UNITED STATES DEPARTMENT OF LABOR
WOMEN'S BUREAU

A SURVEY OF THE SHOE INDUSTRY IN NEW HAMPSHIRE

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, SECRETARY
WOMEN'S BUREAU
MARY ANDERSON, DIRECTOR

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By

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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, August 17, 1934.

MADAM: I have the honor to transmit the report of this Bureau's survey of the boot and shoe industry in New Hampshire, made under your instructions in 1933 in response to a request of the Governor. The report covers earnings and their fluctuation, for both sexes; working conditions, with special reference to hazard; scheduled hours; and an inquiry into conditions in the industry in general.

I acknowledge with grateful appreciation the cooperation of the employing firms, who courteously supplied pay-roll data and various other types of information.

The survey was conducted by Agnes L. Peterson, at the time assistant director of the Women's Bureau, who also wrote the preliminary report of the findings. The complete report has been written by Miss Peterson and Harriet A. Byrne, assistant editor.

Respectfully submitted.

MARY ANDERSON, *Director.*

Hon. FRANCES PERKINS,
Secretary of Labor.

A SURVEY OF THE SHOE INDUSTRY IN NEW HAMPSHIRE

Part I.—INTRODUCTION

At the request of the Governor of New Hampshire the Women's Bureau made a survey of wages, scheduled hours, and working conditions in shoe factories in that State during May, June, and the first 2 weeks of July 1933. In the early spring strikes had occurred in the cities and towns of Manchester, Nashua, Derry, Raymond, and Keene, being confined largely to factories making McKay shoes, almost wholly women's shoes. The results of the strikes varied from plant to plant, some closing their doors and removing, some signing with the union before and some after the actual walkout, and others granting wage increases without signing with the union.

Number of plants

According to the census of manufactures of 1931 there were 63 establishments in New Hampshire making boots and shoes other than rubber.[1] Twenty-eight factories in nine cities and towns—Clarement, Derry, Dover, East Rochester, Keene, Manchester, Nashua, Portsmouth, and Raymond—were included in the study made by the Women's Bureau. Four were branch factories operated under one central management, as were 2 of the others, and 2 plants were branches of companies not all of whose branches were surveyed; the remaining 20 were operated under independent management.

Several of the employers interviewed stated that there were too many shoe factories for the output required; plants making cheap shoes had sprung up in great numbers in the past few years. Firms that make high-grade shoes reported difficulty in keeping up to the pace of change in style, and the business in some of these plants had fallen off to a point that threatened extinction.

In a brief [2] prepared by Dr. Charles E. Persons it was said, in effect, that new factories may be set up with ease, since machinery may be leased rather than bought, and shoe-string financing can be reduced to the brass tipping of the string. The shoe manufacturers suffer from a prevalence of a flood of destructive competition which overrides all barriers and undercuts all standards.

Contract shops

Of the 28 plants, 6 factories reported that they operated under contract with some other plant. Only one of these contract shops made the entire shoe. The remaining 5 had some of the operations done elsewhere. One shop engaged in making, lasting, and finishing; 1 in

[1] U.S. Bureau of the Census. Census of Manufactures, 1931. New Hampshire. Release, Apr. 20, 1933.
[2] Persons, Charles E. Brief prepared in support of Labor's proposals for inclusion in the code of fair competition for the Boot and Shoe Industry and presented by several labor representatives at the public hearing, Sept. 12, 1933.

cutting and stitching; another in cutting, making, lasting, and finishing; and the other 2 in cutting, finishing, and packing.

All the contract shops worked on women's McKay shoes and may be considered factories in embryo. The treasurer of one of the larger firms said: "We all began that way, without machines; cut and packed, and let contracts for lasting, finishing, and stock fitting. We employed 5 cutters and 3 to 4 in the packing department. Later we rented lasting and making machines."

Time in present location

The shoe firms included in the survey varied considerably in the length of time they had been established in business in their present location. Only 1 of the 6 contract shops had operated more than a year, the plant tabulated with the McKay plants. Three had operated elsewhere previously. Of the 22 other factories, 1 had operated for 1½ years, another for 3, and another under the present management for 4 years; 7 had operated from 5 to 7 years; and 12 had a record of 10 years and over, 2 of them having been in the same locality for 30 years.

Union plants

Ten of the twenty-eight firms visited operated union plants, the union contracts having been signed in the spring of 1933; all were making McKay shoes. They employed more than one-fourth (26.7 percent) of the 6,292 persons in the plants surveyed. Five were large plants (including the largest contract shop), employing a total of 1,602 persons—751 men and 851 women. The other 5 were the remaining contract plants—the small ones—employing a total of only 69 men and 10 women.

These 5 small shops and the 1 larger contract plant are of interest in operating under union rates and conditions that do not permit an individual to take a contract and hire workers at his own rates, but require that he pay the union scale on all operations. Because together they employed only 10 women, the 5 small shops are not included in the earnings figures in this report, but it is interesting that in the week in 1933 for which pay-roll figures were secured, a date before the strike, they paid 5 of the 10 women less than $8 and 28 of the 69 men less than $10. The sixth contract shop, having more than 100 employees, is tabulated with regular factories in the section on earnings, but it is 1 of 3 firms with a median for men of less than $13 and 1 of 8 firms with a median for women of less than $9.50.

Type of shoe manufactured

The 23 factories (including the largest contract shop) that made a complete shoe may be classified as to product as follows:

Welt shoes exclusively—men's or men's and boys' in all but 2 plants, one of which made children's, women's, and misses', and the other men's, women's, and children's—7 plants.

McKay shoes exclusively—women's in all but 2 plants, which made misses' and children's shoes—14 plants. (Includes the largest contract shop.)

Women's welt and compo [3] shoes (1 plant) and women's compo shoes (1 plant).

[3] This term refers to the method of attaching the sole to the upper part of the shoe.

The machine for making welt shoes, so called, is used for medium and better grades of shoes. By one operation of this machine both the welt (a narrow strip of leather to which the outsole is to be stitched) and the upper are sewed to the insole through the lip of the insole, leaving the inside surface of the shoe perfectly smooth.

The McKay method is very extensively used in medium weight and cheaper shoes for many kinds of wear. The sole is attached to the upper by a machine that sews through the outsole, the upper, and the insole. In this method the stitches appear on the inside of the shoe, and for this reason a strip of lining is pasted into the bottom of the inside of the shoe to cover up the stitches.

The compo method of shoemaking is one in which the sole is attached to the upper by cement, put on by a machine process. No sewing or tacks are required.

According to a statement of someone in the industry, Goodyear welt in women's footwear has been supplanted in a large measure by the McKay shoe, and this must compete with the quicker method of construction, namely, compo type. Fewer shoe workers are needed because many operations on each of these types of shoes have been eliminated.

Occupations

In a discussion of workers employed in any industry it is well to acquaint the reader with the occupations in which they are engaged. Variations from plant to plant were noted in the departments as well as in the occupations. A general classification of the departments in the shoe industry is as follows:

1. Upper leather or cutting.
2. Sole leather.
3. Stitching or fitting.
4. Lasting.
5. Bottoming.
6. Finishing.[4]
7. Treeing, packing, and shipping.[4]

For purpose of tabulation in this study the following combinations have been used, and the workers distributed in the departments as mentioned below:

1. Cutting (including 1 of foregoing).
2. Stitching (3).
3. Stock fitting (2).
4. Making; lasting (4 and 5).
5. Finishing; packing (6 and 7).

Upper-leather or cutting departments.—Here the leather is cut by hand or machine into the parts for the uppers of shoes; the cloth trimmings, parts, and linings are cut by machine in another section of this department. The edges of the pieces are beveled or skived so as to be ready for stitching. All the pieces are counted and marked with the proper size, assembled, and sent to the stitching or fitting department. The cutting is done by men, though women are employed in this department as skivers, counters, and markers.

Stitching or fitting department.—The pieces that make up the top of a shoe are sewed and fitted together in this department. There are many different sections, each with a different type of operation. Vamping, tip stitching, and edge stitching are the most important. Vamping is particularly important, and in some factories men are being employed at this job. However, the major part of the operators are women and girls, most of whom must be able to operate power machines.

[4] These last two considered as "finishing" in Bureau of Labor Statistics Bul. No. 579.

Stock-fitting department.—Here part of the work of the sole-leather room, so called in some factories, is done. The soles are cut and prepared for use by being made the proper size and thickness. The insoles to be used in making welt shoes are channeled, i.e., a ridge is formed around the edge of the insole for attaching it to the upper. Counters, toe boxes, and heels are prepared in this department. The work here is largely a man's job.

Making; lasting.—Since in some of the factories included in the study "making and lasting" were included in one department, this classification has been given here. The term "making" frequently is used to cover both lasting and bottoming, but here it is used to mean only bottoming.

In the lasting department the finished upper, the insole, the counter, and the toe box are brought together. Here the insole is tacked to the last (a wooden mold shaped like a human foot) and the upper, the toe, and the counter are put in place. The next operation, done by machine, is "pulling over" the shoe, which consists of pulling the upper tightly into place so that it fits evenly and smoothly, and driving temporary tacks to hold the various parts in position for the next operation.

The work of bottoming or "making" the shoe depends upon the type of shoe being made, as explained elsewhere.

Proportionately few women are employed in either the making or lasting departments.

Finishing; packing departments.—Although there are four distinct processes, finishing, treeing, packing, and shipping, before the shoe leaves the factory, these are here considered as finishing and packing.

In the finishing departments the edges of the soles are covered with black or some other colored dressing and the bottoms of the shoes are cleaned, stained, and polished. The shoes are cleaned by the treers, ironed, and given a coat of polish. After the final inspection and the stamping of the name in the shoes they are ready for packing and shipping. In the packing room the shoes are paired, brushed, wrapped in tissue paper, and boxed for shipping.

More nearly equal numbers of men and women are employed in these departments than in any other division of a shoe factory.

Though machines are used exclusively in the boot and shoe industry, work in a shoe factory rarely means mere machine tending. A large part of the workers are highly skilled. Cutters, for the most part hand operators, are most expert workers. In the stitching department, where chiefly women are employed, the parts must be quickly and accurately assembled and stitched perfectly. The men and the comparatively few women employed in the lasting departments are responsible for the fit and appearance of the shoe, and for this reason only skilled workers are employed here. Edge trimmers work on a machine, and like the McKay sewers and Goodyear welters they are most skilled workers.

Number of workers—pay-roll data, 1932, 1933

To secure data showing comparative earnings of men and women, such figures were secured for all productive shoe workers in the plants included in the survey.

Facts concerning employment in each factory for a week in 1933 preceding the time of strike activities—the various weeks selected by the employers as representative of full employment—were secured

for 6,292 workers, 3,032 women and 3,260 men. Earnings week by week for all time worked in 1932 were recorded for 10,092 persons—5,094 women and 4,998 men. (See table 1.)

TABLE 1.—*Scope of earnings information, by type of shoe*

Type of shoe	Number of plants	Number of employees with—					
		Earnings reported for 1 week in 1933			Earnings reported for all weeks worked in 1932		
		Total	Men	Women	Total	Men	Women
Total—Number	28	6,292	3,260	3,032	10,092	4,998	5,094
Percent		100.0	51.8	48.2	100.0	49.5	50.5
Welt	7	2,101	1,212	889	2,717	1,544	1,173
McKay	14	3,533	1,679	1,854	6,621	3,080	3,541
Other [1]	2	579	300	279	754	374	380
Contract	[2] 5	79	69	10	([3])	([3])	([3])

[1] 1 made compo shoes only; other compo and welt.
[2] These 5 contract shops made McKay shoes; not included in tabulation on earnings because of small numbers—only 10 women employed.
[3] Not reported.

In the present survey of the shoe industry in New Hampshire four important facts stand out—

1. The complex division of operations, varying from factory to factory.
2. The extensive use of machines in contrast to much hand work in earlier times.
3. The prevalence of the piece-rate system of payment, resulting in irregular earnings for many workers.
4. Great loss in earning power due to unemployment, either partial or complete, and to cuts in wages.

STATISTICAL SUMMARY

Date of survey: May, June, and first half of July 1933.
Scope: 28 factories in 9 cities—Claremont, Manchester, Dover, Derry, Keene, Nashua, Raymond, East Rochester, and Portsmouth.
Ownership: 20 plants were operated under independent management and 8 were owned by persons controlling other shoe factories.

Type of plant:

Six plants were contract shops; 1 having all operations is tabulated with the regular factories. These latter made: Welt shoes only, 7 plants; McKay shoes only, 14; welt and compo and compo only, 2.

Number of employees: [5]

Welt plants, 1,212 men, 889 women.
McKay plants, 1,679 men, 1,854 women.
Compo plants, 300 men, 279 women.
Small contract plants, all McKay (5), 69 men, 10 women.
Total, 3,260 men, 3,032 women.

Union plants: 10 firms had signed union contracts since strike in the spring. All were McKay plants. They employed about 27 percent of the 6,292 persons in all 28 plants. Five were large plants and 5 were the small contract shops.
Scheduled hours: Ranged from 8½ daily and 47⅓ weekly in 1 plant to 9⅝ daily and 54 weekly in another.

[5] Number employed in a week in the spring of 1933, see p. 11.

Median earnings in a full week, 1933: [6]

	Range of medians
7 welt plants:	
Men	$11.50 to $23.75
Women	6.35 to 17.40
12 McKay plants:	
Men	12.65 to 27.55
Women	5.90 to 13.25
1 compo plant:	
Men	21.00
Women	15.25

Lowest and highest earnings, 20 plants, week in 1933:	Percent of men	Percent of women
Below $5	0.5 to 15.8	0.6 to 42.9
$30 and over	.5 to 35.4	.6 to 2.7

Average earnings for all weeks worked in 1932:

	Range of medians
7 welt plants:	
Men	$9.80 to $21.45
Women	5.60 to 16.15
14 McKay plants:	
Men	5.50 to 16.10
Women	3.30 to 11.20
2 compo plants:	
Men	9.80 and 16.00
Women	7.50 and 12.20

Weeks worked in 1932:

13 weeks or less:
Percent of men, from 14.4 in welt to 44.2 in McKay.
Percent of women, from 14.7 in welt to 47.1 in McKay.

Over 39 weeks:
Percent of men, from 28.5 in McKay to 71.8 in welt.
Percent of women, from 24 in McKay to 66.2 in welt.

IMPORTANCE OF THE INDUSTRY

To better understand the importance of the boot and shoe industry, one must consider the figures giving the number of shoe workers employed and the amount and value of the products. Under normal conditions the output of this industry for the country as a whole was valued at a billion dollars annually (figures for 1923); one-quarter of this, or 250 million dollars, was distributed in wages. These wage payments dropped approximately one-tenth from this level in 1925 and again in 1927, and even more in 1929; they had fallen by more than one-third, to approximately 163 million, in 1931.[7] An estimate of wages paid in 1932 was given as about 130 million, or a decrease from the normal of close to one-half. During the first part of 1933 a decline at a similar rate was noted.

In New Hampshire, the State in which the present survey was made, the value of products in the boot and shoe industry in 1927 was close to 50 million dollars; about one-fourth of this was distributed in wages. In 1929 the value of products had increased about one-third, to close to 67 million dollars, and wages had increased from 12 million to about 15 million, but for a much larger average number of wage earners, 14,544 instead of 12,114. The number of establishments had increased from 63 in 1927 to 73 in 1929.[8]

[6] See first paragraph on p. 11.
[7] U.S. Bureau of the Census. Fifteenth Census, 1930. Census of Manufactures, 1929, vol. II, Reports by Industries, p. 802; ibid., 1931, Release, Dec. 30, 1932.
[8] Ibid., 1929, vol. II. Reports by Industries, p. 803.

A decided drop was noted in 1931, when the number of establishments, wages distributed, and value of products were not unlike those of 1927. The average number of wage earners was larger, 13,847 as compared with 12,114, though less than that for 1929.[9]

In the census of occupations of 1930[10] close to 230,000 persons reported their occupation as in the shoe industry, approximately 210,000 operatives and somewhat less than 20,000 laborers. This was an increase of only 1.3 percent over the number in 1920, a high peak having been reached but not held at some time during the decade. As will be seen from the summary following, about two-fifths of the operatives and one-fourth of the laborers were women.

Shoe workers in 1930 [1]	Total	Men	Women
Total	228,317	142,024	86,293
Operatives	209,928	128,377	81,551
Laborers	18,389	13,647	4,742

[1] U.S. Bureau of the Census. Fifteenth Census, 1930. Population, vol. V. General Report on Occupations, pp. 42, 44.

During the past 10 years a great deal of distress has been caused by apparent overproduction, resulting in the sale of millions of pairs of shoes below cost. It has been estimated that 300 million pairs represent the highest volume of production that can be absorbed at fair prices and permit the payment of fair wages. In a period of 5 years, 1928 to 1932, production in the United States varied from somewhat more than 304 million pairs of shoes in 1930 to about 361½ million pairs in 1929.[11]

In New Hampshire the production of shoes in this same period ranged from 20½ million pairs in 1932 to about 23 million pairs in 1929. From these figures for 1932,[12] New Hampshire is found to rank fifth among the States as regards output of shoes, and according to the census of 1930, fourth in the numbers employed.[13]

The total production of men's shoes in the country during these 5 years was over 400 million pairs, an average of 83 million a year.[14] In this same period about 600 million pairs of women's shoes were made, an average of almost 120 million a year. Production was much more constant in the manufacture of men's than of women's shoes. Of the former, almost 4¾ million pairs were produced in the slackest month (November 1930) and 9½ million in the peak month (October 1929), and production was within 25 percent of the average for the 5-year period in 52 of the 60 months. In contrast to this, the production of women's shoes varied from less than 4 million pairs (November 1931) to over 14 million (August 1929), and production was within 25 percent of the average in only 42 of the 60 months.

During these same 5 years production fluctuated to a greater extent in New Hampshire than in the United States as a whole. The output

[9] U.S. Bureau of the Census. Census of Manufactures, 1931. Release, Apr. 20, 1933.
[10] U.S. Bureau of the Census. Fifteenth Census. 1930. Population, vol. V. General report on Occupations, pp. 42, 44.
[11] U.S. Department of Commerce. Press releases on "Production of Boots and Shoes in the United States, by States and Principal Classes," 1928–32.
[12] Idem.
[13] U.S. Bureau of the Census. Fifteenth Census, 1930. Population, vol. IV, Occupation by States.
[14] U.S. Bureau of the Census. Press releases on the "Production of Boots and Shoes in the United States, by States and Principal Classes," 1928–32.

of men's shoes varied from a high point of somewhat over a million pairs in August 1929 to a low point of 415,000 pairs in December 1931, and was within 25 percent of the average in only 43 of the 60 months. The high and low in the production of women's shoes were respectively over a million pairs in September 1932 and only 232,000 pairs in November 1931, output being within 25 percent of the average in only 33 of the 60 months.

Though a decrease in output of both men's and women's shoes occurred in the country as a whole from 1929 to 1932, in New Hampshire there was a decided increase in the output of women's shoes. From 1928 to 1932 somewhat over 42 million pairs of men's shoes were made in the State, an average of almost 8½ million a year. In the same period nearly 40 million pairs of women's shoes were made, an average of almost 8 million a year. While the production of men's shoes in 1932 was only 70 percent of the production in 1928, approximately 7 million pairs as compared with 10 million, the output of women's shoes increased by 50 percent, from about 6 million to 9 million pairs.

Part II.—IRREGULARITY OF EMPLOYMENT

Irregularity of employment has long been a problem in the shoe industry, for workers supposedly regularly employed often are without work for hours at a time. These enforced idle hours decrease the earnings of shoe workers, mainly pieceworkers, to a degree far greater than the public realizes, yet they have come to be an accepted state of affairs by shoe management and workers. In some factories the workers look upon the irregularity as beyond the control of management, and so it is tolerated without the discussion that it deserves and that would acquaint the public with this great problem.

Sometimes the causes of irregularity are ill-balanced crews, careless management, or changes in the character of shoes ordered. Other causes are beyond the control of management; for example, the breaking down of machinery in one department affects the flow of work on subsequent operations. Cutters may be working full time and overtime while the remaining factory workers wait for their work to come through, or the cutters may be "timed out" while other sections are still working under press of orders. Fancy stitchers may loaf [1] while plain shoes are being made. Perforators and other specialists may be laid off while models not calling for their skill are produced. Seasonal aspects of orders on some types of shoes frequently are responsible for an intermittent flow of work.

The owner of two of the plants included has given the following as reasons for the seasonal nature of the industry.

> The principal reason for the seasonal nature of the shoe industry is that purchasers, particularly women, buy to a large extent on basis of style, color, and so forth. Shoes, particularly women's, are not a standardized product. Public taste is fickle. Styles and colors, sizes and widths, cannot be told long in advance. Between seasons, manufacturers produce stock of staple variety. It is impossible to forecast correctly all requirements of trade, and any attempt to do so results in errors and forces sales below cost—a condition most demoralizing to business. A certain flexibility in production is required; for instance, production must be stepped up to make a new style which meets popular favor, and quickly reduced when the demand falls off and the new style is less salable.

It was claimed that regularity of employment appears more assured in men's than in women's shoes, since for the past 3 years the pattern makers have indulged in an orgy of constantly changing fashions in women's cheaper shoes. One owner stated that the life of any one type of McKay shoe (mainly women's) is about 3 weeks.

A firm that expressed regret about time wasted in waiting for work makes a practice of giving out information in advance with regard to thinning out, or a slowing up or intermittent flow of work, and encourages workers to go home early on these days if they choose to do so, rather than insisting on their staying around in case work should come in later. This policy is followed to good advantage, the stitchers

[1] Loaf or loafing in the vernacular of the shoe worker means enforced idleness, and must not be confused with the meaning of the word "loafing" as used generally.

(women) especially seeming to appreciate this consideration. They are said to be glad of a few hours off for personal matters when their earnings are not curtailed more than those of others.

It was said of a few firms that workers in some departments were not allowed to leave even though there was not enough work on hand to be divided among all. Justification for a flexibility in hours was claimed by the manufacturer just quoted. He argued that—

> Since flexibility in demand due to conditions that the shoe manufacturer cannot control causes flexibility in production, there must be flexibility of hours. Manufacturers should be allowed to operate a greater number of hours at one time than at another. This follows not from the wishes of the shoe manufacturer but from the fact that the public demands the kind of shoes it wants and at the times it wants them.
>
> Better one body of employees working on a flexible schedule a reasonably longer day at one time and shorter day at another than a number of employees working only during brief periods of peak load and otherwise unemployed.

In commenting on the effect of reducing hours of work to a 40-hour week he said that—

> Additional cost due to the reduction of hours to 40 would not only result in a direct increase in cost of labor, but . . . more machines, lasts, dies, and patterns would have to be procured and utilized to produce even the same number of shoes.

The attitude of the industry toward regulation was expressed by him when he stated that—

> Regular hours of employment and operation tend to economy and efficiency. The inability to achieve regulation of hours is due not to a lack of effort or desire on the manufacturers' part, but to conditions which they have been unable to control.

OVERTIME

Considering the year in which this survey was made, it is not surprising to find the firms reporting only occasional overtime, or none at all, during the year. One company reported some overtime the week before Easter; another firm made a practice of continuing work until 6 p.m. daily, and sometimes on Saturday afternoon, to make up for holidays. There were various other instances, but for the most part the firms reported undertime rather than overtime, due to poor conditions in the industry.

SCHEDULED HOURS

No data were available on the actual hours of work of individuals for whom wage records were secured, though one firm kept a record of days worked.[2] In most plants data on days worked could have been computed and in some plants an estimate of hours worked probably could have been made, built up from production and piece-rate records, if time had permitted an examination of the daily production slips from which entries on the pay roll are made—a long and costly process.

In selected week, 1933

It is especially unfortunate that data on actual hours of work were not available, and that only scheduled hours of plant operation could be recorded. However, when it is understood that these scheduled hours—i.e., the hours that the plants operated at the time the wage

[2] A law of 1933 in New Hampshire now requires that every employer of women and minor workers shall keep a true and accurate record of the hours worked by each.

data were taken in 1933—usually indicated the time that the average worker was on duty in a plant, even though not actually working, it is clear that information on scheduled hours is significant, since in most plants the employees were expected to be on hand in case work turned up.

To secure a record of practically full-time employment throughout the plant, it was suggested to each firm that if one pay period did not cover full-time work in all departments, the week of fullest employment in each department might be selected, regardless of date. The request was made that the weeks selected should precede the date of the strike. Only three firms found it necessary to stagger the weeks reported, and in each of these the weeks were consecutive and indicated the flow of work from one department to another.

Scheduled daily and weekly hours of work for 1 week in 1933 were reported by the 28 plants. All but 4 of the plants reported a daily schedule of 8⅔ or 9 hours, equal numbers of plants reporting these. In only 1 plant were the daily hours less than 8⅔ and in only 3 (2 McKay and 1 compo) plants were they greater than 9. Twelve of the nineteen McKay factories—not far from three-fifths (57 percent) of the workers were in McKay plants—had scheduled daily hours of 9 or more, as compared with only 3 of the remaining 9 factories. The maximum daily schedule was 9 hours and 50 minutes, reported by 1 plant making McKay shoes.

As would be expected from the daily hours, the scheduled week varied. An equal number of plants, 11, reported a scheduled week of 48 and of 50 hours, respectively. Eleven of the nineteen McKay factories had scheduled weekly hours of 50 or more, as compared with only 3 of the 9 welt and other factories. Only 1 plant operated less than 48 hours a week, and 3 more than 50; 1 had a scheduled week of 54 hours.

The code now in effect in the shoe industry provides for a 40-hour week. See page 16 for a fuller discussion of the code.

TABLE 2.—*Scheduled hours of work during selected week in 1933, by type of shoe*

Type of shoe	Number of employees			Number of plants reporting	Plants having scheduled daily hours of—			Plants having scheduled weekly hours of—		
	Total	Men	Women		8⅔	9	Over 9 and less than 10	48	50	51 to 54
Total	6,292	3,260	3,032	[1] 28	[2] 13	12	3	[3] 13	[4] 12	3
Welt	2,101	1,212	889	7	5	2	----	5	2	----
McKay	3,612	1,748	1,864	[1] 19	[2] 7	10	2	[3] 7	[4] 10	2
Other	579	300	279	2	1	----	1	1	----	1

[1] Includes 5 contract shops not included in earnings tables.
[2] Includes 1 plant with 8½-hour schedule.
[3] Includes 1 plant with a 47½- and 1 with a 48½-hour schedule.
[4] Includes 1 plant with a 49-hour schedule.

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WEEKS WORKED IN 1932

For a much larger group (10,092 workers) than was reported for 1 week in 1933, data were secured as to weeks worked in 1932. These data support the statements in the foregoing with reference to periods of idleness and suggest heavy turn-over in some plants.

Sufficient data on which to compute labor turn-over rates were not secured by the Women's Bureau, but it was possible to obtain from unpublished material of the Bureau of Labor Statistics facts regarding turn-over for 4 of the plants included in this study. For these plants—3 welt and 1 McKay—the annual net turn-over rate for 1932 ranged from 15.71 to 41.69. This highest turn-over rate was for a plant making McKay shoes for girls, misses, and children, and the next, 31.05, was for a welt plant making women's, misses', and children's shoes. The net turn-over rate for this same year for all the plants in New Hampshire cooperating with the Bureau of Labor Statistics was 9.37, as compared with 28.62 for all boot and shoe plants in the United States from which data were received by that Bureau.

Great differences were noted between welt and McKay plants, and also between men and women, in number of weeks worked. In all cases women had worked fewer weeks than men had worked.

The summary following shows for 4,998 men and 5,094 women the percentages working for specified periods in 1932:

Weeks worked in 1932	Welt (7 plants)		McKay (14 plants) [1]		Other (2 plants)	
	Men	Women	Men	Women	Men	Women
Total—Number	1,544	1,173	3,080	3,541	374	380
Percent	100.0	100.0	100.0	100.0	100.0	100.0
4 weeks and less	7.8	6.7	25.3	24.5	10.4	13.7
5 to 13 weeks	6.6	8.0	18.9	22.6	7.2	8.9
14 to 26 weeks	7.4	8.4	17.4	18.3	10.7	9.5
27 to 39 weeks	6.3	10.7	9.8	10.6	9.4	8.2
40 to 47 weeks	10.1	9.5	13.8	13.2	12.0	14.2
48 to 52 weeks	61.7	56.7	14.7	10.8	50.3	45.5
52 weeks (12 months)	10.9	6.1	3.9	1.6	27.0	16.1

[1] Excludes 5 contract shops.

In McKay plants large proportions of men as well as of women were on the pay rolls for only short periods, well over two-fifths of the men and close to one-half of the women being employed not over 3 months. Only about one-seventh of the men and one-tenth of the women worked 11 months or more, less than 4 percent of the men and less than 2 percent of the women working the full 52 weeks. In contrast to this, more than three-fifths of the men and not far from three-fifths of the women in welt plants were on the rolls at least 11 months, and employment for as little as 3 months was reported for only about 1 in 7 of the men and a similar proportion of the women. More than 10 percent of the men and 6 percent of the women in these factories had worked for 52 weeks. In the two remaining plants, about one-sixth of the men and more than one-fifth of the women were employed not more than 3 months, and one-half of the men and a somewhat smaller proportion of the women were on the rolls at least 11 months. In welt plants about 7 percent of the men

and of the women, in contrast to about one-fourth of the men and women in McKay plants, were on the rolls not more than 4 weeks.

Briefly, it was probably due largely to McKay plants having taken on extra workers for rush periods that 44 percent of the men and 47 percent of the women had worked less than 14 weeks. In the other plants, with fewer style changes and more regular employment, the largest proportions had worked 11 months or more.

Some plants closed for a week about Christmas or July 4th for stock taking and to make repairs, unless business was pressing. It is due partly to this practice that such small proportions had worked the full 52 weeks.

That the efforts of one firm (two branch factories covered) to stabilize employment, mentioned in the section on "Earnings in various plants", have been successful is shown by the larger proportions of both men and women employed for 11 months or more in these plants than in all welt plants combined. Three-fourths of the 544 men and somewhat more than seven-tenths of the 362 women employed in the two factories had worked for as long as this, in contrast to about three-fifths of the men and less than three-fifths of the women in all the welt plants included. The plant referred to closed for the week in which fell July 4th.

TIME WITH THE FIRM

The time they had been with the present employer was reported for more than four-fifths (81.2 percent) of the men in welt factories in 1932. Of these 1,254 men, almost two-thirds (64.8 percent) had been in the employ of the firm for 5 years or more, and close to one-fourth (23.9 percent) for 10 years or more. Only about 1 in 20 had worked less than 2 years.

For about three-fourths (76 percent) of the women in these factories time with the firm was reported. Not far from three-fifths (56.9 percent) of the 891 women had been employed for 5 years or more, and more than one-sixth (17.4 percent) for as long as 10 years. A smaller proportion of women than of men had been with the firm less than a year.

Time with the present firm was reported for only about one-half of the men in McKay factories. Of these 1,593 men, just over one-sixth (17.3 percent) had been employed as long as 5 years; close to one-third (30.7 percent) had been with the firm less than a year. This information was reported for a similar proportion of women. Only one-ninth (11.2 percent) of the 1,711 women had been with the employer as long as 5 years; for almost two-fifths (37.9 percent) the time was less than a year.

In the plants making welt and compo or compo shoes only, the time with the present firm was reported for 309 men, more than four-fifths (82.6 percent) of the total in these plants. More than one-half (54 percent) had been with the firm 5 years or more, and very few had worked less than a year. More than half the women for whom this was reported had been with the firm 5 years or longer, and a very small proportion had worked less than a year.

Part III.—FLUCTUATION IN THE PRODUCTION OF SHOES

In the United States, 1928 to 1932

Mention was made in the introduction of the great fluctuation in the production of shoes during the 5 years 1928 to 1932, with the average for 5 years used as a base. In the following discussion the average for the 12 months of 1929 has been used as the base, since this is the first year for which figures are available for the factories in the present survey.

It has been stated that fluctuation from month to month was greater in the production of women's than of men's shoes in the 5-year period. As may be seen from the following, the greatest variation between high and low months in the production of women's shoes was the 84.5 points in 1931, while the greatest in men's shoes was the 40.5 points in 1929. The least variation in women's shoes was the 57.8 points in 1928, and for men's the 35.9 points in 1930. Viewed from another angle, it may be seen that the variation in the index for the production of men's shoes in the 5-year period was less than 5 points (35.9 to 40.5), while for women's shoes it was almost 27 points (57.8 to 84.5).

Variation in index number between highest and lowest month of shoe production, United States, 1928 to 1932

Year:	*Men's shoes*	*Women's shoes*
1928	36. 2	57. 8
1929	40. 5	64. 7
1930	35. 9	62. 3
1931	39. 7	84. 5
1932	36. 9	74. 9

In New Hampshire, selected plants, 1929 to 1932

In this study the production of shoes over the 4-year period, 1929 to 1932, in some of the plants was obtained as an indication of the trend of business in the shoe industry. When the production is high, employment is high also; and when production is low, employment is adversely affected. For 9 plants—4 McKay, 3 welt, and 2 others—the index of production for this period was computed with the monthly average for 1929 as a base. In the following summary the differences between high and low months may be seen.

Variation in index number between highest and lowest month of shoe production, 9 New Hampshire plants, 1929 to 1932

Plant	1929	1930	1931	1932
Welt:				
1	47. 6	44. 1	50. 2	52. 9
2	44. 1	40. 0	51. 4	45. 3
3	98. 9	37. 8	84. 4	53. 3
McKay:				
4	131. 4	126. 2	110. 6	134. 7
5	129. 0	111. 8	175. 1	141. 9
6	147. 4	107. 8	153. 6	217. 9
7	244. 0	91. 0	144. 1	309. 5
Other:				
8	99. 1	118. 8	129. 2	106. 1
9	147. 7	110. 8	97. 6	57. 0

As was true for the country as a whole, little variation was noted in the welt factories making men's or men's and boys' shoes. The greatest difference was about 100 points for one plant in 1929, while for the other two the differences were only about half as much.

The greatest variation in the monthly indexes in 3 of the 4 McKay plants, all making women's shoes, was for 1932. The differences ranged from 134.7 points in 1 factory to 309.5 points in another. Such fluctuations in production were accompanied by like variations in the numbers employed, the results of which will be seen in the payroll data for 1932.

For the two other plants, conditions were between the extremes of welt and McKay.

The shoe industry has an unenviable position as regards seasonality, holding fourth place in the degree of seasonal unemployment among 24 important industries whose records for a 9-year period ending in 1931 were examined. In the degree of seasonal unemployment the shoe industry was exceeded only by women's clothing, automobiles, and cement.

It has come to be recognized that the peak of production in the spring is early, close to Easter, and in the fall the high point is in September or October. In this study the production records for the 9 McKay plants show August and September as the months of greatest productivity, with March in third place. For the 7 welt and the 2 other plants, February and March (pre-Easter) outranked the other months.

From the summary following may be seen the rank of the months as regards production in 1932 in the three types of plants.

Rank of months as regards production: Pairs of shoes produced in 18 New Hampshire plants in 1932

Welt (7 plants)		McKay (9 plants)		Other (2 plants)	
Month	Number of pairs	Month	Number of pairs	Month	Number of pairs
March	430, 820	August	383, 104	February	75, 960
February	427, 610	September	352, 036	March	71, 484
January	376, 167	March	313, 059	August	65, 389
August	367, 691	October	284, 550	October	59, 456
April	321, 171	February	272, 898	January	59, 004
June	316, 255	April	257, 530	April	58, 008
October	306, 699	January	198, 356	July	55, 432
September	294, 425	June	193, 096	May	54, 540
May	289, 525	July	177, 851	September	47, 382
November	268, 680	May	170, 312	December	37, 357
July	236, 198	November	102, 941	June	34, 387
December	235, 961	December	63, 560	November	18, 540

Part IV.—EARNINGS

The pay-roll data secured in the New Hampshire survey comprise the earnings of all persons employed on production week by week in 1932 and the earnings for a week of full employment preceding the period of union activities in the spring of 1933. The 1932 figures, from which average weekly earnings for each individual have been computed, are a valuable record of fluctuation in employment and earnings, although—to quote one of the owners—1932 was the year of lowest ebb in the industry and for this reason a poor one on which to base any calculation. As shown earlier in this report, the amounts paid in wages in the country as a whole and in New Hampshire had decreased tremendously, while the numbers employed in New Hampshire had increased.

In addition, some material on basic rates for specific occupations was secured, from which data interesting conclusions have been drawn.

The numbers of employees for whom pay-roll records were obtained, with the medians of their earnings, are shown in table 3.

TABLE 3.—*Median earnings for 1 week in 1933 and median of average earnings for all weeks worked in 1932*

Type of shoe	Number of plants	For 1 week in 1933						For all weeks worked in 1932				
		Total employees		Men		Women		Total employees	Men		Women	
		Number	Median earnings	Number	Median earnings	Number	Median earnings	Number	Number	Median of average weekly earnings	Number	Median of average weekly earnings
Welt	7	2,101	$14.95	1,212	$17.55	889	$11.50	2,717	1,544	$15.20	1,173	$10.00
McKay	14	3,533	12.05	1,679	15.85	1,854	9.45	6,621	3,080	11.70	3,541	6.60
Other [1]	2	579	17.40	300	20.35	279	14.85	754	374	15.10	380	11.45
Contract [2]	5	79	11.50	69	11.90	10	(3)					

[1] 1 plant made compo shoes only; the other, compo and welt.
[2] These 5 contract shops made McKay shoes; not included in tabulations on earnings because only 10 women employed. No report for 1932.
[3] Not computed; base less than 50.

Code of fair competition in boot and shoe industry

The code for the boot and shoe industry, approved October 3, 1933, by President Roosevelt, became effective on October 13. As approved, it provides for a 40-hour week and minimum wages varying, according to the hourly rates set, from $14 to $15 for a 40-hour week for men and $12 to $13 for a 40-hour week for women, depending on size of the community.

These differentials in wage rates based on the size of manufacturing centers were considered serious by some persons. One of the chief handicaps of labor and industry has been the tendency of employers to move their plants from relatively high-wage markets so as to take advantage of a lower scale. In the case of the shoe industry the tendency is particularly dangerous because of its already over-equipped condition. No figures are available to show the abandonment of equipment in larger towns in the course of retreat to smaller centers. The census figures for Massachusetts, the most important shoe-manufacturing State, indicate what has occurred there in contrast to certain neighboring States.

In the 12 years from 1919 to 1931 the number of wage earners in the boot and shoe industry dropped 40.5 percent in Massachusetts, 7.9 percent in Maine, and rose 12.2 percent in New Hampshire.

State	Average number of wage earners			
	1919	1927	1929	1931
Massachusetts	80,166	55,986	55,093	47,664
Maine	9,919	9,740	9,967	9,138
New Hampshire	12,336	12,114	14,544	13,847
	Percentage change			
	1919–27	1927–29	1929–31	1919–31
Massachusetts	−30.2	−1.6	−13.5	−40.5
Maine	−1.8	+2.3	−8.3	−7.9
New Hampshire	−1.8	+20.1	−4.8	+12.2

In New Hampshire only 4 cities have a population of over 20,000 and only 2 of these, Manchester and Nashua, are shoe manufacturing cities. In other words, all the small cities and towns will be allowed to base their wages on the lower rate, as given in the code.

Earnings in the various plants

As will be seen from table 4, the retail prices of the shoes made in the factories surveyed ranged from 90 cents to $4 for McKay shoes, mostly women's; from $1.75 to $10 for welt shoes, mostly men's; and from $4 to $6 for compo shoes, all women's. Manufacturers say that the type and retail price influence wages to a degree that requires a consideration of these factors. Rates were said to be higher on work in which a good grade of leather was used than on cheap leather or cloth. For neither welt nor McKay shoes, in general, however, do the medians of earnings indicate the payment of higher rates for the higher-priced shoes, which suggests the influence of other factors. Rates were said to be higher on processes involved in welt manufacture than in McKay, and the earnings figures seem to support this statement.

The cost of shoes has always figured prominently in the success of selling, but it was stated repeatedly that for some time shoes have been sold not according to cost of production but under what is called a buyers' market, where the retailer sets the price of the shoes desired and the manufacturer must meet that price or lose the sale.

This situation is held to be due to the increasing demand for cheap shoes; to the costs of selling and the competition with corporations having many local branches and a centralized sales department; and to unfair and unregulated practices in producing shoes and selling to the retailer. Few shoes sell themselves, and successful selling on the part of one firm often brings about unsuccessful selling for another, resulting in overtime in the one case and the inability to give work to the employees in the second.

The manufacturers of shoes hold that a record of 1 week's earnings from any factory is insufficient to indicate earnings in that factory and even less sufficient as a sample of earnings in the shoe industry as a whole. Nevertheless, in the absence of any definite information on hours of work, the 1933 wage data presented for the shoe factories of New Hampshire may be accepted as a sample of a full week in the factory. In each instance the pay roll taken was selected because the firm considered it the week of fullest operation before the strike activities, and in no case was undertime reported for the week selected. Three plants were, however, running much below normal production.

Median earnings, by plant

The medians of the average weekly earnings for 1932 and of the week's earnings for 1933, tied up with the retail prices of shoes, are shown in table 4.

TABLE 4.—*Median of earnings for selected week in 1933 and median of average weekly earnings in 1932, by plant*

Type of shoe and range of retail prices	Plant no.	Median of earnings for selected week in 1933		Median of average weekly earnings in 1932	
		Men	Women	Men	Women
Welt shoes (7 plants): $1.75 to $10		$17.55	$11.50	$15.20	$10.00
	1	23.75	17.40	20.30	15.60
	2	23.00	16.60	21.45	16.15
	3	14.55	10.10	13.90	8.25
	4	11.50	6.35	10.10	5.60
	5	17.75	13.30	14.90	11.05
	6	16.15	9.85	14.55	9.85
	7	15.30	12.75	9.80	7.00
McKay shoes (14 plants): $0.90 to $4		15.85	9.45	11.70	6.60
	8	12.75	9.25	6.65	4.10
	9	(1)	(1)	5.50	4.60
	10	20.45	13.25	12.50	8.95
	11	15.15	11.55	13.30	8.35
	12	16.15	5.95	7.75	3.30
	13	16.20	5.90	10.50	4.60
	14	14.00	9.05	10.25	6.25
	15	(1)	(1)	12.15	6.90
	16	12.65	6.85	11.30	6.85
	17	27.55	12.15	16.10	7.55
	18	15.30	11.35	11.95	7.00
	19	20.90	10.05	12.80	7.00
	20	14.80	9.30	15.60	11.20
	21	14.75	9.05	15.10	8.00
Other shoes (2 plants): $4 to $6		20.35	14.85	15.10	11.45
	22	(1)	(1)	9.80	7.50
	23	21.00	15.25	16.00	12.20

[1] Not computed; base less than 50.

Women's earnings were much lower than men's, averaging in a number of cases less than half. In 9 of the 20 plants medians for women in a week in 1933 are below $10, 4 of them being below $7. That the medians for women range from $5.90 to $17.40 and those for men from $11.50 to $27.55 indicates the great differences among the firms at that time.

The figures for 1932 in the table show that the medians of the average weekly earnings were, in all but 2 firms, lower than the medians for the sample week for 1933.

The differences in wage levels among the plants are apparent from the high and low medians selected from the previous table and presented in the summary following. They show lack of any standardization of wages and the great need for legislation and attention by the State with regard to employment conditions in the industry that resulted in the minimum-wage law of April 1933. The two compo plants are omitted because they afford no basis for selection.

	Median earnings of men		Median earnings of women	
	Weekly average in 1932	1 week in 1933	Weekly average in 1932	1 week in 1933
Welt shoes:				
Highest amount	$21.45	$23.75	$16.15	$17.40
Lowest amount	9.80	11.50	5.60	6.35
McKay shoes:				
Highest amount	16.10	27.55	11.20	13.25
Lowest amount	5.50	12.65	3.30	5.90

Two of the welt plants with the highest earnings for women and for men in both 1932 and 1933 had arranged to have their orders a month before delivery and asserted that their workers lost very little time. A discussion of the greater degree of employment among the workers in these two factories may be seen on page 13 in the section on time worked. In the case of the men in one of the two plants, the median for those who had worked as long as 51 weeks [1] was about one-sixth greater than that for the whole group.

Distribution for selected week in 1933, by plant

The table next presented, showing earnings distribution in the week in 1933, again illustrates the great differences from plant to plant. Of the 7 plants making welt shoes, 1 showed 33 percent of its men and another 30 percent to have been paid less than $10. The 2 welt plants with the high median earnings mentioned in the preceding paragraph paid $30 and over to about 16 percent of their men, only 2 percent receiving less than $10. Of the 12 McKay plants, 1 paid less than $10 to 37 percent of its men, another to about 31 percent, and several to between 20 and 25 percent. The best-paying paid $30 or more to 35 percent of its men employees. Only 2 other McKay plants paid $30 or more to as many as 10 percent.

Women's lower earnings are clear. The McKay plant with the highest median for men, $27.55, 35 percent of its men being paid $30 or over, had a median of only $12.15 for women, 36 percent of whom were paid less than $10 and only 4 percent of whom received as much

[1] The plant was closed for 1 week during the year.

TABLE 5.—*Earnings of men and women in 20 factories for 1 week in 1933, by plant*

Median earnings of men	Percent of men who earned—							Median earnings of women	Percent of women who earned—						
	Less than $5	$5 and less than $10	$10 and less than $15	$15 and less than $20	$20 and less than $25	$25 and less than $30	$30 and more		Less than $5	$5 and less than $10	$10 and less than $15	$15 and less than $20	$20 and less than $25	$25 and less than $30	$30 and more
WELT SHOES (7 plants)															
$23.75	0.8	1.2	7.1	20.2	26.2	28.6	15.9	$17.40	0.6	3.0	17.0	44.2	27.3	7.3	0.6
$23.00	1.0	1.0	8.8	20.6	29.9	23.0	15.7	$16.60	.9	3.5	30.1	44.2	15.9	2.7	2.7
$17.75	1.7	8.5	16.2	43.6	16.2	11.1	2.6	$13.30	2.4	17.6	48.2	27.1	4.7	----	----
$16.15	.6	16.8	27.2	28.3	16.8	8.7	1.7	$9.85	11.7	39.6	41.4	5.4	1.8	----	----
$15.30	9.3	20.9	17.4	30.2	14.0	7.0	1.2	$12.75	10.7	19.6	46.4	16.1	7.1	----	----
$14.55	.5	15.2	38.0	34.8	9.8	1.6	----	$10.10	3.4	45.2	45.2	6.2	----	----	----
$11.50	7.1	26.5	40.3	19.9	4.1	1.5	.5	$6.35	33.8	50.7	11.7	3.8	----	----	----
McKAY SHOES (12 plants)															
$27.55	3.4	6.8	6.8	4.8	16.3	26.5	35.4	$12.15	8.7	27.3	34.3	25.6	4.1	----	----
$20.90	2.8	4.8	18.6	20.0	20.7	22.1	11.0	$10.05	26.1	23.5	26.8	19.6	3.9	----	----
$20.45	3.8	8.5	14.2	19.8	22.6	17.9	13.2	$13.25	2.8	25.0	37.0	24.1	9.3	1.9	----
$16.20	10.4	13.9	19.1	23.5	16.5	10.4	6.1	$5.90	42.9	31.4	21.4	2.1	2.1	----	----
$16.15	10.3	21.2	13.0	23.9	21.7	8.2	1.6	$5.95	38.9	38.0	14.8	7.9	----	.4	----
$15.30	4.4	12.4	31.2	27.2	14.4	6.8	3.6	$11.35	11.9	27.1	41.9	16.6	1.8	.7	----
$15.15	6.5	16.3	26.0	26.0	19.5	3.3	2.4	$11.55	12.4	24.8	32.7	17.7	12.4	----	----
$14.80	.7	12.7	38.0	26.1	12.0	6.3	4.2	$9.30	9.7	46.2	29.7	12.4	2.1	----	----
$14.75	2.0	13.3	36.7	30.7	12.0	5.3	----	$9.05	10.3	51.6	26.5	10.3	----	1.3	----
$14.00	1.6	19.4	37.9	25.8	12.1	3.2	----	$9.05	14.9	46.0	34.2	3.7	1.2	----	----
$12.75	15.8	21.1	19.3	10.5	19.3	14.0	----	$9.25	25.0	30.8	36.5	5.8	1.9	----	----
$12.65	4.3	18.6	38.6	30.0	7.1	----	1.4	$6.85	28.1	46.1	16.9	6.7	2.2	----	----
OTHER SHOES (1 plant)															
$21.00	1.4	6.2	12.7	23.2	27.5	19.2	9.8	$15.25	1.9	9.2	37.5	23.0	26.8	1.5	----

as $20. Only 4 McKay plants had any women receiving as much as $25, and the proportions were negligible, while 8 plants paid less than $10 to proportions of their women employees that ranged from about 50 percent to as much as 77 percent. Five McKay plants paid less than $5 to proportions of their women employees ranging from 25 percent to 43 percent.

Of the 7 welt plants, 1 paid less than $10 to nearly 85 percent of its women, another to 51 percent, and a third to nearly 49 percent. The two plants with the highest medians for both men and women of all welt factories had paid in one case considerably more than two-fifths of the men, and in the other case slightly under two-fifths, $25 or more during the selected week in 1933. These same two were the only welt plants that paid any women as much as $25. About 1 in 12 of the women in one of the factories and about 1 in 20 in the other had received earnings in these higher brackets.

The proportions of men and women in the various plants who earned less than $15 in the selected week in 1933 may be seen from the preceding table 5. These proportions are of special interest, as according to the code (mentioned on p. 16) the minimum wage for men in the larger cities has been set at $15 and that for women at $13. Proportions ranging from almost 45 percent to about 74 percent of the men in four welt plants had earned less than $15. In the other three welt plants the proportions earning as little as this were considerably less.

More of the 12 McKay plants in proportion than of the 7 welt plants had large numbers of men earning less than $15. Five of the plants had more than half of the men earning an amount below $15; 4 had between two-fifths and one-half, and the remaining 3 had smaller proportions.

In 3 of the welt plants more than nine-tenths of the women had earned less than $15; in 2 others about three-fourths and two-thirds, respectively, had earned as little as this. In the other two the proportions were much smaller.

Of the McKay plants, 5 had paid more than nine-tenths of their women less than $15, and 6 had paid from seven-tenths to nine-tenths an amount below $15. The remaining plant had paid nearly two-thirds as little as this.

Distribution for average week in 1932

That the average weekly earnings in 1932 are lower than those for the selected week in 1933 is due to the fact that in 1932 there were weeks of low production, coincident with these small earnings, whereas the week in 1933 was selected as representing full employment. In some cases the week in 1933 chosen by the employer may have been one of more than average production, resulting in increased earnings for the men and women.

The two welt plants with approximately three-tenths and one-third of their men, respectively, earning less than $10 in 1933, had roughly one-half each with average earnings of less than $10 in 1932. The two plants that had the largest proportions of men, almost one-sixth, earning $30 or more in the selected week in 1933 also had the largest proportions with average weekly earnings of $30 or more in 1932, more than one-eighth and one-tenth, respectively. As would be expected, these two were the plants in which the smallest proportions of men earned less than $10.

TABLE 6.—*Average weekly earnings of men and women in 23 factories in 1932, by plant*

Median earnings of men	Percent of men who earned—							Median earnings of women	Percent of women who earned—						
	Less than $5	$5 and less than $10	$10 and less than $15	$15 and less than $20	$20 and less than $25	$25 and less than $30	$30 and more		Less than $5	$5 and less than $10	$10 and less than $15	$15 and less than $20	$20 and less than $25	$25 and less than $30	$30 and more
WELT SHOES (7 plants)															
$21.45	0.4	2.6	14.1	24.7	26.4	18.1	13.7	$16.15	1.4	7.2	28.3	47.1	14.5	1.4	
$20.30	1.3	5.4	14.8	27.1	24.6	16.4	10.4	$15.60	.4	8.0	32.6	43.3	14.3	1.3	
$14.90	8.6	18.4	23.2	29.7	15.7	4.3		$11.05	7.8	30.2	54.3	7.0	.8		
$14.55	1.9	13.3	37.3	32.7	10.6	3.8	.4	$9.85	4.1	48.0	40.9	5.8	1.2		
$13.90	3.8	17.7	38.8	28.7	9.7	1.3		$8.25	6.4	63.9	24.8	4.5	.5		
$10.10	7.8	40.9	42.0	7.8	1.0	.5		$5.60	41.4	52.4	4.8	1.3			
$9.80	9.8	41.8	31.1	9.8	4.1	2.5	.8	$7.00	23.2	54.9	18.3	2.4	1.2		
McKAY SHOES (14 plants)															
$16.10	6.5	12.4	24.4	31.8	19.4	4.1	1.4	$7.55	30.7	40.8	25.1	2.2	0.6	0.6	
$15.60	11.8	14.9	20.6	28.1	13.6	7.9	3.1	$11.20	13.5	25.6	47.9	10.7	2.3		
$15.10	4.0	10.3	35.3	29.0	15.2	5.4	.9	$8.00	29.1	35.1	29.1	5.0	1.8		
$13.30	9.9	24.1	22.2	30.5	10.3	2.5	.5	$8.35	21.6	40.1	28.4	9.0	.9		
$12.80	9.2	26.1	25.7	27.5	8.5	2.1	1.1	$7.00	27.0	49.6	22.3	1.1			
$12.50	12.1	24.2	28.9	22.1	10.1	1.3	1.3	$8.95	13.9	49.6	33.0	3.5			
$12.15	8.1	31.9	25.9	23.0	9.6	1.5		$6.90	31.8	43.0	19.6	4.5	.6	.6	
$11.95	8.3	27.3	36.0	21.8	5.5	.4	.6	$7.00	30.3	46.2	18.1	4.5	.9		
$11.30	14.6	27.0	35.8	19.0	2.2	1.5		$6.85	25.2	56.5	16.8	1.5			
$10.50	24.6	23.3	20.3	23.3	4.7	2.6	1.3	$4.60	53.3	33.5	9.9	2.9	.4		
$10.25	10.5	37.6	38.1	11.0	2.8			$6.25	36.0	46.5	14.5	3.1			
$7.75	34.0	30.0	23.7	9.1	1.9	.8	.4	$3.30	73.0	21.2	5.1	.7			
$6.65	29.3	38.7	14.7	10.7	4.0	2.7		$4.10	58.9	32.2	6.7		2.2		
$5.50	44.3	28.6	20.0	5.7	1.4			$4.60	53.7	40.7	5.6				
OTHER SHOES (2 plants)															
$16.00	5.8	11.9	24.8	33.5	19.4	4.5		$12.20	7.7	19.7	45.2	24.8	2.3	0.3	
$9.80	26.6	25.0	29.7	15.6	1.6	1.6		$7.50	22.9	57.1	20.0				

In 1 of the 14 McKay plants the average weekly earnings for 1932 were less than $10 for almost three-fourths of the men (72.9 percent). In six others the proportions whose average weekly earnings were so low ranged from two-fifths to slightly more than two-thirds. Not one of the McKay plants had so many as 4 percent of its men with average weekly earnings of $30 or more in 1932.

As was found true for the selected week in 1933, women's average weekly earnings for 1932 were much lower than those for men. In only 2 of the 7 welt plants were the average weekly earnings for any women as much as $25, and the proportions in these were very small, 1.4 percent and 1.3 percent, respectively. In both these plants, however, less than 10 percent had average earnings below $10. In the two welt plants with the lowest median earnings, more than nine-tenths and close to eight-tenths, respectively, had average earnings of less than $10.

In only 2 of the 14 McKay plants had any women average earnings of as much as $25, and the proportions were even smaller than in the welt plants mentioned, 0.6 percent in each. In all but one of the plants three-fifths or more of the women had average weekly earnings for 1932 of less than $10; almost half of these had four-fifths or more earning so little.

The McKay plant with next to the highest median of the average weekly earnings for men had the highest for women. However, for more than one-tenth (11 percent) of the men in this factory, average weekly earnings were $25 and over, as compared with none of the women.

Earnings of men and women for selected week in 1933 and average for weeks worked in 1932, by type of shoe

Type of shoe and sex of employees	Percent whose earnings for selected week in 1933 were—				Percent whose average weekly earnings in 1932 were—			
	Less than $10	Less than $15	$15 and less than $25	$25 and more	Less than $10	Less than $15	$15 and less than $25	$25 and more
Welt shoes:								
All employees	25.0	50.3	37.4	12.3	33.6	61.6	31.5	7.0
Men	14.2	36.1	44.1	19.7	21.1	49.0	39.1	11.9
Women	39.7	69.6	28.2	2.1	50.1	78.1	21.5	.4
McKay shoes:								
All employees	37.8	65.1	26.6	8.3	58.9	82.6	15.9	1.5
Men	19.8	44.8	38.2	17.0	40.2	67.7	29.2	3.1
Women	54.1	83.5	16.1	.4	75.1	95.5	4.4	.1
Other shoes:								
All employees	14.7	38.9	46.6	14.5	30.4	63.5	34.4	2.1
Men	14.8	26.7	46.7	26.7	23.5	49.2	46.8	4.0
Women	15.4	52.0	46.6	1.4	37.1	77.6	22.1	.3

EARNINGS BY TYPE OF SHOE AND DEPARTMENT

In addition to wage data according to type of shoes made, welt, McKay, and other, facts have been made available by departments in which the employees worked, namely, cutting, stitching, stock fitting, making and lasting, finishing and packing. (See pp. 3–4 for description of work by departments.)

TABLE 7.—*Earnings in various departments in selected week in 1933 and average for weeks worked in 1932*

[Medians and percents not computed where base is less than 50]

Type of shoe and department	Number employed in 1933	Median of the week's earnings	Percent who earned during selected week in 1933—							Number employed in 1932	Median of the average earnings	Percent whose average weekly earnings in 1932 were—						
			Less than $5	$5 and less than $10	$10 and less than $15	$15 and less than $20	$20 and less than $25	$25 and less than $30	$30 and more			Less than $5	$5 and less than $10	$10 and less than $15	$15 and less than $20	$20 and less than $25	$25 and less than $30	$30 and more
Welt shoes:																		
Men:																		
Cutting	193	$19.10	0.5	8.3	24.9	23.8	16.1	12.4	14.0	248	$14.65	3.2	21.4	27.0	21.8	8.1	6.0	12.5
Stitching	51	15.15	11.8	25.5	11.8	17.6	11.8	21.6	----	66	13.40	10.6	16.7	33.3	15.2	16.7	6.1	1.5
Stock fitting	62	15.75	----	11.3	33.9	22.6	21.0	8.1	3.2	77	13.90	10.4	13.0	33.8	19.5	16.9	6.5	----
Making; lasting	703	18.15	2.7	11.0	19.8	26.6	17.9	15.1	7.0	872	16.40	3.1	13.8	26.1	25.6	17.7	9.9	3.9
Finishing; packing	203	15.80	2.0	14.3	25.6	32.5	18.2	6.4	1.0	281	13.35	4.3	24.9	31.3	27.0	9.6	2.8	----
Women:																		
Cutting	38	----	----	----	----	----	----	----	----	52	9.50	9.6	48.1	32.7	5.8	3.8	----	----
Stitching	657	10.70	13.7	31.4	26.0	17.0	9.1	2.1	.6	851	9.65	14.9	37.7	26.0	15.3	5.8	.4	----
Stock fitting	33	----	----	----	----	----	----	----	----	50	12.35	----	30.0	40.0	24.0	4.0	2.0	----
Making; lasting	14	----	----	----	----	----	----	----	----	21	----	----	----	----	----	----	----	----
Finishing; packing	147	13.10	2.7	21.8	39.5	31.3	4.8	----	----	199	10.80	6.0	38.7	32.7	21.6	1.0	----	----
McKay shoes:																		
Men:																		
Cutting	374	16.35	3.5	13.6	24.3	22.7	14.4	10.7	10.7	705	12.80	10.6	20.7	32.9	23.0	8.7	2.7	1.4
Stitching	57	9.75	21.1	31.6	19.3	15.8	5.3	3.5	3.5	120	7.35	32.5	38.3	16.7	5.8	1.7	2.5	2.5
Stock fitting	97	15.10	5.2	11.3	33.0	18.6	19.6	8.2	4.1	151	10.75	14.6	30.5	31.8	19.2	4.0	----	----
Making; lasting	818	16.60	6.6	12.8	22.7	22.2	17.7	12.0	5.9	1,482	11.75	15.7	25.0	24.7	23.1	8.2	2.5	.8
Finishing; packing	333	15.10	3.3	15.6	30.0	24.6	13.5	6.9	6.0	622	11.45	17.0	25.1	29.1	19.1	7.7	1.8	.2
Women:																		
Cutting	14	----	----	----	----	----	----	----	----	12	----	----	----	----	----	----	----	----
Stitching	1,494	9.00	21.4	35.5	27.0	12.4	3.3	.4	----	2,900	6.40	37.1	40.0	18.7	3.4	.7	.1	----
Stock fitting	----	----	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----
Making; lasting	78	9.00	20.5	38.5	25.6	10.3	3.8	1.3	----	170	6.05	43.5	31.2	18.8	5.3	1.2	----	----
Finishing; packing	268	11.35	7.8	29.9	42.5	17.5	1.9	.4	----	457	8.20	27.4	34.8	31.9	5.5	.4	----	----

Other shoes:																	
Men:																	
Cutting	66	24.00	4.5	3.0	7.6	21.2	16.7	21.2	25.8	87	15.40	6.9	8.0	29.9	35.6	16.1	3.4
Stitching	7									4							
Stock fitting	23									32							
Making; lasting	153	20.35	6.5	9.8	11.1	20.3	28.1	19.0	5.2	190	15.30	12.1	15.3	21.1	28.4	17.9	5.3
Finishing; packing	51	16.90	3.9	9.8	21.6	27.5	25.5	9.8	2.0	61	15.10	4.9	9.8	34.4	36.1	11.5	3.3
Women:																	
Cutting	24									26							
Stitching	174	17.55	4.0	9.8	27.0	17.8	39.1	2.3		227	11.30	13.2	25.6	31.7	26.4	3.1	
Stock fitting	3									3							
Making; lasting	4									11							
Finishing; packing	74	14.05	2.7	9.5	64.9	23.0				113	11.75	6.2	22.1	63.7	8.0		

Selected week in 1933

Welt shoes.—In the cutting departments of welt-shoe factories there was no one distinct modal earnings group for men, as about equal proportions, approximately one-fourth, had been paid $10 and less than $15, and $15 and less than $20. The median was $19.10. Only one-half of 1 percent had earned less than $5, and 14 percent had earned $30 or more. No computations were made for women in these departments, as fewer than 50 were thus employed.

In stitching, where only a small part of the employees were men, 51 out of 708, the median of the men's earnings in 1933 was $15.15. Of the 657 women, more than three-tenths earned $5 and less than $10; about one-eighth (13.7 percent) earned below $5 and less than 3 percent earned $25 and more. The women's median was only 70 percent of that for men, $10.70.

In the stock-fitting departments 95 were employed—62 men and 33 women. The most usual earnings group for the men was $10 and less than $15, slightly more than one-third falling in this class. No men in these departments earned less than $5, and slightly more than one-tenth earned $25 or more. The median for the men was $15.75.

Practically all employees in the making and lasting departments, 703 of the 717, were men. More than one-fourth (26.6 percent) had earned $15 and less than $20. Only 2.7 percent had earned less than $5, 22.1 percent receiving $25 or more. The median was $18.15.

More nearly equal numbers of men and women were employed in finishing and packing than in any other department, 203 men and 147 women. Almost one-third of the men (32.5 percent) were in the group receiving $15 and less than $20. Two percent had earned less than $5 and 7.4 percent $25 or more. The median was $15.80. Two-fifths of the women (39.5 percent) were in the group paid $10 and less than $15. Less than 3 percent (2.7) had earned below $5, but none had been paid as much as $25. The median was $13.10.

McKay shoes.—A larger proportion of the employees in McKay than in welt cutting rooms were men, 374 of the 388. Two earnings groups had almost equal proportions of men, 24.3 percent being in the $10 and less than $15 group and 22.7 percent in the $15 and under $20 group. Only 3.5 percent had earned less than $5, slightly more than one-fifth having earned $25 or more. The median earnings were $16.35.

In the stitching rooms, where 96 percent of the employees were women, the most usual earnings group for women (35.5 percent) was $5 and less than $10, the median being $9. As many as 21.4 percent of the women received less than $5 and only 0.4 percent as much as $25. A considerably larger proportion (7 percent) of the 57 men had received as much as $25, but the median for men, $9.75, was only slightly higher than that for women.

No women were employed in the stock-fitting departments, where 97 men were reported. The most usual earnings group for men ($10 and less than $15) had 33 percent. Just over 5 percent had been paid less than $5, and less than 12.5 percent as much as $25. The median was $15.10.

The making and lasting departments employed men to a large extent also, there being more than 10 times as many men as women. Two earnings groups for men were about equal, those earning $10 and less than $15 and those earning $15 and less than $20, with between 22

and 23 percent in each. As many as 6.6 percent had received less than $5, but practically 18 percent earned $25 or more. The median was the highest in all McKay departments, $16.60. Of the 78 women in making and lasting departments, 38.5 percent were paid $5 and less than $10. One-fifth earned less than $5, and only 1.3 percent earned as much as $25. The median was $9, not much more than one-half of that for men.

In the finishing and packing departments the numbers of men and women were more nearly alike than elsewhere. For both sexes the most usual earnings were $10 and less than $15. Only just over 3 percent of the men but close to 8 percent of the women had received less than $5. About 13 percent of the men, in contrast to 0.4 percent of the women, had been paid $25 or more. The median for men was $15.10, but for women it was practically one-fourth less, $11.35.

Other shoes.—The earnings in the two factories making other types of shoes were higher, on the whole, than those in welt or McKay plants. Of the 90 employees in the cutting departments, 66 were men. Almost 26 percent of the men were paid $30 or more. Less than 8 percent had earnings below $10. The median was $24, much the highest for any group.

In the stitching departments, where 174 of the 181 employees were women, the most usual earnings group for women was $20 and less than $25, as many as 39.1 percent of the women earning such amounts. For a few women (2.3 percent) earnings were $25 or more. Only 4 percent had been paid less than $5. The median for the women was $17.55, much the highest of all computed.

The small number of employees in the stock-fitting rooms does not warrant a discussion of earnings.

In the making and lasting departments all but 4 of the 157 employees were men. The most usual earnings group was $20 and less than $25, containing 28.1 percent of the men. Almost one-fourth had been paid $25 and over, but 6.5 percent had received less than $5. The median was $20.35.

In the finishing and packing departments 51 men and 74 women were employed. The highest proportion of the men (27.5 percent) had been paid $15 and less than $20, but almost as many (25.5 percent) had been paid $20 and less than $25. For the 74 women the most usual earnings group was $10 and less than $15, about 65 percent receiving such amounts. Practically 4 percent of the men and almost 3 percent of the women had been paid less than $5. Almost 12 percent of the men had received $25 or more, but no woman had been paid as much as $20. The median earnings were $16.90 for men and $14.05 for women.

Average weekly earnings for 1932

In every case the medians of the average weekly earnings in 1932 were lower than for the selected week in 1933 where figures by department were available for both years. The proportions whose earnings in 1932 averaged less than $5 a week were in all but one case larger than those with such low earnings in the week selected in 1933, and at the other end of the earnings scale the proportions receiving as much as $25 were in every case smaller in 1932.

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EARNINGS IN THE SELECTED OCCUPATIONS

In the three types of plants median earnings were computed for men and women in selected occupations in which earnings were reported for as many as 50. In every case but one in which medians could be compared they were higher for the selected week in 1933 than for the average of the weeks worked in 1932, indicating that the week selected was, as requested, one of full employment. The accompanying table is of interest in presenting figures for more detailed occupations than are discussed elsewhere.

TABLE 8.—*Median earnings in selected occupations, 1 week in 1933 and average for weeks worked in 1932*

[Median not computed where base is less than 50]

Selected occupations of men	Selected week in 1933		All weeks worked in 1932		Selected occupations of women	Selected week in 1933		All weeks worked in 1932	
	Number of men reported	Median of earnings	Number of men reported	Median of average earnings		Number of women reported	Median of earnings	Number of women reported	Median of average earnings
Welt shoes:					Welt shoes:				
Outside cutter	117	$21.70	153	$16.55	Skiver	41	-------	54	$11.00
Laster	90	18.15	117	16.25	Lining maker	48	-------	67	8.80
Goodyear stitcher	40	-------	52	20.50	Top stitcher	55	$14.15	64	13.50
Edge trimmer	49	-------	62	19.35	Vamper	72	16.00	99	12.40
Treer	51	15.65	64	14.35	Fancy stitcher	86	9.90	111	7.70
McKay shoes:					McKay shoes:				
Outside cutter	204	19.15	352	15.25	Marker	40	-------	59	6.40
Lining cutter	49	-------	80	11.60	Cementer	111	6.20	292	3.95
Trim cutter	27	-------	64	9.55	Lining maker	75	9.70	106	7.45
Block cutter	28	-------	52	6.00	Top stitcher	157	13.35	221	10.30
Laster	101	22.00	169	16.25	Vamper	90	13.40	121	11.20
Side laster	40	-------	89	15.05	Fancy stitcher	376	8.10	680	7.50
Puller-over	40	-------	57	15.75	French cord stitcher	53	12.90	67	10.05
Sole layer	44	-------	54	13.35	French cord turner	36	-------	64	8.70
Wood heeler	71	20.35	98	13.65	Taper	42	-------	94	5.20
Edge trimmer	54	21.45	69	17.85	Bench worker	156	3.30	334	3.30
Edge setter	46	-------	60	19.00	Repairer	77	11.85	115	10.30
Treer	164	15.15	252	12.30	Packer	38	-------	57	10.35
Other shoes:					Other shoes:				
Outside cutter	38	-------	62	15.65	Fancy stitcher	54	16.35	74	10.30

MEDIAN EARNINGS AND TIME WITH FIRM

Welt plants

As previously noted, time with present employer was reported for a large part of the men in welt factories. The medians of the average weekly earnings for 1932 rose quite regularly with added years from $12.15 for the men who had been with the firm 1 and less than 2 years to $23 for those employed 9 and less than 10 years. In the case of women, time with the firm was reported for about three-fourths; this same rise was noted, though the medians of average weekly earnings were considerably lower. The median for the women who had been with the same firm for 1 and less than 2 years was $7.70, while for the women who had worked for 1 firm 9 and less than 10 years was $17.25.

McKay plants

Time with the firm was reported for only about one-half of the men who worked in McKay factories in 1932. Differences in average earnings are shown by the fact that medians varied from $6.75 for those employed less than 3 months, to $17.65 for those employed 4 and less than 5 years. In these plants, too, the median for the women was lowest ($3.65) for those employed less than 3 months, and highest ($11.10) for those employed 4 and less than 5 years.

Other plants

Among those working on other types of shoes, only for the men and women employed by the firm 10 and less than 15 years were there large enough numbers for the computation of medians. In both cases these medians were higher than for the group as a whole.

Part V.—PIECEWORK AND THE SETTING OF BASIC RATES

All authorities agreed that piece rates should be computed from a remuneration basis that took into consideration a definite period of time. In this connection consideration must be given to the various factors involved.

First among these is the fact that the shoe industry operates to supply footwear of leather, imitations of leather, or other cloths. The completion of a shoe requires a large number of operations, performed generally by operators specializing on the various tasks.

Second, some of this specialized work is of a nature that requires much skill and speed. Because of the need for skill combined with speed, the work of some operators is largely confined to one general type of operation, on which the individual specializes, such as cutting, fancy or top stitching, vamping, lasting, edge setting, and so forth.

Third, the invention of machines makes it possible to produce standardized parts for the trimming as well as the building of shoes, these parts to be assembled in their proper places as the shoe moves along in the process of construction.

Operators do the same operation day after day, week after week, if the work is plentiful. Unfortunately, earnings are controlled by speed, and output is greater when work is confined to one part. It is because of this that each operator specializes on one operation, though some are called on to do a number of things.

As in many other industries, men predominated formerly in the manufacture of shoes. They still predominate in several departments, especially in the cutting, lasting, and making.

Cutting and lasting are considered highly skilled types of work on which men work almost exclusively. Women now predominate in stitching operations, except possibly on custom-made shoes, but many men still do the stitching called vamping, or stitching the vamp to the top. However, very few were so employed in the factories visited in New Hampshire.

Styles in shoes have changed much since 1920, and now high shoes are little used. The stitching of vamps for high shoes undoubtedly required more skill than is required for low shoes, which together with the call for sandals and other changes in design of women's shoes, decreased the number of vampers and increased the number of fancy stitchers.

Though an occasional woman operates a machine in the making department, such as a McKay stitcher, the number of women who do so is small and is no indication of their advancement to machine operations in these departments. In most plants all the stitching on tops is done largely by women, and the lasting and making are done exclusively by men.

New developments in types of materials that can be used have revolutionized styles in shoes; the invention of machines has influenced changes simplifying production; fashions and seasons have

injected new ideas and suggested new types of shoes. As a result, there has been an orgy of constantly changing patterns that have made top stitching and fancy stitching far less routine than formerly. It is now required that stitchers adjust their eyes and speed to a variety of constantly changing designs and stitching without in any way reducing their responsibility with regard to perfect spacing and steadiness of hand or speed. Further, while perforated strips or other trimming such as applique are pasted in place before stitching, the parts that form the shoe itself are neither basted nor held together by paste before stitching. The stitcher is depended upon to skillfully hold the pieces, cut to fit each other, so that the edges are exactly where they belong, and to operate the machine so straight and steadily as not to deviate from a perfect line of stitching nor in any way to produce a pucker. The combination of skill and speed is required to do this. Obviously, stitchers must constantly guard against any slip of the needle or movement of hand that will change a line or edge. Any slight error in spacing or in the number of stitches will damage the article.

Since imperfect workmanship results in damaged goods, the amount of skill required of certain stitchers—top stitchers, fancy stitchers, and vampers—is considerable. Further, the stitching of linings requires perfect work, or the shoe causes the wearer trouble. While lining stitching is paid at a lower rate than the three operations just mentioned, it was considered by some producers to require skill, and the wide difference in rates was said to be due to tradition rather than to be based on a study of degree of skill and time required in learning. There is, of course, a great difference in value of the material used for linings and that used for the shoe itself.

It is difficult to see why the increased skill required of fancy and top stitchers under present conditions in the industry has not lowered the differential that has always existed in the rates for the skilled work of men as compared with the skilled work of women. The shoe code sets the minimum hourly rate higher for men than for women, except where the two sexes do substantially the same work. The differential of 5 cents an hour means 40 cents a day for an 8-hour day, $2 a week, and over $8 a month, amounts of no small significance to women workers.

Methods of fixing rates

On pages 80–81 quotations are found on the methods used in fixing piece rates in the plants visited that claimed to have such methods. In a report on systems of wage payment in operation in 1928, prepared by the National Industrial Conference Board, the following are among the statements made in regard to piecework in various industries:

* * * 80.4 percent of the workers were employed in plants where some form of piece rate was used.

As the plants increase in size, the proportion using piece rates in some form, or to some extent, grows. Piece rates are represented in 43 percent of the plants with less than 151 employees, and in 87 percent of the plants with more than 1,500 workers.

Of 1,214 plants reporting, 745 used piece rates, either alone or with other systems.

The piece-rate system is, in general, worth while only when the volume of output is sufficient to justify the trouble of determining the appropriate rate.

In the measurement or estimation of the output of his workers, each manufacturer must judge for himself the degree of accuracy advisable or practicable in his plant. For companies manufacturing a variety of products and handling comparatively small orders, general estimates based upon past experience may alone be possible, since the cost of making detailed studies may exceed the economies to be expected from them. Not only must the cost be reckoned with, but the possibility of error in setting many rates for a variety of products and processes, with the consequent necessity of cutting rates, must be duly considered in determining the choice of a system.

Among 87 plants which furnished information as to how piece rates were determined, 22 set their rates by the estimate of the foreman or rate setter; 55 from analysis of the standardized operation, including time study; 8 by combining both of these methods; 1 by arbitration; and 1 used the union schedule.

The quotations from interviews on the fixing of piece rates in the present study stress the element of time and the need for a reliable and definite system if rates are to be fair. It is important to note, therefore, that only 11 of the 28 plants included claimed to have a basis on which piece rates were figured. Further, though such information was furnished for practically all operations by several of these firms, the variations in operation terminology, even in branches of the same firm, complicated the attempt to analyze on a comparable basis the rates for any number of operations. As a consequence, such analysis has been made for only eight skilled occupations. (See table 9.) Moreover, for a number of operators the pay records at times included work on more than one operation, requiring their exclusion as operations not identical as to work or having a variation in either the basis for or the actual piece rates involved.

In spite of difficulties, the data on basis of pay in these 11 plants constitute fairly acceptable material for exploratory analysis on adequacy of method of fixing piece rates. In each of these plants the management was interested sufficiently to cooperate by furnishing supplemental data that can serve as measuring sticks of a fairly reliable nature, though they do not lend themselves to exact measurement of either time worked or its relation to rates or earnings.

Since the hour data available in New Hampshire did not show actual hours worked, but were limited to the firm's scheduled hours, the basic rates, taken in conjunction with so-called "full time", offer a basis for considering time in relation to earnings. As the sample weeks for earnings in 1933 were selected by the various firms as representing full employment, their use in measuring the relation of time to earnings seems justified.

To supplement the pay-roll data assembled, management supplied the following:

First, in each of the 11 plants it made out a list of what it considered the major operations. Though the operations listed are not identical for all plants producing the same kind of shoe, they form a good illustration for each of the basic rates and cover a fairly good number of identical operations.

Second, for each occupation it selected and designated one operator considered to be sufficiently acceptable as to workmanship and speed to serve as an example of the weekly earnings the firm expected from the basic rate, during a week of good steady flow of work but without rush or crowding.

Third, to round out this picture it picked from records copied by agents of the Women's Bureau a week in 1932 that could be used as

an example of expected earnings under the conditions described, namely, good steady flow of work but without rush. (For purposes of identification, this week is referred to as "the typical week.") To these data the Women's Bureau has added certain other information, transcribed from company records or computed from pay-roll figures. The additional data are sex, years with firm, highest and lowest week's earnings during the year; and the data computed in the Bureau are weeks worked during the year, total year's earnings, and average earnings for the weeks worked. Only four of the plant tables are reproduced in this report:[1] Two for plants producing welt shoes, and two for plants producing McKay shoes. (See table 11.)

In each case the selection of plants is based on the number of pay weeks that exceeded and the number that fell below the amount in the week selected for 1932 as an example of the earnings that should be expected on that job; in other words, the plants with the most and those with the fewest weeks in which the designated operators exceeded the expectancy wage.

On pages 80–81 managements in 17 plants are quoted on method of fixing piece rates. Reference was made to the fact that patterns change often and therefore the revision of rates in the stitching department is very frequent in some plants, which explains, at least in part, the temptation to use ready-made rates rather than to go to the labor and expense of computing new rates for each and every pattern.

The superintendent of the largest firm to welcome union organization stated that so much time was required of him for checking up on rates that it had become very burdensome. In that plant use was made of a measuring wheel. Every rate was approved by the union and each operator could figure out quite easily the expectancy earnings for each day, even in the stitching room, which is not always possible. It happened, however, that some of the rates set did not bring the expectancy earnings, and therefore piece-rate adjustments became necessary, and it was in connection with these frequent adjustments that complaint was made.

The complaint was natural, since prices for orders were based on the rate set, and any increase in rate naturally would reduce the margin of profit, which was said to be small because of market conditions. In certain instances the failure to earn the expectancy wage probably was due to some variation being greater than was anticipated, always a possibility unless the new rates are worked out independently for the particular job.

Mr. Sidney Hillman, president of the Amalgamated Clothing Workers, depends on experts to fix the rates in the clothing industry. He stated to the writer that though he has had many years of experience as president of his union, he would not assume responsibility for the detailed working out of piece rates, but employs persons who specialize in that work. None of the shoe firms visited claimed to employ such experts, though two firms stated that they had assembled much detailed material of value in rate fixing. It is evident that fixing of rates in the large majority of these 28 shoe factories is not done by any system that assures satisfactory results. A summary of the practices as regards stitching-room rates reported by the firms that did not claim to have a definite hourly basis for fixing them illustrates this condition. Further, the charts and tables that follow indicate

[1] Similar data are available for 11 firms. The other tables will be supplied on request.

that in the plants that were said to have basic rates they may really have been *a maximum to indicate the need to cut rates. Shoe workers as well as others frequently made accusations to this effect.* As a matter of fact, few unions advocate the use of a basic hourly rate in computing piece rates, because the process is slow and highly technical.

The methods reported can be summarized in 3 groups: (1) To depend on the experience of the foreman of the stitching room to fix piece rates; (2) to follow prevailing rates (*a*) in Lowell, (*b*) in Haverhill, (*c*) in Massachusetts, (*d*) or local; or (3) to try out a group of selected operators on three or four cases of the new work.

In connection with the first group it is possible that the foreman or stitchers would find the design similar to an old pattern (no. so-and-so) and decide to pay the same rate and see how it goes.

With regard to the second method the margin of guess is even greater, and the reference to Massachusetts rates must be an invention, as the rates in Massachusetts vary according to city and year of decision in arbitration cases.

The practice to try out operators as a means of fixing rates referred to under (3) varied among plants as to number of operators and basis for their selection. The number ranged from 2, or the fastest and slowest, for whom the average became the rate, to 5, whose records also were averaged for the rate. It was claimed that at least three cases were run through, and if the increase in speed by each operator was not fairly even, the experiment was prolonged. In at least one plant it was claimed that only medium-speed operators were used. Reference was made to the fact that piece rates had to be held down to the selling price of the shoe.

In more than one instance the statements of officials in the same plant differed on method, and therefore the conclusion drawn was that piece rates were not computed according to any accurate measurement of the relation of time to earnings but were of a makeshift nature in the 17 plants that did not claim to have a basic rate. This is especially true in McKay plants.

In welt plants patterns do not change either so frequently or so radically, which in itself makes the rate fixing less troublesome. One thing definitely was clear, however: In no instance was cost of living mentioned in relation to either basis of pay or rate.

Some of these shoe manufacturers expressed a desire to improve their pay records by including data on time involved. All spoke of the business depression as a handicap. A number referred to their industry as being "sick", and to lessons forced home through business conditions "that must never be overlooked again" but must be kept in mind constantly if their recurrence is to be prevented. It was indicated also that several firms became interested during the survey in the subject of hours of actual work, due largely to the fact that the strikers' accusations of small pay for a week's work could not be denied on any basis of time from plant records.

A perusal of the four tables or "special set-up" on pages 46–50 will make it clear to the reader that some weeks brought exceedingly low returns to the workers. Since shoe operators, like other workers, depend on their earnings for support of their families, the part-time work and irregularity of employment that reduced their earnings in some weeks to less than a dollar were the cause of the charges of low pay. *It is only fair to the employers to state that such pay weeks offer*

no information on rates, but they do support the statements of workers and illustrate the problems that shoe workers must meet. Moreover, the pay record for the "selected week" does give an idea of rates, since that was said to represent full employment, though actual hours worked were lacking.

The State of New Hampshire enacted a minimum wage law in 1933 that makes it necessary for employers to keep records of the hours worked by women and minors. Therefore such information will be available in the future.

Obviously, work cannot be furnished to employees in excess of the amount involved in the firm's orders. The overhead costs of recurring business depression, seasonal fluctuation, unstandardized trade practices with their vicious results in unfair competition, are more generally recognized now than formerly. Manufacturers who expanded their production to the extent of taking on new plants and territory, in face of the warnings of economists, probably have learned their lesson.

A new type of competition grew up with surprising rapidity during the years following the war because of simplification of new processes. Another has developed rapidly in more recent years in an increase in small producers who make shoes under the sweatshop system. It is obvious that the practice of renting machines instead of buying them makes it possible for persons whose credit is good to go into the shoe business without any appreciable amount of capital. The bearing of that condition on business practices in the industry must be given careful consideration before anyone can properly evaluate the practices and policies in force in the manufacture of shoes, especially those of small producers. The interviews in New Hampshire disclosed considerable thinking by some members of management along these lines. Last but not least, the absurd multiplicity of style changes, so destructive of regularity in the industry, could be discouraged by the buying public, chiefly women.

A COMPARISON OF EARNINGS ON EIGHT SKILLED OPERATIONS

The piece-rate method of pay is used generally in shoe factories, and the information on earnings in the earlier pages of this report gives an indication of the economic status of the workers. Unfortunately, the absence of information on the actual time worked for these earnings prevents the customary correlations.

In some industries occasional samples of 1 week's earnings serve fairly well to illustrate the incomes of workers, but that is not the case in the shoe industry, because operations are highly specialized and changes in styles shift the load of work from one operation to another. In addition, the earnings reported for any pay week may include back pay or pay for work on some job with a different rate. Moreover, the prevalence of part-time employment on a so-called "regular job" presents complications in measuring earnings, unless the full year's record is taken. For these reasons information about yearly earnings is of special importance, and earnings were copied from the records for the year 1932 for all workers employed on the production and packing of shoes in the plants included in the survey. The records covered 4,998 men and 5,094 women, a total of 10,092. They are reported on in section IV, pages 16 to 29.

The data for year's earnings, week by week, offer comprehensive material on weeks without pay during the year. Unfortunately, such data cannot be analyzed in this report because of the volume of statistical work required. However, the fact that over a third of the employees in the shoe factories in 1932 were on the pay rolls not more than 3 months serves as evidence of curtailed employment that was acute for a large number. Though it is probable that there were cases of employment in more than one plant during the year, this additional work was believed not to have increased appreciably the year's earnings.

TABLE 9.—*Rates of wages for 1932 set by written or oral agreement between employers and union employees in the shoe industry for Haverhill, Mass., and basic rates in 11 New Hampshire firms, 8 skilled occupations*

	Outside cutters [1]	Top stitchers	Fancy stitchers	Vampers	Skivers	Treers	Edge setters [2]	Side lasters [3]
Weekly rates [4]								
Haverhill, Mass.[5]	$48	$36	$36 31.20	$36 31.20	$33.60	$36	[6] $45	$48
McKay firms, New Hampshire:								
1	31.20	19.20	16.80	16.80	19.20	19.20	31.20	24.00
2 [7]	27.50	17.50	17.50	17.50	17.50	25.00	27.50	27.50
3	24.00	13.44	13.44	15.36	13.44	18.24	24.00	28.80
4	25.00	20.00	20.00	20.00	18.00	20.00	25.00	25.00
5	25.00	16.50	12.00	18.00	13.00	20.00	25.00	20.00
Welt firms, New Hampshire:								
6	30.00	20.00	16.00	22.00	15.00	25.00	28.00	23.00
7	30.00	20.00	16.00	22.00	15.16	25.00	28.00	23.00
8	30.00	20.00	16.00	22.00	15.16	25.00	28.00	23.00
9	45.00	24.00	25.00	30.00	25.00	25.00	35.00	27.50
10	45.00	24.00	25.00	30.00	25.00	25.00	35.00	27.50
11 [7]	25.00	15.00	15.00	23.00	17.50	20.00	30.00	25.00
Hourly rates [8]								
Haverhill, Mass.	1.00	.75	.75 .65	.75 .65	.70	.75	1.00	1.00
McKay firms, New Hampshire:								
1	.65	.40	.35	.35	.40	.40	.65	.50
2	.55	.35	.35	.35	.35	.50	.55	.55
3	.50	.28	.28	.32	.28	.38	.50	.60
4	.52	.42	.42	.42	.37½	.42	.52	.52
5	.52	.34⅓	.25	.37½	.27	.42	.52	.42
Welt firms, New Hampshire:								
6	.62½	.41⅔	.33⅓	.46	.31¼	.52	.58⅓	.48
7	.62½	.41⅔	.33⅓	.46	.31¼ .33⅓	.52	.58⅓	.48
8	.62½	.41⅔	.33⅓	.46	.31¼ .33⅓	.52	.58⅓	.48
9	.93¾	.50	.52	.62½	.52	.52	.73	.57¼
10	.93¾	.50	.52	.62½	.52	.52	.73	.57¼
11	.50	.30	.30	.46	.35	.40	.60	.50

[1] Whole shoe cutting is term used in Haverhill.
[2] Edge makers is term used in Haverhill.
[3] All lasters had same rate in Haverhill.
[4] For 48 hours except where otherwise noted.
[5] Massachusetts State Department of Labor. Time Rates of Wages and Hours of Labor in Massachusetts for the Year Ending Nov. 30, 1932.
[6] For 45 hours.
[7] For 50 hours.
[8] Firms reporting basic rate on hourly basis, 1, 2, 3, 4, and 11. All others reported basic rate on weekly basis and hourly rate was computed from scheduled hours.

Shoe operators spend many idle hours waiting for work. Obviously the employer cannot supply work if he lacks orders. What he can and should do, however, is to give more attention to regulating the flow of work so that delay in one department cannot tie up the whole factory. Further, if slack time is unavoidable, the workers might be allowed to remain at home instead of hanging about the plant idle. It would seem possible for plants to know before closing time whether the amount of work warrants all employees' reporting in the morning or whether some should come in the morning and others in the afternoon. Few employers visited reported such practice.

In the case of the 14 plants that furnished no information on either hourly or weekly rates, no comparison can be made of the bases from which piece rates were computed. Of the plants reporting rates, a number claimed to use the local piece rates, but the data on basic rates for the 11 plants showed no uniformity. A few claimed to use Lowell rates and two referred to Haverhill rates. Since Haverhill rates are used by several Massachusetts shoe firms and by one union as the basis for piece rates in McKay shoes, they are given in the preceding table for purposes of comparison.

Table 9 speaks for itself. The basic rates for cutters in New Hampshire, for example, varied from $24 or $25 in 4 plants to $45 in 2, none quite reaching the $48 rate of Haverhill; the basic rates for top stitchers varied from $13.44 in 1 plant to $24 in 2, none approaching the $36 rate of Haverhill; those for fancy stitchers varied from $12 in 1 plant to $25 in 2, far below the $31.20 and $36 of Haverhill. In practically all cases the difference was great, notwithstanding the fact that the New Hampshire rates given appeared to be top rates for 1932 at least.

The following table, summarizing earnings for all the operators on the 8 selected skilled operations, is offered as an example of the fallacy of trusting to rates alone to indicate earnings. The selected pay week for 1933 shows only 94 of the 1,018 operators, or 9.2 percent of all in these 8 skilled operations for "the selected week",[2] to have earned more than the basic rate.

[2] For explanation of term "selected week" see p. 11.

TABLE 10.—*Relation of basic rate to earnings in 8 skilled occupations in 11 selected firms*

Firm no.	Product and retail price of shoes	Basic rate	1932 (calendar year)										1933 (1 week in spring)		
			Number employed			Weeks worked in 1932 by—							Number employed		
			Total	Number whose average weekly earnings were—		All operators			Operators employed more than 9 months				Total	Number whose earnings were—	
				Less than basic rate	More than basic rate	Total	Percent of weeks in which earnings were—		Number	Total weeks	Percent of weeks in which earnings were—			Less than basic rate	More than basic rate
							Less than basic rate	More than basic rate			Less than basic rate	More than basic rate			
						CUTTERS									
	McKAY														
1	Women's, $3	$31.20	21	20	1	719	73.7	26.3	11	548	72.3	27.7	16	14	2
2	Women's, $2	27.50	60	59	1	1,389	91.8	8.2	21	926	90.0	10.0	33	33	-------
3	Women's and children's, $0.98, $1.98	24.00	9	6	3	389	73.0	27.0	7	326	73.6	26.4	8	1	7
4	Women's, $3, $4	25.00	43	42	1	1,601	89.1	10.9	29	1,337	88.6	11.4	29	28	1
5	Girls', misses', children's, $1.75, $1.98	25.00	10	10	-------	429	93.2	6.8	8	396	92.7	7.3	7	5	2
	WELT														
6	Women's, misses', children's, $2.50, $3	30.00	18	18	-------	800	99.8	.2	14	659	99.7	.3	18	18	-------
7	Men's, boys', little men's, $2 to $3	30.00	20	20	-------	998	98.6	1.4	20	998	98.6	1.4	23	23	-------
8	Men's, $3.50, $4, $5	30.00	36	36	-------	1,511	95.2	4.8	29	1,477	95.2	4.8	19	19	-------
9	Men's and boys', $1.75, $2.25, $3	45.00	29	29	-------	1,182	91.9	8.0	23	1,159	91.8	8.2	23	21	2
10	Men's, $1.75, $2.25, $3	45.00	9	9	-------	393	92.1	7.9	7	357	91.6	8.4	15	14	1
11	Men's, women's, children's, $3 to $10	25.00	13	13	-------	519	99.2	.8	8	398	99.0	1.0	8	8	-------

TOP STITCHERS

	McKay													
1	Women's, $3	$19.20	12	12		493	79.7	20.3	10	476	79.8	20.2	10	10	
2	Women's, $2	17.50	31	31		754	93.6	6.4	9	407	94.1	5.9	26	24	2
3	Women's and children's, $0.98, $1.98	13.44	14	11	3	427	39.3	60.7	8	147	37.9	62.1	14	2	12
4	Women's, $3, $4	20.00	25	25		705	98.2	1.8	13	575	99.3	.7	14	14	
5	Girls', misses', children's, $1.75, $1.98	16.50	16	16		726	88.7	11.3	14	676	88.6	11.4	11	10	1
	Welt														
6	Women's, misses', children's, $2.50, $3	20.00	15	15		521	99.2	.8	8	394	98.8	1.2	19	19	
7	Men's, boys', little men's, $2 to $3	20.00	14	14		636	98.2	1.7	11	553	98.0	1.9	11	11	
8	Men's, $3.50, $4, $5	20.00	10	10		397	98.2	1.7	6	293	100.0		7	7	
9	Men's and boys', $1.75, $2.25, $3	24.00	15	15		696	83.2	16.8	13	652	83.4	16.6	12	8	4
10	Men's, $1.75, $2.25, $3	24.00	13	13		576	95.0	5.0	11	559	94.8	5.2	13	13	
11	Men's, women's, children's, $3 to $10	15.00	3	3		87	94.3	5.7	1	51	96.1	3.9	3	1	2

FANCY STITCHERS

	McKay													
1	Women's, $3	$16.80	31	31		1,363	80.8	19.2	24	1,119	80.3	19.7	26	26	
2	Women's, $2	17.50	143	143		2,763	92.5	7.5	30	1,326	88.1	11.9	57	55	2
3	Women's and children's, $0.98, $1.98	13.44	25	25		964	80.1	19.9	19	896	80.1	19.9	31	19	12
4	Women's, $3, $4	20.00	71	71		1,531	96.4	3.6	20	901	96.2	3.8	24	24	
5	Girls', misses', children's, $1.75, $1.98	12.00	28	28		1,014	87.8	12.2	17	829	88.8	11.2	23	21	2
	Welt														
6	Women's, misses', children's, $2.50, $3	16.00	38	38		1,334	99.6	.4	24	1,153	99.5	.5	29	29	
7	Men's, boys', little men's, $2 to $3	16.00	26	26		1,221	97.5	2.5	22	1,100	97.5	2.5	20	20	
8	Men's, $3.50, $4, $5	16.00	10	10		426	80.5	19.5	6	305	78.7	21.3	13	12	1
9	Men's and boys', $1.75, $2.25, $3	25.00	30	30		1,423	94.2	5.8	27	1,345	94.0	6.0	6	6	
10	Men's, $1.75, $2.25, $3	25.00	22	22		894	98.5	1.5	16	806	98.9	1.1	16	16	
11	Men's, women's, children's, $3 to $10	15.00	5	4	1	199	66.3	33.7	4	197	66.0	34.0	9	9	

TABLE 10.—*Relation of basic rate to earnings in 8 skilled occupations in 11 selected firms*—Continued

Firm no.	Product and retail price of shoes	Basic rate	1932 (calendar year)										1933 (1 week in spring)		
			Number employed			Weeks worked in 1932 by—							Number employed		
			Total	Number whose average weekly earnings were—		All operators			Operators employed more than 9 months				Total	Number whose earnings were—	
				Less than basic rate	More than basic rate	Total	Percent of weeks in which earnings were—		Number	Total weeks	Percent of weeks in which earnings were—			Less than basic rate	More than basic rate
							Less than basic rate	More than basic rate			Less than basic rate	More than basic rate			
	VAMPERS														
	McKAY														
1	Women's, $3	$16.80	23	20	3	791	66.2	33.8	13	615	62.6	37.4	15	14	1
2	Women's, $2	17.50	13	13	----	467	73.2	26.8	9	421	72.0	28.0	9	2	7
3	Women's and children's, $0.98, $1.98	15.36	8	8	----	293	72.7	27.3	5	247	68.0	32.0	6	2	4
4	Women's, $3, $4	20.00	9	8	1	240	63.8	36.3	3	137	45.3	54.7	4	4	----
5	Girls', misses', children's, $1.75, $1.98	18.00	8	8	----	384	93.0	7.0	8	384	93.0	7.0	8	8	----
	WELT														
6	Women's, misses', children's, $2.50, $3	22.00	12	12	----	481	100.0	----	9	428	100.0	----	9	9	----
7	Men's, boys', little men's, $2 to $3	22.00	16	16	----	676	97.5	2.5	11	555	98.7	1.3	16	16	----
8	Men's, $3.50, $4, $5	22.00	28	27	1	985	94.9	5.1	15	724	93.2	6.8	15	14	1
9	Men's and boys', $1.75, $2.25, $3	30.00	30	30	----	1,249	95.3	4.7	24	1,189	95.6	4.4	22	21	1
10	Men's, $1.75, $2.25, $3	30.00	17	16	1	737	89.0	11.0	14	697	89.0	11.0	14	12	2
11	Men's, women's, children's, $3 to $10	23.00	10	10	----	420	93.8	6.2	7	334	92.2	7.8	6	4	2

SKIVERS

	McKAY													
1	Women's, $3	$19.20	2	2	-------	71	64.8	35.2	1	47	-------	-------	1	-------	1
2	Women's, $2	17.50	5	5	-------	109	94.5	5.5	1	44	-------	-------	2	2	-------
3	Women's and children's, $0.98, $1.98	13.44	1	1	-------	46	-------	-------	1	46	-------	-------	1	1	-------
4	Women's, $3, $4	18.00	16	14	2	250	65.2	34.8	3	140	50.7	49.3	5	3	2
5	Girls', misses', children's, $1.75, $1.98	13.00	3	3	-------	78	91.0	9.0	1	47	-------	-------	2	2	-------
	WELT														
6	Women's, misses', children's, $2.50, $3	15.00	4	4	-------	194	95.4	4.6	4	194	95.4	4.6	7	7	-------
7	Men's, boy's, little men's, $2 to $3	15.00	15	8	7	671	63.9	36.1	12	606	60.1	39.9	6	6	-------
8	Men's, $3.50, $4, $5	15.00	12	12	-------	491	83.1	16.9	7	356	78.1	21.9	7	5	2
9	Men's, boys', $1.75, $2.25, $3	25.00	12	12	-------	531	93.6	6.4	8	406	92.1	7.9	9	8	1
10	Men's, $1.75, $2.25, $3	25.00	14	14	-------	401	94.8	5.2	5	254	92.9	7.1	8	8	-------
11	Men's, women's, children's, $3 to $10	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

TREERS

	McKAY													
1	Women's, $3	$19.20	22	21	1	653	55.6	44.4	12	593	53.6	46.4	11	11	-------
2	Women's, $2	25.00	74	74	-------	1,429	96.6	3.4	8	374	93.3	6.7	31	31	-------
3	Women's and children's, $0.98, $1.98	18.24	17	16	1	289	77.2	22.8	3	142	74.6	25.4	7	5	2
4	Women's, $3, $4	20.00	17	15	2	617	60.8	39.2	13	568	58.5	41.5	13	13	-------
5	Girls', misses', children's, $1.75, $1.98	20.00	19	19	-------	716	96.8	3.2	14	682	96.6	3.4	13	12	1
	WELT														
6	Women's, misses', children's, $2.50, $3	25.00	13	13	-------	478	100.0	-------	10	456	100.0	-------	10	10	-------
7	Men's, boys', little men's, $2 to $3	25.00	8	8	-------	358	98.6	1.4	7	354	98.6	1.4	7	7	-------
8	Men's, $3.50, $4, $5	25.00	15	14	1	626	95.0	5.0	11	539	94.2	5.8	9	8	1
9	Men's, boys', $1.75, $2.25, $3	25.00	15	15	-------	764	93.3	6.7	15	764	93.3	6.7	15	15	-------
10	Men's, $1.75, $2.25, $3	25.00	9	9	-------	346	92.2	7.8	6	305	91.1	8.9	7	7	-------
11	Men's, women's, children's, $3 to $10	20.00	4	4	-------	132	80.3	19.7	2	98	74.5	25.5	2	1	1

TABLE 10.—*Relation of basic rate to earnings in 8 skilled occupations in 11 selected firms*—Continued

Firm no.	Product and retail price of shoes	Basic rate	1932 (calendar year)										1933 (1 week in spring)		
			Number employed			Weeks worked in 1932 by—							Number employed		
			Total	Number whose average weekly earnings were—		All operators			Operators employed more than 9 months				Total	Number whose earnings were—	
				Less than basic rate	More than basic rate	Total	Percent of weeks in which earnings were—		Number	Total weeks	Percent of weeks in which earnings were—			Less than basic rate	More than basic rate
							Less than basic rate	More than basic rate			Less than basic rate	More than basic rate			
	EDGE SETTERS														
	McKAY														
1	Women's, $3	$31.20	6	6		206	58.7	41.3	4	204	58.3	41.7	3	3	
2	Women's, $2	27.50	8	8		215	86.5	13.5	4	177	86.4	13.6	5		5
3	Women's and children's, $0.98, $1.98	24.00	4	4		187	83.4	16.6	3	152	84.9	15.1	4	1	3
4	Women's, $3, $4	25.00	5	3	2	148	46.6	53.4	3	137	46.0	54.0	4	4	
5	Girls', misses', children's, $1.75, $1.98	25.00	7	7		221	99.5	.5	4	203	100.0		4	4	
	WELT														
6	Women's, misses', children's, $2.50, $3	28.00	4	4		160	100.0		3	148	100.0		4	4	
7	Men's, boys', little men's, $2 to $3	28.00	6	6		145	87.6	12.4	2	102	89.2	10.8	4	4	
8	Men's, $3.50, $4, $5	28.00	8	8		330	85.5	14.5	5	255	87.1	12.9	5	5	
9	Men's, boys', $1.75, $2.25, $3	35.00	15	15		638	98.4	1.6	12	603	98.3	1.7	14	14	
10	Men's, $1.75, $2.25, $3	35.00	9	9		458	96.7	3.3	9	458	96.7	3.3	9	9	
11	Men's, women's, children's, $3 to $10	30.00	4	4		149	100.0		2	98	100.0		3	3	

SIDE LASTERS

	McKay														
1	Women's, $3	$24.00	11	11	----	407	82.1	17.9	8	401	81.8	18.2	7	7	----
2	Women's, $2	27.50	38	38	----	638	92.2	7.8	5	241	85.9	14.1	15	15	----
3	Women's and children's, $0.98, $1.98	28.80	3	3	----	103	76.7	23.3	2	102	76.5	23.5	3	----	3
4	Women's, $3, $4	25.00	8	7	1	274	65.0	35.0	5	222	61.7	38.3	5	5	----
5	Girls', misses', children's, $1.75, $1.98	20.00	13	12	1	275	83.6	16.4	4	196	87.2	12.8	4	4	----
	Welt														
6	Women's, misses', children's, $2.50, $3	23.00	5	5	----	199	94.5	5.5	4	196	94.9	5.1	10	10	----
7	Men's, boys', little men's, $2 to $3	23.00	7	7	----	353	76.2	23.8	7	353	76.2	23.8	5	5	----
8	Men's, $3.50, $4, $5	23.00	7	7	----	291	90.7	9.3	5	248	92.3	7.7	5	5	----
9	Men's, boys', $1.75, $2.25, $3	27.50	9	8	1	367	89.4	10.6	7	356	89.0	11.0	8	7	1
10	Men's, $1.75, $2.25, $3	27.50	7	7	----	308	82.8	17.2	6	307	82.7	17.3	6	6	----
11	Men's, women's, children's, $3 to $10	25.00	1	1	----	52	90.4	9.6	1	52	90.4	9.6	1	1	----

General note:

Basis of selection of firms and occupations.—The 11 firms selected are those that reported basic rates. The 8 occupations are those with the largest numbers of employees for whom basic rates were reported by all firms. (Exception, skivers in firm 11.)

Basic rate.—Reported by the 11 firms, if on an hourly basis it was raised to a weekly basis by multiplying by firm's scheduled hours of work.

1932 data.—The number employed is total number on the pay roll during the calendar year of 1932 and "total weeks" is the sum of all weeks worked by these same operators during the 12-month period. The average weekly earnings were computed by dividing the total earnings of the year of each operator by the number of weeks he or she worked. *Operators employed more than 9 months* is the number of the total operators who worked 40 weeks and more during the year and *total weeks* is the sum of these weeks worked.

1933 data.—The total number employed is the number on the pay roll in each specified occupation for 1 week in spring of 1933, selected by the firm as a full week.

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As it is generally believed that earnings are more regular on welt shoes than in the average McKay plant, it is significant to find that in the week recorded for 1933 only 22 (4.3 percent) of the 507 who worked on welt shoes in these 8 skilled occupations earned more than the basic rate, while 72 did so (14.1 percent) of the 511 engaged in these occupations in the McKay plants visited. A somewhat similar situation existed in 1932, though even smaller proportions earned more than the weekly basic rate, only 35 (2.3 percent) of the 1,521 workers in these 8 operations exceeding such rate. These were 23 (2.6 percent) of the 879 who worked on McKay shoes and 12 (1.9 percent) of the 642 on welt shoes. It is apparent from the column showing the basic rates that their general level was considerably higher for welt shoes than for McKay.

The "selected week" for 1933, as stated, offers a fairly acceptable measuring stick because these pay-roll records were designated by the firms as weeks of full employment. The dates of the pay week were not the same, but they were selected on a basis of amount of work on hand. In some cases the pay dates varied from department to department of one plant for this very reason. The strikes occurred during good business and these pay weeks as a rule preceded the strike except where the firm had more work later on.

Unfortunately, more detailed information is necessary for study before conclusion can be arrived at with regard to the indications pointed to by these figures, namely, that it is possible that the basic rate given was a top wage rather than a basis from which piece rates were computed. So much was said about the relation of the sales price to the piece rates that this suggestion seems warranted.

Assuredly a study should be made of the distribution of production costs. If it is true, as intimated by at least one producer, that labor was a very small part of the total production costs, this should be disclosed, as should facts about distribution of other costs, such as the proportions that represent materials, installation of machines, salaries of management and office workers, of foremen and inspectors, selling costs, and other expenses involved in operation and increased by unfair competition.

ATTAINMENT OF BASIC RATE BY EMPLOYEES SELECTED AS EXAMPLES BY FIRM

As explained on page 32, various items of information were supplied by the plant officials cooperating with the investigator in the study of earnings fluctuation. Among these was the designation of a representative employee in each occupation whose earnings in a specific week of 1932 might be considered typical of what the rates could be expected to yield.

In the case of each of these designated employees there have been added from employment and pay-roll records for 1932 the following information: Sex; years with firm; basic rate; year's earnings, weeks worked, and average earnings per week; amount and date of highest and of lowest week's earnings; number of weeks in which earnings were, respectively, above and below those of the typical week.

The 4 lists of employees supplied here (see table 11) were selected from 11 available[3] lists as illustrating, for McKay and for welt firms, the plants in which the employees designated by the officials exceeded most often the basic rate (lists B and D) and the plants in which such employees reached it in the fewest cases (lists A and C). The figures furnish important evidence of the irregularity of employment and earnings in the industry.

[3] Copies of the others may be had by applying to the Women's Bureau.

TABLE 11.—*Operators and their occupations selected by firms as fair examples of a normal week's earnings in 1932, with supplementary data from Women's Bureau 1932 schedules, showing year's earnings, weeks worked, highest and lowest week's earnings, etc.*

A.—PLANT MAKING McKAY SHOES

Employees (sex)	Department	Occupation	Years with the firm	Basic rate	Total earnings in 1932			Actual week's earnings, various dates in 1932						Number of weeks earnings were above typical	Number of weeks earnings were below typical
					Amount	Number of weeks worked	Average per week worked	Typical for fair average week (selected by firm)		Highest		Lowest			
								Amount	Date	Amount	Date	Amount	Date		
Male	Cutting	Die cut outside	16	$25.00	$807.32	49	$16.48	$35.31	Feb. 4	$35.31	Feb. 4	$2.51	Nov. 3	0	48
Do	do	Handle die	2	16.50	475.47	37	12.85	22.75	Feb. 11	22.75	Feb. 11	4.71	Nov. 24	0	36
Do	do	Cut linings	1	20.00	622.39	50	12.45	21.24	Feb. 4	21.32	Feb. 18	3.11	Dec. 1	1	48
Do	do	Sort and case	5	15.00	704.42	49	14.38	26.71	Feb. 18	26.71	do	2.00	Apr. 28	0	48
Female	Stitching	Skive	4	11.50	388.83	47	8.27	15.04	Aug. 11	15.04	Aug. 11	2.30	Dec. 15	0	46
Do	do	Marking	4	-------	339.92	50	6.80	12.94	Feb. 11	13.26	Mar. 3	1.60	Nov. 3	1	48
Do	do	Make linings	6	12.50	385.12	49	7.86	18.21	do	18.21	Feb. 11	1.34	Nov. 17	0	48
Do	do	Close	4	13.50	348.62	50	6.97	14.39	Jan. 14	14.39	Jan. 14	1.18	do	0	49
Do	do	Vamp	6	18.00	448.63	44	10.20	17.80	July 14	17.80	July 14	2.10	Nov. 3	0	43
Do	do	Top stitch	N.R.	16.50	544.76	47	11.59	23.30	Feb. 18	23.30	Feb. 18	.98	Nov. 24	0	46
Do	do	Fancy stitch	4	12.00	328.65	43	7.64	16.93	Feb. 11	16.93	Feb. 11	1.63	Nov. 3	0	42
Do	do	Stitch binding	5	12.00	328.42	42	7.82	17.14	Jan. 28	17.78	Mar. 17	1.08	July 21	1	40
Do	do	Punch cut-outs	4	11.50	455.04	51	8.92	23.45	Feb. 25	23.45	Feb. 25	1.19	June 2	0	50
Do	do	Stitch cut-outs	5	12.00	349.43	49	7.13	17.58	Feb. 11	17.73	Feb. 4	.83	Dec. 1	1	47
Do	do	Doubling	14	10.00	309.01	49	6.31	12.10	Feb. 4	12.10	do	2.16	July 21	0	48
Male	Stock	Rounder	7	11.50	779.89	51	15.29	26.81	Jan. 21	26.90	Aug. 11	3.51	Dec. 1	1	49
Do	do	Molding	18	17.50	785.35	51	15.40	26.36	do	26.59	Feb. 4	3.35	Nov. 17	2	48
Do	Lasting and making.	Assembling	3	-------	396.20	48	8.25	16.83	Feb. 11	16.83	Feb. 11	1.61	July 21	0	47
Do	do	Pull over	17	25.00	1,051.36	51	20.61	38.04	Feb. 4	38.04	Feb. 4	1.91	Sept. 29	0	50
Do	do	Side last	15	20.00	693.29	49	14.15	28.49	do	28.49	do	1.05	July 21	0	48
Do	do	Bed last	6	23.50	760.10	51	14.90	30.96	Jan. 28	31.14	Jan. 21	1.24	do	1	49
Do	do	Pound toes	8	16.00	903.79	51	17.72	34.43	do	35.35	Feb. 4	1.80	do	0	49
Do	do	Pull lasts	1	18.00	371.82	48	7.75	23.37	Mar. 3	23.37	Mar. 3	1.12	do	0	47
Do	do	McKay sew	6	25.00	956.20	52	18.39	34.61	Feb. 4	34.61	Feb. 4	1.06	Nov. 10	0	51
Do	do	Burnish heels	4	16.50	550.62	51	10.80	21.03	Jan. 21	21.03	Jan. 21	1.92	Nov. 17	0	50
Do	do	Iron	15	15.50	560.25	51	10.99	24.95	Feb. 11	24.95	Feb. 11	2.87	do	0	50
Do	do	Scour heels	14	20.00	697.22	51	13.67	29.07	Feb. 4	29.07	Feb. 4	2.16	do	0	50
Do	do	Heel	4	24.00	867.33	51	17.01	30.24	Feb. 11	30.24	Feb. 11	3.88	do	0	50
Do	do	Pull tacks	4	10.50	433.35	51	8.50	19.83	Feb. 4	19.83	Feb. 4	.69	July 21	0	50
Do	do	Shave heels	5	25.00	1,016.27	51	19.93	35.67	Feb. 25	35.67	Feb. 25	3.43	Nov. 17	0	50
Do	do	Trim edges	8	22.00	752.82	51	14.76	28.50	Feb. 4	28.50	Feb. 4	2.28	do	0	50
Do	do	Set edges	4	25.00	634.28	51	12.44	23.49	Aug. 18	23.49	Aug. 18	2.09	do	0	50
Do	Finishing	Buff	6	18.00	569.47	44	12.94	24.95	Feb. 25	24.95	Feb. 25	1.51	do	0	43

Do	do	Roll and finish	8	13.50	653.47	49	13.35	31.37	Feb. 11	31.37	Feb. 11	2.81	Dec. 29	0	48
Do	do	Polish bottoms	3		445.56	51	8.74	20.88	Feb. 4	20.88	Feb. 4	1.35	Nov. 17	0	50
Do	Packing	Treer	3	20.00	597.87	51	11.72	24.48	Jan. 14	25.98	Mar. 10	1.97	do	0	50
Do	do	Dress	3	10.50	350.81	48	7.31	14.18	Aug. 18	14.18	Aug. 18	1.67	May 12	0	47
Female	do	Repair	N.R.	10.50	491.06	51	9.63	22.98	Mar. 17	22.98	Mar. 17	1.53	Dec. 15	0	50
Do	do	Pack	2	16.00	329.93	48	6.87	14.47	Jan. 28	14.47	Jan. 28	1.73	Nov. 17	0	47
Average for all cases:															
Both sexes						48.9	11.71	23.61		23.72		1.98		0.2	47.7
Men						49.6	13.74	27.21		27.33		2.24		0.2	48.4
Women						47.7	8.09	17.18		17.26		1.52		0.2	46.5

B.—PLANT MAKING McKAY SHOES

Male	Cutting	Outside cutter knife	4	$25	$786.95	50	$15.74	$28.79	Jan. 23	$28.79	Jan. 23	$1.12	Nov. 26	0	49
Do	do	Leather lining cut	3	18	392.87	36	10.91	20.18	Feb. 20	25.37	Feb. 6	.77	Apr. 23	5	30
Do	do	Cloth lining cut	4	18	866.49	49	17.68	27.29	do	29.12	July 23	1.84	May 21	2	46
Female	Stitching	Skiver	4	18	1,107.16	48	23.07	18.56	July 16	36.04	Feb. 20	2.31	Dec. 31	39	8
Do	do	Marker	3	12	390.19	48	8.13	12.94	Feb. 13	16.53	Feb. 6	1.22	May 28	8	39
Do	do	Stitch linings	4	15	581.26	47	12.37	16.88	do	20.96	July 23	1.55	Nov. 19	[1] 9	37
Do	do	Cement French cord	2	12	340.02	48	7.08	12.74	Aug. 6	14.96	Aug. 20	.67	Dec. 24	2	45
Do	do	Vamp	4	20	873.08	46	18.98	25.13	Feb. 27	28.03	Feb. 20	2.79	May 21	10	35
Do	do	Stitch French cord	4		668.88	48	13.94	18.96	Aug. 6	20.92	Feb. 13	1.42	do	4	43
Do	do	Turn French cord	N.R.		533.37	48	11.11	15.38	Feb. 27	18.26	Sept. 24	1.12	do	7	40
Do	do	Top stitch	N.R.	20	522.47	46	11.35	17.08	Jan. 16	19.55	Feb. 13	1.38	June 18	5	40
Do	do	Die cut-out	3		568.51	48	11.84	16.99	Mar. 12	24.42	do	.62	Dec. 24	12	35
Do	do	Fancy stitch	4	20	668.62	47	14.23	20.80	Mar. 26	39.07	Jan. 30	1.55	Nov. 5	6	40
Do	do	Tape	3	12	635.59	48	13.24	18.18	Jan. 16	23.07	Feb. 6	2.29	Dec. 24	9	38
Male	Stock	Flesh outer	4		914.69	47	19.46	13.64	Oct. 15	29.89	Feb. 27	1.06	Nov. 19	35	11
Do	do	Rounding	4	21	772.91	47	16.44	21.14	Aug. 20	31.30	do	.34	May 21	15	31
Do	do	Shank-out	4		1,011.47	50	20.23	21.36	Sept. 10	34.61	do	1.84	June 11	[1] 24	25
Do	do	Case-up second time	2	12	610.42	45	13.56	12.24	Jan. 30	29.66	Sept. 24	.16	do	22	22
Do	Lasting and making.	Assembler	3	24	804.71	45	17.88	25.29	Oct. 1	28.37	Apr. 9	1.99	Nov. 19	7	37
Do	do	Pull over	4	25	1,122.15	47	23.88	30.13	Aug. 13	45.27	do	3.53	May 28	14	32
Do	do	Side laster	4	25	1,221.57	46	26.56	30.49	Aug. 27	39.49	Aug. 6	12.63	June 18	17	28
Do	do	Bed laster	4	25	1,453.62	47	30.93	38.37	do	42.31	Jan. 16	7.21	May 28	18	28
Do	do	Pound, scuff uppers	1		778.90	47	16.57	24.91	Aug. 6	27.47	Oct. 1	3.48	do	3	43
Do	do	Sole laying	4	20	908.73	47	19.33	30.86	do	32.62	July 30	2.37	do	2	44
Do	do	Pull lasts	4	15	780.32	46	16.96	21.09	Sept. 17	28.77	Sept. 24	2.85	June 18	17	28
Do	do	Cement bottoms	4	15	817.45	47	17.39	20.60	July 23	27.91	do	2.05	May 28	20	26
Do	do	Nail wood heels	4	16	876.82	45	19.48	18.57	Oct. 29	28.96	Mar. 12	1.04	June 18	25	19
Female	do	Iron linings	4	12	687.46	46	14.94	12.06	Sept. 17	33.53	do	1.21	Dec. 31	31	14
Male	do	Inspecting, wet channel cement and size.	4		544.78	38	14.34	16.36	Aug. 13	23.43	Jan. 16	.89	June 25	14	23
Do	Finishing	Edge trim	4	25	1,207.59	40	30.19	25.03	July 23	45.21	Oct. 1	6.42	June 4	25	14
Do	do	Edge set	4	25	1,178.75	47	25.08	22.80	July 16	38.79	Mar. 12	3.01	May 28	29	17

See footnotes at end of table.

TABLE 11.—*Operators and their occupations selected by firms as fair examples of a normal week's earnings in 1932, with supplementary data from Women's Bureau 1932 schedules, showing year's earnings, weeks worked, highest and lowest week's earnings, etc.*—Continued

B.—PLANT MAKING McKAY SHOES—Continued

Employees (sex)	Department	Occupation	Years with the firm	Basic rate	Total earnings in 1932			Actual week's earnings, various dates in 1932						Number of weeks earnings were above typical	Number of weeks earnings were below typical
					Amount	Number of weeks worked	Average per week worked	Typical for fair average week (selected by firm)		Highest		Lowest			
								Amount	Date	Amount	Date	Amount	Date		
Male	Finishing	Buff bottoms	4	$21	$879.36	45	$19.54	$25.67	Sept. 17	$30.67	Oct. 1	$0.66	Dec. 31	11	33
Do	do	Naumkeag and dust	4	21	1,082.74	47	23.04	25.18	Sept. 10	34.02	Oct. 8	1.20	May 28	23	23
Do	do	Breast scour	3	12	854.91	45	19.00	16.09	Oct. 29	32.17	Jan. 16	2.22	Dec. 31	32	12
Do	do	Paint and polish bottoms.	4	-------	838.30	46	18.22	22.65	Aug. 13	28.65	Mar. 5	.82	May 28	14	31
Do	Packing	Treer	3	20	785.95	44	17.86	22.06	July 30	28.81	Mar. 12	4.08	June 4	17	26
Do	do	Dresser	3	12	792.57	44	18.01	15.80	Oct. 22	30.27	do	3.74	do	29	14
Female	do	Repairer	4	15	564.56	42	13.44	15.00	Aug. 13	18.93	do	2.42	June 18	[3] 17	24
Do	do	Inspect and pack	2	15	512.74	44	11.65	15.00	Aug. 6	18.95	do	1.51	July 2	[3] 12	31
Do	do	Heel pads and sock	4	12	610.96	46	13.28	12.86	Jan. 30	21.95	do	1.39	Dec. 31	26	19
Average for all cases:															
Both sexes						45.9	17.17	20.63		28.93		2.27		15.4	29.5
Men						45.5	19.53	23.06		32.08		2.69		16.8	27.7
Women						46.7	13.24	16.57		23.68		1.56		13.1	32.5

C.—PLANT MAKING WELT SHOES

Male	Cutting	Cut leather linings	6	$20	$458.79	48	$9.56	$21.44	Feb. 4	$22.87	Feb. 18	$1.99	Nov. 3	2	45
Do	do	Cut outsides	11	30	1,031.85	51	20.23	25.82	Mar. 24	31.18	Jan. 7	6.79	June 30	11	39
Do	do	Sort outsides	11	28	850.75	50	17.02	25.95	Jan. 28	31.58	Mar. 10	1.05	Dec. 1	6	43
Female	Stitching	Stitch French cord	N.R.	-------	333.72	50	6.67	13.26	Jan. 21	13.48	Feb. 11	.56	Nov. 24	2	47
Do	do	Stitch cut-outs	4	-------	268.40	48	5.59	13.36	do	16.61	Feb. 4	.36	Oct. 20	1	46
Do	do	Fancy stitching	3	16	299.25	49	6.11	14.65	Feb. 18	16.53	Jan. 28	.16	Nov. 24	4	44
Do	do	Fold	4	10	313.88	51	6.15	12.42	Mar. 3	13.78	do	2.04	July 7	2	48
Do	do	Make linings	21	15	372.20	51	7.30	14.16	Feb. 11	17.46	Feb. 4	.45	Nov. 10	5	45
Do	do	Perforate or jig	N.R.	15	285.46	48	5.95	11.15	Feb. 4	12.97	Feb. 18	1.27	May 12	5	42
Do	do	Skive	13	15	373.29	51	7.32	16.17	Mar. 10	19.29	Feb. 11	1.88	July 7	2	48
Do	do	Vamp	4	22	495.63	50	9.91	15.25	Jan. 28	18.75	Feb. 18	2.01	Dec. 15	10	39
Male	do	Eyelet	6	-------	400.44	50	8.01	18.69	Feb. 18	21.36	Feb. 11	1.33	do	2	47
Female	do	Topstitch	7	20	398.10	49	8.12	18.14	Feb. 4	19.32	Mar. 3	1.08	July 7	1	47

Male	Lasting	Assemble	3		483.16	44	10.98	17.44	do	21.07	do	.97	Nov. 10	4	39
Do	do	Pull over	11		597.23	49	12.19	24.42	do	28.08	do	.99	do	4	44
Do	do	Side last	20	23	618.31	47	13.16	23.41	Feb. 18	24.71	Mar. 10	.81	do	4	42
Do	do	Bed last	16		511.99	47	10.89	23.94	Feb. 11	23.94	Feb. 11	.59	Dec. 8	0	46
Do	Welting or bottoming.	Welt	19		698.72	50	13.97	25.58	Feb. 4	32.26	Mar. 3	1.07	July 7	4	45
Do	do	Trim inseams	9		575.29	51	11.28	18.63	Feb. 25	22.93	do	1.41	do	8	42
Do	do	Round outer soles	N.R.		582.48	51	11.42	25.30	Feb. 18	28.92	do	1.61	Nov. 10	2	48
Do	do	Goodyear stitch	N.R.		684.17	50	13.68	25.86	Feb. 4	29.67	Feb. 18	1.40	do	4	45
Do	do	Level	19		400.33	49	8.17	15.49	Feb. 11	6.00	Mar. 3	1.16	Nov. 24	2	46
Do	Making	Burnish heels	4		570.03	51	11.18	20.38	Feb. 4	25.74	Feb. 11	2.08	Nov. 10	3	47
Do	do	Heel	17	22	770.11	51	15.10	23.81	Jan. 28	33.05	Mar. 3	1.37	do	9	41
Do	do	Shave heels	N.R.	24	398.52	48	8.30	22.35	Mar. 3	22.35	do	.74	Nov. 24	0	47
Do	do	Rough scour heels	9	22	580.03	36	16.11	25.14	Feb. 25	32.19	do	4.92	Sept. 22	6	29
Do	do	Set edges	15	28	496.60	49	10.13	22.55	Feb. 18	23.34	Feb. 11	1.27	Dec. 1	1	47
Do	do	Trim edges	15		712.63	51	13.97	24.62	Feb. 11	26.79	Feb. 18	3.32	July 14	5	45
Do	do	Loose nail	N.R.	19	358.94	46	7.80	17.00	Mar. 3	18.00	Aug. 18	.48	Nov. 10	1	44
Do	Finishing	Roll and finish	6	18	543.59	49	11.09	19.96	Feb. 4	24.36	Mar. 10	1.76	Dec. 22	6	42
Do	do	Buffing	N.R.	22	318.97	35	9.11	15.11	Mar. 3	17.29	do	1.30	Sept. 8	5	29
Female	Packing	Dress	4	16	334.43	50	6.69	14.01	Jan. 28	16.83	Mar. 17	.70	Nov. 10	4	45
Do	do	Repair	4		320.56	49	6.54	16.02	Feb. 11	16.81	Feb. 4	1.46	do	1	47
Male	do	Tree	15	25	388.42	45	8.63	18.62	Feb. 18	19.28	do	1.41	Nov. 17	1	43
Female	do	Pack	4	16	379.72	49	7.75	13.44	Feb. 4	18.04	Feb. 18	1.27	Dec. 22	5	43
Average for all cases:															
Both sexes						48.4	10.17	19.24		22.20		1.52		3.8	43.6
Men						47.7	11.83	21.80		25.09		1.73		3.9	42.8
Women						49.6	7.01	14.34		16.66		1.10		3.5	45.1

D.—PLANT MAKING WELT SHOES

Male	Cutting	Outside cutter	5	$25.00	$442.65	51	$8.68	$13.62	Mar. 5	$21.65	Sept. 3	$0.50	June 11	6	44
Do	do	Cutting leather linings	1		272.03	46	5.91	9.54	Nov. 22	15.54	Aug. 27	.19	do	6	39
Do	do	Cutting cloth linings	5	20.00	524.81	52	10.09	10.62	Apr. 2	24.92	Feb. 27	1.31	June 18	21	30
Female	do	Marking	3		313.57	52	6.03	8.82	Mar. 5	14.96	do	.85	do	11	40
Do	Stitching	Close tops and stamp linings.	2	13.50	210.99	43	4.91	7.83	Oct. 22	11.47	Sept. 3	.50	June 11	7	35
Do	do	Stitch linings	5	13.50	310.77	51	6.09	6.58	Nov. 19	12.22	do	1.48	July 23	22	28
Do	do	Cement and fold	5	10.50	499.32	51	9.79	11.11	May 28	19.49	Mar. 5	1.81	June 11	18	32
Do	do	Vamper	2	23.00	454.09	49	9.27	13.59	Feb. 27	19.21	Oct. 29	1.02	July 23	11	37
Do	do	French cord turn	1	13.50	277.02	38	7.29	9.84	Mar. 19	12.24	Sept. 24	.60	June 11	12	25
Do	do	Stitch French cord	4	13.50	369.30	51	7.24	11.03	Feb. 13	15.96	Oct. 22	1.10	July 23	9	41
Do	do	Top stitch	5	15.00	382.56	52	7.36	9.12	Oct. 15	16.05	Sept. 17	.68	July 16	19	32
Do	do	Fancy stitching	3	15.00	347.83	51	6.82	10.48	Mar. 19	19.79	Feb. 20	.33	Dec. 3	11	39
Male	do	Eyeleting	5	18.00	558.73	52	10.74	18.30	Sept. 10	26.06	Sept. 17	.77	July 16	8	43
Female	do	Tip stitch and top stitch.	5	15.00	450.25	50	9.01	12.21	Feb. 20	18.40	Mar. 5	.53	Aug. 6	18	31

See footnotes at end of table.

TABLE 11.—*Operators and their occupations selected by firms as fair examples of a normal week's earnings in 1932, with supplementary data from Women's Bureau 1932 schedules, showing year's earnings, weeks worked, highest and lowest week's earnings, etc.*—Continued

D.—PLANT MAKING WELT SHOES—Continued

Employees (sex)	Department	Occupation	Years with the firm	Basic rate	Total earnings in 1932			Actual week's earnings, various dates in 1932						Number of weeks earnings were above typical	Number of weeks earnings were below typical
					Amount	Number of weeks worked	Average per week worked	Typical for fair average week (selected by firm)		Highest		Lowest			
								Amount	Date	Amount	Date	Amount	Date		
Male	Lasting	Tack inner soles	5	$22.50	$324.89	51	$6.37	$6.81	Apr. 9	$15.30	Mar. 5	$0.67	Dec. 24	21	29
Do	do	Assembler	3	25.00	536.59	51	10.52	13.38	Apr. 16	24.39	Aug. 27	.98	July 2	15	35
Do	do	Side laster	5	25.00	827.78	52	16.92	14.32	Nov. 12	33.61	do	5.11	Dec. 29	29	22
Do	do	Bed laster	5		519.96	50	10.40	12.26	Sept. 17	22.55	Sept. 24	.88	July 2	16	33
Do	do	Giving out lasts	5	14.50	517.11	52	9.94	7.64	Jan. 9	20.21	Feb. 20	2.19	June 25	36	15
Do	Making	Fill bottoms	5	12.00	484.48	51	9.50	11.95	Aug. 20	18.23	Sept. 17	.46	do	17	33
Do	do	Nail heel seat	3	12.00	180.91	50	3.62	3.32	Apr. 23	10.05	Feb. 27	.54	June 18	23	26
Do	do	Sole layer	5	12.00	310.11	51	6.08	5.44	Jan. 30	14.57	Mar. 19	1.41	do	22	28
Do	do	Welter	N.R.	25.00	511.91	51	10.04	9.02	Apr. 30	24.10	Feb. 27	.97	June 4	29	21
Do	do	Goodyear stitcher	5	35.00	969.48	52	18.64	20.79	Feb. 6	28.98	Nov. 5	3.15	June 25 July 2	[2] 22	29
Do	do	Leveler	5	15.00	339.59	51	6.66	5.50	Jan. 16	17.43	Feb. 27	1.00	July 2	25	25
Do	do	Heeler	5	32.50	579.61	52	11.15	15.87	Feb. 13	24.47	do	1.41	June 18	15	36
Do	do	Heel shaver	3		446.71	52	8.59	5.82	Jan. 9	18.61	Feb. 20	1.74	July 2	34	17
Do	do	Trim edges	5	25.00	716.78	52	13.78	17.88	Jan. 30	34.07	do	2.22	May 28	13	38
Do	do	Set edges	5	30.00	377.51	48	7.86	6.47	Apr. 23	17.28	Sept. 24	1.10	June 24	28	19
Do	Finishing	Buffer and Naumkeag	5		423.38	51	8.30	6.37	Mar. 19	18.37	Mar. 5	1.96	Dec. 31	31	19
Female	do	Black bottoms	5		114.93	22	5.22	5.26	Aug. 13	10.77	Oct. 22	.83	do	9	12
Male	do	Polish and pull lasts	4	12.00 and 15.00	464.23	52	8.93	12.38	June 11	20.38	Oct. 1	2.23	July 9	10	41
Do	do	Heel finisher	2	15.00	547.58	49	11.18	10.30	Apr. 30	23.75	Feb. 20	1.27	July 2	26	22
Do	do	Stamp bottoms	5	12.00	613.04	52	11.79	9.82	Jan. 23	23.56	Mar. 19	2.02	do	32	19
Do	Packing	Treeing	5	20.00	960.99	51	18.84	18.59	Feb. 6	28.56	Feb. 27	5.40	do	27	23
Female	do	Dressing and lining	5		442.83	44	10.06	9.32	Aug. 27	19.74	do	.79	May 7	23	20
Do	do	Repairing	5	18.00	601.61	52	11.57	11.70	Apr. 9	18.91	Mar. 26	5.03	June 16	26	25
Do	do	Packer	3		428.76	37	11.59	11.48	Sept. 10	16.46	Oct. 15	3.98	July 9	20	16
Average for all cases:															
Both sexes						49.1	9.39	10.64		19.80		1.55		19.2	28.9
Men						50.9	10.19	11.08		21.94		1.65		21.3	28.6
Women						45.9	8.02	9.88		16.12		1.40		15.4	29.5

[1] 1 week's pay was same as typical.

[2] 2 week's pay was same as typical.

Part VI.—WORKING CONDITIONS

INTRODUCTION

Since the health and efficiency of all workers are affected by their working conditions, as well as by the condition of the operating equipment provided for the production of goods, the responsibility of management can be said only to have begun in the hiring of employees. In other words, management must assume the responsibility of safeguarding the interests of workers in terms of physical well-being, including precautions against the hazards involved in the use of certain materials, notably those that contain benzol, though all quickly drying solvents are held to carry serious health hazards to those whose work exposes them to their poisonous fumes. Therefore it must take cognizance of the great loss involved in reduced speed, lowered efficiency of employees, and impaired quality of work when production policies fail to include adequate attention to the conditions under which the product is made.

In any place of employment the management has the responsibility for the equipment and its condition, or plant housekeeping. In all States some labor laws or other regulations prescribe certain standards in connection with working conditions, the type of condition covered and the number of such laws or regulations varying from State to State, but the lack of legal standard in no way reduces the moral responsibility of employers.[1]

In the present survey working conditions were reported for 26 of the 28 factories for which data on earnings were secured; of the 2 remaining plants, operated by a corporation already represented by 2 factories, 1 was closed at the time of the survey and the other was too distant for inspection. Further, the tabulated data on working conditions represent only 23 plants, 3 small contract shops being omitted because of their few operations and because each occupied only one room of a building in which a larger factory made a complete shoe.

A number of factories were housed in buildings erected specially for the manufacture of shoes, with enough windows to provide adequate light in most workrooms during daylight hours. Unfortunately, in some plants the east and west exposure gave excessive light and glare on sunny days. Awnings were conspicuous by their absence and in some cases there were no window shades, muslin strips being found in many of the plants as substitutes. Generally these muslin strips hung loosely tacked from the top of the window and were dusty, spotted, and ragged; in other places pieces of paper were tacked up. A report of these conditions in more detail follows in the special section on lighting, but they are summarized here as pointing to the

[1] Information on laws and regulations in New Hampshire can be secured by addressing Commissioner of Labor, Concord. For information about regulations in other States address the commissioners of labor at the various State capitals. For standards or reports on working conditions of women address the Women's Bureau, U.S. Department of Labor, Washington, D.C.

neglect on the part of many firms to protect the workers' eyes from glare and to practice the good housekeeping that contributes to health and efficiency.

Since inadequacy of sanitary service facilities contributes to fatigue, headaches, and other health problems, with constant loss of time, the conditions found are reported on in considerable detail. (See pp. 64 and 67.)

Good natural ventilation is of special importance where poisons that give off vapors are in use, and it is fortunate that it can be provided in all these plants when the weather permits the opening of windows. However, cold and wind frequently prevent this. Since the section on ventilation (p. 56) contains considerable detail about the need for local artificial ventilation in all rooms where cements, pastes, or cleaning and patent leather repairing substances are used, no further reference will be made to ventilation at this time except to stress the value of venetian blinds, the use of which at east and west windows, besides preventing glare, permits a free circulation of air on days when ordinary shades would flap as well as cut out the light.

It is possible that the long periods of slack orders in some of these factories in recent years have contributed to the carelessness in connection with housekeeping. Regular and thorough cleaning is likely to be discontinued at such times in order to cut overhead expenses, and sometimes it is forgotten when the rush begins again, or is neglected because of the uncertainty of orders. Such a practice is short-sighted economy, because neglect in keeping up workrooms and service facilities creates the need for more thorough renovating later, an extensive program of putting the factory in order if the neglect of housekeeping continues for any length of time.

Though a few of the New Hampshire factories had operated 30 years or more in one building, the majority of plants have been bought or established only recently, and these firms had little excuse for accepting buildings with neglected and badly worn floors, dusty work benches and walls, coated windows, out-of-date plumbing, and other such conditions. Where the business had outgrown the building or the factory had operated so long that it had worn out its home, the management probably hesitated to undertake expenditures in repairs during the years since business conditions became so uncertain.

Some of these employers, several of whom still resided in Massachusetts, had moved their plants to New Hampshire; others had come into this vicinity from various sections of New Hampshire, supposedly to get away from union regulation. Whatever the reason for the move, they had shouldered a legacy of poor plant conditions that affect housekeeping in occupying buildings in bad repair.

The Women's Bureau has made surveys of working conditions in 16 States and many other studies, several of which deal with conditions in special industries, and can assert with authority that the experience of employers who give due attention to working conditions is that it pays in returns in output and in workmanship. When management, in analyzing its production costs, fails to take into account the expenses that are preventable and that can be traced to careless housekeeping or neglect of the safety and comfort of workers, its estimate of cost of production is unsound.

The acceptance of the old proverb that "Cleanliness is next to godliness" might prove a boon to shoe factories. Certainly adequate

and accessible washing facilities alone would prove a profitable investment in this connection.

GENERAL SUMMARY

In discussing working conditions it is necessary to consider all their various aspects, including the provision made for the protection and comfort of workers, and especially the lack of such provision. Therefore, each factor or subject reported upon in the following has a bearing on some important phase of the conditions under which the employees worked in the 23 shoe factories[2] reported upon in New Hampshire.

Workrooms

The general housekeeping in any place of employment is of great importance because poor housekeeping invites carelessness on the part of employees and contributes to problems that involve hazards. This fact is emphasized because unobstructed aisles, nonslippery floors, and orderly arrangement of work and work tables, and so forth, *are fundamental to the safety of workers.* If crowded and cluttered, the value of wide aisles is reduced if not entirely lost, and danger lurks where the floors are wet, worn, or slippery, or the condition of the aisles is impaired for other reasons, such as when trucks, boxes, and materials obstruct them. Similarly, the kind and number of windows and the type and adequacy of other equipment are affected by many conditions that can reduce or increase the natural lighting provided. For example, even an adequate number of clean and well-kept windows does not guarantee satisfactory natural light, for south, west, and east windows, if unobstructed on the outside, must have equipment to protect the workers from excessive glare on bright days. In other words, shades are needed that can be adjusted at the windows and at a height that best suits the particular condition involved. In this connection ordinary rolling shades are not the most satisfactory equipment. Dark and heavy shades may reduce the brightness of the light too much for workers at a distance from the windows, and even translucent shades, unless put up in two sections, cut off part of the window that should be exposed in order to supply light. (See section on lighting, p. 61.) Windows coated with dirt prevent glare for some workers, but they invite poor housekeeping in other matters. The same is true of tacking up unbleached muslin or paper strips over the windows. Although these strips do offer protection from glare and extreme brightness of light without seriously reducing the amount of light for workers whose stations are away from the window, they are not satisfactory. Usually they contribute to an unkept appearance in the workroom, because of the dust and dirt that settle on them or because they are ragged and worn, or both. One trouble is that they have not the body necessary for a window curtain but are sleazy and invite carelessness with regard to their condition. Reference is made to this because such shades were in very general use and contributed to the poor housekeeping for the reasons mentioned.

All windows on the east, west, and south that are exposed to glare from the sun should be equipped with either venetian blinds or rolling curtains in two sections—one for the upper and one for the lower half

[2] Three contract shops, not included here because of the small number of operators in each, are reported on elsewhere (see p. 70).

of the window—the upper rolling up and the lower rolling down, so that each can stop at a line covering the direct rays of the sun if rolling them all the way cuts off more light than is desirable. However, venetian blinds are to be preferred because the slats can be adjusted to throw the light upward and away from worktables and to cut off brightness without preventing a free flow of air, a very important matter in summer.

The importance of good housekeeping with regard to cleanliness and order in places of employment and of accessible and adequate washing facilities cannot be overemphasized. That good housekeeping in factories contributes more to the general welfare and efficiency of workers than is generally appreciated has been demonstrated again and again. Obviously, satisfactory environment contributes to the well-being and mental alertness of workers, affecting favorably their physical health and strength. Therefore, sanitary devices that aid in keeping both plant and person clean are of outstanding importance because of their influence on the work done.

In shoe factories where white or light-colored material is used, washing facilities are needed as a precaution in preventing the soiling of such material. In addition, because of the use of sticky paste and cement and other material that stains the hands, the provision of accessible and adequate washing facilities is a moral as well as a financial responsibility of the firm. The general absence of towels, hot water, and soap in the plants surveyed indicates that this responsibility had not been recognized.

One of the most elementary standards for good working conditions is a clean workroom. Cleanliness not alone adds to the comfort and health of workers, but contributes to the preservation of products and of the plant itself.

Although housekeeping was reported good in 8 plants and fair in 8 others, cleaning had not been systematized to a satisfactory degree in any plant visited. Not even large firms employed a matron to care for the toilet facilities provided for women, and the jobs of some night watchmen involved sweeping and cleaning services. Moreover, it was a common practice to have the operators act as a janitor force in their respective aisles, work requiring in some cases considerable time. They swept the dust and scraps to the aisle, where the night watchmen or someone else gathered them up. Service facilities were noticeably neglected, and it is not unfair to state that a watchman is not necessarily a good cleaner. In most cases cleaning should be practically continuous. Further, not only does daylight insure better work but scrubbing requires equipment in the way of special work clothes, mops and pails, soap and rags, with which the operators are not provided. And lastly, to ask pieceworkers to take time to clean toilets obviously is taking an unfair advantage of them.

Workroom floors should be kept clean and in good condition as a contribution to safety, but in many plants they were worn or slippery from oil, paste, or other matter that had been dropped and not cleaned up. The large majority of floors were not even mopped, and only a few were scrubbed regularly; only three managers claimed to have the floors scrubbed once a year, and some stated frankly that they were under the impression that the floors had never been scrubbed. However, daily sweeping was reported for 12, and it was said to be carried on constantly in a few others.

Many other items could be referred to, but the foregoing is sufficient to illustrate a policy of negligence in housekeeping in spite of the fact that it needs more attention in shoe factories than in many other industries, because of the accumulation of scraps, the flying of particles in connection with brushing and scouring machine operations, and the use of poisonous solvents in paste, cement, and cleaning and repairing substances. Benzol is still used in these substances, and since it is known to be harmful to those who inhale its vapors, depending on the amount used and the susceptibility of workers, special caution is necessary to protect employees.

The following details on housekeeping substantiate the preceding summary:

The housekeeping was reported good in 8 plants, fair in another 8, and poor in 7. Of the 3 contract plants not included in the foregoing, 1 had good housekeeping, 1 fair, and 1 poor.

Crowding was evident in a number of plants, and particularly so in five of them. In one of these the stitching room was among the best of those visited during the survey, but the lasting room was so crowded that it was difficult to pass between the machines.

The floors were of wood in all but 4 plants, these being of cement in 3 cases, and of cement and wood in 1. They were reported in good condition in 15 plants, but were in need of repair in 8. In 5 of the latter this condition was general throughout the plant, but in 3 the floors were in fair condition in some parts of the building.

Aisles were obstructed in 11 plants; in 10 of them all aisles were so reported.

Extracts from the schedules include the following:

Plant 1.—Workrooms crowded with large piles of packing cases; floors cluttered—practically no aisle space in certain places. Floors looked as if never scrubbed; exceedingly messy and dirty. Most windows thick with dust.

Plant 2.—Factory on second floor. Lasting and making machines used. Floor, though swept and not covered with debris, was shaky and in need of repair. It might be added that its size simplified the problem of cleaning, as it was large for the number of workers and therefore not overcrowded.

Plant 3.—Housekeeping poor throughout. Janitor sweeps about twice a week. Workers supposed to sweep and clean around their immediate work place. Stock and heel-base department, with a cement floor, very dirty. Much obstruction. Trucks passing or carelessly parked in aisles.

Plant 4.—Housekeeping very bad; floor, walls, and windows dirty. Very narrow aisles; work and debris obstructed all passageways.

One of the closed plants visited had been given a very thorough renovating, following its closing after the strike. Machine rooms had been cleaned; all windows had been washed; even workbenches had been rejuvenated by a thorough cleaning, and the sewing tables and floors were shiny from scrubbing. A small hospital room, available formerly, was more adequately equipped during the housecleaning and made more attractive. The management of this plant had changed following the strike, and the ownership was more centralized. It was stated that more personal interest than formerly would be given by the president of the company to the subject of working conditions. The housecleaning was the first result of that new policy.

Reference is made to this fact because cleaning was not so general as it should have been in connection with the closing of other plants, and because the conditions that needed correction illustrate one of the evils that arise when owners leave the management entirely to someone who, because of ignorance or negligence, may not be equal to the responsibility.

Another plant, whose cutting and stitching departments formerly occupied a building at a distance, moved these departments to its main building before the close of the survey. It planned considerable changes in lay-out that gave promise of more practical and economic operation, because of reduction in cost of routing work, and that were more satisfactory in other ways, especially because it would bring the stitching department under the closer supervision of the owners. The last visit indicated great changes in this plant with regard to clearing of aisles, arrangement of worktables, and so forth. Moreover, from statements made it is believed that the housekeeping was much improved after the survey.

To women especially are surroundings of great importance in relation to their efficiency. In this connection adequate and satisfactory ventilation and lighting should be supplied, as should provision for safety and comfort at work, including facilities for food and rest, since all these are valuable assets in connection with production and efficiency in any plant.

In some States standards of working conditions with regard to these matters and the number of sanitary facilities to be provided not only are written definitely into the law, but are interpreted by a commission vested with legislative powers to define the laws or regulations adopted and vested with authority to enforce them.

Obviously, the adequacy of the provisions by which to secure enforcement becomes the important responsibility of the State authorities. It is doubtful whether the travel allowance for this purpose in New Hampshire permits the amount of travel by inspectors necessary to follow up inspections and check on the action taken on suggestions or orders for compliance with the law, and it is believed that this explains some of the inadequacies in the survey of working conditions.

VENTILATION IN SHOE FACTORIES[3]

The importance of adequate artificial as well as natural ventilation in shoe factories cannot be overemphasized, and it is given prominence in this report under the subject of working conditions. Its importance is due chiefly to the fact that some of the substances used in cements and pastes and in the repairing and cleaning of patent leather and other shoe materials, especially benzol and its substitutes, are poisonous and volatile, constituting a serious hazard to all susceptible persons who work within inhaling distance of the vapors unless provision has been made for the control and elimination of the fumes.

The lack of adequate attention by management was noticed with regard to the problems of ventilation and the location of operations in which poisonous substances were used, though the investigators had reason to believe that this was due more to a failure to understand the need than to willful negligence.[4] Therefore, since experi-

[3] See also part IX.

[4] 13 plants had exhausts on machines where operations were dusty, but none had provided any other controlled ventilation.

ence in other States can be used to illustrate that such conditions result in serious health problems for workers, and since the use of benzol was noticed in a number of plants, some experiences will be made available to shoe manufacturers in this report, although the original purpose of this survey did not include the study of occupational hazards. As a matter of fact, the many other duties in connection with this study prevented the assembling of data on this subject other than of a very general nature. However, the general information gained seemed to make it imperative to refer to the use of benzol in New Hampshire shoe factories. All but 3 of the surveyed firms still operating in New Hampshire at a considerably later date were visited with this in mind and samples of cements, solvents, etc., were obtained in practically all cases. Those making shoes on which rubber soles or rubber heels are cemented as a rule admitted the use of benzol, and it was found that other plants also admitted its use. It seems particularly necessary to furnish general information about the hazards in the use of quick-drying solvents where the ventilation of workrooms is inadequate, since so few employers interviewed gave evidence of concern about this condition.

All shoe manufacturers know that quick-drying solvents are used in connection with many operations in their line of business. Some of them have labored to overcome the health hazards involved, but there still are many firms not aware that all known quick-drying solvents contain poisonous substances,[5] filling the air of any room in which they are used with their poisonous fumes, and so exposing to the hazard of inhaling these fumes all who work in the room.

Benzol, used extensively in paste, cement, and cleaning substances, as well as in the repairing of patent-leather finishing and other processes in shoes, is considered the most hazardous of the quick-drying solvents. It is used by many firms, and workers who do not know of its presence nor about the hazards its use involves often suffer impaired health unless special precautions are taken to prevent them. Therefore, certain pertinent facts are referred to and other data are appended pertaining to processes and poisonous substances that have been found to result in illness and even death to shoe workers. Case records from studies in Massachusetts and New York also are given (see pp. 87–88).

Though the degree of seriousness depends on individual resistance to specific poisons, authentic case records indicate the need for particular care on the part of shoe manufacturers in this connection. Some persons are very susceptible to certain poisons such as benzol. The very fact that this can be ascertained only through the experience of the individual, so that neither employer nor worker is in a position to know it in advance, increases the need to protect every person by providing excellent natural ventilation and supplementing it by local artificial ventilation. In fact, the operations on which poisonous materials are used should be separated from the rest of the workrooms by partitions, and the workers on these processes should be protected by the installation of exhausts and apparatus that holds down the fumes until they reach the exhausts, in this way at least retarding the rising of vapors into the atmosphere and reducing considerably the amount that may be inhaled. Benzol, toluol, and xylene are heavier

[5] This statement was authorized by Dr. R. R. Sayers, senior surgeon, Research Division, United States Public Health Service.

than air and therefore the exhaust must be so adjusted as to draw down in order to carry off those fumes.

As indicated, only a few of the employers interviewed recognized the presence of such hazards or expressed concern about these problems, which probably explains why none of the firms visited had supplemented the natural ventilation in their plants by installing local artificial ventilation for the control and elimination of poisonous fumes.

It is not sufficient to have exhausts on machines alone, if in the same room benzol or other poisonous substances are used on worktables. Moreover, some employers admitted that they did not know the contents of the material used, while some admitted the use of benzol, and others said they thought certain cements and solvents contained benzol. One said benzol did not make the hands as sore as some of the other thinners. A few used small quantities at a time for cleaning, while others used carbon tetrachloride, one of the latter claiming that he has used it for a long time and that it is the best cleaning substance.

In the plants visited, few containers with benzol mixtures were labeled as to benzol content, though some carried a label to the effect that the contents were naphtha or benzol. In only one plant did one of these cans carry an extra benzol label, though the contents in containers with a naphtha or benzol label were believed to be benzol in other containers in this plant and in other plants.

In Massachusetts benzol labels are required by law on all containers in which benzol is sold, which is, of course, a great protection to both workers and management. The labels that are found in New Hampshire, however, are due to shipping regulations, or the fact that the Interstate Commerce Commission, under an act of March 4, 1921, prescribes regulations for the transportation of explosives and other dangerous articles by freight and express and as baggage for all common carriers engaged in interstate or foreign commerce. The terms of the Massachusetts law follow:

AN ACT REGULATING THE SALE, DISTRIBUTION, STORAGE, AND USE OF BENZOL AND ITS COMPOUNDS

Be it enacted, etc., as follows:

Chapter one hundred and forty-nine of the General Laws is hereby amended by inserting after section one hundred and forty-two, as appearing in the Tercentenary Edition thereof, under the subtitle BENZOL AND MIXTURES CONTAINING BENZOL; the six following new sections:

SEC. 142A. No person shall keep for sale, sell, transport or store, and no person shall have for use in any manufacturing or mercantile establishment, benzene, represented by the chemical formula C_6H_6, in sections one hundred and forty-two B to one hundred and forty-two F, inclusive, called benzol, in any receptacle other than part of a vehicle used exclusively for outdoor transportation, unless such receptacle is marked with the word "BENZOL" and with the words "BEWARE OF POISONOUS FUMES."

SEC. 142B. No person shall keep for sale, sell, tranport or store, and no person shall have for use in any manufacturing or mercantile establishment, any material containing benzol, in any receptacle other than part of a vehicle used exclusively for outdoor transportation, unless such receptacle is marked with one of the following combinations of words and figures:

"CONTAINS LESS THAN 20 PERCENT BENZOL",
"CONTAINS 10 TO 60 PERCENT BENZOL",
"CONTAINS MORE THAN 50 PERCENT BENZOL",

truly indicating the proportion of benzol incorporated in the mixture as last compounded, and with the words "BEWARE OF POISONOUS FUMES."

SEC. 142C. The words and figures required by the two preceding sections shall be clear and conspicuous and shall be of such size and be so placed as the commissioner shall by reasonable rules or regulations designate.

SEC. 142D. The commissioner may, by reasonable rules or regulations, exempt from the provisions of sections one hundred and forty-two A and one hundred and forty-two B, under such restrictions as he may deem advisable, (a) closed receptacles which are in the possession of the manufacturer by whom the contents of such receptacles were made or compounded or of a common carrier, provided in each case that he is satisfied that such contents are to be used only outside the commonwealth; (b) receptacles containing material used exclusively as motor fuel; (c) receptacles containing material which, as last compounded, contained less than 1 percent benzol by weight.

SEC. 142E. The commissioner shall, by reasonable rules or regulations, require such reports of the manufacture, sale, receipt, possession, or use of benzol or of materials containing benzol as he may deem advisable for the protection of persons exposed to possible injury by such benzol or materials containing benzol.

SEC. 142F. Whoever violates any provision of section one hundred and forty-two A, one hundred and forty-two B or one hundred and forty-two C, or any rule or regulation made under section one hundred and forty-two C, one hundred and forty-two D or one hundred and forty-two E, and whoever, being charged with the duty of marking any receptacle containing benzol or any material in which benzol is included, fails so to mark the same, and whoever wilfully removes or defaces any mark made in accordance with any of said provisions or rules or regulations shall be punished by a fine of not more than one hundred dollars.

—Approved June 28, 1933.

Chapter 304, page 2.

While it is true that a free flow of fresh air reduces these hazards, and that the general use of windows in shoe factories does provide considerable protection in summer, the fact remains that the climate of New Hampshire will not permit of the extensive raising of windows in winter but requires the provision of artificial ventilation in the form of local exhausts in all rooms where poisonous volatile substances are used and on all brushing and buffing machines. However, where quick-drying solvents are used, if natural ventilation is to be satisfactory it needs careful regulating, even in summer, especially as to amount and direction of intake of fresh air. To be adequate it requires careful supervision.

It is quite usual in shoe factories to have all departments on a floor in one large room, covering the entire area without any partitions. Since this practice brings advantages or disadvantages according to the processes, the precautions taken, and the type and condition of equipment for ventilation, certain conclusions are presented, as follows:

When adequate provision for supplementing natural ventilation by local artificial ventilation has been made, workers benefit by the absence of partitions that prevent free circulation of air and at times interfere with the natural lighting. However, if the artificial ventilation is of a general nature, rather than local, or for other reasons is inadequate to control or to carry off poisonous fumes, or is unsatisfactory because of draft or haphazard arrangement, the workers are exposed to other hazards as well. Moreover, if windows are closed, general artificial ventilation can increase the spread of fumes instead of controlling and eliminating them. Consequently, in these cases workers suffer by the absence of partitions.

The necessity of supplementing even good natural ventilation with adequate equipment of the best type for the control and elimination of benzol and other poisonous fumes cannot be emphasized too strongly. Moreover, the fumes should be carried off at the point of escape and not permitted to penetrate the surrounding atmosphere.

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Last but not least, it is highly important that these precautions should be the result of conscious and definite plans worked out by engineers who specialize on air conditioning. Obviously such exhausts must be not only local but supplemental to and based on the plant's equipment and workroom arrangements. In other words, though general rules can be followed their full value is achieved only when worked out to meet the specific conditions in each plant.

NOTES ON VENTILATION IN THE SHOE PLANTS

Good natural ventilation could be supplied in all plants during moderate weather by opening the windows. In the majority of plants the windows were placed a short distance apart. In a few cases, modern sectional windows formed most of the wall space, with at least one section in each that could be opened for ventilation. Nevertheless, sufficient natural ventilation was not provided in all cases at time of survey, even on warm days. Possibly this was due to the practice of depending on the workers to regulate the ventilation. In two plants the air in the first-floor workroom was very heavy with the smell of paste and cement because of failure to make use of open windows for air conditioning.

Provision for some artificial ventilation had been made in only 15 plants. In 13 there were exhausts on all machines where operations were dusty, such as brushing, buffing, and polishing machines. Though paste, cement, and cleaning and repairing substances containing quick-drying solvents were used in all plants, no provision had been made at any of the worktables to carry off the fumes by local artificial ventilation. As a rule, cement containers on the machines were covered. Windows offered good natural ventilation in summer, but they could not be depended on either in summer or in winter to supply a constant flow of air sufficient to break up these fumes to a point where all hazard would be eliminated.

While 13 plants had facilities for carrying off dust and particles from machine processes, 10 were found to be inadequately equipped, 3 of which were in great need of exhausts on brushing and buffing machines. In one it was claimed that an exhaust blower had been installed but had not been connected.

Electric fans for the comfort of workers were available in only 7 plants, and were limited to only some of the rooms in 3 of these.

It was to be expected that fire-insurance representatives would advise about the dangers of fire hazards, and because of this advice containers of inflammable or other supplies that held fire hazards were covered and kept in metal containers, and, as a rule, kept in the corner of the room. An insurance agent also had informed at least one firm about the possibility of occupational hazards from the use of paste that contained benzol.[6] In the case of the firm advised about health hazards, special care was given, so that only small portions of poisonous materials were exposed to the room at one time.

In one plant the toe and heel laster had been fitted up with a special arrangement to carry off escaping steam. In another, the superintendent had had the air examined where pyroxylin cement was used. In a number of plants the cement was kept in fireproof containers.

[6] He had stated that illness arising because of its use at work was compensable in New Hampshire, but this was an error.

Return visits in 1934 to firms surveyed in 1933 indicated an aroused concern about the use of benzol, and reports were made of dermatitis cases though none were referred to during the 1933 contacts.

LIGHTING

Natural

The natural light was adequate on bright days for all workers in 21 of the 23 plants for which data on working conditions were tabulated,[7] and adequate for some workers in the remaining 2.

Glare from excessive natural light for some workers was reported in 9 of the 23 plants included. The absence of a problem of glare in about half of the other 14 plants at the time of survey was due not to adequate equipment in the form of venetian blinds or other adjustable window shades but to muslin strips that had been hung at many windows or paper strips that had been tacked up at the point of glare, supplementing the service rendered by the muslin strips in reducing the extreme brightness.

Venetian blinds are recommended for window shading by illuminating engineers (see extract on p. 63). They break or diffuse light without interfering much with the free circulation of air when the windows are open. If rolling shades are used they should be in two sections, so that one may be adjusted to exclude the sun's rays, while the other leaves exposed the part of the window not in direct line with such rays.

Glare was absent in the three small contract plants also. This can be attributed to the use of muslin or paper strips and to the fact that, the employees being few, no one had to work in an unfortunate position as regards the lighting. However, an increase in business would change the condition as to space and raise the problem of glare.

About one-half of the 23 plants reported on had provided window shades; but very few of these had an adequate number, nor were all in good condition. Many were supplemented by heavy cloth curtains on rods, muslin or paper strips, and one of these plants even used burlap sacks at some of the windows. In the remaining plants without any shades there were a few plants with draw curtains of cloth or canvas and the remaining plants had nothing but the muslin strips. Not only were these shades and improvisations inadequate, but many were ragged and dirty. Though it is true that these makeshift arrangements did soften the glare, the paper and muslin frequently were heavy with dust, worn and ragged, or both. However, the more dust the more effective were the strips in diffusing or reducing the brightness of the light.

Obviously, the use of dusty, dirty, and ragged muslin or paper strips shows careless housekeeping on the part of the employer, and usually it is accompanied by other conditions that create problems for the workers and reduce their efficiency.

Excessive light contributes to fatigue and causes eye trouble, but a number of operations in the manufacture of shoes depend so greatly on adequate illumination that special attention should be given both to natural and to artificial lighting. It is especially necessary for cutters and stitchers to have plenty of light, but in the plants visited it was unusual to find the stitching machines arranged to the best

[7] Data were not tabulated for 3 of the 6 contract shops, for reasons already explained. See p. 51.

advantage in relation to the windows. Seasons as well as weather affect the constancy of good natural light, and the passing of hours changes its quality and quantity. Consequently, employers are actually obligated to provide adequate and satisfactory illumination, something that requires constant attention, as problems may develop at any point in the workroom, whether from an inadequate or an excessive supply of light. This includes attention to suitable window shading that permits diffusion of light without interfering with ventilation in hot weather, and equipment for supplementing daylight when conditions reduce its adequacy for any or all operations in a plant.

Natural light should be supplied across the worktables instead of from the front, except in the case of the northern exposure, where the light usually is steady and does not involve glare or shadows unless affected by other things. Stitchers and cutters often choose to face the windows because of the importance of sufficient natural light on these operations. As a rule cutters work on a north wall, if one is to be had. Stitchers also often choose to face the windows; and as north exposures are not always available, they suffer from a lack of understanding as to the cause of their headaches and eye trouble.

That lighting is a contribution to efficiency of workmanship; that cutters and stitchers especially should have adequate light without glare; and that one advantage of daylight over artificial light is the effect of artificial light on colors, must be recognized by all who produce shoes. The failure to provide proper illumination can be attributed only to a lack of understanding of requirements in this connection.

A few plants had considered these advantages. One long narrow stitching room stands out as an exceptional example of the possibility to plan and organize a workroom, even in an old building, to make for good workmanship and the comfort of operators. In this room there was a generous supply of windows on four sides. The worktables were placed across the room with the workers' backs to the south, so that only those at the extreme north end faced the windows at close range. These were the choice places, however, as north light is steady and without reflection. The cutting was not done in this room or the north wall certainly would have been used by the cutters. The light from the windows had been supplemented by dormer windows, built up in the middle of the ceiling, the full length of the room. The center aisle was wide and in it had been built a table, running practically the length of the aisle, on which rested a two-shelf arrangement open on both sides. The work was piled on these shelves and on the table. It was kept in order, and was convenient of access as a source of supply as well as for depositing completed work.

Artificial

Glare from artificial light was reported a problem in 9 plants, being a general condition in 4 of them and noted for some workers in the others. No glare was reported in 13, and for 1 firm no report could be made because the electric equipment was being repaired. Local lights with shades were provided at machines in most plants.

One superintendent stated that since coming to the plant a year before he had installed individual lights on the stitching machines and that this had increased production 20 percent and quality 30 percent, "with general benefit to all stitchers."

Notes from schedules

Sash windows on all sides of building, and natural light was adequate. Though cloth shades provided, there was glare. Shades not adjusted; if adjusted, would have cut the light. Also, the placing of employees with reference to light was poor, many stitchers on both south and west facing windows. Drop cords with shades hung over such machines as pull-overs, bed lasters, and so forth; pan reflectors used where only general lighting required. Stitching-room operators all had new (6 months) goose-neck lights. No apparent glare from artificial lights, and the number provided seemed adequate.

Sash windows on 2 or 3 sides of workroom. Natural light adequate on second floor, but inadequate in places on first. Shades at only a few windows. A problem of glare or reflection, because stitchers faced windows without shades. Some had pasted paper at the windows to cut the excessive light. Artificial light was rather haphazard, and appeared not to be adequate. Most of the lights lacked shades and many were at eye level, with a definite glare.

CONTROL OF ILLUMINATION FROM WINDOWS [8]

Control of natural illumination in interiors by means of roller shades which cover the upper part of the window is the least desirable method. It is better to use shades which cover the lower portion of the window, the roller being mounted at the meeting rail of the upper and lower sash, or at the window sill, or adjustable in height. It is best to use venetian blinds, which operate to redistribute the light rather than to absorb it. In some cases such blinds may be adjusted so as to render the illumination not only better distributed but actually higher at critical points than it would be with bare windows. The amount of improvement of illumination depends upon a proper finish of the slats for high reflecting power and upon a proper adjustment of their angle. In the cases tested, this angle lay between horizontal and 30° below horizontal as we look along the slats into the room. The effectiveness of the venetian blinds in improving the quality of illumination is due in large measure to the indirect component, which sometimes becomes materially greater than the direct component. Further investigation is desirable to establish the generality of these tentative conclusions under a greater variety of conditions.

SEATING

Before discussing the seating equipment provided for the shoe workers in this study, a statement is here presented embracing certain conclusions of a report by the New York State Department of Labor on industrial posture and seating.

The conclusions reached by this report are—

First. That posture must be varied.

Continuous sitting and continuous standing are both harmful. Ideally, conditions should allow the worker to vary his position at will, because of the rest and the enormous saving of energy that comes from a change of position during working hours.

Second. That work conditions should be such that correct posture is possible.

a. By providing a physiologically good chair.

b. By insuring a proper relationship of the different parts of the work place.

There is no one chair that is best for all industrial processes. To determine what chair is best for a particular process, the nature of the work to be done, the position of supplies and finished work, the equipment at hand, i.e., the height of bench, chair, place for foot rest, and so forth, as well as the height of the individual worker—all these must be considered. To provide a good chair is not enough; the important thing is to bring all parts of the work place into the best possible relationship.[9]

The first of two problems that arise in connection with seating facilities is the type of chair for workers who must operate in a sitting position, and the second is the provision of chairs for so-called standing

[8] Higbie, H. H., professor of electrical engineering, in charge of the engineering courses and laboratories for photometry and illumination, University of Michigan, Ann Arbor, Mich. In a paper before the twentieth anniversary convention of the Illuminating Engineering Society, Spring Lake, N.J., Sept. 7–10, 1926.

[9] New York State Department of Labor. Special Bulletin. Industrial Posture and Seating. April 1921, p. 6.

jobs, either high chairs for occasional use at work or ordinary chairs for a few moments' rest when operation is interrupted. A third factor is of great importance, namely, that all work chairs should be adjustable to the job and the individual, especially as to height and the angle of the back. There are chairs that can be adjusted to the position that best suits the height and figure of the worker.

Chairs were reported adequate as to number in all but three plants. This is not surprising in view of the fact that most of the women were engaged in work on which a chair was necessary as a tool for its performance. Consequently, it would be expected that there would be no shortage of chairs, but in 3 plants such shortage was reported in other departments. Moreover, in only three plants were chairs of a special type provided, and these were special stitching chairs in the stitching department. In 10 the common kitchen chair was used throughout and in 10 others kitchen chairs and stools were found.

Of one plant it was reported that "No one on a standing job seemed to have even a stool; many trucks and obstructions made it difficult to tell. Some of the chairs provided were broken and splintered." Of another, "Some chairs broken and badly splintered; girls on some standing jobs—dressing and finishing chiefly—had no seats conveniently near."

One schedule reads "A very few posture chairs." The schedule for another plant operated by the same firm indicates that no posture chairs had been provided.

Kitchen chairs were used as a rule, and some of the workers, following a familiar practice, had tried to improve them by tying a board across the back as an improvised support for the operator. Kitchen chairs generally have a rounding back, or else slant at an angle too great to permit the use of the back of the chair as a support for the operator's back while at work. In fact, with the rounding back, the elbows of the workers sometimes are obstructed in the moving or arranging of their work material, and neither type of chair is satisfactory for operators on sewing machines. Some of the operators had put cushions or other padding on their chairs. Firms that have used a good type of adjustable work chair report them to be a practical investment because of the returns in improved work and in speed.

Occasionally a chair was noticed on which the legs had been made longer, or had been sawed off, to suit the height of the worker. It was reported that 2 of the 23 firms included in the tabulation had made arrangements to raise or lower all chairs. The use of boxes as seats was not common, but they were in existence in some plants.

TOILET FACILITIES FOR WOMEN[10]

The provision of an adequate number and an acceptable type of toilet facilities in work places is necessary to the health and welfare of those employed. The failure of employers to make such provision for the comfort and protection of their workers not only constitutes an infringement on the personal rights of these workers but is an infringement that reflects on the community and the State of New Hampshire.

[10] See appendix, p. 93, for standards

The matter of privacy in the arrangement of toilets is referred to first because more attention had been given to that particular condition of the service equipment than to others of equal importance. Nevertheless, 6 of the 23 firms included in the general tabulation and 2 of the 3 contract plants not so included had failed to appreciate the value of such protection to the firm and the community in spite of its influence as an accepted standard of human behavior and its social significance.

A separate and entirely enclosed compartment for each toilet seat was found in only 15 of the 23 plants included, though in 2 others a strip of cloth was substituted for a door. In three plants the arrangement was unsatisfactory because, though the toilet room proper was shut off from the workroom by a door, the seats were separated by partitions and had no doors. Although in some places cloth curtains had been hung, in most cases they were insufficient in quality and size to provide privacy.

In one plant only some of the toilet seats were adequately screened. In four others the toilet compartments opened directly facing the workroom, without any partition to screen the door. In one of these the location was particularly bad, being practically in the middle of the room and adjoining the men's toilet. Further, the ceilings had not been ceiled, but it was stated that this would be done and that a screen would be placed between these doors and the workroom.

In eight plants toilet paper was not furnished by the employer. The rooms were designated as to sex in only half of the 16 plants for which this was reported, and in 5 plants there was a particular need for designation because of unsatisfactory location. In three, though designated in some parts of the building, they were undesignated in others.

Only 1 of the 3 contract plants included in the tabulation had made adequate provision for privacy.

The toilet rooms were reported clean in only 12 plants; they very definitely were not clean in 8 plants, while in 3 others some were clean and some were not. The condition of uncleanliness was no doubt due to the fact that in 18 plants the toilets were not cleaned by a woman but were swept by a janitor or boy in 14 cases and by the night watchman in 4 other plants. In two plants the women employees were responsible for all the cleaning. Here the toilets were in better condition than in the majority of plants, but it is unfair to expect piecework ers to take time to do cleaning. In the remaining three plants there was no report as to the responsibility for cleaning, and what is everyone's business soon becomes nobody's business.

Very few toilets ever received a thorough scrubbing. At the best, cleaning meant an occasional sweep-up. Of 13 plants it was said that daily sweeping was required, of 2 that they be swept once a week, and 8 had no standard with regard to frequency.

The experience of employers who have given thought to the housekeeping requirements of manufacturing has repeatedly demonstrated that the cleaning of cloakrooms and toilets for women should not be left to men but be the responsibility of some one woman. In the first place men are handicapped as to entry during working hours, and in the second place a good woman cleaner does better work than the average man who accepts such a job.

One manager decided during the survey that his company would employ women cleaners in the future and insist on clean service facilities.

While some employers blamed the workers for the untidy conditions found, the fact remains that no place used by many people can be kept clean unless some one person is responsible for the cleaning.

There was natural ventilation in all the toilets for only 15 plants; in the others some of the toilets were ventilated and some were not. Three ventilated into another room, two of these into the workroom. Obviously the two last mentioned had only artificial light, and since no artificial ventilation was provided, the lack of a window meant the complete absence of the usual means of ventilation.

One superintendent stated that he had been "fighting" with the owner for a roof ventilator. The owner had just been ordered by the commissioner of labor to divide the toilets from the workrooms; formerly the partitions were only half the height of the room.

The floors were reported in bad condition throughout—of wood, dirty and worn—in eight of the plants included in the tabulation. They were in bad condition in some of the toilet rooms in three of the plants. They were reported in good condition in 12 plants. The seats were in repair in 18 plants.

To sum up, the plant schedules show that in general the toilet facilities in the majority of the plants visited were below an acceptable standard with regard to condition and equipment.

Adequacy of equipment.—It is obvious that ventilation, light, cleanliness, and privacy are of great importance in connection with sanitary facilities, but the adequacy of equipment in relation to the number of workers is equally important.

In this connection the director of the Division of Chemistry and Sanitation of the New Hampshire State Board of Health, quoted later with regard to the importance of washing facilities, has this to say in the same letter, dated June 21, 1934:

> * * * the toilet facilities in some of these shops were not at that time (1930) what we would deem to be adequate. Certainly every shop should have suitable toilet provisions for men and women. These should be properly constructed, suitably located, provided with hot and cold running water and paper toweling, and of course kept scrupulously clean.

Because the survey was made in the early summer of 1933, when business was poor and therefore not representative in some plants of rush periods or even normal conditions, the ratio of number of women per seat has been computed from two sets of figures: (1) The pay roll selected as the 1933 week of fullest employment, giving the ratio applying at the time of the survey; and (2) figures given by the management as representing a period of better business, that is, the numbers that had been employed before the slump in industry. The very fact that there is considerable difference in the numbers employed at various times shows the advisability of planning the installation of toilets on the basis of maximum employment or room capacity rather than the minimum. In fact, in a number of plants the ratio at the time of the survey was in violation of the State regulations, though the actual number of employees was much less than that given by the management as representing more normal employment.

Twelve plants were within the legal standard set by New Hampshire, with a ratio of not over 25 women per seat, and 2 of these met

the higher standard recommended by the Women's Bureau of not more than 15 women per seat. Of the 11 plants that violated the State's standard, 1 had a ratio of 28 to a seat, 6 had a ratio of from 30 to 37 to a seat, and 4 had ratios of 48, 51, 53, and 61, respectively.

Though some of these ratios were exceedingly high at the time of the survey, the figures following show for nine plants the appalling conditions that must exist when more women are employed. Since some of these nine plants operate on more than one floor, the ratios as computed from the employment figures referred to under (2) are given by total and by floor. In few plants would it be practicable for workers to leave their floor.

All but one of the ratios in the following list, based on full employment in busy times, exceed the maximum allowed by the State:

Plant	Number of women reported employed	Number of seats	Number of women per seat
1	Total [1] 182	3	61
	First floor 26	1	26
	Second floor 156	2	78
2	Total (third floor) 230	3	77
3	Total [2] 185	4	46
4	Total (estimate) [3] 300	7	43
	First and second floors 47	2	23
	Third floor 250	5	50
5	Total 106	2	53
6	Stitching room in separate building:		
	Total [4] 96	2	48
7	Total [5] 50	1	50
8	Total 210	4	53
	Second floor 60	2	30
	Third floor 150	2	75
9	Total [6] 100	2	50

[1] Superintendent of factory conscious of fact that toilet facilities were inadequate. Building owned by an estate and almost impossible to get any improvements. Will force the estate to put in additional toilets.

[2] Building H-shaped, and there was 1 toilet on first floor of each wing—1 serving 6 and 1 serving 9.

[3] 203 women served by 5 seats off third-floor stitching room—over 40 per seat at time of survey, usually 50 per seat. 2 other toilets on first and second floors, used by 47 women, could not be assigned to use of third-floor employees. Manager and foreman expressed regret over the situation and were considering moving because of this fact and because other space in the building was inadequate.

[4] Operators in stitching room later moved to main building, where 3 toilets available; unless new facilities provided or staff reduced, when work is heavy ratio will be 48 per seat. Toilet rooms looked as if they had never been scrubbed.

[5] No definite idea as to cleaning; "Someone sweeps it when needed."

[6] Toilet equipment old as the building, more than 40 years. Poor maintenance and equipment acknowledged by superintendent. Would try to get new equipment. Toilets had not been cleaned "since previous week" and inspection was made on a Tuesday.

WASHING FACILITIES

Because of the materials handled, hot water, soap, and towels should be considered an essential part of shoe-manufacturing equipment. Instead, hot water was available in only 2 plants, and in 1 of these it was not provided for all the workers; soap was supplied in only 3 plants; and towels were available in only 2, and even there were limited to certain departments. Washing facilities were shared by men and women in 12 of the plants, and in another they were shared in certain sections of the plant. Separate washing facilities

for women were provided in only 10 plants. In only 10 was the equipment reported as clean; in 3 of the others it was acceptable in places, but in the remaining 10 it was not clean.

Some employees provided their own towels, but as much of the work done in the manufacture of shoes necessitates frequent washing of the hands and in most plants there were no facilities for the care of towels when not in use, the bringing of one's own towel could hardly be satisfactory. In at least 1 plant the women dried their hands on the rags provided for use on shoes, and in 1 department of the same plant they used the thin paper provided for shoe boxes. This not only added to the untidiness of the workroom and the washing facilities but involved an expense to the firm, and it is probable that the provision of towels would not have amounted to much greater cost than the use of this paper.

Adequate washing facilities are an essential requirement in shoe factories because of the sticky and poisonous materials and substances used on certain processes in some plants. In fact, they are of equal importance with ventilation.

The director of the Division of Chemistry and Sanitation of the New Hampshire State Board of Health is author of a report on Occupational Poisoning and Hazards from Certain Forms of Shoe Dressings, a reprint of which is included here (see appendix) because of its local value and the fact that it is now out of print. He can be quoted also from a letter of June 21, 1934, with regard to the importance of adequate washing facilities in shoe factories:

> We believe it is not unreasonable to assume that some cases of dermatitis, as often ascribed to infections from certain materials, are more properly chargeable to insanitary working conditions, including inadequate ablutionary facilities.

DRINKING FACILITIES [11]

Sanitary drinking fountains were reported throughout the plant in only 2 establishments; insanitary bubblers were in use in 16, in 2 of which some of the fountains were of a sanitary type. In four plants the only drinking facilities provided were faucets. In 6 places it was reported that insanitary bubblers were attached to faucets, and in 3 to tanks and faucets.

In one plant there was a cooler only. In another the treers had put in their workroom, at their own expense, an electric water-cooling system which they allowed others to use at a charge of 5 cents a week. At the time of the plant visit they had a list of 24 persons allowed to drink at the cooler.

Eight plants provided individual drinking cups; 14 had not provided cups; and no report was made for 1. In one case workers said they brought their own glasses, but the forelady's glass was the only one in evidence.[12]

LUNCH ROOMS, REST ROOMS, LOCKER ROOMS

Cafeterias were provided in 4 plants; a lunch counter was operated in 1; and gas plates for heating food were available in 2. Thus 7 of the 23 plants had made some provision for the convenience of workers at lunch, while 16 were without any such provision.

[11] See appendix, p. 96, for standards.

[12] The use of common drinking cups is prohibited in New Hampshire in all places of public character, including factories.

The contract plants were small; furthermore, in all plants but those in Manchester, most of the workers were said to live within a distance that made it possible for them to go home for lunch. No estimate of their number can be made, but it is probable that in all plants some workers had to eat lunch at the factory.

In many plants it was the practice to hang the outdoor clothing on walls or posts in the workrooms. Further, some of the cloakrooms were makeshift arrangements rather than adequate facilities. However, some kind of a cloakroom had been provided in 15 plants. Lockers were supplied in 3 of these; 12 were equipped with hangers and 11 had wall hooks. In 7 of the plants that had cloakrooms the equipment was combined with a toilet; in 4 it was practically a part of the workroom. Only 8 of the 15 cloakrooms were reported to be clean and in good order, and 1 lacked artificial light. Five had no outside windows; 8 had neither bench nor chair.

Rest rooms had been provided in only two plants. Three plants had hospital rooms, 2 others had small separate rooms that could be used fo · first-aid treatment, and 16 had first-aid cabinets or kits. Two plants had no provision of any sort for first aid.

For information on toilet and drinking facilities from Women's Bureau bulletins Installation and Maintenance of Toilet Facilities in Places of Employment and Sanitary Drinking Facilities, see appendix, pages 93 and 96.

Part VII.—CONTRACT PLANTS

Six of the plants included in the survey worked for other plants under contract or themselves gave out work under contract; therefore, they are referred to as contract plants. Although no plant was large—in fact, five would be classed as very small—they were of special interest for several reasons other than their size. All but 1 sold shoes at the time of the survey, though only 1 was equipped to manufacture a completed shoe, the others contracting for the operations they did not carry. Because of this and the fact that they furnished examples of developments and practices that are not generally known, the following description is submitted.

Grouping by location

In the second week in May 1933 five of the contract plants were occupying one end of a very long three-story building, used before for shoe manufacturing. The largest shop occupied about one-third of the third floor; 3 shops occupied each a part of the second floor, directly under; and 1 had a section of the first floor. More than half of the building was not in use. Still another contract plant had occupied for some months a small new building across the road.

At the close of the survey, in July, 4 of the contract plants were still in the same building: The largest, or that carrying all operations, and 3 small shops in which the operations were restricted to (plant 2) lasting and making, (plant 6) cutting, dressing, and packing, and (plant 4) cutting, treeing, dressing, and packing. The other tenant had left in June and was remodeling a small old building, also nearby.

This location, therefore, was convenient for their intercontracting relations, although their business was not restricted to their own group. However, other data of more importance, because of their relation to economic problems, give an indication of plant policies that should be traced carefully and evaluated in their bearing on trade practices, with special reference to employer-employee relations and problems of competition.

Limitation of operations

Only 1 firm of the 6 made a complete shoe in its factory at the time of the first visit by the Bureau agents. The other five can be said to have been shoe factories in embryo, planning to develop into full-fledged factories when business permitted. In 1 the operations were restricted to lasting and making, but the other 5 produced and sold shoes by contracting for work that was not done in their own plants.

It was reported that all were selling shoes in August, though only two were equipped to make a complete shoe. At the time of collecting wage data, 1 shop did not sell shoes, but it was reported to have increased its operations shortly after the close of the survey (the middle of July) and to be producing its own shoes throughout, early in August.

Contract plants operating on this system generally have proved to be a source of unfair competition, and these plants no doubt were so considered until the spring of 1933, when new policies in all lifted them out of the class of sweatshop practices to factories cooperating in a local union program to raise wage rates.

Since considerable business developments took place in three during the 10-week period of the survey, reference to these developments will be taken up next, and the subject of cooperation with the union will be fourth in order in this summary.

Changes in processes during May and June

The number of processes handled was increased in three shops during the survey. Three expanded to a considerable degree in number of employees and in operations carried on, one doing all operations in June except lasting and bottoming, and another practically all except sock-lining embossing and some stitching. A third firm changed its policies with regard to method of handling the packing, enabling it to include packing as an operation at the close of the survey, whereas at the beginning and for some months before it had contracted for it. One shop that had limited its operations to lasting and making during the survey was reported to be selling hoes early in August.

These plants therefore offer information on expansion programs executed within a few weeks, with an increase in number of employees.

A short summary of the wages reported will be found in another section, and therefore reference will be made in this connection only to the numbers of persons employed in March or preceding the survey, and in June after the expansion program had been achieved. In 1 contract plant, where 17 men and 3 women were employed in March, as many as 45 men and 7 women were employed in June. In another plant no women were employed in March though 6 men were at work, but 20 women and 7 men were at work in June. The preponderance of men in June in the shop first mentioned was due to the fact that stitching operations were put out on contract. In the second plant the employment of more than twice as many women as men in June was due to the taking of contracts on stitching in addition to that required on the shoes put out by the owner.

One shop, employing in April only 4 persons, all men cutters, employed 13 men and 2 women the last part of May.

In 2 contract plants data on the number of persons employed were available only for one period, an early May pay roll: In one, 25 men and 2 women, and in the other, 12 men and 3 women, were employed. In the former, as stated in the foregoing, the operations were for others under contract and were confined to lasting and making processes; but in August this plant also was reported to be selling shoes, although continuing to take contracts for others in connection with lasting and making. Therefore, records are available that indicate considerable development during May, June, and July in four of these contract plants.

Accepted union polices

All six contract shops operated under union policies, which was very unusual. When contracts are arranged it is customary to make a job agreement for a lump sum for each lot. This had been the practice in these plants. The union agreement, however, required that those contracting should pay the workers who filled the orders the piece

rates that were paid on these operations in the largest union plant in the city (the first McKay plant in the State to accept the union, though three other large plants followed suit later). It was stated that "the union does not interfere in any way with contracts between manufacturers. All we require is that they do not give work by contract to any employee in any department of their factories. This is covered by article 10 of our general constitution, which reads: 'No member of the Shoe Workers' Protective Union shall be allowed to enter into any contract with any manufacturer and employ help.'" (Statement by Mr. Johns, Shoe Workers' Protective Union, Manchester, N.H.)

These contract shops thus were operating under union regulation because each operator was a union member and therefore could not contract for any particular type of work but was permitted to do the work handled by his employer providing all rules of the union were met by such employer.

Launching operations on a shoe string

A study of the developments in five of these plants by tracing changes and growth from their opening would offer a background of information of considerable value with regard to the amount of capital necessary to launch the production of shoes. These contract shops are, in fact, good illustrations of the method by which individuals without much capital establish themselves in the manufacture of shoes. The rapid development in comparatively short periods is illustrated by the statement of one employer as to his plant's small beginning and its growth in 5 years from a shop with 9 employees to a factory employing 255 persons (115 men and 140 women) in 1933, summarized here:

> A firm that opened a shop in June of 1928 had begun with no machines and practically no capital. At first they did cutting and packing only, arranging by contract for all other operations. At that time they employed 5 cutters and 3 or 4 in the packing department. A year and a half later, in January 1930, they rented lasting and making machines—1 laster and 1 McKay sewer—for which they deposited about $150, paid $125 a month rental, and paid three-fourths of a cent royalty per pair of shoes turned out. They "pulled" by hand. Later they rented machines to the value of $1,500, paying $400 down and the balance in monthly payments of $50. They kept adding machines as business warranted, and in July 1933 they had $4,000 on deposit with the machine company. The $4,000 represented money covering installation assessments required by the machine company before the machines are installed, a sort of collateral in case of failure, but does not include insurance costs which are carried by renters. While renter or user also pays for any new parts that are needed, the rental company keeps machines in repair.

Unfortunately, a comprehensive study of all the factors involved in renting shoe machinery would require a volume of detailed information on practices and policies of the machine company, as well as of the difficulties of shoe manufacturers. The latter have found themselves tied up with heavy payments for charges on idle machines or the return charges set by the machine company on the return of machines—and for some the return charges are large—and other complex economic problems involved in connection with monopoly practices.

Further, the examining and analyzing of the economic handicaps or advantages of the contract system would in themselves be a stupendous undertaking, though necessarily important in attempting any evaluation of the practicability and effectiveness of the system referred to.

Since the outline of study in New Hampshire did not cover these additional subjects, the foregoing is confined to a superficial listing of possibilities that invite further consideration.

The practices in contracting for packing previous to May 1933 were criticized by workers in at least one plant, in which case the practice was discontinued in May 1933 to meet the objections of the union. Workers claimed that contractors had exploited them, employers having disclaimed any responsibility for pay other than the amount agreed upon by the contractor. It was understood that in some cases contracting for packing was continued, but under regulations specified by the union.

Working conditions

The analysis of working conditions appearing elsewhere in this report makes only occasional reference to the three small contract plants, not included because each occupied only a small space in one large building and each employed only a few regular workers—27, 15, and 10, respectively. Two of the three shops were on the second floor; the third and smallest on the first floor.

The entire building was old, and the floors were very much worn in places.

Two of the plants had windows on three sides, but one workroom on the second floor did not extend across the building, so the windows were confined to one side. However, they were close together, the workroom was narrow, and the operations were few, so the natural light was adequate except on dark days. In fact, the natural light was adequate in all three workrooms, but in each case paper or strips of muslin constituted the one means of reducing and diffusing excessive light and glare. The size of the workrooms was an advantage in that only a few operators worked close to and facing the windows that caused the glare. Artificial light had been provided, but as most of the bulbs were suspended from the ceiling, were without shades, and were not adjusted as to height to prevent glare, the results were not satisfactory.

The housekeeping in the shop on the first floor was good, but it was less satisfactory in the other two, although better on the whole than in some of the larger places visited.

The shops on the second floor, together employing 38 men and 4 women, shared sanitary facilities. Though the provisions were adequate for the women, it was said that as the equipment on that floor was more worn than that on the first floor, the arrangement was not a good one. The shop on the first floor occupied space directly under the plant that did lasting and making on the second floor. It shared its forelady with that plant, and the difference in housekeeping between the two probably was due, at least in part, to the difference in the operations: Lasting and making mess up a room more than do cutting, dressing, and packing. The forelady saw to it that the toilets were clean. The sanitary facilities in this building all were below standard, but those on the first floor were the best.

Part VIII.—POLICIES AND PRACTICES OF MANAGEMENT

Introduction

The number of employers who consciously assume responsibility for providing satisfactory working conditions through the development of policies and practices that promote the well-being of workers has increased greatly since the World War. However, there are far too many firms that still neglect to do so.

Naturally, the conduct of business reacts to the advantage or disadvantage of the workers according to the conditions that the employer's policies bring to them. Policies that promote the welfare of workers usually serve management as really as they benefit workers. The good will of employees has proven to be of immeasurable value to employers in times of stress.

The disturbed relations that existed between employees and management in some of the McKay shoe factories surveyed in New Hampshire made it advisable to ignore assertions of persons immediately concerned as to the causes of these disturbances, which, though interesting and important, could not be evaluated on any comparable basis except by the data assembled on earnings and working conditions. These data show great differences among firms in practices and policies, plant layout, and working conditions in general. In fact, this material indicates the need for further study of policies in management that are significant in employer-employee relationships, and their influence on unfair competition, especially to small firms.

Periodic unemployment and excessive part-time work react in a shrinkage of earnings and create problems for society generally, but they affect most unfairly those whose earnings are reduced in part or are wiped out entirely.

It was decided to supplement the data on working conditions and earnings, reported in other sections of this study, with facts as to policies and practices of management in connection with several general subjects important in employer-employee relationships for which management rather than workers must assume responsibility, and on two not definitely under the control of management, that is, seasonal fluctuation and shut-downs or irregularity of hours because of loss of business. The list of these special inquiries follows. Summaries of the information obtained, in some cases slight, appear in the pages following or elsewhere in the report:

A. Plant ownership: 1. Independent firm or a branch?
   2. Changes in ownership.
B. Personnel policies: 1. Who determines?
   2. Policies as to labor organization.
C. Employment policies: 1. Source of labor supply.
   2. Who hires?
   3. Changes in policies in 1933.
D. Was spread-the-work program adopted?
E. Practices as to stabilization of employment, insurance, etc.
F. Hours: 1. Irregularity in 1932.
   2. Shut-downs for 2 weeks or more.
   3. Short days or part-time employment for 2 weeks or more.
G. Seasonal fluctuations.
H. Policies and methods of setting piece rates.

The majority of firms appreciated the reasons for seeking this supplemental information.

Most employers expressed regret over the irregularity of earnings in 1932 and 1933. In some cases the spring of 1933 was said to be somewhat worse than the year 1932. It was quite generally stated that business conditions were beyond their control. Competition in selling was held to be the main difficulty by most employers. Some referred smilingly to the mistaken belief that competition is a healthy sign of development in business, having found it impossible to meet the acute and "unfair" competition that has developed through new machines and processes, too frequent changes in styles, and the multiplicity of materials used in the manufacture of shoes. Some claimed to have stabilized employment through improved methods and increased activity in selling; that is, centralized selling, or the securing of a regular market, such as chain stores. On the other hand, these more extensive selling programs on the part of large firms had made it more difficult for others to finance the cost of selling. It was stated in more than one interview that it was impossible for the manufacturer to sell on a basis of cost of production, as the market in the spring of 1933 was a "buyers' market", described as one in which the buyer sets the price, by calling for shoes at 58 cents, 98 cents, $1.98, $5, $10, or more. The manufacturer who cannot produce the shoe asked for at the price set by the buyer finds difficulty in disposing of his product. Others blamed their troubles on large companies that had centralized sales offices and means of selling and displaying goods with which the small producer could not compete.

One firm claimed to have kept out of the red in 1932 by producing a sandal that caught the eye and sold for 50 cents. Another attributed the slight increase in business to their having added another salesman and reached into new territory. A few spoke of the advantage of a standard product with a regular market. Practically all worried over the possibility of continued poor business.

Who determines policies

In 7 plants the policies were said to be determined by the owner, in 4 by the president, in 11 by the manager, in 2 by the superintendent, and in 4 by more than one person, as the plant manager and partner, or owner and superintendent.

Opinions of labor organization

As before stated, the origin of the Women's Bureau survey of the boot and shoe industry in New Hampshire was a strike in a number of plants (practically all McKay) in the spring of 1933. Of 16 plants affected, 13 were surveyed by the Bureau and 3 were not. Several plants signed with the union, some raised wages without signing, others moved away, and a few continued to operate.

Questioned as to their opinions of the advantages or disadvantages of a union contract, the officials interviewed expressed them freely. A number were critical of union activities, and though conceding that their workers had suffered in reduced earnings, they too claimed to have had crippling losses. Some blamed union activities for much of the trouble in 1933, though the union quoted low wages and poor working conditions that made their activities necessary.

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A number of employers expressed the belief that unions were necessary and accepted a union contract willingly. Others had come through without recognizing the union, in some cases by an increase in rates, in others because of the locality and the absence of union activity, or the plant's removal from the place of such activity. Further, McKay factories were practically the only ones involved in the strike activities referred to.

The attitudes of the various firms toward organization were expressed as follows:

Hope all shoe companies will organize. This would tend to stabilize prices and market conditions, and ultimately serve to stabilize employment.

Unionization of plants will have stabilizing effect.

Union agreement will serve to stabilize employment. Organization helps employers, gives them strength in fighting unfair practices in setting prices. Undercutting in prices has fed and increased unfair competition, and now the buyers and not the manufacturers set the price of shoes. Consequently, unless unions function, the manufacturer must produce a shoe that meets the price of the buyers.

If all manufacturers of women's McKay shoes were organized it would stabilize employment.

If every shoe factory signed with the union, they would build up protection for manufacturers as well as for workers that would prevent unfair competition.

Unions will cause continual trouble. I am firmly of the opinion they are flat failures.

Source of employees

Practically all the employees in the plants resided in the town or immediate vicinity. A few came from other towns.

Who hires

In about two-fifths of the plants more than one person shared in the responsibility and authority of hiring. In 1 plant the duties were shared by the manager and foreman; the superintendent and foreman were responsible in 5 plants; the owner and superintendent in 2; and the treasurer and superintendent in 1. The forelady was reported to share such authority and duties with the foreman in only 1 plant. In 1 plant the superintendent hired the foreman, who in turn hired the other employees. The foreman alone hired in 7 cases; the owner alone did the hiring in 3 plants; and the manager alone did it in 3 others.

Spread-the-work program

The spread-the-work plan was held by some employers to have contributed to the firm's problems, though most of them stressed the fact that the employees wanted to share the work rather than force others out of employment. Some referred with appreciation to this attitude. On the other hand, 3 firms blamed the spread-the-work plan for dissatisfaction and the strike in 1933.

Fourteen reported keeping all employees and dividing the work, though several stated that there was little work to spread; 3 kept all but a few employees; 3 closed in November and December; 2 gave no information and 1 was not in business in 1932; 1 said he did not try to spread the work because he had too little work to do so.

Stabilization of employment

Fourteen plants acknowledged that they had not attempted any stabilization program. In one case the statement was qualified by the term "no special plan." In this plant there was a decided difference of opinion among executives as to the union's influence on stabilization of employment, but the superintendent stated that he hoped all shoe companies would organize, as he believed it would tend "to stabilize prices and market conditions" and ultimately serve to stabilize employment.

Five other firms believed strongly that organization and union contracts would serve to stabilize employment; thus officials in six plants voiced positive opinions on this matter.

In one plant the owners said that "if every shoe factory signed up with the union they would build up protection for manufacturers as well as workers that would prevent unfair competition. Now buyers claim that they can buy cheaper of X, and in this way they will be able to force the manufacturer down to actual costs and below if the stock has not been disposed of."

One owner thought that the unionizing of plants would have a stabilizing effect "because the union controls the number of hours of work within its membership, while prior to the time of signing the union contract, any company could operate any number of hours, day or week, without interference." Another stated that "a certain union is not an asset in stabilizing employment, but another union is, because of the big men leaders."[1] Though no claim was made to the effect that his contract helped to stabilize employment, as a matter of fact it did give his employees considerably more work.

One firm reported that they had sought a tenant for their building who manufactured a cheaper shoe than they did, because their own business was bad and such an arrangement would make it possible for their employees to work for the other firm also, adding to their earnings in this way. They claimed that this plan actually had helped to stabilize employment for their workers, some of whom had been employed by the company for many years. It was reported that business had fallen off to a degree that the firm could not have continued without the arrangement finally made.

The problem of this firm was the high grade of shoes they made. It was emphasized that the 1932–33 market called chiefly for cheap shoes, and their experience demonstrated that the tenant who made a cheap shoe could sell more shoes than he was equipped to produce, while their own markets, according to sales, were practically closed to them.

Two other plants sold to chain stores and had arranged that the orders for shoes be sent in a month ahead of delivery so that management could lay out the month's work in advance. They claimed that in this way they had succeeded in providing steady work in their plants, and the pay rolls seemed to support that statement.

Four plants reported efforts to keep up production and provide work for employees by regulating the number of workers on certain operations so as to prevent overloading at rush times.

Another reported that they hired extras rather than carry, as so many plants did, a larger number of workers than could be employed full time except at busy seasons.

[1] For expressions of opinion on organization, see p. 75.

Policies that the firms considered especially favorable to employees

Four plants reported having launched other programs that served employees. The scheduled comments follow:

"Foreman of stitching room always tries to keep workers posted on work ahead; advises operators in advance of exceedingly slack periods and permits them to go home for an afternoon if they wish, rather than insisting on their staying should work come in." This firm also reported, as stated under stabilization, the practice to hire extras as needed rather than to take on a larger regular force than the business warranted.

"Firm has tried to prevent foremen from practicing favoritism in giving out work. Difficult for anyone to show partiality in the distribution of work; it would not be tolerated if discovered." Though this firm owned other plants, mention of this policy was made in only one.

Of two plants it was reported—"Special rack used for distribution of work, thereby preventing favoritism, as well as saving much of workers' time." As a consequence, it was not possible for a foreman to give a job selected because of remunerative preference as compared with some other job.

These few statements are important because any sincere program for the stabilization of employment and wages in the shoe industry must include consideration of the policies in hiring and in distributing work. The statements are especially pertinent because charges of favoritism in giving out work were among the reasons for the strike in some of the plants visited, and the inspections indicated a variety of practices in connection with the distribution of work, especially as regards the condition of aisles and storage on racks. (On p. 55 reference is made to cluttered aisles.)

Shut-downs

Though 13 plants reported operating without a shut-down of as much as 2 weeks in 1932, 3 had laid off most of their employees in certain months. One laid them off in May, November, and December; another in May, June, September, and November; and the third laid them off 1 week or more in June, July, and August. Two plants gave no information on shut-downs, 2 had not been in that location, and 4 reported shut-downs of less than 2 weeks.

Seven McKay plants and 1 compo plant reported shut-downs of 2 weeks or more, 1 of the McKay plants reporting that all departments lost 7 weeks in November and December. It was stated that this plant could have operated if the firm had been willing to cut shoe prices 10 percent, but that cutting prices on shoes 10 percent would have necessitated cutting wages 20 percent, and the firm preferred to close down rather than do that. In view of the fact that one of the leading shoe manufacturers of the State is quoted to the effect that the total cost of labor of any manufactured product, whether shoes or yard cloth, is "so small a part of the total cost of the article manufactured that it should be the last place in which to economize", the reference to a 20-percent cut in wages in order to reduce the price of shoes 10 percent does not seem well founded, especially since it was made by the owners of a plant that could not furnish information as to the hourly basis for their piece rates. "Have always followed local piece-rate prices as far as possible" was their statement, but

they added that union officials found their rates 3 percent higher in general than the union rate. The manager quoted in the foregoing to the effect that labor costs are the last point on which to cut stated also that the same piece rates may result in high earnings in a plant where management has arranged for distribution of work without loss to workers and where equipment is kept in good running order, and may result in exceedingly low earnings in a plant where these things are neglected, working conditions contributing to earnings in a degree not commonly realized.

Part-time employment

Part-time employment may be a more serious handicap to workers than out-and-out unemployment. When workers are without a job, the family and creditors know it, but part-time employment on a supposedly regular job does not advertise its existence as does total unemployment, though it reduces yearly earnings to a serious degree, especially if long continued. The large proportions of pieceworkers suffer reduced earnings through part-time idleness during working hours to an extent of which the public and even Government has little conception. Shoe workers have long been sufferers in this respect.

Unfortunately, it has not been the custom to keep a record of time worked by pieceworkers unless required by State law. It has seldom been done in shoe factories, though such records would throw much light on the problems of the workers and would prove of inestimable value in analyzing the problems of producers. Such a law was passed in New Hampshire in 1933. (See p. 10.)

While it is true that some of the part-time employment is due to fluctuation in business and market conditions, it is also true that far too little attention has been given to the problem of part-time work by either management or Government. Though the Federal Government has worked out indexes of wages and employment, in the past it has not recognized sufficiently the element of time and the subject of part-time work, nor has it studied seriously the variation in earnings week by week, a condition that has existed for a long time and of late years apparently to a degree in which it constitutes an industrial economic disease. If part-time employment is due largely to poor management, that fact should be disclosed; if it is due to overexpansion on the part of certain groups, that should be made known; and if it is more serious in the production of certain types of shoes and in certain geographical areas or is due to the control of patents and methods of producing, these conditions should be analyzed.

The shoe workers themselves seem to have accepted seasonal fluctuation and part-time employment as inevitable, even in the days of good business. When workers spend their days in the factory, families, neighbors, and creditors are likely to consider them as employed and expect more of them in total earnings than the time worked makes it possible for them to meet. This complicates life seriously for many workers and points to the need of scientific study of recurring part-time employment on so-called "regular jobs."

Especially does the shoe industry need such study, no matter whether the recurring part-time employment is due (*a*) to carelessness of management in routing work or in balancing it among the departments, condition of plant equipment, method of marketing, or other managerial responsibility; or (*b*) to scarcity of orders, weather condi-

tions that slow up sales, type of shoe, acute competition, or other market or consumer conditions beyond the control of management.

Since unemployment and part-time employment had been serious problems for a long time in the New Hampshire factories, probably largely due in 1932 to acute competition and poor business, an effort was made to find out whether any of the plants had undertaken definite programs for the stabilization of employment. It is illuminating to find that half of the factories visited admitted that they had made no special effort to stabilize employment, and it is probable that few of those who reported such efforts gave conscious thought to part-time work in that connection.

Policies and methods in the setting of piece rates

The comments on method of fixing piece rates disclosed that the problems were greatest in the stitching room, and that because of the rapid changes in styles it was more difficult in plants making women's shoes than in those making men's shoes.

As the fixing of rates is discussed in section V of this report (see p. 30) only certain comments by the plant officials are quoted here.[2]

Few adjustments necessary except in stitching room. In that department use sample girl by the hour for pace setting. Take average between slowest and fastest operators. Thirty-nine cents an hour is basic rate for stitchers, 28 cents for benchwork.

Begins stitching with a basis of 35 cents an hour for hourly production. Does not use pace setter but decides and works out piece rates according to his best judgment on basis of hourly cost of production.

Forelady computes rates from the try-outs of 4 or 5 workers on new operations, on 4 or 5 cases each. Basis for piece rate given as 35 cents an hour in stitching room.

Firm has basic hourly rate on operations from which piece rates computed. Piece rates based on the time required by 5 or 6 operators to perform, by striking average.

Few changes in rates except for stitching. Forelady sets them according to prevailing prices in the city, and goes over them with foreman. Uses operators to figure adjustments.

Grade of shoes made is simple and stable, with a minimum of variety of style. Piece rates need not be adjusted very often. All rates computed on a basic hourly rate for time and degree of skill required.

Frequent revision of piece rates in cutting and stitching departments. Set by job and product analysis.

Styles simple; men's shoes; standardized production, so not necessary to adjust rates very often. Cutting and stitching have some readjustment of prices each spring and fall season when new models introduced. Prices set by job study and analysis of product.

Style changes require relatively frequent revision of price lists in cutting and stitching. Price set by analysis of product and past time studies.

Experience of years makes it possible to adjust rates, but sometimes uses 4 or 5 operators on a try-out. Tries to follow Brockton rates. (Could not give data on basic rate.)

Piece rates of former owner taken over with plant. Some changes made, and new operations rated. Foreman works out the rate, and prevailing Manchester rates on operations are followed. Plant bought 11 years ago.

When designs change we experiment and set up in our own minds fair returns for days or weeks worked, and piece rates are computed from basic hourly rates (2 plants).

[2] Excludes 10 firms in which the union sets the rates.

Follow Brockton rates; use French clock. (Furnished hourly basis for piece rates.)

Rates have not been changed for years. Product is staple stock that does not require much change in design. Long in trade and so can adjust prices on experience.

Rates based on experience and former practices. Have not paid so high as Haverhill rates. Fancy stitching based on piece rates of old patterns previous to 1928.

Rates figured on their experience and knowledge of local prices. Have no definite basis from which rates are computed.

Figure what they can pay on that job. One operator tries out new work. Cheap shoes, little change in design.

Part IX.—HAZARDS IN CONNECTION WITH THE USE OF QUICK-DRYING SOLVENTS

[See also ventilation, p. 56]

Considerable evidence is at hand to prove that some operations in connection with the manufacture of shoes involve serious health hazards. Unless certain very definite precautions are taken by manufacturers to safeguard their workers, even those not actually employed on the operations involving the use of poisonous materials may be affected by the fumes in the atmosphere if at work in the rooms where such processes are carried on.

The following list of the poisonous substances to which women were exposed in nine of the shoe factories surveyed by the Massachusetts Consumers' League in the summer of 1928, with the numbers of women employed, is from the report of the study Some Types of Industrial Poisoning:[1]

Number of women in plant	*Poisonous substances*
100	Wood alcohol, ether, naphtha rubber cement, repairing dope.
18	Naphtha rubber cement and repairing dope.
190	Methyl (wood) alcohol, patent-leather repairing dope, naphtha rubber cement.
300	Methyl (wood) alcohol, patent-leather repairing dope, ether, shellac, naphtha rubber cement.
30	Methyl (wood) alcohol, naphtha rubber cement, ammonia cement.
100	Naphtha rubber cement, ether, carbon disulphide for cleaning shoes.
300	Methyl (wood) alcohol, acetone, naphtha rubber cement, ether, amyl acetate and butyl acetate in cements.
125–150	Naphtha rubber cement, repairing dope.
350	Patent-leather repairing dope, naphtha rubber cement, benzol rubber cement.

Though each substance listed in the foregoing constitutes a health hazard to workers, special reference will be made in this report only to the danger of benzol, because of its extensive use in pastes, cements, and the repairing of patent leather in connection with shoe manufacture. All quick-drying solvents convey more or less of a hazard to workers, but benzol is held to carry greater hazards than do other poisonous substances used in pastes and cements. Moreover, the hazards it carries are not limited to the persons using it, but extend to anyone in the same room. It vaporizes readily and so contaminates the air. Further, general protection of all those exposed to its poisonous influence is important because some workers are more sensitive to it and more quickly and more seriously affected than others.

A review of * * * chronic benzene poisoning in industry fails to throw much light on the danger limits of benzene vapor in the air of a working room. The men in the American fabrikoid factory died after several months' exposure

[1] Consumers' League of Massachusetts. Some Types of Industrial Poisoning. Boston, 1929, p. 30.

to air containing, according to the company chemists, something under 50 parts per 1,000. Pugliese found only 1 part per 1,000 in an Italian factory where fatal cases had occurred, and symptoms of poisoning appeared in an atmosphere of 0.2 to 0.3 parts per 1,000. Legge tells us that as little as 0.2 to 1.0 part per 1,000 was present in the English balloon factory where two men contracted fatal benzene poisoning. There is need of a great deal of close observation with analysis of air and probably periodical examination of the blood of the men and women employed, before this question is definitely settled.[2]

Dr. Hamilton describes its effects as follows:

To summarize briefly: the effect of chronic benzene poisoning is to cause a loss of red blood corpuscles, resulting in profound anemia; a loss of the elements and substances in the blood which are concerned in blood clotting, resulting in hemorrhage; and a loss of white blood cells and of the substances in the blood serum which are concerned in defending the body against bacterial infection.[3]

The discovery of harmless substitutes for benzol remains the goal to be striven for, the United States Public Health Service reporting that, judging by recent experiences, no substitute is known that removes all danger of poisoning. It has been known for many years, however, that adequate ventilation and scrupulous cleanliness aid in the protection of workers using or exposed to benzol or other quick-drying solvents. Drs. Kober and Hayhurst wrote the following more than a decade ago:

Preventive measures—The prevention of poisoning from fumes of benzene or benzine lies in good ventilation so that the fumes may be diluted down to the point of harmlessness. Even allowing for an individual susceptibility such as we have reason to think does exist in some people, the really serious cases of poisoning have all been caused by exposure to very heavy fumes, and the reports of chronic poisoning come from those countries chiefly where industrial hygiene is comparatively neglected. High ceilings, abundant ventilation, scrupulous cleanliness are enough in cases where fumes are not heavy; artificial ventilation with air exhaust must be installed when the danger is greater, preferably, according to the British inspectors, with a down-draft as these are heavy fumes. If a vat or tank must be cleaned out, the men must be furnished with divers' helmets. For the distressing skin diseases nothing but very strict bodily cleanliness will help and in susceptible cases there is no hope of cure as long as the work is kept up.[4]

Only a few employers interviewed in the New Hampshire survey seemed informed on the existence of a health hazard in connection with paste and cement, or referred to having taken simple precautions to safeguard workers in this connection, such as providing free flow of fresh air and adequate or readily accessible washing facilities. Further, though supplies of paste, cement, cleaning fluid, and other materials were covered except while in use, few workers had been cautioned about exposing to the atmosphere large quantities of these supplies at one time or about the dangers of inhaling the fumes.

It developed that such precautions as were taken in the storing and the exposing of substances in the workroom were due to instructions issued by the inspector from the insurance company, because of the inflammable nature of benzol and other materials of this nature, rather than to any conscious effort to prevent industrial poisoning.[5] One official did report that this inspector had told him of the possibility of occupational disease in connection with the use of paste and cement containing benzol, explaining that when illness

[2] Hamilton, Alice. Industrial Poisons in the United States. New York. 1925. pp. 474–475.
[3] Ibid. p. 479.
[4] Kober and Hayhurst. Industrial Health. 1924. pp. 502–503.
[5] A related incident is described on one of the schedules: In a small and almost sealed room women were covering wood heels with celluloid. There was a hood or exhaust in connection with it. It was stated that the operation was separated from the workroom because of fire hazard, not for health protection.

can be traced to work on a process or in a room in which benzol is used in paste or cement, such illness is compensable under the law of New Hampshire, so that the precautions recommended were desirable for that reason also.

The statement as to illness being compensable in New Hampshire is so erroneous that it cannot be overlooked and will be discussed in the next few paragraphs. It is possible, of course, that the employer misunderstood what was said and that the insurance agent referred to some other State. In passing it may be remarked that the inspector's interest in this instance suggests that fire-insurance agents could contribute much to the prevention of industrial hazard if they were supplied with printed information explaining that some of the combustible substances used in industry involve health hazards that are not so readily detected as are the hazards from fire.

As a matter of fact, the New Hampshire workmen's compensation law makes no provision for compensating employees made ill by handling poisonous substances or breathing their fumes. The only compensable cases of occupational disease are those caused by accident.

Since this employer gained the impression that illness that could be traced to benzol poisoning in employment was compensable in New Hampshire, it may be important to explain that the provision for the administration of the compensation law in New Hampshire is wholly inadequate to handle such cases even if the wording of the law itself specifically covered benzol poisoning.

The provisions of the New Hampshire law have been summarized as follows by the United States Bureau of Labor Statistics in a memorandum of March 30, 1934:

> The workmen's compensation law of New Hampshire was enacted in 1911 by the provisions of chapter 163 and became effective on January 1, 1912. The law is an elective one applicable to certain dangerous employments, except factories and shops having less than five employees engaged at labor. No provision is made for the coverage of public employments. The law is administered by the courts of the State and occupational diseases are excluded except such cases as are caused by accident. In enumerating these features of the New Hampshire workmen's compensation law it will be observed that it has many weaknesses.
>
> At the conference called by the Secretary of Labor on February 14 and 15, 1934, the Committee on Workmen's Compensation Legislation specifically recommended a compulsory system and administration by a commission rather than by a court. The committee also recommended the defining of "injuries" to include occupational diseases and that a blanket coverage of occupational diseases was preferable to a "schedule" coverage. In the United States at the present time awards for occupational diseases are allowed in 11 jurisdictions. In Minnesota, New Jersey, New York, Ohio, and Puerto Rico a schedule of specific occupational diseases is given.

In New Hampshire all accidents are reported to the commissioner of labor, who has other full-time work assigned to him; for example, he directs the State's employment offices and is called on to participate in industrial disputes. In addition, though his staff is small, he is charged with the responsibility of enforcing labor laws, many of which require periodical inspection as to detail. Some factories in New Hampshire are large and the time necessary for routine inspection far exceeds the time the staff can give to it.

The filing of accident reports must be done by a clerk. Various courts pass on the claims. It would be physically impossible for the commissioner to attempt to investigate and follow up accidents and

the settlements in connection therewith, as is done in many other States, because of the limitation in staff and travel funds.

Experience has demonstrated the social value o well-administered compensation laws, and 38 States have made provision to administer their laws through agencies other than the courts, because of the complexity of problems that arise in determining the facts in accident cases and because of the volume of other work. It is obvious that the administration and adjudication of industrial disease cases requires medical research of a complicated nature. In most of the States referred to the administration is by commissions. New Hampshire is 1 of only 6 States that still administer their workmen's compensation law by court procedure.

The States that now are actively concerned about injury through poisoning or other occupational problems are disclosing new development in hazards f om materials handled. In some, especially New York, New Jersey, and Massachusetts, great progress has been made in advancing programs for the preven ion of such injuries through the research of divisions of industrial hygiene. In the three States mentioned particularly agents of the State are seeking to isola e acts that will throw light on occupational disease problems arising in the discovery of new substances used in industry. In this way methods are sought by which it will be possible to detect these problems early and to reduce, if it is not possible to eliminate, the hazard involved.

The majority of the firms visited in New Hampshire gave little if any conscious attention to the existence, and even less consideration to the prevention, of health hazards. It seems pertinent, therefore, in connection with a study of working conditions, to call attention to the existence of this problem and to furnish certain authoritative facts with regard to the cause of the hazards, the operations involved, and the symptoms of persons affected, as reported in connection with cases studied in Massachusetts and New York, where the State authorities are actively engaged in programs to protect workers from the danger of benzol poisoning.

Since the use of benzol is not confined o shoe factories, it may be of interest to examine the following list of industries reported as large users of benzol, the shoe industry ranking high among those specified:

The largest commercial users of benzene in manufacturing are the makers of rubber cement; rubber tires and shoes; b ake linings, particularly for automobile brakes; artificial leather and fabrikoid; lacquers; cement for sanitary food cans; paint and varnish removers.[6]

The use of benzol in synthetic organic chemicals has increased greatly during the past few years. The United States Tariff Commission has published considerable information on the subject and the following data for 1922, 1925, 1929, and 1930 are to be found in its "Census of dyes and of other synthetic organic chemicals", 1929 and 1930.[7] The total commercial production of benzene (benzol) is reported as follows:

1922—13,071,288 gallons.
1925—22,607,962 gallons.
1929—25,119,013 gallons.
1930—19,918,059 gallons.

[6] Hamilton, Alice. Industria. Poisons in the United States. New York, 1925. p. 454.
[7] U.S. Tariff Commission. Census of Dyes and of Other Synthetic Organic Chemicals. 1929, p. 16; and ibid. 1930, p. 17.

The decrease in output between 1929 and 1930 of more than 5 million gallons of benzol may be due in part to the use of substitutes, but in the same period the figures show also a reduction in the output of solvent naphtha, crude and refined including xylene:

1929—7,886,802 gallons.
1930—6,698,623 gallons.

These figures indicate that the proportionate decrease in total commercial production was appreciably greater for benzol than for naphtha, and in both cases much of the loss probably can be attributed to the decline in manufacturing.

That such an organization as the National Safety Council delegated a special committee of experts, with Dr. C. E. A. Winslow, of Yale, as chairman, to study the problem of benzol poisoning, is in itself significant as an illustration of the seriousness of that problem.

A statement by the benzol committee of the National Safety Council and a quotation from a report of the International Labor Office indicate the importance of protecting the workers in every way possible from the fumes of benzol. The quotation from the International Labor Office makes clear the difficulties of controlling the problem, and that from the National Safety Council gives the further evidence of the grave character of the hazards involved.

The first extract is from the International Labor Office.

Absorption

Absorption takes place especially by way of the respiratory tract (inhalation of the vapor); this is the case with the acute and subacute forms. In chronic cases absorption by the skin may be accepted. In the opinion of some writers this does take place and, at any rate in part, even in the form of vapor. But this channel really plays only a secondary role, and the quantity of vapor thus gaining access to the system must be minimal as compared with that inhaled. Absorption by the skin evidently is facilitated by abrasions, scratches, etc., either preexisting or set up by benzene itself (remember the property of benzene of dissolving fatty substances and so altering the epidermis). In practice skin absorption is generally very restricted. Intoxication by way of the digestive tract can also be considered.

According to Lehmann the proportion of the poison retained by the human system is very high, namely 80–84 percent of the benzene contained in the atmosphere.

Elimination

Benzene is mostly eliminated unaltered by the respiratory tract. * * * Elimination proceeds usually very slowly.[8]

In fact, elimination is slow in respired air and in urine.

The final report of the committee on benzol of the National Safety Council, May 1926, makes the following statements on the toxic action and the control of benzol:

Benzol introduced into the body (which in practice ordinarily occurs as a result of the inhalation of its fumes) exerts three more or less distinct major effects upon the body. It plays the part of an anesthetic or narcotic leading to dizziness, faintness, and coma. It is at the same time, however, a nerve irritant producing characteristic spasmodic movements, and actual damage to nerve tissue. Coma and death may also result from this neurotoxic action as well as from the narcotic action of benzol. Above all, however, this substance possesses a definite and specific destructive power for the blood cells and those organs which produce these cells.[9]

We are forced to conclude that the control of the benzol hazard (except where the substance is used in completely closed systems) is exceedingly difficult; that in practice, systems of exhaust ventilation capable of keeping the concentration

[8] International Labor Office. Occupation and Health. Benzene (Benzol). No. 8, Geneva, 1925. pp. 4–5.
[9] National Safety Council. Chemical Section. Committee on Industrial Poisons. Final Report on Benzol. May 1926. p. 114.

of benzol in the atmosphere below 100 parts per million are extremely rare; and that even when this is accomplished there remains a decreased but substantial hazard of benzol poisoning.[10]

Studies made in two States, New York (1926) and Massachusetts (1928), have helped to focus attention on the danger of benzol poisoning.

The fact that 6 serious cases of chronic benzol poisoning of women, 3 of which terminated fatally, were found in a hospital in Massachusetts in 1927 indicated extensive poisoning by benzol. Most workers so poisoned are not conscious of the cause of their headaches and listlessness, and few of them see a doctor who will connect their employment with the ailments for which they seek medical care.

The study Some Types of Industrial Poisoning, made for the Massachusetts Consumers' League by Grace Potter, should serve shoe manufacturers who wish to know about the hazards involved in the use of benzol.

The absence of any reference to recommended substitutes for benzol as a solvent in the present report on the shoe industry is due to reports that some substitutes formerly believed less harmful than benzol have been found to carry hazards that had not been anticipated or discovered in the earlier tests applied to them.

The following from the report of the Massachusetts Consumers' League is quoted here because it contains authentic information not generally known with regard to the processes that need watching:

Occupations of women

Many cement together various parts of the shoe; others glue, paste, and cut small parts for linings and trimmings. In the making of wooden heels the women do all the covering and breasting.

Processes with hazards

In some cementing processes, in the covering and breasting of wooden heels, and in the repairing and cleaning of finished shoes before shipment, women are often exposed to health hazards. Naphtha rubber cement, benzol cement, methyl (wood) alcohol, ether, and certain repairing dopes are the principal substances known by physicians in industrial hygiene to be injurious to the health of workers in these processes.

Benzol rubber cement is used extensively for cementing crepe-rubber soles and rubber soles on shoes. The manufacturers of rubber cements say that at present the only commercial cements with strong enough adhesive qualities to hold either a rubber heel or sole securely to a shoe contain a fairly high percentage of benzol. They are continually experimenting on a non-benzol cement for these particular processes. One cement maker who had recent orders from a number of shoe manufacturers in Massachusetts for a non-benzol cement for rubber heels and soles did not even try to fill the orders. It is worthy of note when those who are responsible for the use or discard of benzol begin to realize the dangers of its use.

Of the 11 factories visited, in only 1 was a girl found using benzol cement. This girl worked in the crepe-sole department. It may be that she is not susceptible, for she has worked with benzol many years, looks healthy, and apparently had none of the symptoms of benzol poisoning. There was trouble in this factory a little over a year ago. In the rubber-heel department, where a number of girls had been employed cementing rubber heels, one fatality had occurred, and other serious cases of chronic benzol poisoning had developed. The use of this cement was given up, and there was substituted a naphtha rubber cement which the firm believes is producing as good results. The superintendent stated that he hoped he would never have to use benzol extensively again.[11]

[10] Ibid., p. 118.
[11] Consumers' League of Massachusetts. Some Types of Industrial Poisoning, Boston, 1929. pp. 10–11.

A few case records[12] are summarized here as illustrations of symptoms experienced by women using benzol cement:

1. Cementer of soles of overshoes in rubber plant; 3 years in occupation; headaches, excessive fatigue, vomiting blood.
2. Cementer of rubber heels on shoes; 2 months in occupation; weak, faint; in hospital 15 days; unable to work 11 months; still weak, faint, tires easily, though working in different department.
3. Cementer of rubber heels on shoes; 3 months in occupation; nervous, weak, shaky, nauseated; lost baby because of poisoning.
4. Cementer in shoe factory for 10 years; cough and tired.
5. Cementer in rubber-shoe factory for 5 years; arthritic pains and swelling of arms and legs.

Two cases in shoe-manufacturing establishments of New York[13] are described as follows:

1. Age 25; never seriously ill; employed 2 months cementing crepe-rubber soles with a benzol rubber cement; since using cement has occasional headaches, sleepy feeling at work; pale; blood pressure 110/70; over weight. (Positive case.)
2. Age 33; married; several children. Employed about 7 months cementing crepe-rubber soles with a benzol rubber cement. About May 1, 1925, began to feel listless and weak; nosebleed began to occur and became so severe she went to a specialist for treatment; purpuric spots appeared on skin. Left work May 15 and was admitted to hospital June 1; temperature 100° to 104°; had one severe hemorrhage from nose; bleeding from vagina; vomited and coughed blood; weakness, dizziness, nausea, headache; abscess on left thigh developed early in July; blood transfusions given; died July 31. Autopsy found blood unclotted; fatty degeneration of liver, heart, and pancreas; free blood in stomach and intestine; general appearance of anemia. Case diagnosed as one of chronic benzol poisoning. (Record obtained from factory medical department. Use of such cement abandoned after this occurrence. Compensation allowed.)

An important statement by Dr. Hamilton is the following:

In the course of a study of the rubber industry I found many cases of what seemed to be chronic naphtha poisoning in the records of the Occupational Disease Clinic of the Massachusetts General Hospital of Boston, which city is a center of rubber manufacture. These histories showed a loss of health which seemed to be connected with the employment, a loss of vigor and energy, more or less headache, or simply oppression in the head, listlessness and dullness, restless sleep, loss of appetite, disturbed digestion, gastric pain, constipation. One man was sleepy all day while at work but could not sleep at night. Sometimes dry throat and a tendency to cough was the chief complaint. Less common were numbness or paresthesias or loss of muscular power. I saw a man in an Ohio rubber factory who had been making dipped rubber goods for 3 years. He was very anemic and for some time he had been increasingly nervous, had had attacks of dizziness, and was losing power in his right arm.[14]

USE OF BENZOL IN NEW HAMPSHIRE PLANTS

The State of New Hampshire has not enacted regulations pertaining to the use of benzol in manufacturing processes as has its neighbor, Massachusetts. This lack of regulation is particularly serious in view of two facts, (1) that benzol is used extensively in shoe cements, cleaners,[15] and other compounds, and (2) that New Hampshire ranks fourth among shoe-manufacturing States in number of employees. The number of workers using benzol preparations or exposed to their fumes must be large.

[12] From Massachusetts General Hospital industrial clinic records, 1926–27, summarized in Some Types of Industrial Poisoning, by the Consumers' League of Massachusetts, 1929.
[13] New York Department of Labor. Chronic Benzol Poisoning Among Women Industrial Workers. 1927. Special Bul. 150, p. 35.
[14] Hamilton, Alice. Industrial Poisons in the United States. New York, 1925. p. 405.
[15] For the results of a State investigation of hazards from shoe dressings, reported on in 1930, see appendix, p. 97. Benzol was not found at that time in the finishes tested.

In the present study the total absence of apparatus to draw off the fumes in operations involving the use of benzol preparations was noted by the investigators. Not infrequently the air was heavy with such fumes, in spite of the fact that the common practice, due to fire hazards, was to expose only small quantities of all substances used and keep the chief supply well covered. As explained on page 57 the subject of health hazard from the use of benzol had formed no part of the original plan for the New Hampshire survey, but the presence of such fumes in the workrooms called for an inquiry if the study of working conditions was to be complete.

Officials in general, though apparently little aware of the dangerous nature of the cements and other materials in use, cooperated by furnishing samples and such information as they possessed. In a few cases the preparations were marked with such warnings as "Inflammable", "Contains benzol or naphtha", and occasionally "Beware of fumes."

Of 34 shoe preparations on the market whose benzol content could be ascertained or approximated the following is the distribution:

Percent of benzol:	*Number of preparations*
Under 10	3
10 and under 20	5
20 and under 30	4
30 and under 40	3
40 and under 50	1
50 and under 60	1
60 and under 70	5
70 and under 80	0
80 and under 90	4
90 and under 100	1
100	7

Some solvents were 100 percent benzol. As a general rule cleaners contained less than did cements. It is possible to make these products without the use of benzol,[16] but its quick-drying properties tempt manufacturers to employ it as a solvent. Needless to say, a benzol-free compound should be used by shoe manufacturers wherever available. In the absence of such voluntary action in the direction of safety, regulation should be a matter of legislation.

[16] As this report is in preparation there come to hand two addresses before the First Annual New England Safety Conference, held at Boston, April 30 and May 1, and published in Safety Engineering for June. The first, by a former manufacturer of solvents, says this: "There are today available, for example, rubber cements which I believe are satisfactory for all operations, includng the cementing of crepe-rubber soles to rubber and the heel-breasting operation, in the shoe plant, that contain no benzol." The second, by a present manufacturer of benzol compounds, includes this statement: "For several years the research facilities of our company have been directed toward the perfection of compounds made from natural latex to replace benzol solutions of rubber. We have been able almost entirely to eliminate the use of benzol in shoe cements and have gone far in the elimination in other fields."—Editor.

APPENDIXES

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APPENDIXES

STANDARDS FOR INSTALLATION AND MAINTENANCE OF TOILET FACILITIES [1]

There are certain principles commonly accepted as essential to the establishment of decent and hygienic conditions that should be taken into consideration in drawing up any law or regulation pertaining to the installation of toilet facilities. These principles already are the basis of numerous State laws and regulations and of the standards set by private corporations and establishments, but a number of States have failed to set up standards adequate for the needs of workers.

* * * * * * *

In the following the States are grouped according to the type of agency concerned with the development and formulation of regulations and the enforcement of regulations or laws or both:

States in which the State labor agency is designated as the administering agency.—California, Connecticut, Delaware, Florida, Illinois, Kansas, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, Washington, and West Virginia.

States in which the State or municipal health agency is designated as the administering agency.—District of Columbia, Maine, Maryland, Montana, and Vermont.

States in which the State labor agency and State or municipal health agency appear to have joint jurisdiction.—Arkansas, Colorado, Iowa, Kentucky, Louisiana, Ohio, and Wisconsin.

States in which some other agency, such as department of child welfare or of public welfare, is designated as administering agency.—Alabama, Idaho,[2] North Carolina, and South Dakota.

State in which control is shared by State labor agency and some other organization.—Indiana.

States in which no regulations exist pertaining to the provision or equipment of sanitary facilities in work places.—Arizona, Georgia, Mississippi, New Mexico, Utah, and Wyoming.

* * * * * * *

ADEQUACY OF EQUIPMENT

First of all it is essential, in order to prevent crowding and delay, that an adequate number of toilets in relation to the number of workers should be provided. The importance of this hardly needs to be argued and should be easy to accept. Failure to make such

[1] From Women's Bureau bulletin, The Installation and Maintenance of Toilet Facilities in Places of Employment. 1933.

[2] The department of public welfare in Idaho carries duties in re the soldiers' home, State sanitariums, vital statistics, etc., and is responsible for dairy, food, and sanitary inspections.

provision not only affects the comfort of workers but may have a direct bearing on their health and efficiency. While the relation that inadequate facilities bear to constipation among workers has not been verified by objective study, it seems more than probable that it exists, since hygienists include the regular evacuation of the bowels as one of the main principles of personal hygiene. A physician who not only believes that constipation brings serious results, but is very emphatic about the necessity of adequate toilet facilities for workers in order to prevent this condition, makes the following statement:

> * * * Many workmen leave home too soon after breakfast in the morning to have been able to secure a movement of the bowels, which of course should take place daily as an absolute essential to health. Employers should have the importance impressed upon them of the necessity for a sufficient number of toilets for all the workmen. * * * Fatigue is often dependent upon the absorption of toxins from the intestinal tract, and toxins are generated by retained accretions in the bowels.
>
> * * * A worker who delays having a movement of the bowels absorbs a large amount of toxins, particularly indol, which reduces muscular efficiency to a very marked degree.[3]

In connection with adequacy of equipment, it is important to consider convenience of location, for adequacy is greatly affected by this. Toilets should be located as near as possible to the work place of those who use them, though it is always desirable to make the entrance inconspicuous from the workroom.

Standards of adequacy usually are expressed in the form of a required ratio of toilet seats to persons employed.

* * * * * * *

PRIVACY

Almost as essential as adequate equipment is privacy, not only for each sex but for each individual. To insure such privacy, it is necessary first of all to provide separate toilets for men and women. It is desirable that the two be remote from one another, though this is not always practicable. If toilet rooms for the two sexes adjoin one another, the separating wall should be of solid construction. Also, in cases where toilet-room entrances adjoin, employees generally prefer having them separated by a T-shaped or an L-shaped screen. Moreover, even when the entrances do not closely adjoin, they should be protected in some way so that the interior of the rooms cannot be seen when the doors are opened.

For the sake of privacy as well as to prevent contamination of the air in the workroom, the walls of all toilet rooms should extend to the ceiling or the rooms should be independently ceiled over. This regulation is necessary because of the tendency to install toilets in corners of workrooms with only dwarf partitions separating the two.

* * * * * * *

SANITATION

A number of other points that always should be covered have, for convenience, been grouped under the general heading of sanitation. These concern the kinds of materials used in the walls and floors, the

[3] Darlington, Thomas. Health and Hygiene in Industry. International Clinics, vol. II. Thirty-fourth Series, June, 1924, pp. 289–290.

type of fixtures, the ventilation, heating, lighting, and maintenance of toilet rooms and compartments * * *.

Walls and floors

In the interest of sanitation, it is important that walls and floors of toilet rooms be of material that is as nearly nonabsorbent as possible. Wooden floors absorb moisture and their use generally is discouraged; nor is Portland cement nonabsorbent unless treated with a hardening process. Some States advise the use of such materials as marble, tile, or glazed brick in both walls and floors but permit wooden walls and ceilings if these are painted with several coats of light-colored, nonabsorbent paint. Floors may be made of asphalt, concrete, tile, or Portland cement, if treated with a hardening process to make them more nearly impervious to moisture.

* * * * * * *

Fixtures

With the great improvements that have been made in sanitary equipment in recent years, it has been found possible to produce toilet fixtures that combine a number of features that make for sanitation—material that under a very exacting test has been found to be relatively nonabsorbent, from which toilet bowls can be cast; flushing devices that remove all particles quickly and thoroughly; seats constructed to prevent all unnecessary contact; and methods of ventilation through the fixture itself helping to prevent the escape of odors into the room. Certain standards regarding some of these points are included in the minimum requirements for plumbing recommended by the Bureau of Standards of the United States Department of Commerce, though most of the recommendations have to do with the way in which fixtures and pipes are installed. Certainly it should be possible for all establishments to have fixtures of the type recommended by this Government agency, since they are being manufactured by numerous firms.

* * * * * * *

Cleaning

The responsibility for the cleaning of toilet rooms should be delegated to special employees, and the cleaning should take place at regular and frequent intervals. Hot water and soap should be used. Frequent use of disinfectants in addition to soap is conducive to a sanitary condition, but disinfectants alone should not be relied upon.

SANITARY DRINKING FACILITIES [4]

Some arrangement for suppyling drinking water must be made in every place of employment. A fundamental requirement for such water is that it be free from harmful bacteria—it must be suitable for drinking. In addition it must be served in a sanitary way to prevent its contamination.

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Sanitary service

Either bubbling fountains meeting the following standards [5] or individual paper cups furnished free by employer.

1. Fountain shall be of impervious material, as vitreous china, porcelain, enameled cast iron, other metals, or stoneware.
2. Jet shall issue from nozzle of nonoxidizing, impervious material set at an angle from the vertical. Nozzle and every opening in pipe or conductor leading to nozzle shall be above edge of bowl, so that nozzle or opening will not be flooded if drain from bowl becomes clogged.

NOTE.—It is understood that the angle be such that the water can neither fall back nor be forced onto the point of discharge. The Women's Bureau desires to make this very emphatic.

3. Nozzle shall be protected by nonoxidizing guards to prevent mouth or nose of drinker from coming in contact with nozzle.
4. Jet of water shall not touch guard.
5. Bowl of fountain shall be free from corners difficult to clean or collecting dirt.
6. Bowl shall be so proportioned as to prevent unnecessary splashing.
7. Drain from fountain shall not have direct physical connection to waste pipe unless trapped.
8. Water-supply pipe shall have adjustable valve fitted with loose key or automatic valve permitting regulation of rate of flow of water to fountain so that valve manipulated by drinker will merely turn water on and off.
9. Height at drinking level shall be convenient to most persons using fountain. Step-like elevations may be provided for children.
10. Waste opening and pipe shall be large enough to carry off water promptly. Opening shall have strainer.

Tests of the sanitation of drinking fountains show that all types of vertical-jet fountains are easily contaminated and retain disease germs for some time and that many angle-jet fountains may be contaminated by improper use. The American Public Health Association's standards for the design and construction of drinking fountains list the features that are essential for their sanitation. The majority of the State laws and regulations on the matter of drinking facilities do little more than prohibit the use of the common cup.

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The Women's Bureau in all its surveys of conditions of employment has studied the types of drinking facilities offered to employees. Of 1,506 establishments inspected in 21 States the facilities were angle-jet fountains throughout in only 49.

Findings on drinking facilities from Women's Bureau surveys, 1923–29

Number of States surveyed	21
Number of establishments	1, 506
Number of employees	266, 000

[4] From Women's Bureau bulletin, Sanitary Drinking Facilities with Special Reference to Drinking Fountains. 1921.

[5] Summarized from Essential Features in the Design of Sanitary Drinking Fountains, final report of the joint committee on plumbing of the public health engineering section of the American Public Health Association and the Conference of State Sanitary Engineers, October 1930. U.S. Public Health Service, Public Health Reports, vol. 46, No. 4, Jan. 23, 1931, pp. 170–171.

OCCUPATIONAL POISONING AND HAZARDS FROM CERTAIN FORMS OF SHOE DRESSINGS [6]

Cases of illness believed to be due to preparations used at a shoe shop were brought to the attention of the board of health in March by a health officer, who submitted for examination a number of specimens of fluids under suspicion of being responsible. These preparations are used in the manufacture of white shoes. As, almost simultaneously with this complaint, a similar one was received from a shop situated in another part of the State and also involving the use of white shoe dressings, the matter was deemed worthy of a special inquiry.

In both instances the illnesses were described as involving headache, giddiness, nausea, and in some instances the vomiting of bile, and collapse while at the bench. Disability continued for a day or two, and upon return to work there were recurrences of the ailment. While some were but slightly affected, others were out, off and on, persistently, in one case this being said to have continued for several weeks. Two workers were said to have abandoned this line of employment in consequence. All were engaged upon white shoe work. No disturbances of vision were reported.

In connection with the investigation made, 23 shops, located in 6 cities and towns, were visited. Conditions as regards ventilation were noted, the various preparations employed were casually examined for their general character, and 21 samples were taken for analysis. Interrogations were also made as to the occurrence of illnesses. At most of the shops there were prompt denials on the part of the superintendent or foreman that there had been any sickness and there was, naturally, some reluctance in evidence on the part of the employees to discuss the matter, although a number of these did not hesitate to state that there had been at times cases such as here described.

Aside from the two shops involved by the complaints, it was admitted by the officials in a number of instances that they had occasionally had a little trouble of this kind, but nothing apparently of serious or any extensive nature. A few acknowledged that they had had reason to become suspicious of certain preparations, and in consequence had ceased using them. It was also pointed out that—as is well known—some workers have an idiosyncrasy which causes them to be affected by the vapors of certain fluids, generally recognized as not appreciably toxic in the atmospheric concentrations such as would exist under these conditions, and which seem to in no wise disturb the average worker.

At one of the shops it was admitted that every one of the employees engaged in the dressing of white shoes—a dozen or more—had recently been acutely ill with the symptoms referred to, which cases promptly ceased with the installation of a ventilating fan and the adoption of a different make of "cleaner." At the other shop involved there had been 8 cases of this character during the week prior to this inspection, and 7 in the week preceding that. While the manager protested that "the same cleaner" had been used for the past 8 years, with no trouble hitherto, the latter was not borne out by the statements of some of the employees, and it was also pointed out by the foreman that during the past few weeks more white shoes had been manufactured than in any similar period hitherto.

It should be noted that these sicknesses occurred at the season of the year when, with the winter heating still on, the outside temperature had moderated extensively, although still too cold to render working by an open window comfortable. Under the circumstances, rather high shop temperatures tended to prevail at this time, and atmospheric conditions were not as good as they doubtless would be either during normal winter weather or with the arrival of the summer season. For the most part, conditions as regards ventilation were found to be fair to very good, that of a number of the shops of modern type being excellent. In a few, involving notably some of the older wooden buildings of nonmodern construction, the air was oppressive, the conditions in this respect being poor.

[6] Howard, Charles D. *In* Health, issued monthly by New Hampshire State Board of Health, June 1930.

In a few instances ventilating fans were found in use, and undoubtedly such use could, with profit to the workers, be materially extended, particularly in those rooms where volatile fluids are utilized.

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The part of the shop here concerned is what is known as the treeing room, where the shoes are shaped, cleaned, and given their final finish prior to packing for shipment. This work is done on special forms, the operator applying the "cleaner" and finish with a sponge or stick, the fluids being, in a majority of instances, contained in open basins standing beside the machine, and the face of the operator necessarily brought rather closely to his work. In consequence the worker gets the full benefit of the fumes evaporating, not only from the shoe but from the open pan beside him.

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The investigation showed that a considerable variety of volatile fluids is involved in this work, many of these being highly inflammable, and some of them recognized as toxic in character. Denatured alcohol and carbon tetrachloride are common. The latter while itself noninflammable, is generally mixed in varying proportions with one or more other fluids that are inflammable, such as naphtha, ether, acetone, and alcohol, and occasionally carbon disulphide and benzene (benzol). The two latter, however—the vapors of which are quite toxic—are more generally employed on rubber work. No preparation containing benzene was encountered in this investigation, and but one was found containing carbon disulphide, although all of the samples containing volatile substances were examined for this compound by a test found to be readily capable of detecting as little as 1 percent. At some of the shops preparations containing amyl acetate (banana oil) were found in use. An apparently popular combination, sometimes mixed by the operator himself, is one involving carbon tetrachloride, naphtha, and denatured alcohol or acetone, in equal parts. Most of the carbon tetrachloride-containing preparations encountered were, despite the presence of this compound, very inflammable, although with a few ignition did not occur until slightly warmed.

However, at perhaps a majority of the shops carbon-tetrachloride containing preparations are not being used at present, which is well. Most of the combinations employed in this connection carry a white suspension, analysis showing the latter to be in some instances white clay, in others zinc oxide, and in many, a mixture of zinc oxide and barium sulphate is represented. One consisted of magnesium carbonate. All of these are harmless. Lead was absent from all samples.

Many of the preparations contained a vegetable gum. Some involved an emulsion which included borax and shellac, or a similar substance, with water. A number contained sodium phosphate, and one preparation involved nothing more than a solution of this alkali. One sample represented an alcoholic solution of soap with a little zinc white. The sample found to contain carbon disulphide, used occasionally as an "oil remover", was also heavily loaded with ether, the base being a stringy, rubberlike substance soluble in chloroform and similar to tire cement.

Up to a few years ago shoe dressings were quite commonly scented with oil of mirbane (nitrobenzene). The present apparent elimination of this compound, which is highly toxic and the inhalation of the vapors of which is known to have been responsible for deaths and many cases of serious illness, is a fortunate circumstance. Certain aniline compounds employed in some varieties of shoe dressings have also given serious trouble, but nothing of this character was encountered in this investigation. At the present time the most popular "flavoring" for these preparations is oil of sassafras, but oil of citronella is also not uncommonly employed. Such oils, however, were not found present in any of the types of cleaners involving volatile solvents, their use apparently being confined to those based upon water emulsions and solutions.

Authorities recognize that the inhalation of various volatile substances, when in substantial concentration, can serve to produce definite manifestations of poisoning. Thus naphtha causes an intoxication not unlike that due to alcohol, known industrially as "naphtha jag." Common ether, inhaled in quantity, produces a similar intoxication and in those regularly exposed to its vapors there are evidences of health impairment after a few months, particularly in women. Amyl acetate (banana oil) tends to produce irritation of the eyes and of the mucous membranes of the nose and throat, also headache and dizziness, but is not regarded as seriously toxic.

The vapors of carbon disulphide and of benzene (benzol) are, even in low concentrations, actively poisonous, and workers exposed to these vapors soon experience grave health impairment. Continued inhalation of undiluted methyl (wood) alcohol by workers produces headache, nausea, and vomiting, together with the characteristic disturbance of vision. However, what is sold under the name of completely denatured alcohol now contains but 4 percent of methanol, and in this concentration exposure to the vapors is not likely to have serious consequences. Acetone seems to be given a clean bill of health by the authorities, although two workers assured the writer that they find the fumes of this compound more disagreeable than those of either naphtha or carbon tetrachloride, and that they will not employ this if avoidable.

Carbon tetrachloride is not mentioned in the earlier works on toxicology and occupational poisoning, and it seems to be since the war that its toxic properties have come to be recognized. This is due largely to the fact that it is only within the past decade that tetrachloride has come into extensive industrial use, having now practically supplanted the much more poisonous and very highly inflammable carbon disulphide. At first it was assumed that poisonous manifestations from tetrachloride might be due to disulphide, present as an impurity. Apparently, however, that, as now manufactured, is practically free from this compound. At least none of the samples examined in connection with this investigation showed any substantial traces of this contamination.

One death is known to have resulted from the use of a hair shampoo containing tetrachloride. The latter is recognized as having a narcotic action similar to chloroform, but in addition causes convulsions and is said to be more injurious to the heart, as well as having a more destructive effect upon muscle. Some experiments by Waller and Veley showed it to have double the toxicity of chloroform. According to Lehmann, workers using tetrachloride may suffer from mental dullness, confusion, and anesthesia, but in many factories where there is good ventilation no ill effects have been noted. It is more irritant to the respiratory tract than is chloroform and workers are said to complain of irritation of the nose and throat, also of a tendency to nausea and giddiness.

There would seem to be little room for question that of the four solvents most commonly employed by shoe workers—ether, naphtha, acetone, and carbon tetrachloride—the latter is distinctly the most toxic, and the long continued inhalation of its vapors under poor conditions of ventilation can safely be held responsible for the manifestations cited at the beginning of this article. At one of the shops involving a complaint, it was noted that as many as 21 employees were engaged in the treeing room at the operation of white-shoe finishing. Windows were all closed against these men and the air was oppressive. Two days prior to the inspection the use of the tetrachloride cleaner had been discontinued, but the odor of this compound in the packing room, where a considerable quantity of tetrachloride-cleaned stock was awaiting shipment, was noted as pronounced.

In conclusion, it can be stated that the illnesses referred to were directly in consequence of the use of preparations containing carbon tetrachloride, with poor ventilation as a contributing cause.

While the use of this compound should present some advantage as tending to offset the fire hazard due to such substances as ether and naphtha, yet the combinations as at present actually employed are in most cases quite inflammable.

In general, the use of tetrachloride is to be discouraged, where found avoidable. In no case should preparations containing this compound be employed in the absence of efficient ventilation. For the latter purpose the use of a fan system would seem to be called for, and this should be provided anyway in those shops where the natural ventilation is poor.

The use of special type closed working containers for fluids the vapors of which are inflammable or toxic should be extended as far as practicable, and the open pans abandoned.

Where there are occurrences of illness while at work, these should be accepted by the management as affording ground for suspicion that the ventilation is defective, or some other working condition faulty. Managements are liable at law for the maintenance of working conditions which may cause health impairment.

The following quoted by the State board of health,[7] has to do with the regulation by New Hampshire of the manufacture and sale of inflammable polishes:

STOVE AND OTHER INFLAMMABLE POLISHES

[Ch. 149, General Laws, 1933]

This law prohibits the manufacture and keeping for sale, for domestic use, of any stove polish, regardless of package size, which flashes at a temperature below 120° F., open-cut test. It also prohibits the manufacture and sale of any other form of polish, for household use, which fails to conform to this test, in packages of less than 1 quart. Inflammable polishes (other than stove polish) may be sold in larger packages, but these must bear the legend, DANGEROUS. INFLAMMABLE COMPOUND. Keep from fire, heat, and lights.

[7] New Hampshire Board of Health. Sanitary food laws and regulations, together with reference to [various] laws. Concord, N.H. November 1930.