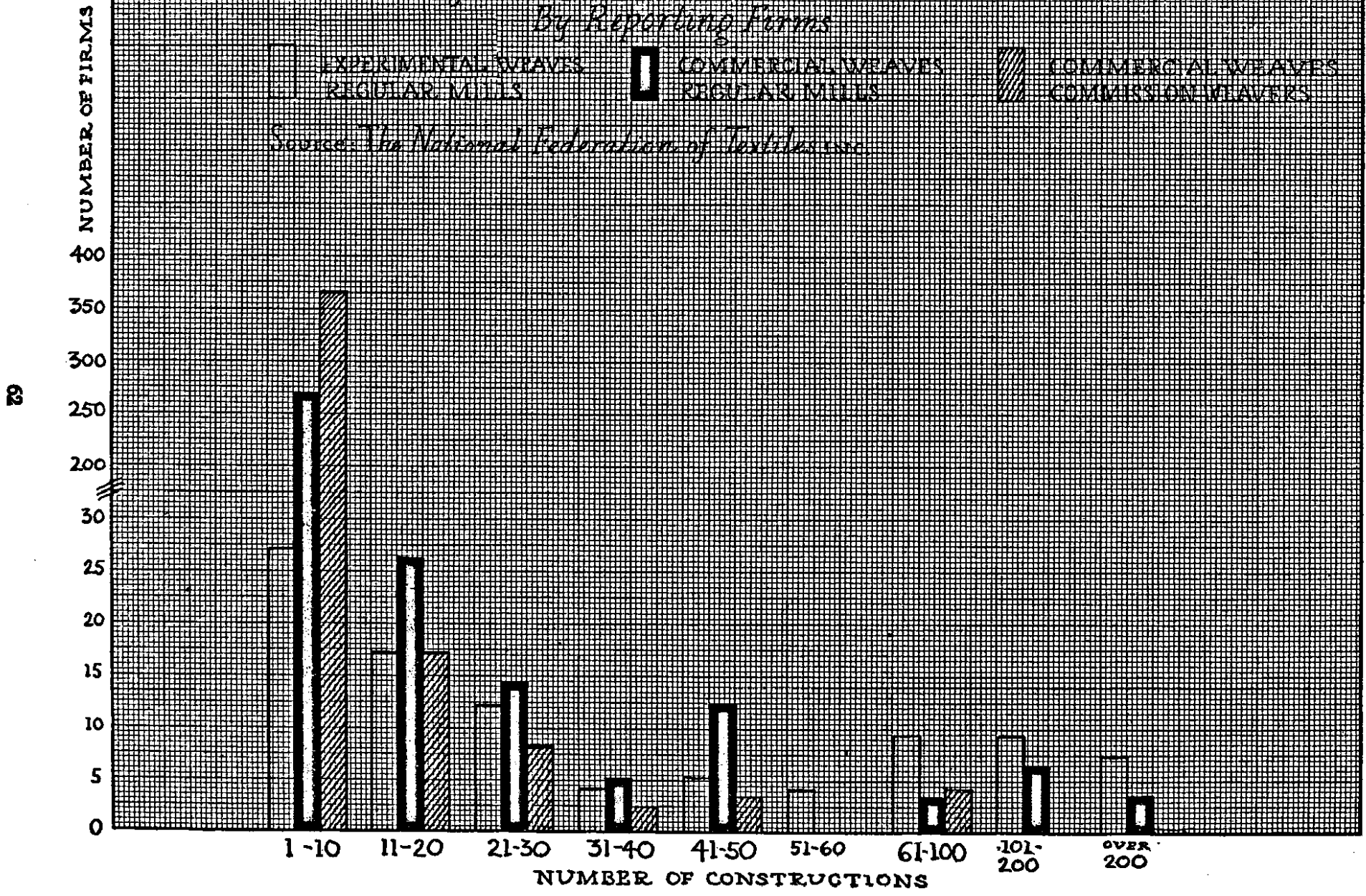


TABLE XXXII

NUMBER OF DIFFERENT CONSTRUCTIONS WOVEN DURING 1932
(Stock-Carrying Mills and Commission Weavers)

STOCK-CARRYING MILLS				COMMISSION WEAVERS	
FOR EXPERIMENTAL USE		FOR COMMERCIAL USE			
Firms	Con- structions	Firms	Con- structions	Firms	Con- structions
4	1	109	1	220	1
4	2	52	2	79	2
1	3	39	3	27	3
1	4	19	4	13	4
2	5	11	5	6	5
6	6	13	6	9	6
2	8	6	7	2	7
1	9	9	8	6	8
6	10	10	10	1	9
1	11	11	12	8	10
5	12	3	14	2	12
3	15	5	15	2	13
2	18	1	16	1	14
6	20	6	20	1	15
8	24	1	21	1	16
6	25	1	23	2	20
1	26	3	25	1	24
2	30	2	27	4	25
3	35	7	30	3	30
1	40	2	35	2	40
1	42	1	36	3	50
1	43	2	40	2	75
3	50	1	42	1	99
1	52	2	45	1	100
2	54	1	46		
1	60	1	47	397	
1	72	1	48		
1	75	6	50		
1	80	1	85		
1	84	2	100		
1	90	1	102		
4	100	1	141		
1	110	1	145		
1	114	3	160		
1	120	1	260		
1	142	1	400		
2	150	1	600		
1	192				
2	200	337			
2	250				
1	300				
1	334				
1	350				
1	625				
1	1500				
94					

Source: The National Federation of Textiles, Inc.

TABLE XXXIII

NUMBER OF DESIGNS REGISTERED

MONTH	1928	1929	1930	1931	1932	1933	1934
January		164	87	73	1,974	2,704	2,408
February		118	47	65	1,218	1,515	1,887
March		139	63	27	947	999	1,194
April		190	121	31	402	1,323	1,175
May		84	148	29	92	592	881
June		216	208	50	120	682	887
July		625	724	258	38	908*	633
August	416	354	853	1,375	.....	1,205	1,379
September	340	595	365	1,579	.....	1,985	1,612
October	814	341	275	2,119	249	2,602	3,219
November	680	217	192	2,076	3,607	2,125	
December	480	105	134	2,209	3,436	2,786	
TOTAL	2,730	3,148	2,717	9,891	12,083	19,426	15,275
Staples included in above.....	20	62	34	219	43	321	495
Rejections included in above.....	20 (0.7%)	41 (1.3%)	11 (0.4%)	279 (2.8%)	786 (6.5%)	869 (4.5%)	260 (1.7%)
MONTHLY AVERAGE							
PREPARATION FOR:							
Spring and summer..... (Sept. to Feb.)		433	232	184	1,863	1,919	2,299
Fall and winter..... (March to Aug.)		268	270	295	267	951	1,025

*Code effective

SOURCE: Design Registration Bureau, The National Federation of Textiles, Inc.

shift operation), technological improvements in machinery and as a result of falling prices. Some years ago, for instance, printed designs were made up well in advance of seasons and sold for long delivery dates at handsome profits. Since 1929 and the advent of rayon as an important print fabric, dyeing and printing facilities have been greatly increased. The acceleration of delivery schedules, as well as the general trend present in all style industries to speed up the cycle of demand from novelty and staple stage to discard, have diminished the profits to be made on novelties. It also should be noted that printing facilities, in recent years, have been increased further by the fact that cotton finishers are printing rayon fabrics—to be used by the same outlets as are depended upon by the silk group for distribution of their goods.

TABLE XXXIV

ALL-SILK DRESS GOODS PRODUCED BY MILLS
(Silk Textile Code Only—1st 6 Months, 1934)

FABRIC	PRODUCTION	SALES	STOCKS
	Per Cent Total	Per Cent Total	Per Cent Total
Crepe de chine and flat crepe	53.5	52.6	42.9
Satin crepe weaves.....	6.5	5.0	10.0
Canton crepe	6.4	7.7	17.8
Georgette, chiffon, voile and other sheer fabrics	11.3	11.6	11.5
Radium, tub and french crepe	17.7	18.5	12.8
All others—silk	4.6	4.6	5.0
TOTAL.....	100.0%	100.0%	100.0%

SOURCE: The National Federation of Textiles, Inc.

STYLE PROTECTION

Together with a general analysis of styling problems, style protection also should be considered. Typical of the genuine achievements in the elimination of unfair trade practices under the codes is the success of the Design Registration Bureau of The National Federation of Textiles, Inc.,—the official agency of the Silk Textile Code Authority for the registration of designs. Table XXXIII shows the number of designs registered with the Bureau between 1928 and 1933, when it operated on a voluntary basis, and for 1933 and 1934 when it operated under the Code. The operations of this Bureau prior to the Code provided a background of experience and the necessary mechanics which made possible its outstanding success immediately the Code was established. Designs intended for printing, embossing, soda printing or Jacquard weaving on silk, rayon or cotton, are submitted for registration at the Bureau. Here they are checked, classified and, if they are

not duplicates of previous registrations, certificates of acceptance are issued.

TYPES OF FABRICS DISTRIBUTED

Table XXXIV shows the balance between production, stocks and sales, for the principal types of all-silk fabrics manufactured by operators reporting to the Silk Textile Code Authority during the first six months of 1934. Production at the beginning of 1935 of synthetic, silk and mixed fabrics, analyzed by weaves and fibers used, is shown in Table XXXV and in Chart V. These data were obtained from published reports of operations of manufacturers working under the Silk Textile Code and of those reporting to the National Rayon Weavers Association who operate under the Cotton Textile Code. It will be seen that about 72 per cent of the total broad goods woven by manufacturers under the Silk and Cotton Textile Codes is rayon, 26 per cent is silk and 2 per cent is mixed goods. On page 80, Table XLIII, will be found recent Government figures covering silk and rayon fabric production for the years 1929, 1931 and 1933. The preliminary figures for 1933 showed percentages of 48.9 rayon, 36.0 all silk and 15.1 mixtures.

TABLE XXXV

PRODUCTION OF BROAD GOODS BY FIBERS
AND WEAVES

I. SYNTHETIC FABRICS

SYNTHETIC	Per Cent Synthetic	Per Cent Total Goods
	100.0	71.8
Acetate Warp	43.3	31.1
Twisted or Sheer Warp.....	11.4	8.2
Plain Rayon Crepe:		
150 Denier.....	6.5	4.7
100 Denier.....	4.2	3.0
Novelty	11.2	8.0
Millinery	0.6	0.4
All Other Novelty.....	0.7	0.5
Neckwear	3.2	2.3
Others	18.9	13.6

2. SILK AND MIXED FABRICS

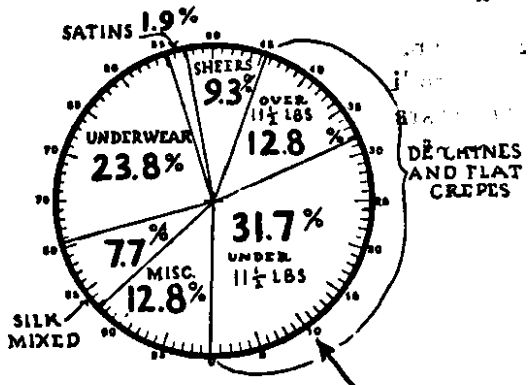
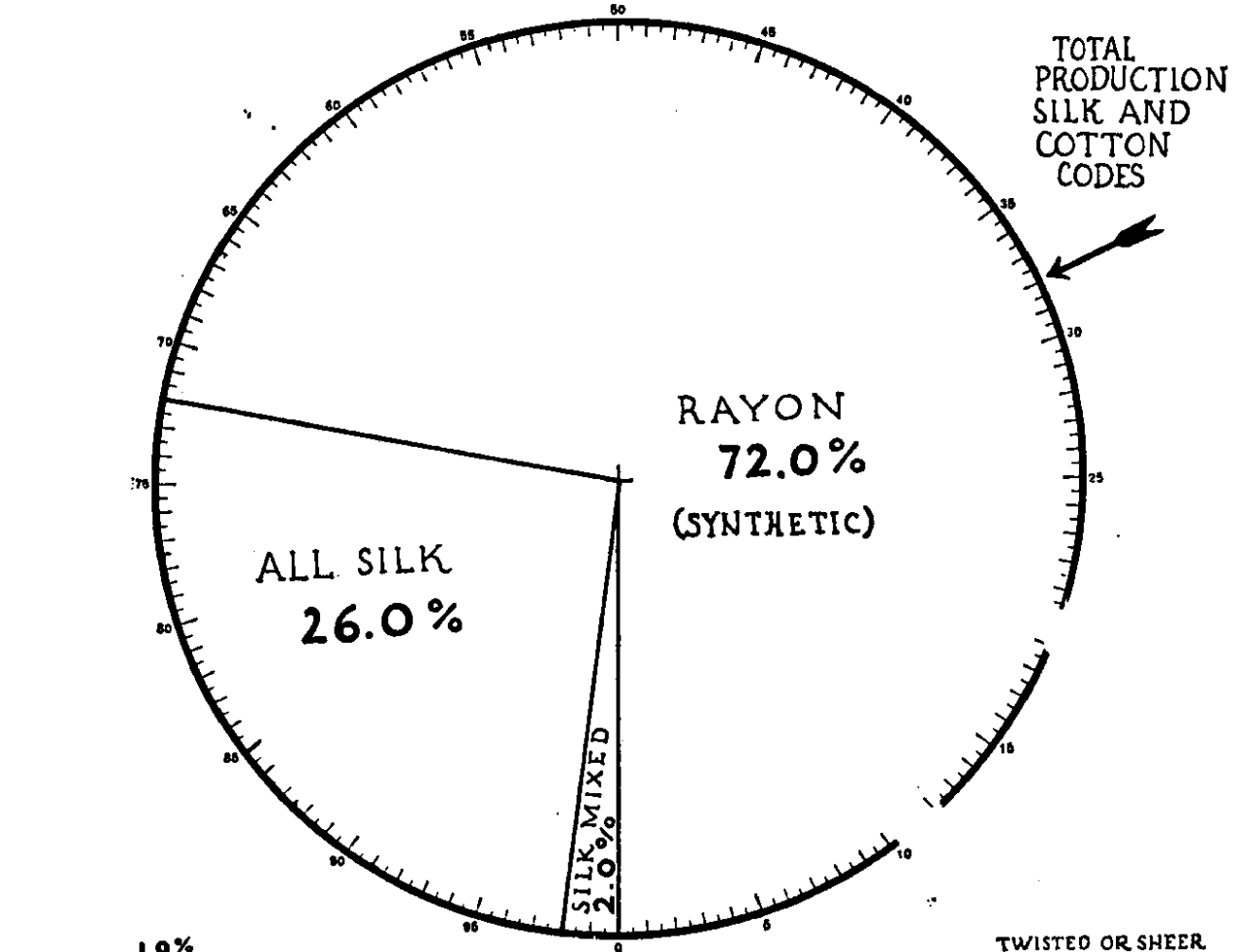
SILK FABRICS	Per Cent Silk	Per Cent Total Goods
	100.0	28.2
DeChine and Flat Crepe:		
Up to 11½ lbs.....	31.7	9.0
Over 11½ lbs.....	12.8	3.6
Sheer	9.3	2.6
Satin	1.9	0.5
Underwear	23.8	6.7
Other	12.8	3.6
Mixed	7.7	2.2

SOURCE: The National Federation of Textiles, Inc.
The National Rayon Weavers Association

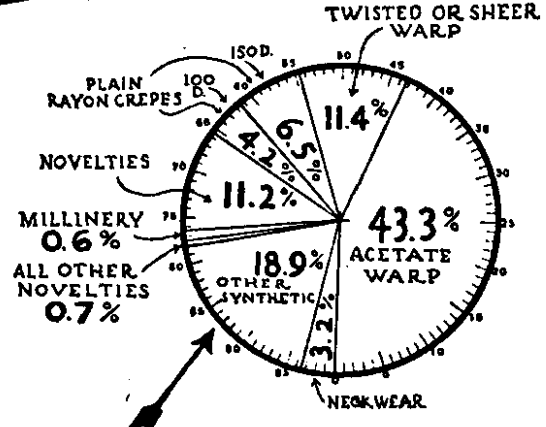
CHART V

PRODUCTION OF BROAD GOODS BY FIBERS

Stock Mills and Commission Weavers.



SILK GOODS BY FABRICS
SILK CODE MANUFACTURERS



SYNTHETIC GOODS BY FABRICS
SILK AND COTTON CODES

Source: *The National Rayon Weavers Association, The National Federation of Textiles, INC.*

RELATIONSHIPS BETWEEN CUTTERS AND RETAILERS

In Chart W there is shown, by weaves and fabrics, 1933 piece goods sales in the leading department stores in New York City. Although, of course, style changes operate to cause great variance from season to season, this chart is valuable in showing the degree of variance within one year.

Today, a large percentage of dresses are made either in part or wholly of rayon fabrics. This is evidence of the rapid progress made in marketing rayon fabrics and of the increased confidence in such fabrics on the part of the ultimate consumer. Perhaps 85 per cent of the total broad goods produced goes to various types of garment cutters

weave or a new fabric, manufacturers must be exceptionally careful to determine price on the basis of how the goods can be cut. Manufacturers often bring out articles that, pricewise, are misfits. Frequently, a cloth with a strong demand is put off shelves because replacement of stock would have to be at a price level that would place it in a new selling range—because of the fluctuations in the prices of raw materials.

Table XXXVI shows the percentage of firms handling regular merchandise and close-outs, odd lots and seconds, in the various price ranges. It will be noticed that 33.3 per cent of the firms handling regular merchandise, and 35.7 per cent of those handling close-outs, etc., sell in one price range only.

Table XXXVII shows the wholesale price ranges sold to by the 1,749 firms reporting on a special questionnaire to the dress trade. For the six-month period covered, approximately 50,000,000 dresses were sold in the various groups. The largest number of units, both in total firms and total dresses (using dress labels as an index), were sold in the \$3.75 price range.

The increased activity of the cutting-up trade in recent years, together with popular acceptance of rayon fabrics, make necessary the production of low-priced silk goods for inexpensive garments. This need was and continues to be met by the practice of weighting. The weight of silk fabrics may be greatly increased by the addition of metals to the woven cloth, building up in this way the weight required for use in the manufacture of dresses. Thus there is available, at comparatively low prices, goods which would not be accepted, if unweighted, because of the light construction of the cloth. Therefore, the result of weighting is to enlarge considerably the market for low-priced silk goods. As style often is more important as a consumer buying motive than utility, the weighting of silk to a safe and moderate degree economically is justified. Overweighting is practiced by some unscrupulous manufacturers. This offers no argument in its practice itself but shows the need for some method of controlling weighting.

**TABLE XXXVI
PRICE RANGES IN CUTTING-UP TRADE
TO WHICH MILLS SELL**

PRICE RANGE (Low to High)	REGULAR MERCHANDISE % Total Firms	CLOSE OUTS, ODD LOTS AND SECONDS % Total Firms
Under \$2.75.....	5.0	21.4
\$ 2.75.....	20.1	24.6
\$ 3.75.....	24.1	24.6
\$ 5.50.....	15.4	9.8
\$ 6.75.....	12.4	8.2
\$10.75.....	10.2	9.8
\$16.75.....	7.2	1.6
\$22.50 and up.....	5.6	—
	100.0%	100.0%

NUMBER PRICE RANGES SOLD	REGULAR MERCHANDISE % Total Firms	CLOSE OUTS, ODD LOTS AND SECONDS % Total Firms
1	33.3	35.7
2	32.9	—
3	11.6	—
4	8.1	3.6
5	5.1	7.1
6	4.5	3.6
7	3.0	—
8	1.5	—
	100.0%	100.0%

Source: The National Federation of Textiles, Inc.

and a large part of this is dress material made of synthetic fibers. Contrary to former practice, such fabrics today largely are merchandised under trade names indicating that they are woven of synthetic fibers.

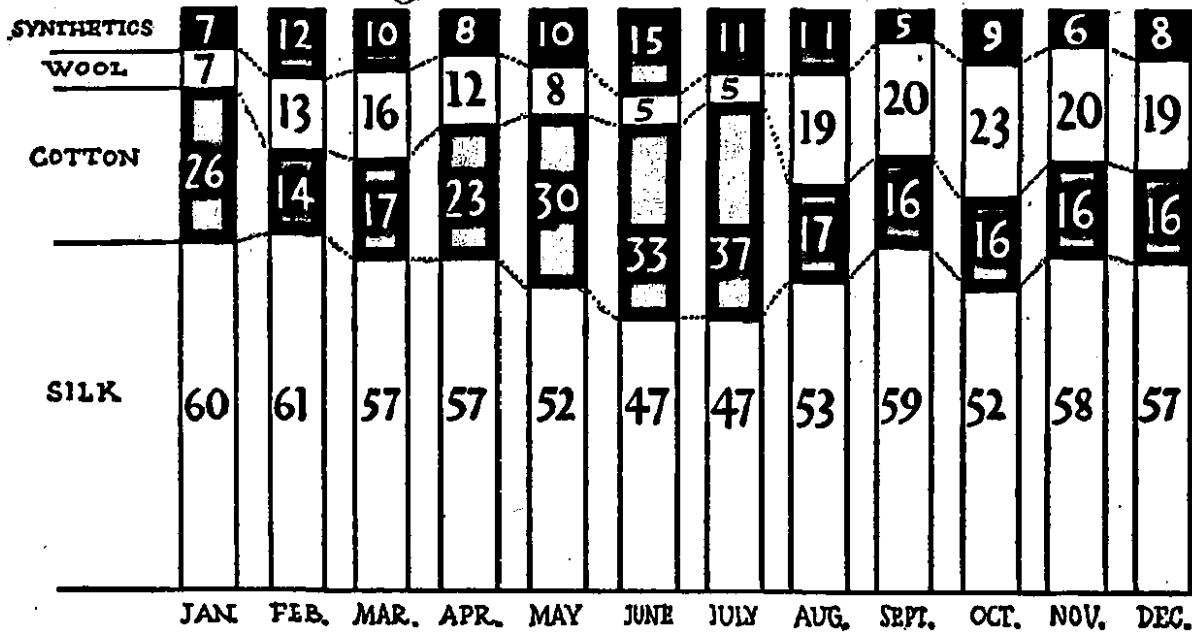
In connection with distribution by trade and retail outlets, it should be remembered that there exists a merchandising relationship between the price per yard and the price per garment. When a manufacturer of \$10.75 garments makes a suit, he cannot pay the same price for the fabric as when he makes a dress. In bringing out a new

Because of the separation of production, merchandising and selling functions, the converter today is at once the best customer and the strongest competitor of the regular manufacturer. About 50 per cent of the goods produced by many of the larger manufacturers is sold direct to converters; the remainder is offered to trade and retail outlets served by the same converters. Selling identical merchandise within the same price range serves to intensify distribution problems. Table XXXVIII gives, for stock-carrying mills and commission weavers, the percentages of the total volume of raw and finished goods distributed by the principal mediums—own sales force, selling agents and brokers.

CHART W

DEPARTMENT STORE PIECE GOODS SALES ACCORDING TO FABRICS

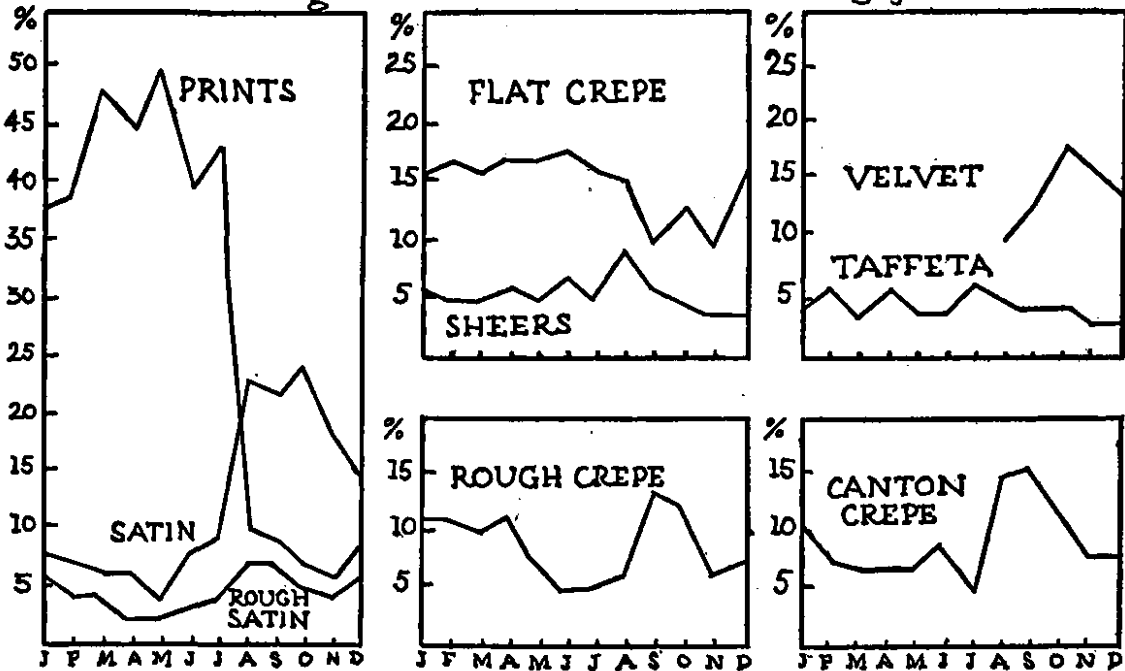
Percentage distribution each month by yards



Source: *The National Federation of Textiles, INC.*

DEPARTMENT STORE PIECE GOODS SALES ACCORDING TO WEAVES

Percentage distribution each month by yards



Brokers today are much less important than formerly in the volume of goods distributed, but their practice of shopping around for prices still has an important bearing on the price structure. Some mills manufacture entirely for sale in the raw; others divert to converters that part of their production which they do not care to absorb in their own converting departments. Generally speaking, raw or greige goods is sold by direct representatives of the mills which are content to have the majority of their production handled for them by converters, retaining only a special interest in retail outlets. A few manufacturers dealing in high-quality fabrics undertake planned merchandising and selling activity to protect this field of distribution. Most of the finished goods sold by the manufacturer goes into such channels through personal sales representatives.

Converters specializing in lining fabrics, low-grade flat crepes and cantons and underwear fabrics, appear to oper-

ate at a distinct advantage over larger converters and regular mills. These distributors of low-quality merchandise gradually have taken over most of the business in the low-price selling ranges. The chief economic factors have been rapid turnover and absence of large overhead. Table XLVIII in the Appendix shows sales by manufacturers according to dollar volume, geographically and by loom class.

PRICE CONTROL

The disturbed economic conditions in the textile markets prior to the advent of the codes were illustrated by the extent and effect of price cutting. It had been increasingly difficult to make a fair profit on merchandise. Standardization of hours of labor and of wages somewhat mitigated the price-cutting evil. But in some branches of the industry, where a critical price situation existed with regard to

TABLE XXXVII
 LABEL SALES TO DRESS FIRMS ACCORDING TO PRICE RANGE
 (Six-Month Period—January 8 to June 30, 1934)

Price Range	No. of Concerns	No. of Labels	PER CENT TOTAL CONCERNS		PER CENT TOTAL LABELS	
			By Class	Accumulative	By Class	Accumulative
\$ 1.00	41	1,123,793	2.34	2.34	2.35	2.35
2.25	150	6,636,623	8.58	10.92	13.90	16.25
2.75	51	3,315,235	2.92	15.84	6.94	23.19
2.87½	90	6,899,000	5.15	18.99	14.45	37.64
3.75	278	10,351,805	15.89	34.88	21.68	59.32
4.75	232	6,927,881	13.26	48.14	14.51	73.83
6.75	230	4,275,717	13.15	61.29	8.96	82.79
7.75	100	2,189,399	5.72	67.01	4.59	87.79
8.75	104	1,429,040	5.95	72.96	2.99	90.37
10.75	227	3,130,672	12.98	85.94	6.56	96.93
12.75	51	384,000	2.92	88.86	0.80	97.73
13.75	17	201,500	0.97	89.83	0.42	98.15
16.50	94	601,965	5.37	95.20	1.26	99.41
18.50	24	113,000	1.37	96.57	0.24	99.65
22.50	27	89,221	1.55	98.12	0.19	99.84
29.00	21	60,500	1.2	99.32	0.13	99.97
39.50	6	11,000	0.34	99.66	0.02	99.99
\$49.00 & up.....	6	6,500	0.34	100.00	0.01	100.00
TOTAL.....	1,749	47,746,851*	100.00	.....	100.00	.....

*Including week of January 8, total is 50,000,000

Source: Dress Code Authority (by Charles Elfelt)

TABLE XXXVIII
SALES MADE BY MILLS OR THEIR SELLING AGENTS
(Commission Weavers Excluded)

	OWN SALES FORCE <i>Per Cent Total</i>	SELLING AGENTS <i>Per Cent Total</i>	BROKER <i>Per Cent Total</i>	TOTAL
Raw	78.0	9.8	12.2	100.0%
Finished	85.7	14.2	0.1	100.0%
TOTAL	81.1%	11.6%	7.3%	100.0%

COMMISSION WEAVERS' ORDERS

SOLICITED BY OWN FORCE	SOLICITED BY OWN FORCE OR BROKERS (Not subdivided)	SOLICITED BY BROKERS	TOTAL
85.4%	3.6%	11.0%	100.0%

Source: The National Federation of Textiles, Inc.

staples, there has been no improvement under changed labor conditions.

The problem of controlling prices has been complicated by the uncertainty of the legality of various proposed methods of stabilization. For those operators in the silk and rayon industry who are regulated by the Silk Textile Code, pricing practices have been declared by official amendment to the Code which provides, essentially: (1), The establishment of facts to show a fair cost of production for staple articles (see Table XIII for preliminary analysis of such basic data); (2), approval of these standards by government administrators; (3), the declaration of periodic emergencies depending on the price structure of the market; and (4), a fiat of the Code Authority as to the price for specified goods for a given calendar period (Art. VIII, Sec. 2, Silk Textile Code.)

In an industry with 1,200 establishments, where fashion frequently creates novelties out of staples and staples out of novelties, immediate and complete enforcement of such provisions as described above would require a large expenditure of time and money. On the other hand, adherents of such regulation state that the psychological advantage of such emergency fiats, as might be promulgated by the Code Authority, would be such that price cutting would be greatly diminished.

There has been a growing realization of the difficulties of price control. Many code authorities, at first enthusiastically adopting such plans, later found them impractical for one reason or another. In the final analysis, it would seem that economic considerations would be the decisive factor in the adoption of any particular method, legal and administrative problems being secondary. Without discussing these economic considerations, it might be well to note the growth in recent years of the following ideas: (1),

That the manufacturer who sells to a trade outlet before his product reaches the ultimate consumer has a definitely continuing interest in the resale price of the product; (2), that cooperation by producers through trade associations for merchandising control may curb or eliminate price cutting without recourse to any mandatory method of price control; and (3), that out of the present attempts to control prices new legislation may arise which definitely will change the legal limitations which have prevailed.

The interests of the producer and the distributor frequently are in opposition. Meanwhile, as efforts are made to regulate prices under the protection of emergency legislation, advocates of price control are faced with finding a solution to the enigma that the promotion of the producer's welfare may be an invasion of the consumer's interest. If the preference is reversed, the producer's interest is jeopardized. Although not obtaining in the silk and rayon industry, complete coordination of production, merchandising and selling, under one operator, generally is being forced upon American business. Industry is committed to a struggle for *volume* of low-priced goods, and its distribution drives the levels of quality and price still further downward. Advocates of price control claim that when rearrangement is complete, the evils of unlimited price variation still will be present; that the remedy is not in the control of production but in the control of price, the absence of which is one of the principal causes of the present economic derangement.

Table XLIV in the Appendix shows the trend in wholesale and retail prices of silk piece goods by months and years, using the same index. Special note should be given to the comparative consumption of fibers in relation to comparative prices (see Charts R and S) and to the wholesale and retail silk piece goods price indices.

**DISTRIBUTION AS A BASIS FOR
REGULATING PRODUCTION**

Regulation of production by inventory control has won wide favor in a number of industries and well might be considered for use in the textile industry. In this way, manufacturing and purchasing could be regulated on the basis of distribution.

Inventory control means the maintenance of a predetermined relationship between the amount of stock held and the amount of goods sold in a given period. Production is accelerated or retarded so that this relationship is expressed in terms of a ratio—the inverse of stock turnover.

TABLE XXXIX

**RATIO OF STOCKS TO NET SALES-SHIPMENTS
(Broad Goods)**

	1934	1933	1932	1931	1930	1929	1928	1927
January	1.8	2.2	2.9	2.7	3.2	3.0	3.0	3.2
February ..	2.0	2.6	3.4	2.8	3.6	3.2	2.9	2.9
March	1.7	2.3	2.6	2.4	3.1	2.5	2.7	2.4
April	2.4	1.7	2.8	2.1	3.1	2.9	3.6	3.2
May	2.5	1.6	3.6	3.1	3.1	3.7	4.0	3.8
June	3.6	1.7	4.4	3.3	5.5	3.9	4.5	3.2
July	3.6	1.6	4.6	3.6	5.3	4.4	5.0	3.9
August	2.4	2.2	1.8	2.6	3.7	3.5	4.1	3.1
September..	2.5	2.1	1.7	2.6	3.2	3.8	4.1	4.0
October	2.5	3.1	2.4	3.5	3.5	3.9	4.4	4.0
November...		3.2	2.5	3.6	3.9	4.7	5.0	4.2
December...		2.7	2.4	2.9	3.6	4.4	4.3	3.8

Sources: The National Federation of Textiles, Inc.

Inventory control may be applied to the industry collectively or to individual operators. In essence, it presupposes a determination of seasons and standard ratios for such purpose. If the production of goods so increases stocks with respect to sales as to exceed the ratio, plant activities are cut down; with the reverse situation, production will be increased.

Such a plan tends to minimize speculation, prevent frozen inventories and upheaval of the price structure. Essentially, it is a budgetary system by means of which the greatest possible degree of economy may be had with respect to the capital invested in merchandising.

Table XXXIX, and Charts X and Y, shows the trend of stock-turn and ratio of stock to sales by months and years for the silk and rayon industry. Because of the highly seasonal nature of the broad goods industry, the ratio of stocks to sales naturally is not exactly the same for all months of any particular year.

It is to be noted that the converter already has adapted himself to operation on a low ratio of stock to sales. On

one day in June, 1930, stocks in the broad goods industry were five and a half times as large as sales. Now, with converters, the figure seldom exceeds two and a half. The most successful merchandisers, whether converters or manufacturers, usually keep under this ratio.

Stocks are controlled more readily than sales; hence sales are the starting point in planning and buying. In anticipating sales, the first step is a determination of the normal seasonal or other periodic increase in business; the second step is to adjust the estimate for the period in accordance with general business conditions; and, a final step, to adjust the estimate in accordance with conditions in the particular market. Scientific sales forecasts made on this basis are relatively infrequent in the silk and rayon broad goods industry.

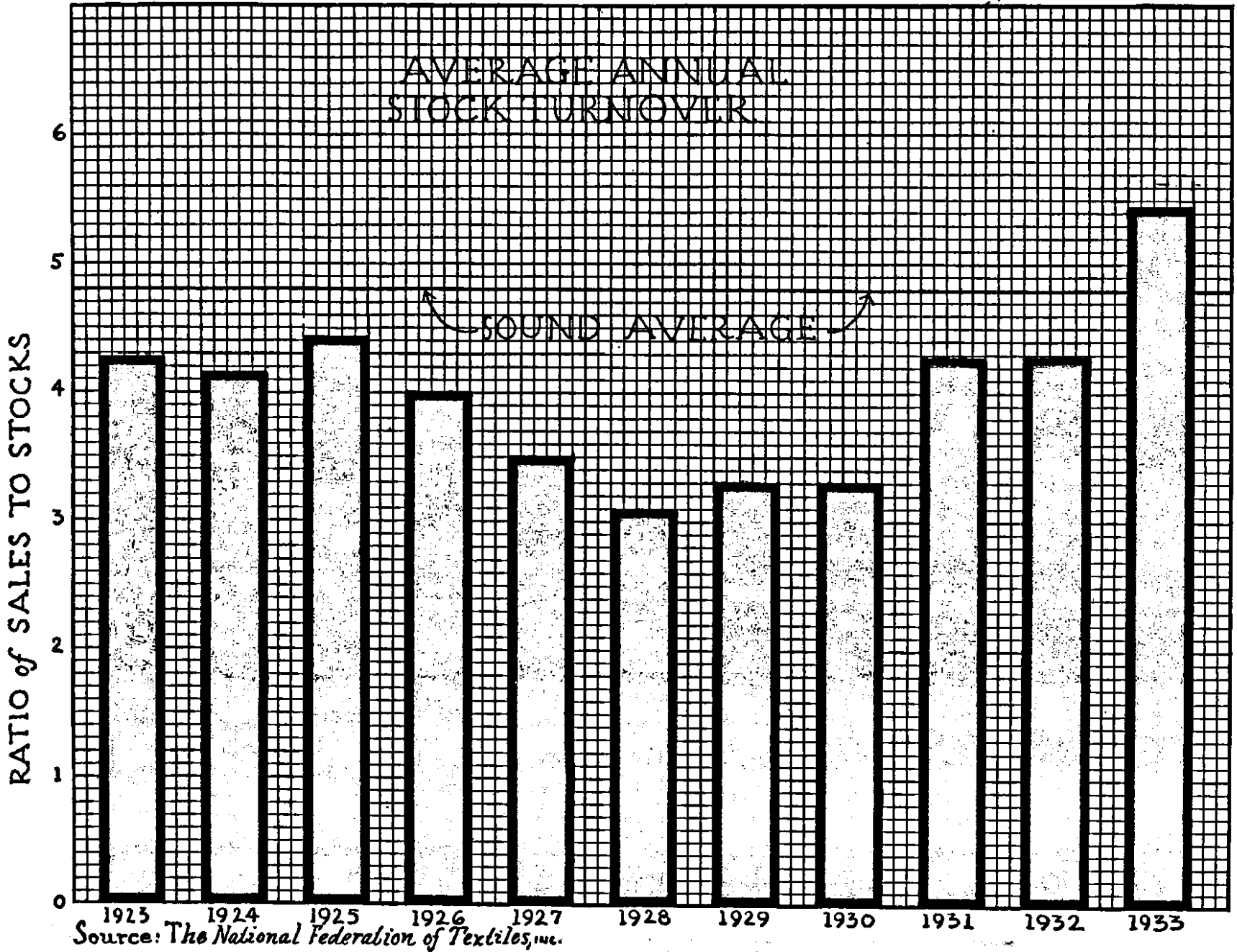
Accurate forecasting of sales, and consequent advance determination of production requirements, is rendered difficult by certain sampling practices. Cutters usually buy large quantities of sample cuts from many sources—their purchases of samples being excessive with respect to the garments ultimately made. On the basis of such purchases by cutters, the fabric manufacturer conventionally plans his production, assuming that his sales will be in some direct ratio to the samples distributed.

The manufacturer himself partly is responsible for creating this forecasting hazard. If he samples a fabric badly, the probabilities are it will not be a success; if he samples it too widely, he may kill it by making it too common; if he samples it in what appears a conservative volume, he may find that his sales do not materialize for one of many causes not predictable in advance—such as, the substitution of other fabrics because of price concession, many cutters may have bought goods and not made them up, etc.

Judicious buying is a key to satisfactory stock-turn or ratio. This does not mean that price always must be used as a criterion. The real basis is: Are the goods well suited to the demand for the product? In non-staples a rapid rate of stock-turn particularly is essential. Disposition of stock must be made while the demand still is strong. This, in turn, means that caution must be exercised in placing supplemental orders. In the broad goods industry, this seldom has been the case. On the contrary, in anticipation of profit, manufacturers and converters have hastened the collapse of a demand for a certain fabric by excessive production on the basis of supplementary orders.

Having determined the proper inventory based on estimated sales, the second step is to use funds available for purchasing merchandise only for such goods as will be saleable. This is done by determining which types of merchandise most readily can be moved in volume. The final step is to dispose expeditiously of the merchandise that remains on the shelves. This inevitably must be a factor

CHART X



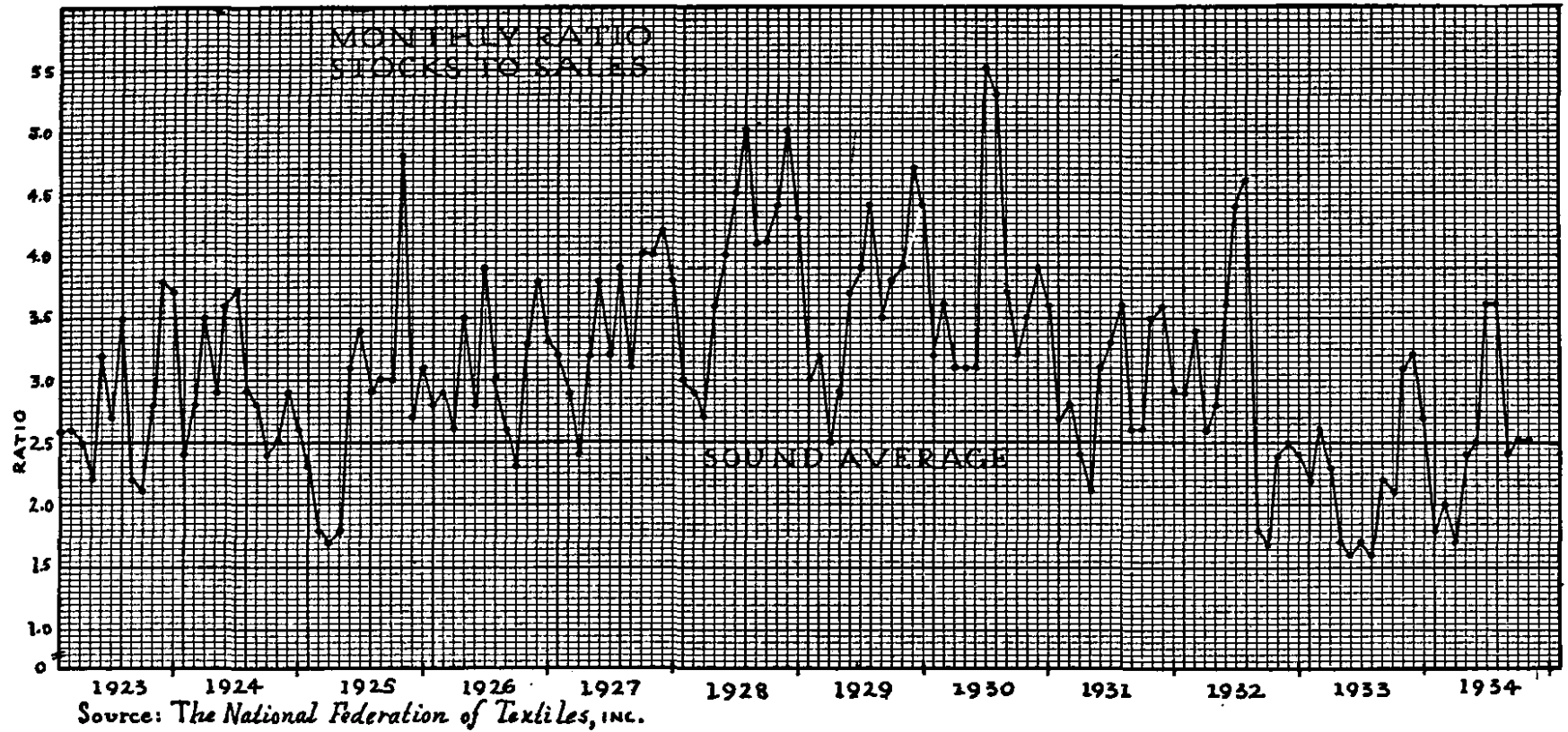


CHART Y

even under the best control, because conditions constantly are changing and the element of style judgment always is prominently involved.

A device which has been adopted somewhat widely in recent times, and which has proved effective in achieving good stock-turn, is simplification of lines carried, i.e., concentration on restricted class or classes of products. This device affects both production and merchandising policies. Although it cannot be adopted in the broad goods industry as widely as elsewhere, because of the constant introduction of new styles and original novelties, its further allowable applications are deserving of serious study.

Many successful operators feel that only through the adoption of inventory control can there be peace and order in the textile markets. Their view is strengthened by the success which has attended those organizations which have adopted this plan of control.

TRADE PRACTICES AND DISTRIBUTION

Trade practices, involving contracts, returns, claims, discounts and many other aspects of selling, have an important influence on the type of goods sold, the method of distribution and the outlets served by the silk and rayon industry. Trade practices influenced distribution in normal times; under the N.I.R.A., they not infrequently determine distribution. The existence of many textile codes, covering various stages of the production and distribution cycle, has tended to increase rather than to diminish the confusion regarding trade practices.

Many genuine achievements in the curbing of unfair trade practices may be attributed to the N.I.R.A. For example, the return-goods evil has been minimized as the result of the Code prescription of a ten-day limit on the return of goods. No longer can buyers, claiming defects, return goods after ten days, when the actual reason for return is that market changes have lessened their popularity.

On the other hand, violent upheavals in distribution of textiles have resulted from the differences existing in the cotton, wool, silk and rayon industries on terms and discounts. A buyer may purchase articles made from different raw materials or the same raw materials, designed for the same purpose and falling within the same price range, on as many as four different sets of terms as to dating, maturity, discount, etc. A cardinal weakness in the codification of trade practices was the crystallization of set practices and customs, some of which already were out-moded and generally disregarded the interrelationships of textile markets and the presence of many operators.

Confusion as to trade practices reacts on every process coming before and after the weaving stage, and similar conditions to those described above prevail with the various industries related to broad goods manufacture. Instead

of industrial self-government based on cooperation, operators uptown and downtown, east and south, whether manufacturing silk, rayon, cotton or wool products, are engaged in a bitter distribution struggle seeking to profit at the expense of unnatural artificial changes in marketing technique—conditions which are opposed to the very spirit of the present textile codes.

The necessity for further development of codification of trade practices, embodying as its corollary the necessity for cooperation between codes or similar vehicles, amply is illustrated by the statistics given in Table XL which shows the increase in the use of arbitration. Were it not for the well-established practice of textile arbitration, it is likely that many operators would have been forced out of business because of the delay and confusion resulting from controversies over trade practices.

TABLE XL
CASES HANDLED BY THE ARBITRATION BUREAU

<i>Period</i>	<i>Number of Cases</i>	<i>Amount Involved</i>
1925	34	_____
1926	49	_____
1927	53	_____
1928	49	_____
1929	42	_____
1930	91	_____
1931	81	_____
1932	132	\$ 837,483.44
1933	225	1,479,994.01
1934 (11 mo. only)	315	1,737,460.35

SOURCE: The National Federation of Textiles, Inc.

The continual evolution of American business methods—involving the transition from a multitude of small operators to the general subordination of the individual entrepreneur—through consolidations, mergers and the independent creation of large organizations, has been retarded somewhat in the textile field. This perhaps accounts for the differences which exist in trade practices. But this very circumstance is reason enough for the establishment of one set of trade practices for all textile markets.

Specifically, in the broad goods industry terms should be identical for the dress goods trade—whether retailing or cutting, and whether the fabrics are made from cotton, wool, silk, rayon or linen. It is immaterial what trade practices exist so long as they are uniform. The same fundamental principles exist in all textile codes. For instance, it is generally recognized that the man who pays for his purchases quickly should get a premium and the man who delays payment should be penalized. Yet, under the Silk Textile Code we find ten different versions of what the premium or penalties should be and under the Cotton Textile Code, seven versions. Table XLI, showing the various terms now existing under the several textile codes, illustrates the great divergence in trading in these markets on the principal items manufactured.

PROMOTIONAL ACTIVITY

It is to be noted that few manufacturing organizations undertake individual promotional activity on a wide scale. The shift in consumption from one type of raw material to another, the frequency of style change and the fluctuat-

TABLE XLI
TERMS UNDER VARIOUS TEXTILE CODES

Silk Code

1/10 N/60 trade acceptance (thrown silk and rayon yarns to weavers)
1/10 e.o.m. N/60 trade acceptance (thrown silk and rayon yarns to hosiery manufacturers)
2/10 e.o.m. (woven labels and spun yarns)
2/10 e.o.m., after 25th as of 1st of following month (sewing threads and flosses)
60 days (raw broad goods)
6/10/60 or 8/10 e.o.m., after 25th as of 1st of following month (finished broad goods)
6/10/60 or 8/10 e.o.m., after 25th as of 1st of following month. Spring goods dated no later than December 1; fall goods dated no later than July 1 (special fabrics)
6/10/60 e.o.m. No extra dating on samples (tie fabrics)
6/10/60 or 7/10 e.o.m., after 25th as of 1st of following month (ribbons)
10/10 e.o.m., 25th (and after) as of 1st of following month (hat bands)

Velvet Code

2/15 N/70
<i>Cotton Code (including rayons)</i>
N/60 e.o.m., on or after the 25th as of 1st of following month (clothiers linings other than all-cotton)
2/60 e.o.m., or 3/10 e.o.m., on or after the 25th as of 1st of following month (clothiers linings—all-cotton)
2/10/60 extra or 2½/10/30 extra or 3/10 c.o.d. or 3/10 (shirtings and wash goods)
2/10/60 extra or 3/10, or 3/10 c.o.d. (interlinings, corset, brassiere and allied trades fabrics)
2/10/60 extra, 3/10 on or after the 25th as of 1st of following month (curtain and drapery fabrics to manufacturers, chains, mail order and retailers)
2/10/60 extra or 3/10, June deliveries, 2/10 October 1, December deliveries 2/10 April 1 (curtain and drapery fabrics to jobbers)

Woolen Code

N/cash within 10 days (commission combers group)
1/10 N/60. No dating except when approved in advance by Code Authority (piece goods)
2/10 N/60 (weaving yarns)
3/10, or 2/60 extra, N/71 (knitting yarns)
2/10/60 extra 2/10 October 1, on shipments between April 1 and August 1 (blankets)
The following figures show what may be earned by various discounts:
½% 10 days — net 30 days — 9% per annum
1% 10 days — net 30 days — 18% per annum
1½% 10 days — net 30 days — 27% per annum
2% 30 days — net 4 mo. — 8% per annum
2% 10 days — net 60 days — 14% per annum
2% 30 days — net 60 days — 24% per annum
2% 10 days — net 30 days — 36% per annum
3% 10 days — net 4 mo. — 10% per annum
3% 30 days — net 60 days — 36% per annum
3% 10 days — net 30 days — 54% per annum

SOURCE: The National Federation of Textiles, Inc.

ing prices of raw materials are factors which tend to prevent such activity. Development work by rayon yarn manufacturers along educational and direct promotional lines is an exception to this general condition. Raw silk interests

also recently have undertaken some promotional work. The activity that has been undertaken or is planned by both of these groups is directed toward an intensive education of consumers as to the desirable physical characteristics or properties possessed by the respective fibers. As markets are won for these fibers, consumers are informed of further technological developments, thereby strengthening public appreciation of desirable properties and holding markets already captured.

It is interesting to note that the outstanding success achieved by the rayon interests was during depression times, when nearly all branches of industry were sharply curtailing expenditures for promotional activity, whether in the form of public relations, general education through publicity or through more direct means such as advertising.

No cooperative efforts at national advertising to meet competing manufactures of woven goods appear to be contemplated on a large scale. This situation is paralleled by the general absence of the use of trademarks and brand names on woven goods. Yet, it would seem that consumers are becoming increasingly conscious of buying motives and preferences and that merchandising will be more important in the next few years than either production or selling functions.

So far, promotional work generally has been limited to styling activities. Current developments noted portend a new era in textile fields.

PROBLEM OF MANAGEMENT

Reference should be made to one factor which influences every phase of both production and distribution—the problem of obtaining adequate management for the industry. The management requirements of the silk and rayon woven goods industry are greater than those of many other industries. Many of its problems are not capable of immediate solution and must be attacked by management of high caliber and ability. The depression, together with the fact—understandable, of course—that family and racial ties have been catered to in the selection of new personnel, have relegated the industry to the position where it does not attract the genius in merchandising, production and selling that normally should flow into it.

THE FUTURE OF THE SILK AND RAYON INDUSTRY

Chart CC in the Appendix, showing the percentage spent for clothing by groups having different standards of living, together with Table XLV, analyzing consumers by intelligence levels and ages, and Table XLVI, showing consumer uses of silk and rayon goods, indicates the present extent and future possibilities of market development. Chart DD shows the per capita consumption of textiles in the United States. A cursory examination of these data will suffice to indicate the *possibility* for increasing the con-

sumption of textiles, especially silk and rayon goods, through consumer and industrial research.

The expansion of this industry's sphere of interest must be prefaced by the solution of many of the problems in the fields of production and distribution mentioned in this survey. So long as the industry is composed of hundreds of small units, unable or unwilling to perform the functions of production, merchandising and selling, and so long as distributors dominate both production and distribution without responsibility for active management in the production of merchandise, this industry cannot prosper to the extent merited by its products.

It is believed that integration of companies into larger units—with increased stability in times of stress and with progressive merchandising methods resulting in profitable selling operations—is the next step toward a return to profits for the industry. This does not mean that all small operators should be considered as marginal units to be eliminated by the development of large textile corporations. Proof of the ability of large operators profitably to

co-exist with many small operators is seen in the electrical as well as in other manufacturing industries. There is reason to believe that, with small operators—both on a commission weaving and a stock-carrying basis, appropriate cooperative measures may be inaugurated to afford fair competitive conditions for all manufacturers.

Reorganization of the textile industry along the lines of integrated companies, whether horizontal or vertical, with the emergence of several large corporations—countered by improved operating conditions for many smaller units—in turn should improve the position of the distributors, increase profit margins and generally produce a more healthy business condition. Unless reorganization of fundamental importance is undertaken, this industry must witness the collapse of many small units and an emergency period of transition which cannot but cause loss for all. Such disastrous conditions can be obviated by prompt consideration of the problems developed in this survey and earnest cooperative effort to find means of applying the necessary corrective measures.

Additional Copies
of this book may
be obtained as
long as the supply
lasts by using the
attached card.

Date.....

Please send me copies of Production
and Distribution of Silk and Rayon Broad Goods, at \$2.00 a copy, to
be paid on receipt of bill.

Signed.....

Address.....

City.....



BUSINESS REPLY CARD
FIRST-CLASS PERMIT NO. 19335, SEC. 510 P. L. & R., NEW YORK, N. Y.

NATIONAL FEDERATION OF TEXTILES, INC.

10 EAST 40th STREET

NEW YORK, N. Y.

Research Department



Appendix
Tables and Charts

TABLE XLII

MODEL AND REED WIDTHS OF LOOMS OWNED BY REPORTING
SILK AND RAYON BROAD GOODS MANUFACTURERS

2 x 2 BOX LOOMS	REED WIDTH					TOTAL
	Up to 40"	41" - 44"	45" - 48"	49" - 60"	Over 60"	
1. CONE with positive box motion.....	.....	.....	.....	.....	.....	.....
2. DOBBY						
a. With positive box motion.....	.....	98	20	366	.....	484
b. With call box motion and without multiplier.....	.....	.....	38	180	.....	218
c. With call box motion and with multiplier.....	28	4	7	44	19	102
3. HEAD						
a. With multiplier.....	.....	.....	33	91	1,203	1,327
b. Without multiplier.....	.....	.....	.....	85	.....	85
4. JACQUARD						
a. Up to 800 hooks.....	8	30	68	198	.....	304
b. Over 800 hooks.....	.....	54	.....	14	1	69
5. OTHERS.....	.....	.....	.....	.....	.....	.....
TOTAL	36	186	166	978	1,223	2,589
2 x 1 BOX LOOMS						
1. CONE with positive box motion.....	.....	.....	368	1,384	73	1,825
2. DOBBY						
a. With positive box motion.....	57	292	1,333	8,673	687	11,042
b. With call box motion and without multiplier.....	80	448	2,117	11,542	509	14,696
c. With call box motion and with multiplier.....	.....	138	124	2,021	83	2,366
3. HEAD						
a. With multiplier.....	.....	91	286	1,428	669	2,474
b. Without multiplier.....	.....	2	560	3,099	863	4,524
4. JACQUARD						
a. Up to 800 hooks.....	10	.....	.....	38	22	70
b. Over 800 hooks.....	.....	.....	.....	315	14	329
5. OTHERS.....	.....	.....	.....	87	10	97
TOTAL	147	971	4,788	28,587	2,930	37,423
4 x 4 BOX LOOMS						
1. DOBBY						
a. With multiplier.....	86	20	368	1,509	482	2,465
b. Without multiplier.....	17	15	6	160	37	235
2. HEAD						
a. With multiplier.....	174	209	86	904	763	2,136
b. Without multiplier.....	25	165	18	250	155	613
3. JACQUARD						
a. Up to 800 hooks.....	718	279	345	647	147	2,136
b. Over 800 hooks.....	17	7	.....	546	220	790
4. OTHERS.....	.....	.....	.....	16	.....	16
TOTAL	1,037	695	823	4,032	1,804	8,391

(CONTINUED ON FOLLOWING PAGE)

TABLE XLII—(CONTINUED)

MODEL AND REED WIDTHS OF LOOMS OWNED BY REPORTING
SILK AND RAYON BROAD GOODS MANUFACTURERS

4 x 1 BOX LOOMS	REED WIDTHS					TOTAL
	Up to 40"	41"-44"	45"-48"	49"-60"	Over 60"	
1. DOBBY						
a. With multiplier .....	.....	3	64	166	355	588
b. Without multiplier	69	.....	701	1,415	172	2,357
2. HEAD						
a. With multiplier	260	248	697	681	40	1,926
b. Without multiplier	100	.....	74	499	52	725
3. JACQUARD						
a. Up to 800 hooks.....	.....	.....	260	33	33	326
b. Over 800 hooks.....	.....	.....	.....	2	30	32
4. OTHERS						
.....	.....	.....	.....	2	.....	2
TOTAL.....	429	251	1,796	2,798	682	5,956
1 x 1 PLAIN LOOMS						
1. CONE	25	.....	448	10	.....	483
2. DOBBY	3,188	1,792	3,807	2,157	824	11,768
3. HEAD	101	902	537	104	88	1,732
4. JACQUARD						
a. Up to 800 hooks.....	120	68	10	10	.....	208
b. Over 800 hooks.....	6	.....	50	48	9	113
4. OTHERS						
.....
TOTAL.....	3,440	2,762	4,852	2,329	921	14,304
2-4-6 x 1, 2 x 2, 4 x 4 COTTON LOOMS*						
1. CAM HARNESS	1,122	801	54	100	.....	2,077
2. DOBBY	2,056	2,945	910	648	82	6,641
3. JACQUARD						
a. Up to 800 hooks.....	156	50	269	.....	.....	475
b. Over 800 hooks.....	.....	.....	.....	138	560	698
4. OTHERS						
.....	.....	.....	.....	.....	36	36
TOTAL.....	3,334	3,796	1,233	886	678	9,927
1 x 1 COTTON LOOMS*						
1. CAM HARNESS	5,914	4,603	787	184	174	11,662
2. DOBBY	2,420	7,066	925	114	284	10,809
3. JACQUARD						
a. Up to 800 hooks.....	602	238	.....	51	4	895
b. Over 800 hooks.....	6	6	.....	.....	424	436
4. OTHERS						
.....
TOTAL.....	8,942	11,913	1,712	349	886	23,802

*Adapted for rayon and mixtures

Source: The National Federation of Textiles, Inc.

TABLE XLIII
SILK AND RAYON FABRIC PRODUCTION

ITEM	1933*		1931		1929	
	Per Cent	Value	Per Cent	Value	Per Cent	Value
Silk and rayon goods made in all industries, aggregate value		\$244,261,296		\$376,090,639		\$680,484,925
Broad goods (except velvets, plushes, upholsteries and tapestries):						
Total Square Yards.....		558,880,768		566,864,129		597,113,792
Total Value.....		\$184,563,624		\$281,616,907		\$488,208,166
All Silk						
Square Yards.....	36.0	201,438,039	68.1	386,294,116	71.1	424,607,181
Value.....		\$ 77,112,390	41.8	\$209,838,467	74.5	\$385,773,297
All Rayon**						
Square Yards.....	48.9	272,821,897	19.3	109,389,943	11.1	66,024,378
Value.....		\$ 78,799,133	42.7	\$ 38,400,652	13.7	\$ 34,738,267
Silk Mixed						
Total Square Yards..	6.3	35,409,488	4.0	22,368,651	10.0	59,452,422
Total Value.....		\$ 15,938,984	8.6	\$ 16,047,098	5.7	\$ 42,209,847
Silk-and-Rayon Mixed						
Square Yards.....	5.4	30,183,095	2.4	13,370,659	5.4	31,739,493
Value.....		\$ 13,356,019	7.2	\$ 8,645,957	3.1	\$ 24,428,490
Silk-and-Cotton Mixed						
Square Yards.....	0.9	5,226,393	1.6	8,997,992	4.6	27,712,929
Value.....		\$ 2,582,965	1.4	\$ 7,401,141	2.6	\$ 17,781,357
Rayon-and-Cotton Mixed**						
Square Yards.....	8.4	46,955,156	7.2	41,077,342	6.2	37,240,687
Value.....		\$ 11,573,662	6.3	\$ 12,219,071	4.3	\$ 16,616,667
Other Mixed Goods						
Square Yards.....	0.4	2,256,188	1.4	7,734,077	1.6	9,789,124
Value.....		\$ 1,139,455	0.6	\$ 5,111,619	1.8	\$ 8,870,088

* Preliminary

** The rayon and rayon-and-cotton mixed items given in this report refer to fabrics manufactured in silk and rayon mills only. The production of these fabrics in cotton mills is shown in the report on the manufacture of cotton goods

SOURCE: U. S. Census of Manufacturers

TABLE XLIV

WHOLESALE SILK PIECE GOODS PRICE INDEX

	January, 1931 = 100			
	1934	1933	1932	1931
January	101.6	89.1	94.2	100.0
February	101.7	88.2	93.9	99.5
March	101.7	87.5	92.2	97.4
April	101.5	87.4	91.5	97.4
May	98.9	89.7	91.0	97.0
June	93.5	92.6	88.2	96.7
July	91.1	95.7	87.6	96.7
August	90.4	99.8	88.0	96.0
September	91.3	101.4	90.3	96.1
October	91.3	101.5	90.2	96.0
November	91.3	102.3	90.0	96.0
December		101.7	89.9	95.9

*Basis: 54 reports on staple fabrics

SOURCE: Fairchild News Service

RETAIL SILK PIECE GOODS PRICE INDEX*

	January, 1931 = 100			
	1934	1933	1932	1931
January	69.8	64.3	78.0	100.0
February	70.0	62.8	77.5	97.1
March	71.2	60.4	76.7	94.0
April	70.9	60.1	75.1	92.5
May	69.9	57.4	73.7	89.0
June	68.9	59.9	69.8	89.0
July	69.0	61.6	68.4	87.3
August	68.2	66.1	65.4	85.8
September	68.1	68.0	66.1	84.2
October	70.9	69.3	66.3	82.7
November	67.5	69.7	65.9	81.3
December		69.8	65.0	80.4

TABLE XLV
CONSUMERS BY INTELLIGENCE LEVEL AND AGES

Based on 1932 Population—126,500,000

CLASSIFI- CATION	Number of Consumers	Total Number of Significant Consumers 62%	Adolescents 16 Years Old 2%	Pre-Adult 17-21 Years 9%	Adult 22-44 Years 34%	Middle Aged 45-64 Years 17%
Best Minds	1,265,000	784,300	25,300	113,850	430,100	215,050
Superior	5,060,000	3,137,200	101,200	455,400	1,720,400	860,200
High School Level	18,975,000	11,764,500	379,500	1,707,750	6,451,500	3,225,750
Grammar School Level	75,900,000	47,058,000	1,518,000	6,831,000	25,806,000	12,903,000
Sub-median	18,975,000	11,764,500	379,500	1,707,750	6,451,500	3,225,750
TOTAL	126,500,000	74,508,500	2,403,500	10,815,750	40,859,500	20,429,750

SOURCE: "The Consumer—His Nature and Changing Habits"—Walter Pitkin

TABLE XLVI

CONSUMER USES OF SILK AND RAYON PRODUCTS

Broad and narrow silk and rayon fabrics are used in a variety of ways in addition to the manufacture of clothing. Products made from silk and rayon continually displace, or are displaced by, products made from other raw materials. Sociological changes, economic considerations and merchandising activity are basic factors in the shift of consumption. Strength, elasticity, color fastness and durability are factors which are of paramount consideration in the use of silk and rayon materials.

Silk and/or rayon fabrics are used in whole or in part in the following:

I. APPAREL FOR INFANTS AND YOUNG CHILDREN

1. Outer Garments

Aprons
Blouses
Baby buntings
Capes
Coats
Coveralls
Dresses
Linings to fur pieces
Linings and interlinings in coats and capes
Mufflers
Overalls
Raincoats or capes
Rompers
Sacques
Suits

Sweaters
Sweater suits

2. Headwear

Caps
Hats
Hat trimmings
Hoods
Shawls

3. Footwear

Bedroom slippers
Bed socks
Bed slippers
Bootees
Leggings
Shoe laces
Shoe linings
Stockings

4. *Undergarments*

Bands
Bath robes
Bloomers
Diaper protectors
Drawers
Kimonos
Nightgowns
Pajamas
Petticoats
Shirts
Slips
Underknickers
Underwaists
Union suits

5. *Accessories*

Bibs
Garters
Gloves
Handkerchiefs
Mittens
Ribbons
Ties

II. CLOTHING OF WOMEN AND GIRLS

1. *Outer Clothing*

Aprons
Aviation suits
Blazers
Blouses
Capes
Cloaks
Coats
Collegiate gowns
Combing jackets
Coveralls
Dresses
Fur neckpiece linings
Fur muff linings
Knickers
Linings and interlinings in coats and dresses
Middies
Mufflers
Hosiery
Gloves
Padded jackets
Raincoats and capes
Scarfs
Shampoo jackets
Shawls
Skirts
Sleeveless jackets

Smocks
Suits
Suits for athletic uses
Sweaters
Uniforms

2. *Headwear*

Bandannas
Bandeaux
Bathing caps
Boudoir caps
Caps
Dust caps
Hats
Hatbands
Hat cords
Hat linings
Hat ornaments
Mortar boards
Nightcaps
Stocking caps
Sunbonnets

3. *Undergarments*

Bath robes
Brassieres
Bloomers
Briefs
Chemises
Chemisettes
Combinations
Corsets
Drawers
Garter belts
Girdles
Guimpes
Kimonos
Negligees
Nightgowns
Pajamas
Petticoats
Sanitary aprons
Sanitary belts
Sanitary step-ins
Scanties
Shirts
Slips
Step-ins
Underknickers
Underwaists
Union suits

4. *Footwear*

Bathing slippers

Bedroom slippers
Bed socks
Shoe laces
Shoe linings, goring and trimming
Stockings

5. *Accessories*

Beltings
Belts
Bindings
Braids
Button covers
Collars
Cords
Cuffs
Fans
Flowers
Fringes
Garters
Gloves
Hair bands
Hair nets
Handbags
Handbag linings
Handkerchiefs
Labels
Laces
Lingerie braids
Mittens
Name tapes
Pocketbooks
Parasols
Pocketbook linings
Ribbons
Ruchings
Sashes
Scarfs
Shields
Tapes
Thread
Ties
Umbrellas
Umbrella cords
Umbrella covers
Veils

III. CLOTHING OF MEN AND BOYS

1. *Outer Garments*

Aviation suits
Blazers
Blouses
Coats

Collegiate gowns
Coveralls
Dusters
Hospital uniforms
Jumpers
Knickers
Linings and interlinings in coats
Mufflers
Professional gowns
Rain capes
Raincoats
Shirts
Smoking jackets
Suits
Suits for athletic uses
Sweaters
Vests
Work aprons
Work jackets

2. *Headwear*

Caps
Hatbands
Hat cords
Hat linings
Mortar boards
Nightcaps
Tams

3. *Undergarments*

Bath robes
Dressing gowns
Night shirts
Pajamas
Shirts
Union suits
Vests

4. *Footwear*

Bedroom slippers
Hose
Linings in shoes, boots and rubbers
Shoe laces

5. *Accessories*

Arm bands
Belts
Collars
Garters
Gloves
Handkerchiefs
Name tapes
Supporters
Suspenders
Ties

- Umbrellas
- Umbrella cords
- Umbrella covers
- IV. HOME FURNISHINGS**
 - Blanket bindings
 - Canopy tops
 - Comfortables
 - Curtains
 - Mattress covers
 - Lamp shades
 - Screens
 - Rugs
 - Sheets and pillow cases
 - Spreads
 - Table cloths and napkins
 - Tapestries
 - Dress hangers
 - Cushions
 - Bassinets
 - Footstools
 - Wall coverings
 - Upholstery
- V. RELIGIOUS PURPOSES**
 - Church vestments (chasuble, stole, biretta)
 - Tabernacle curtain
 - Prayer rugs
 - Holy carpet for Mohammedan religious ceremonies
- VI. SPORTS**
 - Basketball uniforms
 - Bathing suits
 - Football pants
 - Fishing:
 - Flies (decoration and construction)
 - Fish lines (braided silk)
 - Fishing rods (used for winding)
- Silk wrappings for golf clubs
- Tennis strings and wrappings
- VII. MILITARY USES**
 - Ballistite rings
 - Cartridge bag cloth
 - Cords for lacing cartridge bags
- VIII. COMMERCIAL USES**
 - Balloons
 - Parachutes
 - Bolting cloth (for sifting flour and face powder)
 - Paper making
 - Stencil sheet tissue
 - Sausage cases
 - Tents (carried by explorers)
 - Insulation
 - Webbing elastic
 - Rubberized fabrics
 - Electric wire coverings
- IX. MISCELLANEOUS**
 - Billfolds
 - Bonbon box covers
 - Casket linings
 - Dental floss
 - Display lights
 - Jewelry cases
 - Match cases
 - Paintings (silk used in place of canvas, notably by the Japanese)
 - Pipe cases
 - Pullman car curtains
 - Silk stained windows
 - Thread for stitching surgical wounds
 - Tobacco pouches (waterproof)
 - Violin strings

SOURCE: The National Federation of Textiles, Inc., and Edna L. Clark of the Bureau of Home Economics, United States Department of Agriculture

TABLE XLVII

VALUE OF WOMEN'S CLOTHING

	<i>Production Value</i>	<i>Receipts for Contract Work</i>
Women's Clothing (Total).....	\$1,224,981,832	\$73,505,926

ONE-PIECE DRESS CLASSIFICATION ONLY

<u>MADE TO RETAIL FOR</u>	<i>Number</i>	<i>Per Cent</i>	<i>Value</i>	<i>Per Cent</i>	<i>Receipts for Contract Work</i>	<i>Per Cent</i>
Under \$1.00	33,922,875	20.3	18,489,934	3.0	1,553,002	3.4
\$1.00 to 1.99.....	34,189,676	20.4	32,740,775	5.3	1,879,876	4.1
2.00 to 2.99.....	18,257,694	10.9	30,638,407	5.0	3,911,092	8.6
3.00 to 4.99.....	24,798,656	14.8	76,062,693	12.3	8,359,720	18.4
5.00 to 9.99.....	33,879,281	20.3	180,085,711	29.1	11,164,819	24.5
10.00 to 24.99.....	19,821,934	11.9	215,477,867	34.9	15,489,421	34.0
\$25.00 & up.....	2,322,294	1.4	64,666,566	10.4	3,197,574	7.0
	<u>167,192,410</u>	<u>100%</u>	<u>618,161,953</u>	<u>100%</u>	<u>45,555,504</u>	<u>100%</u>

Source: Census of Manufactures, 1931

TABLE XLVIII

PER CENT OF MANUFACTURERS IN VARIOUS SALES GROUPS—BY LOOM CLASS
(For First Six Months of 1933)

LOOM CLASS	Per Cent Firms in Each Class	Percentage Sales in Each Sales Volume Group											Total Sales Each Class
		To \$179,999.99	\$180,000.00 to \$359,999.99	\$360,000.00 to \$539,999.99	\$540,000.00 to \$719,999.99	\$720,000.00 to \$899,999.99	\$900,000.00 to \$1,079,999.99	\$1,080,000.00 to \$1,259,999.99	\$1,260,000.00 to \$1,439,999.99	\$1,440,000.00 to \$1,619,999.99	\$1,620,000.00 to \$1,799,999.99	\$1,800,000.00 and Over	
Up to 99	64.7	16.0	0.3	1.3	.....	1.7	.....	.....	.....	.....	2.0	.....	21.3
100 to 299	24.5	10.4	0.6	3.9	.....	4.4	1.1	.....	.....	.....	2.0	.....	22.4
300 to 499	4.1	0.7	0.8	2.1	0.7	3.4	.....	.....	.....	.....	.....	3.8	11.5
500 to 999	2.9	0.5	.....	.....	.....	2.5	.....	.....	.....	.....	6.4	3.8	13.2
Over 999	4.0	.....	0.3	0.4	.....	2.6	.....	.....	.....	1.8	12.3	14.2	31.6
TOTAL	100.0	27.6	2.0	7.7	0.7	14.6	1.1	.....	.....	1.8	22.7	21.8	100.00

PER CENT OF MANUFACTURERS IN VARIOUS SALES GROUPS—GEOGRAPHICALLY

LOCATION PRINCIPAL OFFICE	Per Cent Firms by Location	To \$179,999.99	\$180,000.00 to \$359,999.99	\$360,000.00 to \$539,999.99	\$540,000.00 to \$719,999.99	\$720,000.00 to \$899,999.99	\$900,000.00 to \$1,079,999.99	\$1,080,000.00 to \$1,259,999.99	\$1,260,000.00 to \$1,439,999.99	\$1,440,000.00 to \$1,619,999.99	\$1,620,000.00 to \$1,799,999.99	\$1,800,000.00 and Over	Total Sales by Location
Paterson	26.7	5.9	0.7	1.3	.....	0.8	.....	.....	.....	.....	2.0	.....	10.7
Other New Jersey	8.9	2.4	0.3	0.4	.....	1.7	.....	.....	.....	.....	.....	.....	4.8
Pennsylvania	24.1	8.8	0.3	1.3	.....	1.8	.....	.....	.....	.....	2.0	.....	14.2
Massachusetts	3.1	1.7	.....	.....	.....	.....	.....	.....	.....	.....	2.0	.....	3.7
Rhode Island	3.4	1.0	.....	.....	.....	1.9	.....	.....	.....	1.7	2.0	.....	6.6
Connecticut	3.1	1.2	0.4	.....	.....	.....	.....	.....	.....	.....	2.0	.....	3.6
New York	27.0	8.4	0.6	5.3	0.7	8.7	1.2	.....	.....	.....	12.3	17.7	54.9
Virginia	0.4	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.2
North Carolina	0.2	0.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.3
South Carolina	0.4	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.2
Georgia and Alabama	0.2	0.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.1
Tennessee	0.4	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.2
Other United States	2.1	0.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.5
TOTAL	100.0	30.9	2.3	8.9	0.7	14.9	1.2	.....	.....	1.7	22.3	17.7	100.0

SOURCE: The National Federation of Textiles, Inc.

TABLE XLIX

STATISTICAL SUMMARY

	1926	1927	1928	1929	1930	1931	1933		1934	
							Jan.—June 1932 (Before Code)	July—Dec. (After Code)		
Average price Japan raw silk—per lb...	\$6.19	\$5.44	\$5.07	\$4.93	\$3.42	\$2.40	\$1.57	\$1.46	\$1.83	\$1.30
Consumption raw silk—pounds.....	66,673,000	73,317,000	75,934,000	82,433,000	77,430,000	79,118,000	73,742,000	34,632,000	27,758,000	65,000,000
Consumption rayon—pounds.....	60,627,000	100,022,000	100,133,000	131,329,000	117,196,000	157,359,000	152,178,000	206,773,000		190,000,000
Est. world raw silk production—pounds	107,174,000	114,098,000	120,330,000	127,712,000	129,046,000	128,440,000	112,317,000	109,500,000		—
Broad looms owned (est.) (<i>Silk Code</i>)..	100,200	112,200	111,800	111,400	108,000	104,600	100,000	93,000		92,355
Average % normal employment.....	85.8	86.8	90.4	93.0	84.6	77.4	63.9	66.4	—	—
Average hours of labor.....	48.9	48.2	48.1	47.9	47.0	47.0	46.1	46.8	34.6	33.8
Avg. hours operated per loom owned...	44.7	44.6	47.1	48.1	44.2	41.6	32.2	34.9	32.9	36.4
% Available 80-hours operated.....	50.9	52.2	56.7	60.1	55.3	52.0	40.2	43.6	42.2	47.4
Production broad goods—yards.....	426,600,000	462,120,000	503,400,000	548,280,000	504,840,000	541,680,000	458,160,000	266,100,000	208,380,000	406,000,000
Sales broad goods—yards.....	423,240,000	454,200,000	474,720,000	544,200,000	528,960,000	563,640,000	522,600,000	303,900,000	208,080,000	405,900,000
Avg. stock broad goods—yards.....	103,520,000	126,710,000	150,160,000	159,150,000	156,450,000	130,580,000	116,817,000	99,655,000	88,320,000	85,870,000
Annual turnover broad goods.....	4.0	3.5	3.1	3.3	3.3	4.3	4.3	6.0	5.0	5.1
Print designs registered.....	—	—	2,730	3,148	2,717	9,891	12,084	7,813	11,611	12,056*
Imports broad goods—pounds.....	3,738,949	3,526,274	3,440,049	3,854,604	2,000,722	3,120,280	1,611,409	1,848,258		1,319,646*
Imports broad goods—value.....	\$18,626,517	\$17,861,546	\$16,426,218	\$16,811,372	\$8,000,056	\$9,065,433	\$3,046,909	\$3,540,002		2,711,986*
Exports broad goods—yards.....	3,200,823	2,288,707	2,854,546	3,260,117	2,857,115	2,594,377	1,674,155	1,979,994		1,492,758*
Exports broad goods—value.....	\$3,869,961	\$2,767,611	\$3,448,176	\$4,135,085	\$3,422,769	\$2,364,820	\$1,017,297	\$1,022,895		884,655*

Sources: Miscellaneous Governmental and Private—Mentioned in Previous Tables

*Nine months

1929

1928

1927

1926

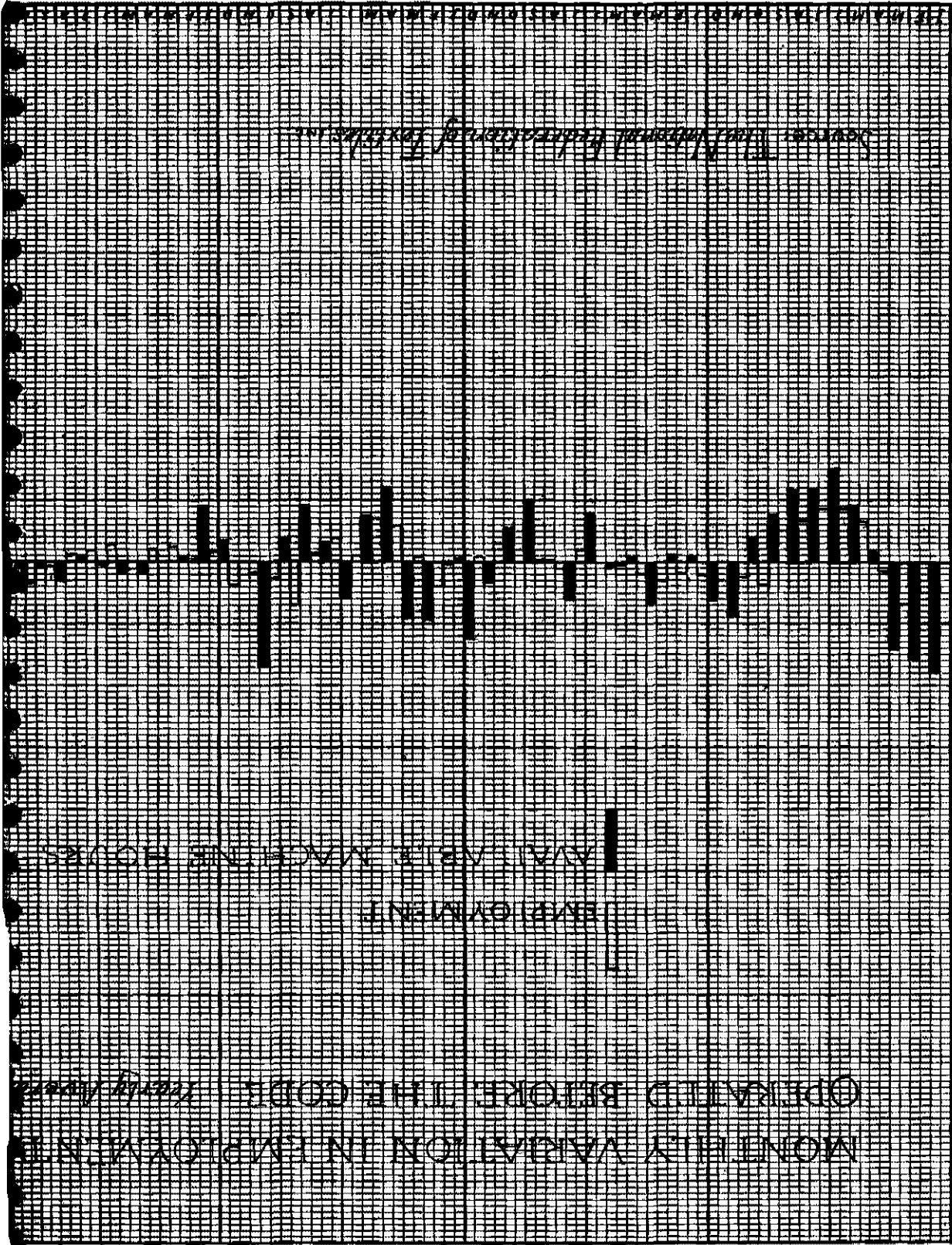


CHART AA

CHART AA

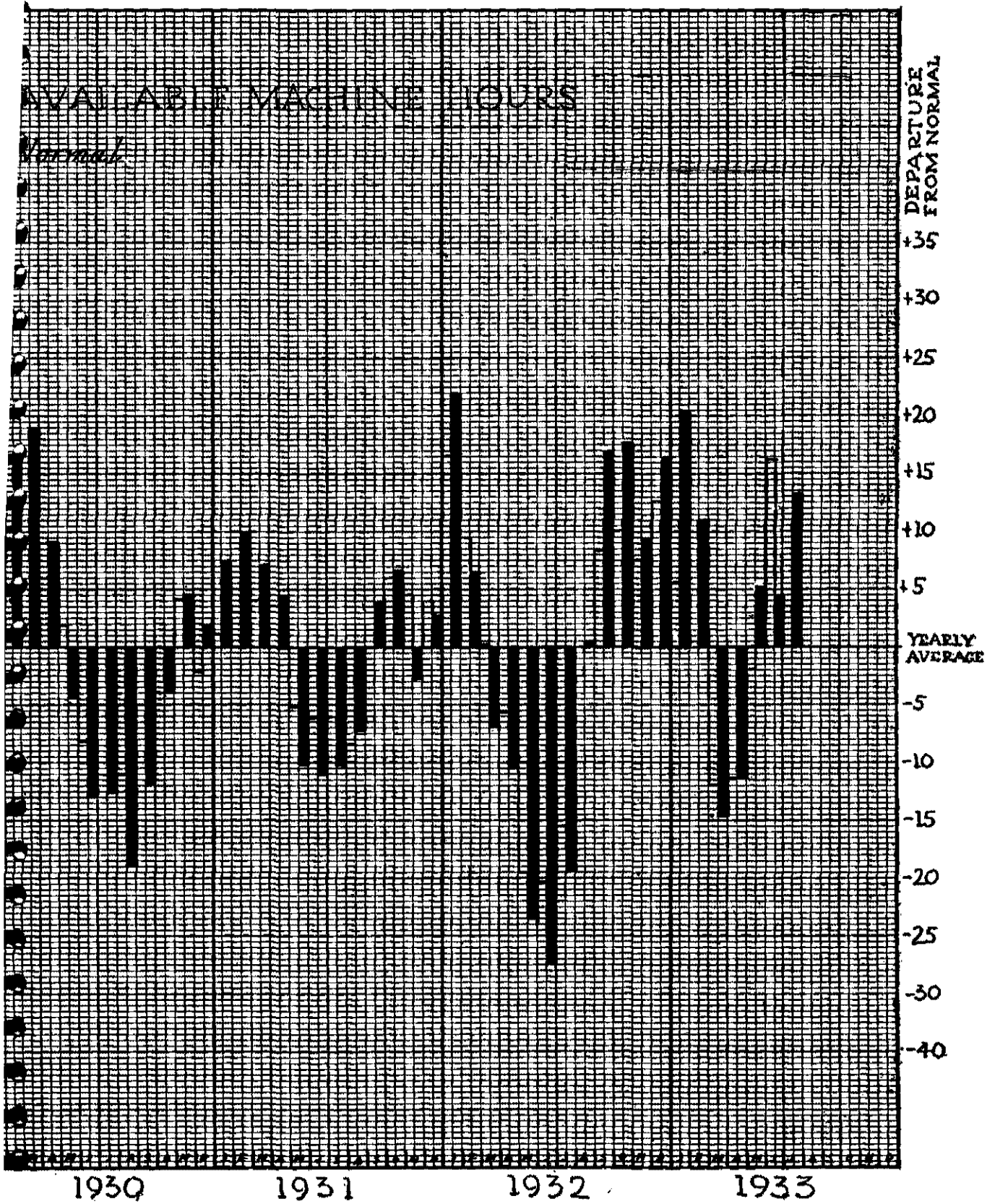


CHART BB

WAGES PAID IN FOUR VARIOUS TEXTILE WORKING COUNTRIES		
Occupations	Cents per hour paid	Country
	0 5 10 15 20 25 30 35 40 45 50	
WEAVERS-MALE JACQUARD	35	UNITED STATES SWITZERLAND GERMANY FRANCE ITALY JAPAN
WEAVERS-MALE PLAIN	30	UNITED STATES SWITZERLAND GERMANY FRANCE ITALY JAPAN
WEAVERS-FEMALE	25	UNITED STATES SWITZERLAND GERMANY FRANCE ITALY JAPAN
SKILLED-MALE	25	UNITED STATES SWITZERLAND FRANCE ITALY JAPAN
UNSKILLED-MALE	15	UNITED STATES SWITZERLAND GERMANY ITALY JAPAN
SKILLED-FEMALE	20	UNITED STATES SWITZERLAND ITALY JAPAN
UNSKILLED-FEMALE	10	UNITED STATES SWITZERLAND GERMANY ITALY JAPAN
DRESSERS-MALE	25	UNITED STATES SWITZERLAND GERMANY ITALY JAPAN
SPINNERS-FEMALE	15	UNITED STATES SWITZERLAND GERMANY ITALY JAPAN

Sources: U.S. Department of Commerce, U.S. Department of Labor, National Industrial Conference Board, International Labor Review, The National Federation of Textiles, Inc., American Tariff League, China Brokers, etc.

CHART CC

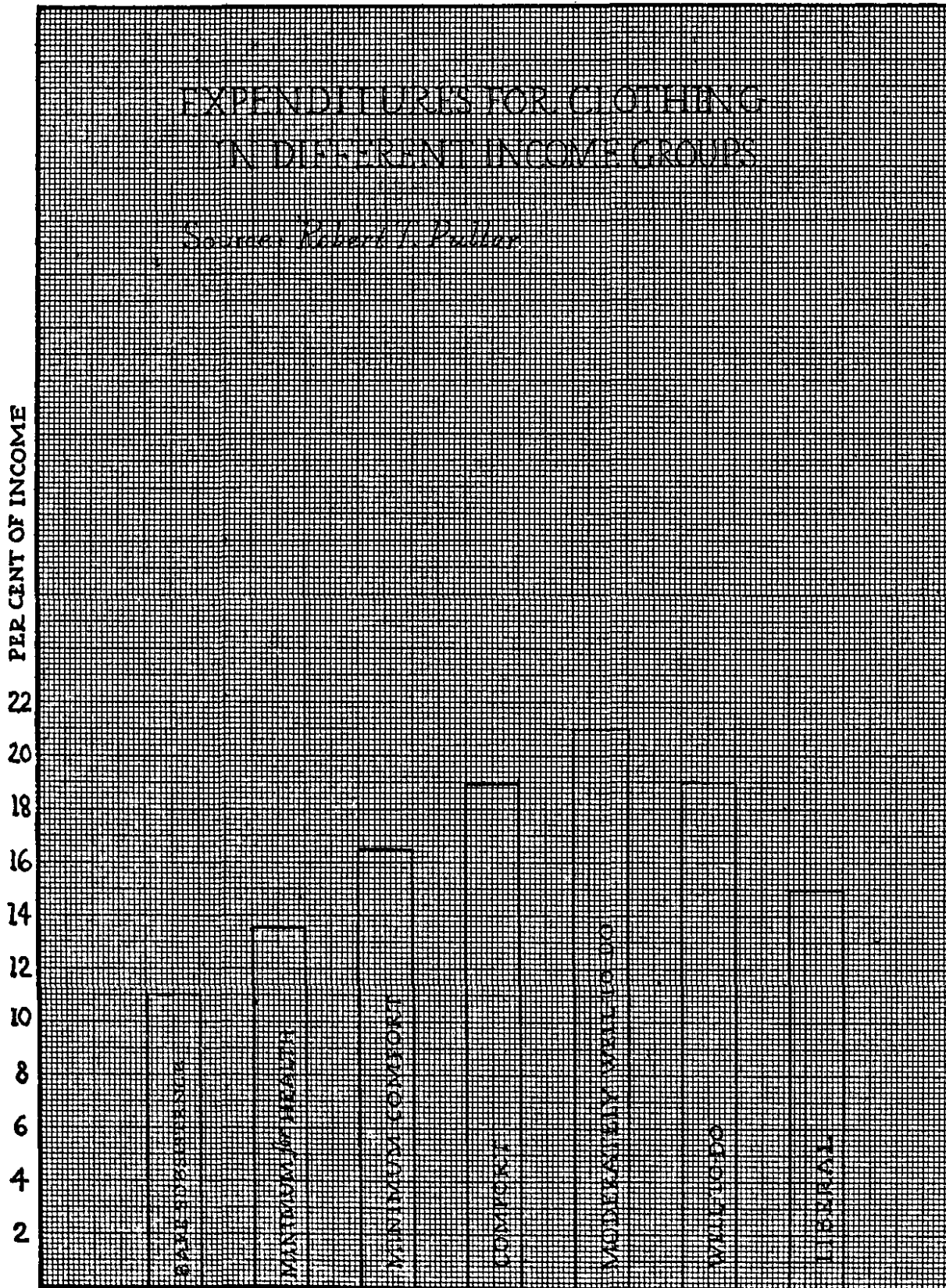


CHART DD

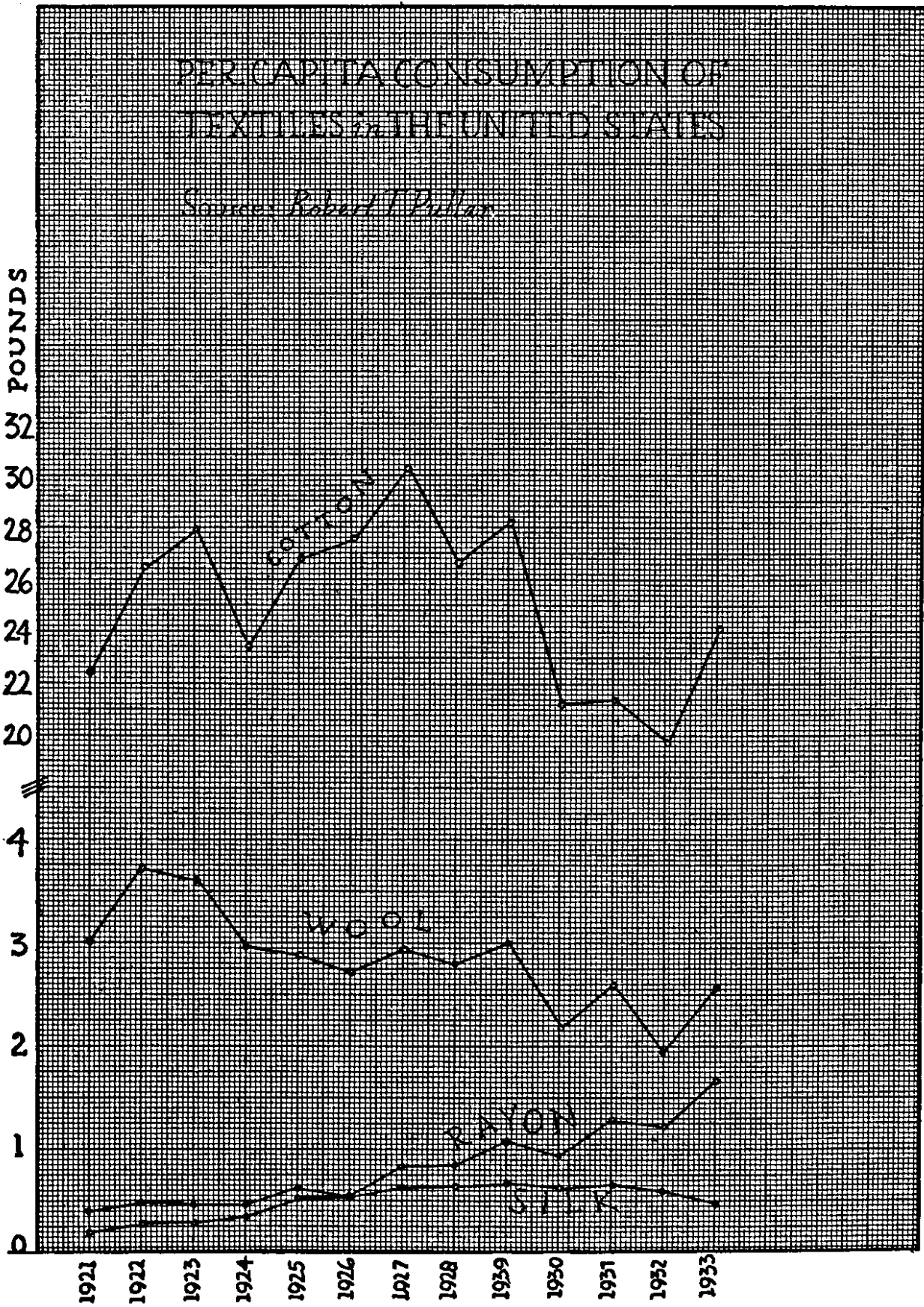


CHART EE

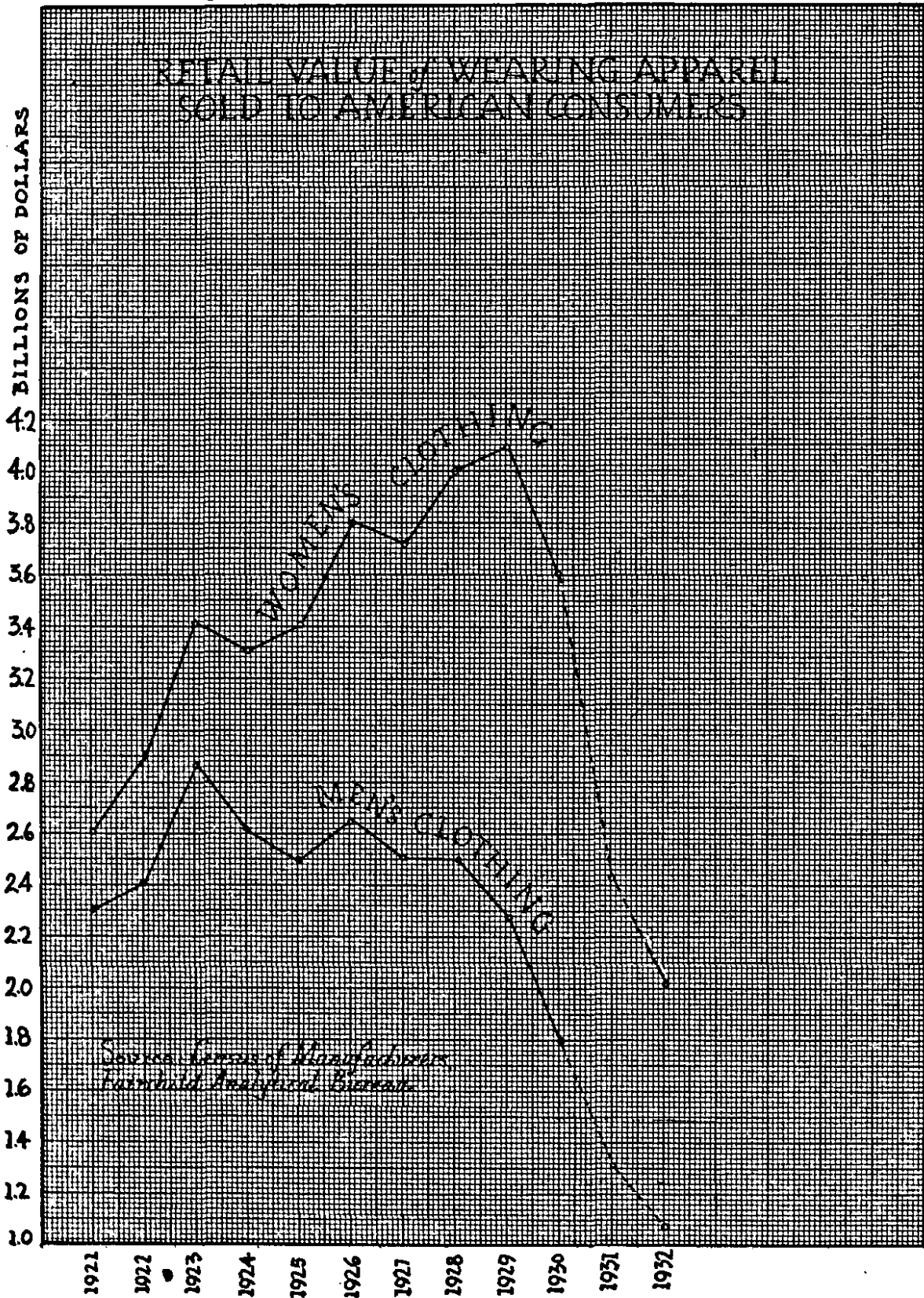
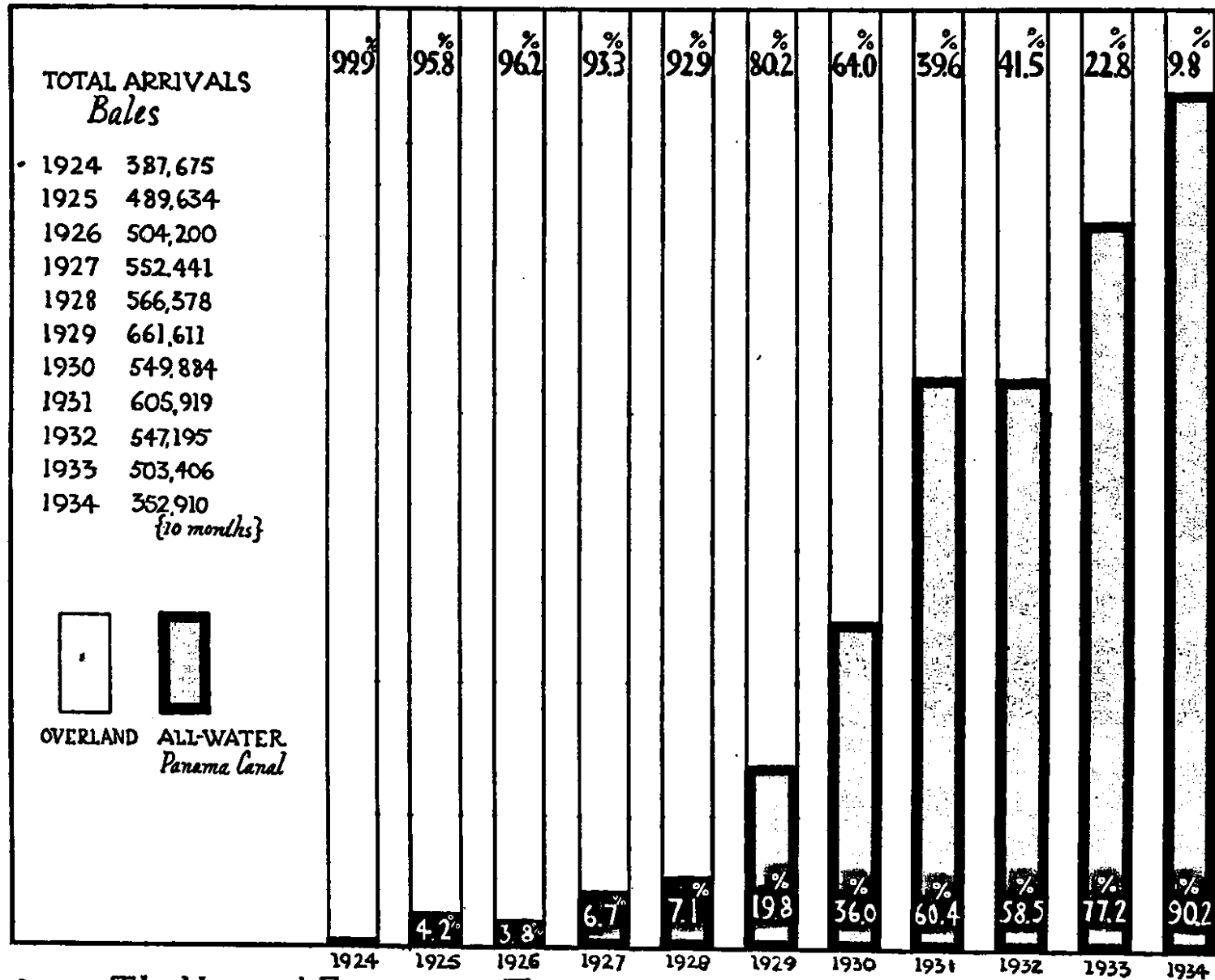


CHART FF

RAW SILK IMPORTS *from the* ORIENT *to* UNITED STATES MARKETS



Source: *The National Federation of Textiles, INC.*

Bibliography

IN ADDITION to data collected for the survey from 5,000 special questionnaires, thousands of general questionnaires and more than 300 interviews, the facts contained therein are based upon experience, opinion and published statistics. The following are the principal published reports and printed material studied.

American Silk and Rayon Journal, Clifford & Lawton, Inc.
America's Capacity to Consume. Brookings Institute.
America's Capacity to Produce. Brookings Institute.
Broad Silk Cost Accounting Manual. Broad Silk Division of Silk Association of America, Inc.
Bureau of Merchandise Management. National Retail Dry Goods Association.
Census of Manufactures—Silk and Rayon Goods, 1931. U. S. Government Bureau of the Census.
Changes in the Cost of Living, December, 1933—June, 1934. U. S. Department of Labor.
The Commercial Problems of the Woolen and Worsted Industries, Paul T. Cherington. The Textile Foundation, Inc.
Commission Throwsters Cost Accounting Manual. Commission Throwsters Division, Silk Association of America, Inc.
Crompton & Knowles Loom Works.
Design Piracy. Henry Creange.
Dictionary of Textiles. Louis Harmuth.
Discounts, Purchases, Loans and Commitments by Federal Reserve Banks to Provide Working Capital for Established Industrial or Commercial Business, 1934. Federal Reserve Board, Washington, D. C.
Dissecting and Calculating Silk Fabrics. Horace Neild.
Distribution of Textiles. A Survey by the Bureau of Business Research, Harvard University.
Dollar Values of Production of Goods and Construction, 1914-1933. National Industrial Conference Board.
Draper Corporation, Inc.
Dress Code Authority, Charles Elfelt.
Dun & Bradstreet Monthly Review.
Economic Legislation of the 73rd Congress, 1934. National Industrial Conference Board.
Essentials of a Program of Unemployment Reserves, 1933. National Industrial Conference Board.
Fabrics and How to Know Them. Grace Goldena Denny.
Fairchild Publications, Inc.
General Study of the Silk Industry. Robert Morris Associates.
Handbook of Hosiery Testing. United States Testing Company.
History of the Silk Dyeing Industry in the United States. Silk Dyers' Association of Paterson, N. J.
History of the Silk Industry of the United States. Schichiro Matsui.
How to Know Textiles. Cassie Paine Small.
Industrial Group Insurance—Recent Developments, 1934. National Industrial Conference Board.
Inventory Control Procedure. S. D. Leisdesdorf & Co.

Labor and Silk. Grace Hutchins.
Manual of Cost Accounting Principles for the Hosiery Industry, 1934. Prepared by Ernst & Ernst, published by National Association Hosiery Manufacturers.
Market Data Handbook of the U. S., U. S. Government Department of Commerce.
Market Research Sources. U. S. Government Bureau of Foreign and Domestic Commerce.
Merchandising of Cotton Textiles, Methods and Organization. Melvin T. Copeland and Edmund P. Learned.
Monthly Labor Review. U. S. Government Department of Labor Statistics.
Monthly Summary of Foreign Commerce in the U. S., U. S. Government Bureau of Foreign and Domestic Commerce.
National Rayon Weavers Association.
National Recovery Act Textile Codes (Cotton, Wool, Silk and Rayon). Respective Code Authorities.
Organization for Style and Design. An Address by Paul Bonner to the Southern Manufacturers' Sales Conference, Atlanta, Ga., Nov. 22, 1928.
Our World Trade. U. S. Chamber of Commerce.
Practicability of Setting Maximum Standards of Work in Cotton Mills Operating Under the Stretchout System. Ethel L. Best, U. S. Department of Labor.
Price Control. Nelson B. Crawford.
Principles of Merchandising. Melvin T. Copeland.
Problems in Marketing. Melvin T. Copeland.
Proceedings of the Second International Silk Conference. Silk Association of America, Inc.
Robert T. Pullar, Fellow, Columbia University, New York City.
Raw Silk. Leo Duran.
Raw Silk Classification With Methods of Testing. Silk Association of America, Inc.
Raw Silk Industry of Japan. Silk Association of America, Inc.
Raw Silk and Throwing. Warren P. Seem.
Rayon and Melliand Textile Monthly. Rayon Publishing Company.
Rayon and Synthetic Yarn Handbook. E. W. K. Schwarz and H. R. Mauersberger.
Retail Distribution Summary for the United States, 1931. U. S. Government Bureau of the Census.
Serivalor, The Valuation of Raw Silk. Adolph Rosensweig.
Shanghai Raw Silk Market. Ralph Buchanan, Silk Association of America, Inc.
Silk. Eliza B. Thompson.
Silk Association of America, Inc. Mid-Year Reports.
Silk—Its Production and Manufacture. Luther Hooper.
Silk Manufacturing and Its Problems. James Chittick.
Silk Processes—Winding, Warping and Quilling. Samuel Kline.
Silk—The Queen of Fabrics. W. D. Darby.
Silk and Rayon Digest. Fine Fabrics Publications, Inc.
Silk and Rayon Trades. Davison Publishing Co.
Silk Throwing. E. A. Posselt.
Statistical Abstracts of the United States. U. S. Government Bureau of Foreign and Domestic Commerce.
Survey of Current Business. U. S. Government Bureau of Foreign and Domestic Commerce.
Survey of Textile Research in the United States, 1931. U. S. Government Textile Foundation.
Textile Blue Book. Davison Publishing Co.

Textiles. William Dooley.
Textiles. Woolman and McGowan.
Textile Fabrics. George H. Johnson.
Textile World. McGraw-Hill Publishing Company.
Theory of Silk Weaving. Arnold Wolfensberger.
Training of Men for the Textile Industry, 1934. The Textile Foundation, Inc.
Textile Organon. Tubize Chatillon Corporation.
Use of Research in Marketing and Merchandising. Metropolitan Life Insurance Co.
Wages and Hours of Labor in the Manufacture of Silk and Rayon Goods, 1931.
U. S. Government Department of Labor Statistics.

Index

- ACCOUNTING**
standard methods of, 5
- ACETATE**
one of the four synthetic fibre manufacturing processes, 51
- ADVANCE BUYING**
absence of, 49
- ADVERTISING**
cooperative efforts in, 75
- AGENTS**
selling, 67, 69
- ARBITRATION BUREAU**
cases handled by, 1925—1934, 74
Table XXXIX, 74
- AUTOMATIC LOOMS**
(See Looms)
- BANK HOLIDAY**
and subsequent improvement in industry, 2
- BIBLIOGRAPHY**, 97
- BOBBIN-CHANGING LOOMS**, 9, 13
- BOX LOOMS**, 12, 13
- BRANDS**
effective use of, 6
- BROAD GOODS INDUSTRY**
distribution to various trades, 53
Table XXVIII, 52
production by various types of producers, 53
production groups in, 1
stock-carrying mills vs. commission weavers in, 1
- BROKERS**
importance in distribution of, 67, 69
- BUILDINGS**
and machinery, ownership of, 18
Table VI, 19
- BUYING MOTIVES**, 60
- CANCELLATIONS**, 74
- CANTON CREPE**
Table XXXIV, 65
Chart V, 66
- CAPITAL**
investment and inventory, 71
- CHAIN STORES**, 3
- CHANGES IN MANUFACTURING FIRMS**
Table X, 22
- CHANNELS OF DISTRIBUTION**, 67, 69
- CHIFFON VOILE**, 65
Table XXXIV, 65
Chart V, 66
- CLAIMS**
influence of, on distribution, 74
- CLOTHING**
expenditures for,
Chart CC, 91
retail value,
Chart EE, 93
women's, value of
Table XLVII, 85
- CODE OF FAIR COMPETITION** (See Silk Code)
- CODE ENFORCEMENT** (See Self-Government, Wages and Hours)
price control, 70
- CODIFICATION**
confusion in textile industry due to N. R. A., 74
- COLOR**
as factor in style, 60
- COMMISSION AGENTS**, 67, 69
- COMMISSION WEAVERS**
absence of risk in raw material investment, 1
and capital requirements, 1
and freedom from marketing problems, 1
fixed investment, 18
Table VI, 19
increasing importance of, 49, 50
production costs, 23
Table XIII, 24
relationship to stock carrying mills, 22
services, 18
type of equipment, 13
unimportance as style creators, 60
- COMMISSION WEAVING**
as result of demoralization, 2
at cut prices, 2
economic significance of, 18
- COMPETITION**
and need for modernization—silk vs. rayon, 13
between raw materials—silk vs. rayon, 18
commission weavers vs. stock-carrying mills, 49, 50
converter vs. regular manufacturer, 67
from Japanese fabric imports, 39, 40
from the family shop, 18
rayon vs. cotton, 53
- CONSTRUCTIONS**
development of, 60
new weaves constructed, 60
Table XXXII, 63
number woven, 60
Table XXXII, 63
Chart U, 62
- CONSUMERS**
ages
Table XLV, 81
dissatisfaction with fabric quality
distribution to, 67
education, need for, 75
intelligence level
Table XLV, 81
preferences, 50
uses of products
Table XLVI, 81
- CONSUMPTION**
of silk and rayon fabric
Chart M, 45
per capita, of textiles
Chart DD, 92
vs. production, 40
- CONTRACTS**
standardization of, 74
- CONTRIBUTORS TO SURVEY FUND**, iii
- CONVERTERS**
and use of commission weaving, 3, 4
encourage commission weaving, 4
function of, 18, 51
in strategic position, 3
method of financing sales, 50
significance of, 49, 50
vs. stock-carrying mills and commission weavers, 4
- CONVERTING TRADE**
as a marketing outlet, 1
- COOPERATION**
a way to production control, 43
uniform through trade practices, 74
- COOPERATIVE ADVERTISING**
use of, 75
- COST**
fabric constructions, analysis of
Table XIII, 24
of living vs. purchasing power, 23
- COST ACCOUNTING**
need for standard methods in, 5
- COST OF PRODUCTION**, 23
Table XIII, 24
- COTTON TEXTILE CODE**
distinguished from Silk Textile Code, 9
loom hours allowed, 33
trading terms, 74
Chart XLI, 75
- CREDIT CONDITIONS**, 50
- CREPE TWIST**
significance of its introduction, 18
- CUPRAMMONIUM**
one of the four rayon manufacturing processes, 51
- CUTTING-UP TRADE**
and excess sample buying, 71
as a trade outlet, 18
converting functions assumed by, 51
increased importance of, 49

- large sales of raw goods to, 4
- reasons for buying raw goods by, 4
- relationship with retailer, 67
- DELIVERIES, 65**
- DEPARTMENT STORES**
 - as buyers of finished goods, 1
 - sales by weaves and fabrics 1933, 67
 - Chart W, 68
- DESIGN**
 - one of the four style factors, 60
- DESIGN PIRACY, 3, 65**
- DESIGN REGISTRATION BUREAU**
 - services rendered, 65
- DESIGNS REGISTERED**
 - Table XXXIII, 64
- DESIGNERS'**
 - American and European, 60
- DISCOUNT**
 - confusion due to variety of codes, 74
- DISCRIMINATION IN TERMS**
 - a new problem under N. I. R. A., 4
- DISTINCTIVENESS**
 - as a buying motive, 60
 - as a style indicator, 60
- DISTRIBUTION**
 - and interchangeability of productive equipment, 9
 - and overproduction, 49
 - as a basis for regulating production, 71
 - basis of efficiency in, 4
 - by converting industry, 49, 50
 - by retailers, 67
 - by trade outlets, 53
 - Table XXIX, 52
 - Charts P and Q, 54, 55
 - by type of fabric
 - Table XXVIII, 52
 - Chart O, 53
 - by type of producers
 - Table XXIX, 52
 - channels of, 67, 69
 - development of rayon market, 51, 53
 - effect of raw material prices, 56
 - forces employed in, 67
 - greige goods, 49
 - importance of fashion trends in, 60
 - medium of selling, 67
 - Table XXXVIII, 70
 - new problems of, 49
 - of broad goods by trade outlets, 53
 - of looms by size of establishments, 20
 - Table VIII, 19
 - of manufacturing dollar
 - Chart D, 25
 - of raw goods
 - Chart R, 56
 - production of producers, 53
 - of sales, by manufacturers
 - Table XLVIII, 86
- DISTRIBUTORS**
 - and price control, 70
 - type of, 51
- DRESS GOODS**
 - all silk, produced by mills
 - Table XXXIV, 65
- DRESSES**
 - increase demand for rayon, 67
- EDUCATIONAL PROGRAM**
 - to be undertaken by the Federation, 5
- EFFECTIVE STYLING**
 - importance of, 3
- EMPLOYMENT**
 - and wages, 23, 33
 - average number employed
 - Table XIV, 26
 - in silk textile industry
 - Table XV, 28
- influence of N. R. A. on,
 - Chart H, 34
- seasonal changes in,
 - Chart AA, 88, 89
- weekly labor hours
 - Chart I, 35
- EMULATION**
 - as a buying motive, 60
- EQUIPMENT**
 - efficiency of, 9
 - interchangeability of, 9
 - of rayon weavers, type of, 12, 13
 - of Silk Code members, type of, 12, 13
 - ownership of, 18
 - Table VI, 19
 - owned, type of, 9
 - profit is limited by age of, 2
 - stock carrying mills vs. commission weavers, 13
- EUROPE**
 - as a source of styles, 60
- EXCESS SAMPLE BUYING**
 - as a disturbing factor, 5
 - remedies for, 5
- EXPORTS**
 - of silk fabrics
 - Table XXIIa, 41
- FABRICS**
 - consumption, per capita
 - Chart DD, 92
 - importance of converters in construction, 3
 - necessity for standards of quality, 3
 - produced, type of, 65
 - Table XXXIV, 65
 - Chart V, 66
 - (See also Cost)
- FACTORS**
 - financing by, 50
- FAILURES**
 - extent of business, 20
 - Table X, 22
- FAMILY SHOPS**
 - competition of, 18
 - geographical loom distribution, 20
 - Table IX, 21
 - legislative difficulties, 2
 - spread of, 2
- FASHION**
 - movement and changing market conditions, 1, 49
 - (See also Style)
- FASHION TRENDS, 50**
- FEDERAL TRADE COMMISSION, 22**
 - Table X, 22
- FIBER**
 - consumption, prices and value in U. S.
 - Table XXX, 57
 - Chart S, 58
 - one of the four factors in style, 60
 - prices in U. S.
 - Chart T, 59
- "FIFTY-SIXTY-FOUR" CONSTRUCTIONS**
 - cost of, 23
 - Table XIII, 24
- FILAMENTS, RAYON**
 - increase of fineness, 53
- FILLING**
 - automatic stop control, 13
- FINANCIAL TRENDS**
 - in the industry, 21
 - Table XII, 23
- FINANCING**
 - changes in, 50, 51
 - changes in policy of, 50
- FINISHING**
 - importance of converters in, 3
- FIRMS**
 - changes in,
 - Table X, 22

going out of business
 Table X, 22
 number entering business
 Table X, 22
 number in business
 Table VI, 19
FLAT CREPE, 65
 Table XXXIV, 65
 Chart V, 66
FLUCTUATIONS
 in raw materials price, effect on fiber preference, 2
FOUR LOOMS MOVEMENT (See Machine Load)
FRENCH CREPE
 Table XXXIV, 65
 Chart V, 66
GLOSSARY OF TERMS, xiv
GREIGE GOODS
 changes in distribution after 1920, 49
 methods of selling, 69
HAND-TO-MOUTH BUYING, 2, 49
HOLLYWOOD
 as a style source, 60
HOURS OF LABOR
 limitation, 43
 (See also Employment, Wages)
IMITATION OF STYLES
 danger of excessive, 5
IMPORTS
 of raw silk
 Chart FF, 94
 of silk fabrics
 Table XXIIb, 71
INDUSTRY'S FUTURE
 key to, need for successful merchandisers, 3
INDUSTRY'S PROSPERITY
 depends on effective merchandising methods, 4
INVENTORY CONTROL
 methods of, 71, 74
 Table XXXIX, 71
 Charts X & Y, 72, 73
INVENTORY POLICY
 as long range problem, 3
INVESTMENT
 and profits, 21
 Table XII, 23
 in buildings and machinery, 18
 Table VI, 19
 in industry, 18
 Table VI, 19
JACQUARD LOOMS
 number of owned, 14
JAPAN
 indirect government supervising of raw silk production, 56
JOBBERS
 and manufacturers before 1920, 49
LABELS
 sales to dress firms by price range
 Table XXXVII, 69
LABELING, 75
LABOR
 conditions in commission mills, 22, 23
 effort by number of looms operated
 Chart J, 37
 effort required for various fabrics
 Table XIXb, 36
 exploitation in family shops, 18
 hours of, 23
 hours vs. machine loads, 23, 33
 increased purchasing power of, 23, 33
 limitation for production control, 43
 (See also Employment)
LOOM, AUTOMATIC
 bobbin changing, 13
LOOMAGE
 changes in ownership in number owned, 21
 Table X, 22
 ownership in Paterson, N. J., 20

Table IX, 21
LOOMS
 activity, by months, 1929—1934
 Table XX, 38
 adaptation of, 12
 age of, 13
 Table III, 14
 automatic bobbin changing, 9, 13
 automatic, semi-automatic—advantages of, 9, 12
 automatic shuttle changing, 9, 13
 geographical distribution, 20
 Chart C, 20
 Table VII, 21
 hours, 33
 installed and efficient, 9
 installed by years, 13
 Charts A and B, 16, 17
 interchangeability in production, 9
 Jacquard—number of, 14
 limited and unlimited
 Table XIXa, 36
 obsolete, number of, 9, 12
 operation under Code
 Table XIV, 26
 owned,
 Tables I and II, 10 and 11
 owned in Paterson, N. J.
 Table IX, 21
 rebuilding of, 9
 size of operators' looms by class, 20
 Table VIII, 19
 type of, 9, 12
 under Code, 12, 13
 Table I, 10
 widths owned
 Table XLII, 78
 yards of fabric per (See Yards)
LUSTER, RAYON
 control of, 53
MACHINE LOAD, 33
 Table XIXa and b, 36
 Chart J, 37
MACHINE OPERATION
 weekly hours, per loom owned
 Chart K, 39
MACHINERY (See Buildings)
MANAGEMENT
 problem of, 75
MANUFACTURER
 and sample selling, 71
 changes in functions, 49
 merchandising problems, 67, 69
 number of weaves developed, 60
MANUFACTURERS, AMERICAN
 effect of Japanese fabric production, 39
MANUFACTURERS AND RETAILERS
 relationships, 49
MANUFACTURERS, GARMENT, 67
MANUFACTURING
 changes under Code
 Chart E, 27
MARKET PRICE
 vs. cost price, 2
MARKETING
 rayon, 51
 (See also Distribution)
MATERIAL
 one of factors in style, 60
MERCHANDISING
 assisted by simplification, 74
 coordination for price control, 70
 governed by inventory control, 71
 manufacturers' methods, 67, 69
MERCHANDISING FIELD
 exploration of, 5
MERCHANDISING FUNCTION
 necessity for, 3

- MILLS**
 absence of complete records of, 1
 entered business, 1921-29, 1
 large, medium, small—percentage of, 1
 number of, 1
 mortality, 1921-1929, 1
 rate of turnover, 1921-1929, 1
- MODERNIZATION**
 equipment, 9
 of machinery feeler motion device—bobbin-changing, shuttle changing, 13
- N. I. R. A., N. R. A.**
 challenge of self-governments, 44
 effect on employment and wages, 23, 33
 production control, 40
 (See Silk Code)
- NATIONAL FEDERATION OF TEXTILES**
 Design Registration Bureau, 65
 Officers and Board of Directors, viii
 President's comment on self-government, 44
- NATIONAL RAYON WEAVERS ASSOCIATION**
 loom data, 13
 loomage statistics, 12
- NEW JERSEY**
 changes in textile firms, 21
- NITROCELLULOSE**
 one of four rayon manufacturing processes, 51
- NOVELTY**
 factor in price control, 70
 in style, 60
 printing design, 65
- OBSOLETE EQUIPMENT**
 need for scrapping, 5
- OPERATION (See Machine)**
- ORGANIZATION**
 silk and rayon industry, 14, 18
- ORGANIZATION STRUCTURE**
 changes in, 51
- ORGANIZED GUIDANCE**
 will speed up progress, 6
- OVERHEAD**
 for typical silk and rayon constructions, 21
 Table XI, 23
 stock-carrying mills, 21
 Table XI, 23
- OVERPRODUCTION**
 as a predominating problem, 4
 effect of, 49
 nature of, 43
 seasonal, 40, 43
 supplementary orders, 71
- OWNERSHIP OF EQUIPMENT AND BUILDINGS**
 (See Buildings)
- PALM BEACH**
 as style source, 60
- PATERSON, N. J.**
 family shop, 18
 size of establishments by loom class, 20
 Table IX, 21
- PENNSYLVANIA**
 changes in textile firms, 21
- PIECE GOODS**
 sales, New York City, 67
 Chart W, 68
 factor in merchandising garments, 67
- PRICE**
 low-priced rayon, 67
 of raw materials, 56
 relationship and consumption, 56
 Table XXX, 57
- PRICE CONTROL**
 legality, 69, 70
 inventory control, 71
- PRICE CUTTING, 69**
 and price discrimination, 4
 one of the reasons for demoralization of the industry, 2
- PRICE DECLINE**
 and inventory losses, 2
- in raw material, 2
 effect on operators, 2
 vs. buying policy, 2
 vs. commission weavers' operations, 2
 vs. increased output, 2
 vs. price cutting, 2
- PRICE DISCRIMINATION**
 adds to demoralization, 4
 as a factor in industrial piracy, 4
- PRICE RANGE**
 distribution according to, 67
 Table XXXVI, 67
- PRICING**
 as a long range problem, 3
- PRICING PRACTICES**
 Silk Textile Code, 70
- PRINTING**
 improvement of, 65
- PROBLEMS**
 immediate—N. I. R. A. and labor situation, 2
 long range, 3
 of the industry, 2
- PRODUCER**
 classes of, 51
 cooperation for price control, 70
- PRODUCTION**
 all-silk fabrics, 65
 Table XXXIV, 65
 Chart V, 66
 based on sales as a basis of inventory control, 5
 by weaves and raw materials used, 65
 Table XXXV, 65
 Chart V, 66
 changes in practices, 49
 control,
 Table XXVI, 47
 cost of, 70
 Table XIII, 24
 equipment for, 9
 geographical analysis of
 Table XXIV, 43
 influence of fashions and style cycles, 49
 interrelation with distribution, 49
 Japanese and American, 39, 40
 losses in the off-peak seasons, 5
 monthly average, of broad goods
 Chart L, 44
 must be adapted to distribution, 4
 rayon and mixed rayon
 Table XXXV, 65
 Chart L, 66
 regulation by inventory control, 71
 value of, 14
 Table IV, V, 15
- PRODUCTION CONTROL**
 trade opinion as to,
 Table XXVI, 47
 assisted by simplification, 74
- PRODUCTS**
 changes in quantity and value of
 Table V, 15
- PROFITS, 21**
- PROGRESS**
 under the Silk Code, 2, 3
- PROMOTION, PROMOTIONAL ACTIVITY, 75**
- QUALITY**
 as a long range problem, 3
- QUALITY OF FABRICS**
 necessity of maintaining, 4
- QUANTITY (See Products)**
- RADIUM**
 Table XXXIV, 65
 Chart V, 66
- RATIO OF STOCK TO SALES**
 in inventory control, 71
- RAW GOODS**
 changes in distribution after 1920, 49

RAW MATERIALS

price, 56

RAW SILKand change in prices 1923-1929, 2
effects of price decline of, 2**RAW SILK**financing, 51
promotional activity, 75**RAYON**and mixed rayon, per cent of total produced, 65
capital investment in, 51, 53
distribution by trade outlets, 53
fabrics, increased importance of, 67
modernization of equipment, 13
promotional activity, 75
technological advance in manufacture, 56
value and quantity, 14
Tables IV, V, 15
(See also Yarns)**REED WIDTHS**

analysis of looms by, 9, 12

REGISTRATION OF DESIGNS, 64

Table XXXIII, 65

REGULATED PRODUCTION

difficulties under various allied codes, 4

RESALE PRICE

factor in price control, 70

RESEARCH, 44

a necessity for solving industry's problems, 5

RETAIL DISTRIBUTORS, 1, 67**RETURNS**

trade practice regulated by N. I. R. A., 74

SALES

by mills

Table XXXVIII, 70

monthly average, broad goods

Chart L, 44

ratio of stock to sales, 71

weaves and fabrics, 67

(See also Labels)

SALES FORECASTS

and inventory control, 71

SAMPLE, SAMPLING

relation to stock turn, 71

SAMPLE BUYING

as an indicator of advance sales, 5

from many sources disturbs forecasting, 5

SAMPLES

absence of risk on part of cutter-up in buying of, 5

SAMPLING

and concession in price, 5

and piling up of inventories, 5

importance of, 5

SATIN CREPE WEAVES

Table XXXIV, 65

Chart V, 66

SEASONAL PROGRESSION

in clothing trades and industries

Table XXXI, 61

SEASONAL VARIATIONS

in employment and available machine hours, 88, 89

production must be adapted to, 4

in mill employment

Chart H, 34

in ratio of stock to sales, 71

SELF-GOVERNMENT

for production control, 43

SELLING AGENTS, 67, 69**SHIFTS**

operated

Table XXI, 40

reduction of, 44

SHUTTLE-CHANGING LOOMS, 9, 13**SILK**

exports

Table XXIIa, 41

imports

Table XXIIb, 41

value and quantity, 14

Tables IV, V, 15

SILK CODE

all-silk dress goods produced by mills under, 65

Table XXXIV, 65

analysis of wages, before and since, 23

Table XVII, 32

and effect, 2

average number of employees in firms under, 23

Table XIV, 26

average wages, before and since,

Chart F, 30

benefits from, 23

changes in firms, 20

changes in manufacturing conditions since, 23

Chart E, 27

designs registered, before and since, 65

Table XXXIII, 64

different premiums and penalties under, 74

distribution by mills under

Charts P, Q and R, 54, 55, 56

distribution of looms under

Table VIII, 19

employment and wages before and since, 23

Table XV, 28

Chart G, 31

fair trade practices before and after, 49

geographical analysis of production under, 40

Table XXV, 46

geographical distribution of looms under, 20

Chart C, 20

identical firms, effect on,

Table XXI, 40

increase in payrolls under, 23

influence of, on loom activity, 39

Table XXI, 40

influence on employment, 33

Chart H, 34

lack of coordination with Cotton Textile Code, 33

looms installed by years under

Chart A, 16

loom operation under, 33

Table XXI, 40

Table XIV, 26

Chart K, 39

looms owned by operators reporting to, 9, 12, 13

Table I, 10

operators under, and machine load, 33

ownership of buildings and equipment under, 18

Table VI, 19

ownership of looms in Paterson, N. J., under

Table IX, 21

percentage of all-rayon and mixed rayon produced under, 65

price control, 70

pricing practices declared under, 70

principal goods manufactured under, 18

production of broad goods, mills under, 65

Table XXXV, 65

Chart V, 66

rayon weavers under, 18

return goods evil minimized under, 74

terms under, 74

Table XL, 75

variation in employment and available machine hours before,

Chart AA, 88, 89

wages since, 23

Table XVI, 29

weavers in different wage classes since, 23

Chart G, 31

weekly labor hours before and since, 33

Chart I, 35

SILK AND RAYON

changes in firms, 20

Table X, 22

- changes in production and distribution, 18, 49
 confusion of trade practices under N. I. R. A., 74
 industry, composite summary
 Table IV, 15
 ratio of stocks to sales, 71
 Table XXXIX, 71
 Charts X and Y, 72, 73
 technological advance, 44
- SILK AND RAYON INDUSTRY**
 economic significance of, 14, 18
 organization and manufacturing group sizes, 1
 organization and production policy, 1
- SILK, RAW**
 price of—effect on rayon production, 56
 sales terms, 51
- SILK, THROWN**
 financing, 51
 sales terms, 51
- SILK TEXTILE CODE**
 price control, 69, 70
- SILK TEXTILE CODE AUTHORITY**
 design registration, 65
 investment, 18
 Table VI, 19
 loomage, 12
 terms, 74
 Table XLI, 75
- SILK, TRADE PRACTICES**
 confusion under N. I. R. A., 74
- SIMPLIFICATION OF LINES**
 factor in good stock turn, 67
- SKILL**
 occupational—wage adjustment, 23
 degree of—by occupations
 Table XVIII, 32
- STAPLE**
 in style, 60
- STAPLES**
 factor in price control, 70
 printing design, 65
- STOCK**
 monthly average,
 Chart L, 44
 ratio to net sales
 Table XXXIX, 71
- STOCK-CARRYING MILLS**
 capital investment, 18
 Table VI, 19
 compared to commission weavers, 22
 converting own fabrics, 3, 4
 economic function, 51
 equipment, 13
 necessity for merchandising organization, 3, 4
 overhead, 21
 Table XI, 23
 production costs, 23
 Table XIII, 24
 vs. commission weavers; conflict of interests
 as cause of instability, 1
 weaving on commission by, 3
- STOCK-TURN**
 and ratio of stock to sales, 71
 Table XXXIX, 71
 Charts X and Y, 72, 73
- STOCKS, STOCK-TURN**
 ratio to sales, 71
 Table XXXIX, 71
- STOP-MARKS, 9, 13**
- STRETCH-OUT (See Machine Load)**
- STYLES**
 effect on production, 49
 importance of, 60, 65
 progression from couturiers to consumers, 60
 Table XXXI, 61
 rayon underwear demand, 53
 since World War, 50
 Chart N, 50
 sources of American, 60
- STYLE CYCLE**
 causes of, 60
 design printing a factor, 65
 overproduction, 43
 production problem, 14
- STYLE GOODS**
 vs. market limitations, 6
- STYLE PROBLEMS**
 handling of, 4
- STYLE PROTECTION, 65**
- STYLING**
 importance of converters, 3
- SUBSCRIBERS TO SURVEY FUND, iii**
- SUMMARY, STATISTICAL,**
 Table XLIX, 87
- SUPPLEMENT, SUPPLEMENTAL**
 supplementary orders, 71
- TAFFETA**
 plain looms, 12
- TECHNOLOGICAL**
 effect on rayon production, 56
- TECHNOLOGICAL ADVANCE, 44**
- TECHNOLOGY**
 design printing, 60, 65
- TERMS**
 confusion under N. I. R. A., 74
 under codes
 Table XI, 75
- TEXTILE FOUNDATION, DIRECTORS, vi**
- TRADE MARKS, 75**
- TRADE PRACTICES AND DISTRIBUTION, 74**
- TREND**
 consumption vs. price, 56
- TURNOVER**
 trend of ratio of stock to sales, 71
- TURNOVERS, EXCESSIVE**
 one of the reasons for demoralization of the industry, 2
- UNDERWEAR, RAYON, 53**
- UNITED STATES**
 (See America, American, 39, 40)
- UNITED STATES, PRESIDENT OF**
 challenge to industry, 44
- VALUE OF PRODUCTS, 14**
 Tables IV and V, 15
 wearing apparel, retail value
 Chart EE, 93
 women's clothing
 Table XLVII, 85
 (See also Fabrics)
- VELVET CODE**
 terms, Table XL, 74
- VISCOSE**
 rayon manufacturing process, 51
 research product, 44
- WAGES**
 and employment, 23
 and hours of labor
 Table XV, 28
 average hourly
 Chart F, 30
 comparative analysis of,
 Table XVII, 32
 cost of living, 23, 24
 different classes, weavers in,
 Chart G, 31
 geographical analysis
 Table XVI, 29
 paid in foreign countries
 Chart BB, 90
 (See also Employment)
- WEAVES**
 experimental and commercial, 60
 factor in style, 50

piece goods sales, 67
Chart W, 68
WEAVERS
in different wage classes
Chart G, 31
WEIGHTING
uses and abuses, 67
WOOL, TRADE PRACTICES
confusion under N. L. R. A., 74
WOOLEN CODE
Chart XLI, 75

WORKING CAPITAL
factors as a source of supply of, 1
WORLD WAR
influence on fashions
Chart N, 50
YARDS
of broad goods per loom owned
Table XXIII, 42
YARNS
rayon, size grade and filament count
Table XXVII, 51



PRINTED IN THE U.S.A.
BY
MARTIN J. POLLAK, INC.
NEW YORK CITY

X9M73.73 24289
G5

COPELAND (M.T.) &
TURNER (W.H.)
Production & Distribution
of Silk & Rayon Broad Goods

Name of borrower

Lent on

Received
on

25/8

**SERVANTS OF INDIA SOCIETY'S LIBRARY
POONA 4.**

1. Books drawn from the library may not be retained for longer than a fortnight.
2. Borrowers will be held strictly responsible for any damage done to books while they are in their possession.