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UNEMPLOYMENT AND PROSPECTS FOR
REEMPLOYMENT IN MASSACHUSETTS
WITH PARTICULAR REFERENCE TO
MANUFACTURING INDUSTRIES

BY

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AND

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FOREWORD

This study was initiated in March, 1935, under the joint auspices of the Harvard Professors' Committee on Unemployment Studies and the Commissioner of the Massachusetts Department of Public Welfare. Through the Commissioner, funds were made available from the Emergency Relief Administration to pay for clerical work performed by a small staff of unemployed persons taken from the relief rolls of Boston and Cambridge.

The authors take this opportunity to thank all who assisted in the task, and particularly to commend the loyalty of many of the relief workers, who labored under trying conditions when on several occasions relief funds were exhausted and the prospects of remuneration uncertain.

Special thanks are due to Mr. Richmond F. Bingham, Instructor in Business Statistics at the Harvard Graduate School of Business Administration, who prepared the charts; to Mr. Edward A. Schrader, who assisted in the construction of the statistical tables; and to Miss Gertrude M. Clark, who prepared the manuscript.

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Boston, Massachusetts
August, 1936

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CONTENTS

	PAGE
Introduction	I
PART I	
Background of the Unemployment Problem in Massachusetts	3
Decline in Population Growth	3
Changing Age Distribution	3
Uneven Distribution of Sexes	4
Urban Character of Population	4
Loss Because of Migration	5
Summary	7
Certain Aspects of Unemployment in 1930 and 1934	8
Classes of Unemployment	8
Incidence of Unemployment upon Heads of Households	10
Incidence of Unemployment upon Persons Living in Municipalities of Different Sizes	10
Incidence of Unemployment upon Persons of Different Races	12
Incidence of Unemployment upon Different Classes of Occupations	13
Shifts in Occupational Classes of Gainful Workers	13
Indications of Employment Trends and Future Prospects	13
Manufacturing and Mechanical Occupations	13
Service Occupations	16
Trade	18
Extractive Industries	18
Unemployment in Each Class of Occupations	18
PART II	
Incidence of Unemployment and Prospects for Reemployment in the Different Manufacturing Industries	21
Leather Goods	21
Cotton Goods	24
Iron and Steel Products	27
Woolen Goods	31
"Other Textiles"	33
Electrical Machinery	34
Food	37
Paper and Allied Products	39
Heavy Machinery	43
Printing, Publishing, and Engraving	44
Rubber Goods	46
Furniture and Finished Lumber	49
Clothing	51
Chemicals	53
Jewelry, Clocks, Watches, Silverware, etc.	55
Non-Ferrous Metals	57
Other Manufacturing Industries	59
All Manufacturing Industries—Summary	61
PART III	
Conclusions—Prospects for Reemployment in Massachusetts	67

Appendix. Composition of the Various Classes of Manufacturing in Massachusetts and in the United States as Measured by the Number of Wage Earners in 1929 69

LIST OF TABLES

	PAGE
Table 1. Population of Massachusetts under 14 Years of Age, Classified by Age and Sex: 1934	5
Table 2. Population of Massachusetts Classified by Age and Sex and Compared with Similar Classification for the United States: 1920, 1930, and 1934	6
Table 3. Unemployment Returns by Classes, by Sex, for Massachusetts: 1930 and 1934	9
Table 4. Relative Importance of Heads of Households among the Unemployed in Massachusetts: 1930 and 1934	10
Table 5. Relative Importance of Heads of Households in Temporary Government Work in Massachusetts: 1934	10
Table 6. Political Subdivisions of Massachusetts Cross-Classified According to Size and Percentage of Unemployment: 1934	11
Table 7. Unemployment Returns for Various Urban Groups and Rural Territories in Massachusetts: 1930 and 1934	11
Table 8. Unemployed Persons in Massachusetts Classified According to Race and Sex: 1930 and 1934	12
Table 9. Gainful Workers in Massachusetts, by Major Occupational Classes: 1910, 1920, and 1930	13
Table 10. Indexes of Total Construction Contracts Awarded in Massachusetts and 37 Eastern States: 1928-1935	15
Table 11. Construction Contracts Awarded in Massachusetts as Percentage of Total for 37 Eastern States: 1928-1935	15
Table 12. Incidence of Unemployment upon Workers of Different Occupational Classes in Massachusetts: 1930 and 1934	19

Basic Statistics of Various Classes of Manufacturing Enterprises in Massachusetts and the United States: 1909-1933

Table A. Leather Goods	22
Table B. Cotton Goods	26
Table C. Iron and Steel Products	28
Table D. Woolen Goods	30
Table E. "Other Textiles"	32
Table F. Electrical Machinery	36
Table G. Food	38
Table H. Paper and Allied Products	40
Table I. Heavy Machinery	42
Table J. Printing, Publishing, and Engraving	45
Table K. Rubber Goods	47
Table L. Furniture and Finished Lumber	50
Table M. Clothing	52
Table N. Chemicals	54
Table O. Jewelry, Clocks, Watches, Silverware, etc.	56
Table P. Non-Ferrous Metals	58
Table Q. Other Manufacturing Industries	60
Table R. All Manufacturing Industries	62

**Analysis of Basic Statistics Showing Relative Growth of
Various Classes of Manufacturing Enterprises in Massachusetts and the
United States: 1909-1933**

	PAGE
Table A-1. Leather Goods	23
Table B-1. Cotton Goods	27
Table C-1. Iron and Steel Products	29
Table D-1. Woolen Goods	31
Table E-1. "Other Textiles"	34
Table F-1. Electrical Machinery	37
Table G-1. Food	39
Table H-1. Paper and Allied Products	41
Table I-1. Heavy Machinery	43
Table J-1. Printing, Publishing, and Engraving	46
Table K-1. Rubber Goods	48
Table L-1. Furniture and Finished Lumber	49
Table M-1. Clothing	53
Table N-1. Chemicals	55
Table O-1. Jewelry, Clocks, Watches, Silverware, etc.	55
Table P-1. Non-Ferrous Metals	57
Table Q-1. Other Manufacturing Industries	61
Table R-1. All Manufacturing Industries	63
Table R-2. Massachusetts and the United States Compared with Respect to Changes in the Trends in the Number of Wage Earners Employed in Various Classes of Manufacturing	64

LIST OF CHARTS

Chart 1. Gainful Workers in Massachusetts: 1910, 1920, and 1930	14
---	----

**Charts Showing Percentage Changes in Number of Wage Earners,
Horse Power, and Value of Products in Massachusetts and
the United States: 1909-1933**

Chart A. Leather Goods	24
Chart B. Cotton Goods	25
Chart C. Iron and Steel Products	29
Chart D. Woolen Goods	31
Chart E. "Other Textiles"	33
Chart F. Electrical Machinery	35
Chart G. Food	37
Chart H. Paper and Allied Products	43
Chart I. Heavy Machinery	44
Chart J. Printing, Publishing, and Engraving	46
Chart K. Rubber Goods	48
Chart L. Furniture and Finished Lumber	49
Chart M. Clothing	51
Chart N. Chemicals	53
Chart O. Jewelry, Clocks, Watches, Silverware, etc.	57
Chart P. Non-Ferrous Metals	59
Chart R. All Manufacturing Industries	63

**Charts Showing Number of Wage Earners and Value of Products in
Massachusetts as Percentage of United States: 1909-1933**

	PAGE
Chart A-1. Leather Goods	24
Chart B-1. Cotton Goods	25
Chart C-1. Iron and Steel Products	29
Chart D-1. Woolen Goods	33
Chart E-1. "Other Textiles"	33
Chart F-1. Electrical Machinery	35
Chart G-1. Food	39
Chart H-1. Paper and Allied Products	43
Chart I-1. Heavy Machinery	44
Chart J-1. Printing, Publishing, and Engraving	46
Chart K-1. Rubber Goods	48
Chart L-1. Furniture and Finished Lumber	49
Chart M-1. Clothing	51
Chart N-1. Chemicals	55
Chart O-1. Jewelry, Clocks, Watches, Silverware, etc.	57
Chart P-1. Non-Ferrous Metals	59
Chart R-1. All Manufacturing Industries	64
—————	
Chart R-2. Percentage Changes in the Trends of Employment: 1919-1929	65

UNEMPLOYMENT AND PROSPECTS FOR REEMPLOYMENT IN MASSACHUSETTS

WITH PARTICULAR REFERENCE TO MANUFACTURING INDUSTRIES

INTRODUCTION

Despite general recognition of the fact that unemployment presents one of the most serious problems of the depression, little is actually known about the number unemployed or the manner in which unemployment has affected different groups in the population. The high cost of taking a census of the unemployed has discouraged all but a few efforts to ascertain the facts.

In this respect, Massachusetts presents a situation that is unique. There exist for that state comprehensive data on unemployment taken in two of the depression years, 1930 and 1934. The data for 1930 were obtained from the unemployment schedules included in the regular Federal Decennial Census of the population. The figures for 1934 were obtained by means of a special enumeration of the unemployed in Massachusetts. This was a relief project made possible through funds granted by the Civil Works Administration and the Federal Emergency Relief Administration and carried out under the auspices of the State Department of Labor and Industries.¹

The purpose of this monograph is to present the results of a study of the unemployment data available from these two enumerations and to make a comparison of the data on unemployment with the data showing the normal characteristics of the population and the long-run occupational trends in Massachusetts.

The severity of the unemployment situation in Massachusetts can be estimated from the fact that on January 2, 1934, there were almost 350,000 persons *wholly unemployed*.² In addition, there were more than 100,000 persons *temporarily employed* on government relief projects. In all, slightly more than 450,000 persons were either wholly unemployed or employed in work of a temporary character. The population of the state at that time was 4,300,000; thus more than 10% of the total population was unemployed. A much better

way of viewing the situation, however, is to compare the unemployed with those who are classed as *employables*. This makes allowance for the women, children, and others in the population who are normally not employable or not seeking employment. The employable persons in Massachusetts in 1934 numbered approximately 1,800,000. Of these, 24.9%, or 1 out of every 4, were unemployed.

In addition, account should be taken of 173,000 persons who reported only *part-time* employment. The unoccupied portions of their working days represent unemployment that is not included in the 24.9% mentioned above. This group constitutes 9.6% of the employable population and increases the total of those who were either unemployed or not fully employed to 34.5% of the normal working population. It would not be an exaggeration to say that, as of January 2, 1934, about 29% of the man power available in Massachusetts was unemployed.

A clearer picture of the loss of employment in Massachusetts is presented by the statistics of the duration of unemployment in individual cases. A tabulation of the persons who were wholly unemployed on January 2, 1934, shows that 61% had had no work in any occupation for a year or more, 42% had been unemployed for 2 years or more, 23% for 3 years or more, and 10% for 4 years or more. On the basis of facts shown in this tabulation, it is estimated that between January, 1930 and January, 1934, there had been lost in the state of Massachusetts more than 10,000,000 man-months of labor. If we assume that on the average the wages of one of these wholly unemployed individuals would normally amount to \$80 a month, we arrive at a figure of \$800,000,000 as the loss in purchasing power to the people of the state through the unemployment of this group. To this figure might be added the loss in income of those not fully employed and of those who had taken temporary or part-time jobs at lower wages in relief work or in occupations in which they customarily were not engaged.

¹ See *Report on the Census of Unemployment in Massachusetts as of January 2, 1934*. Boston: Massachusetts Department of Labor and Industries, 1935.

² Persons entirely without jobs who under normal circumstances would have been gainfully occupied.

This report is arranged in three parts. In Part I, pertinent aspects of the general problem of unemployment are presented against a background of statistics showing the trends in population and shifts in occupations in the state. These data indicate the importance of the manufacturing industries to the problem of employment. In Part II, separate treatment is given to the manufacturing industries. A study is made of the extent of unemployment in each of the several industrial classes. The prospects for reemployment in the next few years are appraised in the light of the trends shown since 1909. Part III states the conclusions that are drawn from the facts presented.

In treating of the prospects for the reemployment of the unemployed persons in Massachusetts, the time

factor has been limited to the next few years. No attempt is here made to appraise the distant future. All that has been done in this analysis is to scan the near future and to weigh the possibilities of an expansion in business activity in Massachusetts that might absorb as large a proportion of the population as was formerly employed.

If it is reasonable to expect an expansion of activities in the next few years that will require the services of all the persons now unemployed, the unemployment problem may be considered as a temporary one amenable to temporary measures of relief. On the other hand, if the evidence does not warrant this expectation, a different solution to the problem of unemployment must be found.

PART I
BACKGROUND OF THE UNEMPLOYMENT PROBLEM
IN MASSACHUSETTS

Decline in Population Growth

The unemployment problem in Massachusetts becomes clearer to us when it is viewed in relation to certain peculiar characteristics of the state. Massachusetts exhibits a rate of growth of population that is decreasing more rapidly than that of the United States as a whole. In 1930, the total population of the state was just under 4,250,000. This represented an increase of 10.3% over the population reported in 1920. Decennial rates of growth in previous periods, as shown below, had been much higher.

Decennial Rates of Increase in Population

Period	Massachusetts	New England	United States
1890 to 1900	25.3%	19.0%	20.7%
1900 to 1910	20.0	17.2	21.0
1910 to 1920	14.4	12.9	14.9
1920 to 1930	10.3	10.3	16.1

It will be noted that the rate of growth of the United States as a whole from 1920 to 1930 was considerably greater than the rate in either Massachusetts or New England. Massachusetts was growing during this period more rapidly than Maine, New Hampshire, and Vermont, but less rapidly than Rhode Island and Connecticut. During this decade only 19 of the 48 states showed rates of growth that were lower than that experienced in Massachusetts. All the states with population as large as that of Massachusetts, or larger, showed rates of growth in excess of 10.3%¹.

Evidence that there has been no abatement in the decline in the rate of growth of population in Massachusetts is found in the 1934 Census of Unemployment.² This enumeration puts the population on January 2, 1934, at 4,301,931, a total only 1.17% greater than that reported 4 years before in the Federal Census.

Changing Age Distribution

Not only has there been a marked decline in the rate of growth, but also a very important change has occurred in the distribution of ages in the population of Massachusetts. Partly because of a declining birth

rate, a much smaller percentage of the population is now in the younger age classes than was formerly the case. For example, in 1920, persons under the age of 15 constituted 28% of the total; in 1930 this figure was 26.5%; and by 1934 it had dropped to 24.4%. This decline in the importance of the children under 15 was both relative and absolute. Between 1930 and 1934 there was a decrease in the number of children of these ages. The Census of Unemployment of 1934 enumerated 77,839 fewer children under 15 years of age than had been reported for Massachusetts in the 1930 Federal Census, and 27,542 fewer than had been found in the 1920 Federal Census.

Normally we should expect to find, in a population that was either growing or stabilized, independent of immigration and emigration, a larger number of children in each of the successive younger age groups.

¹ The populations in 1930 and the decennial rates of increase from 1920 to 1930 for the 9 largest states are as follows:

State	Population in Thousands 1930	Percentage Increase 1920-1930
California	5,677	65.7%
Michigan	4,842	32.0
New Jersey	4,041	28.1
Texas	5,824	24.9
New York	12,588	21.2
Illinois	7,630	17.7
Ohio	6,647	15.4
Pennsylvania	9,631	10.5
Massachusetts	4,249	10.3

² This is substantiated also by a decline in the natural rate of increase in Massachusetts. The rates per 1,000 population of the excess of births over deaths from 1920 to 1930 showed a more rapid drop in this state than in the United States as a whole.

Excess of Births Over Deaths
(Rates per 1,000 Population)

	Massachusetts	United States (White)
1920	9.8*	10.7
1921	11.3*	12.6
1922	9.6	10.6
1923	9.2	10.1
1924	10.3	10.9
1925	8.3	9.8
1926	7.4	8.6
1927	7.8	9.4
1928	6.7	8.0
1929	5.2	7.3
1930	5.7	7.8

*Exclusive of still births.
Source: *Statistical Abstract of the United States.*

This is not the case in Massachusetts. The 1930 Federal Census showed only 8.6% of the male population in the class "under 5 years" of age, whereas there was 9.5% in the next older class, "5 to 9 years". The situation among the females showed 7.9% in the class "under 5 years" and 8.9% in the next older class. The 1934 State Census classifies children less than 14 years old in single-year age groups, thus enabling us to trace this tendency year by year. It is apparent from Table 1 that among the males each one-year age group below 10 years contained fewer persons than were to be found in the next older age group. The same is true of the females, with one minor exception, namely, that there were 33,067 girls 3 years old and only 33,031 girls 4 years old. The totals of the 1934 State Census show clearly that each of the single-year age classifications under 10 years contained fewer individuals than did the next older classification.

This decrease in the relative importance of children in the population of Massachusetts is much more marked than in the United States as a whole. In 1930, for example, when 29.5% of the population of the United States consisted of children under 15 years of age, in Massachusetts the children under that age made up only 26.5% of the population. (See Table 2.)

Among the older age groups the situation is reversed. The population of Massachusetts is growing older. The average age, which in 1920 was 29.9 years, advanced to 31.4 years in 1930 and to 32.1 years in 1934. This was not so much the result of an increase in the span of human life as it was of a change in the age composition of the population. There were fewer young persons and more old persons. For example, the percentages of the population over 55 years of age were 12.6% in 1920, 14.9% in 1930, and 17.0% in 1934.

This tendency is more pronounced in Massachusetts than in the country as a whole. The average age in the United States in 1920 was 28.1 years, and in 1930 it was 29.4 years. In 1920, persons 55 years of age or older accounted for 10.9% of the population of the United States; by 1930, this figure had increased to 12.3%. Comparing the data for Massachusetts with those for the United States, it becomes evident that Massachusetts contains a larger proportion of older persons than does the United States as a whole.

It is well to keep these facts in mind; for, while the children are not in the employable group, they represent an economic burden borne by those who are employed and they are indirectly subject to the effects of unemployment. Table 2 shows the relatively smaller growth in the number of children and indicates the extent to which the increase in the older group tends to be counterbalanced by a decrease in the younger

group.¹ The high percentage of the unemployed in the older age brackets is in part understandable when we appreciate the increases in the proportion of the population in the older ages.

Uneven Distribution of Sexes

The lack of balance between the sexes makes the unemployment problem of Massachusetts slightly different from that of the United States as a whole. Massachusetts has an unusually large proportion of females. For the United States as a whole, in 1930 there were 102.5 males for every 100 females. For Massachusetts the 1930 Federal Census showed only 95.1 males for every 100 females. This sex ratio was the lowest found in any state in the Union. That it has gone even lower is indicated by a ratio of 94.4 found in the 1934 State Census of Unemployment.

Urban Character of Population

Another characteristic of Massachusetts which has a bearing upon the unemployment problem is the concentration of the population in the cities. Industrial and commercial activities dominate the lives of the inhabitants of Massachusetts. In 1930, the great bulk of the population was found in the cities. Only 123,255 persons, or 2.9% of the total, were reported as making up the farm population. The only state in the United States which reported a smaller percentage of its population on farms was Rhode Island. For New England the percentage on farms was 7.0% and for the United States as a whole 24.8%. The number of per-

¹ The changes in the importance of the younger and older age groups in the population of Massachusetts are summarized below. The Federal Census of 1920 and that of 1930 show that while the number of children under 15 years of age increased by 48,175, the number under 10 years of age decreased by 5,290. In the same decade, the number of adults over 55 years of age increased by 148,407 and the number of adults over 65 years of age increased by 72,748. Between 1930 and 1934 the children under 15 years of age decreased in number by 77,839. This is in contrast to an increase of 11,107 in the number of persons over 55 years of age and an increase of 13,569 in the number 65 years of age or older.

Numbers in Selected Age Classes
of the Population of Massachusetts:
1920, 1930, and 1934

	1920	1930	1934	Increase or Decrease		
				From 1920 to 1930	From 1920 to 1934	From 1930 to 1934
Children under 10 yrs. of age	745,587	740,297	661,899	- 5,290	- 83,688	- 78,398
Children under 15 yrs. of age	1,079,125	1,127,300	1,049,461	+ 48,175	- 29,664	- 77,839
Adults over 55 yrs. of age	482,396	630,803	641,920	+148,407	+159,504	+ 11,107
Adults over 65 yrs. of age	201,447	274,195	287,764	+ 72,748	+ 86,317	+ 13,569

Table 1. Population of Massachusetts under 14 Years of Age, Classified by Age and Sex: 1934

Age Classes	Number			Percentage Ratio of Persons in Each Class to Those in Next Older Class		
	Males	Females	Total	Males	Females	Total
Under 1 Year	24,172	23,119	47,291	87.3	85.3	86.3
1-2	27,689	27,101	54,790	85.2	84.8	85.0
2-3	32,506	31,944	64,450	96.6	96.6	96.6
3-4	33,684	33,067	66,751	98.8	100.1	99.5
4-5	34,049	33,031	67,080	98.2	96.6	97.4
5-6	34,658	34,181	68,839	97.1	96.5	96.8
6-7	35,689	35,419	71,108	97.6	99.7	98.6
7-8	36,574	35,527	72,101	98.8	96.0	97.4
8-9	37,003	37,006	74,009	96.4	99.6	98.0
9-10	38,367	37,149	75,516	96.9	94.2	95.6
10-11	39,582	39,424	79,006	107.7	108.3	108.0
11-12	36,757	36,387	73,144	88.8	90.4	89.6
12-13	41,407	40,250	81,657	107.3	104.6	105.9
13-14	38,601	38,489	77,090	100.8	100.3	100.6
TOTAL	490,702	482,094	972,796	....	....	....

Source: Report on the Census of Unemployment in Massachusetts, 1934. Figures adapted from Table 4, Page 17.

sons employed in agriculture may not be greatly affected by business depression, though of course farm income suffers severely. The insignificance of farming in Massachusetts means that almost the entire working population of the state is engaged in occupations in which employment is more or less directly subject to the fluctuations in business activity.¹

Loss Because of Migration

An examination of the shifts that have taken place in the interstate movement of population explains in part the retardation of the growth of Massachusetts. Migration aids in an understanding of how the peculiar distribution of ages and sexes, already noted, came about. In 1920, there were 112,439 natives of Massachusetts living in other states. On the other hand, 171,231 persons who were born in other states were living in Massachusetts. In other words, as of 1920 Massachusetts had a *net gain* of 58,792 persons by reason of interstate migration.

During the next 10 years the situation changed markedly. In 1930, 207,350 persons born in Massachusetts were living in other states, while only 139,765 persons born in other states were living in Massachusetts. In other words, in the decade from 1920 to 1930 the tide of interstate migration had turned.

¹ It is interesting to observe that the tendency has been for the population to increase in the larger communities at the expense of the smaller communities. The "rural" population of Massachusetts, i. e., that part of the population living in communities of less than 2,500, declined in both number and percentage from 1910 to 1930. A very slight increase was recorded in this figure in 1934, attributable in part to the "back-to-the-farm" flight from unemployment in the cities.

From a comparison of the number and percentage of the population living in places of different sizes, it appears that in addition to the "rural" population, which increased slightly, from 4.7% to 4.8% of the total, between 1930 and 1934 the only group to increase its relative importance was that of cities of from 10,000 to 25,000 in size. The population living in these cities in 1930 constituted 16.3% and, in 1934, 17.3% of the total. The largest cities, containing over 100,000, dropped from 41.8% to 41.7% of the total, but showed an absolute gain of 20,165 persons. All other classes recorded both absolute and relative losses.

Some light is thrown upon the reasons for this shift when we examine the list of states to which Massachusetts lost most heavily in this decade. With reference to the eight states indicated below, the position of Massachusetts in respect to interstate movements of population was lower by approximately 100,000 persons in 1930 than it had been in 1920.

New York ²	54,598
Connecticut	16,368
New Jersey	13,409
Michigan	7,152
Rhode Island	6,133
Illinois	1,152
Ohio	1,027
Pennsylvania	287
Total	100,126

In these states, industrial employment was expanding while in Massachusetts it was contracting.³ Therefore,

² For example, in 1920, there were 91,177 New Yorkers living in Massachusetts while there were only 70,911 persons born in Massachusetts living in New York. This balance of 20,266 in favor of Massachusetts was changed to a balance of 34,332 in favor of New York in 1930, when there were 123,235 persons of Massachusetts birth living in New York and only 88,903 New Yorkers living in Massachusetts. There were 2,274 fewer New Yorkers living in Massachusetts and 52,324 more natives of Massachusetts living in New York in 1930 than in 1920.

*Wage Earners Employed in Manufacturing in Specified States, 1921 and 1929

State	Number of Wage Earners		Percentage Increase
	1921	1929	
New York	1,000,414	1,105,066	10.6
Pennsylvania	863,917	1,014,046	17.4
Ohio	494,288	741,143	49.3
Illinois	513,876	691,555	34.6
Massachusetts	579,071	557,494	3.9*
Michigan	304,471	530,935	74.1
New Jersey	381,773	442,328	15.7
Connecticut	210,990	251,861	19.4
Rhode Island	112,745	126,068	11.8

*Decrease.

Table 2. Population of Massachusetts Classified by Age and Sex and Compared with Similar Classification for the United States: 1920, 1930, and 1934

Age Classes	1934				1930				1920			
	Males		Females		Males		Females		Males		Females	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
MASSACHUSETTS TOTAL	2,089,368	100.0	2,212,563	100.0	2,071,672	100.0	2,177,942	100.0	1,890,014	100.0	1,962,342	100.0
Under 5 Years	152,064	7.3	148,262	6.7	177,543	8.6	172,097	7.9	194,536	10.3	191,225	9.7
5-9	182,291	8.7	179,282	8.1	197,688	9.5	192,060	8.9	180,574	9.6	179,252	9.1
10-14	194,632	9.3	192,930	8.7	194,537	9.4	192,466	8.8	167,116	8.8	166,422	8.5
15-19	186,801	8.9	188,274	8.5	180,953	8.7	185,196	8.5	147,742	7.8	154,389	7.9
20-24	166,542	8.0	182,530	8.3	163,089	7.9	182,484	8.4	154,178	8.2	173,566	8.8
25-29	152,869	7.3	174,931	7.9	153,341	7.4	170,794	7.8	165,852	8.8	177,371	9.0
30-34	146,305	7.0	164,437	7.4	153,998	7.4	167,501	7.7	153,699	8.1	156,267	8.0
35-39	155,471	7.4	171,449	7.8	163,459	7.9	171,982	7.9	149,182	7.9	149,195	7.6
40-44	152,756	7.3	158,747	7.2	147,516	7.1	148,488	6.8	126,906	6.7	132,500	6.8
45-49	134,879	6.5	138,416	6.3	130,653	6.3	134,757	6.2	122,933	6.5	119,772	6.1
50-54	119,858	5.7	124,870	5.6	113,969	5.5	120,283	5.5	101,687	5.4	102,464	5.2
55-59	91,107	4.4	97,462	4.4	95,677	4.6	101,601	4.7	74,244	3.9	78,381	4.0
60-64	78,851	3.8	86,726	3.9	75,992	3.7	83,338	3.8	58,914	3.1	64,410	3.3
65-69	54,506	2.6	62,080	2.8	54,579	2.7	63,026	2.9	39,339	2.1	45,182	2.3
70-74	41,335	2.0	48,387	2.2	35,453	1.7	43,389	2.0	25,682	1.4	32,297	1.6
75 and Over	31,449	1.5	49,107	2.2	31,596	1.5	40,152	2.1	25,520	1.4	38,427	2.0
Ages Unknown	47,652	2.3	43,773	2.0	1,629	0.1	1,419	0.1	1,910	0.1	1,222	0.1
UNITED STATES TOTAL	*	*	*	*	62,137,080	100.0	60,637,966	100.0	53,900,431	100.0	51,810,189	100.0
Under 5 Years	*	*	*	*	5,806,174	9.3	5,638,216	9.3	5,857,461	10.9	5,715,769	11.0
5-9	*	*	*	*	6,381,108	10.3	6,226,501	10.3	5,753,001	10.7	5,645,074	10.9
10-14	*	*	*	*	6,068,777	9.8	5,936,100	9.8	5,369,306	10.0	5,271,831	10.2
15-19	*	*	*	*	5,757,825	9.3	5,794,290	9.6	4,673,792	8.7	4,756,764	9.2
20-24	*	*	*	*	5,336,815	8.6	5,533,563	9.1	4,527,045	8.4	4,749,976	9.2
25-29	*	*	*	*	4,860,180	7.8	4,973,428	8.2	4,538,233	8.4	4,548,258	8.8
30-34	*	*	*	*	4,561,786	7.3	4,558,635	7.5	4,130,783	7.7	3,940,410	7.6
35-39	*	*	*	*	4,079,860	7.5	4,528,785	7.5	4,074,361	7.6	3,700,920	7.2
40-44	*	*	*	*	4,136,459	6.7	3,853,736	6.4	3,285,543	6.1	3,060,014	5.9
45-49	*	*	*	*	3,671,924	5.9	3,370,355	5.6	3,117,550	5.8	2,646,070	5.1
50-54	*	*	*	*	3,131,645	5.0	2,844,159	4.7	2,535,545	4.7	2,199,328	4.2
55-59	*	*	*	*	2,425,992	3.9	2,219,685	3.7	1,880,065	3.5	1,669,059	3.2
60-64	*	*	*	*	1,941,508	3.1	1,809,713	3.0	1,581,800	2.9	1,400,748	2.7
65-69	*	*	*	*	1,417,812	2.3	1,352,793	2.2	1,079,817	2.0	988,658	1.9
70-74	*	*	*	*	991,647	1.6	958,357	1.6	706,301	1.3	688,735	1.3
75 and Over	*	*	*	*	915,752	1.5	997,444	1.6	696,953	1.3	772,751	1.5
Ages Unknown	*	*	*	*	51,816	0.1	42,206	0.1	92,875	0.2	55,824	0.1

*Data not available.

Sources: Fifteenth Census of the United States, 1930, *Population*, Vol. II, and *Report on the Census of Unemployment in Massachusetts, 1934*.

it is likely that most of these 100,000 persons were attracted largely by better occupational opportunities than they found at home. If this hypothesis is sound, it follows that the age and sex composition of the emigrants must have been somewhat different from that of the population that remained. Typically a group of emigrants comprises more males than females.¹ Typically also those who migrate are likely to be unmarried persons, mainly between the ages of 18 and 35.²

The next largest decrease was 24,256 with respect to the two states which attract mainly because of healthful climate. The figures were, respectively, 19,135 in the case of California and 5,121 in the case of Florida.

One interesting phenomenon of this interstate migration is the reversal of the flow from Maine, New Hampshire, and Vermont. Although in 1930 there were still more persons born in these three states who were living in Massachusetts than there were natives of Massachusetts who were living in these three states, a movement away from Massachusetts had taken place during the twenties and the number of natives of Maine, New Hampshire, and Vermont living in Massachusetts had decreased by 11,403.

Among the 35 other states, migration gave Massachusetts a net increase of only 9,690. It was toward Massachusetts in 27 cases and against Massachusetts in 8 cases, but in no instance was the movement great enough to be of clear significance.

The census of foreign-born persons also shows a drop of 22,928 in Massachusetts between 1920 and 1930. This was a reversal of the showing of the previous decade, when the foreign-born population of the state had increased by 29,303.

These observations raise a question as to the reasons for this loss. They turn our attention to a study of the

¹ In part this might account for the lower male sex ratio of Massachusetts noted earlier.

² In part this would help to explain the older average age in Massachusetts.

occupational opportunities in the state, a subject which is examined in a later section. They suggest that the causes of unemployment in Massachusetts may be rooted more deeply than in the current business depression.

Summary

The following factors condition the unemployment problem in Massachusetts and differentiate it from the problem in other states:

1. The population of Massachusetts is approaching stability. This is indicated by a marked decline in the rate of growth over a period of years and by a current rate of growth substantially lower than that of other large states.
2. The age composition of the population of Massachusetts is different from that of the United States as a whole. Massachusetts contains a larger percentage of older persons and a smaller percentage of children. There is, moreover, a tendency toward an older average age.
3. Massachusetts shows the lowest sex ratio of any state in the Union. In 1934, there were only 94.4 males for every 100 females.
4. The area of impact of the business depression as measured by the percentage of the population not living on farms was greater in Massachusetts than in any other state except Rhode Island. In 1934, only 2.9% of the population was reported as living "on farms".
5. The loss of 126,000 in the population of Massachusetts during the twenties, by reason of interstate migration, suggests that the decline in occupational opportunities had started before 1930, and that the present unemployment problem may be rooted more deeply than in the current business depression.

CERTAIN ASPECTS OF UNEMPLOYMENT IN 1930 AND 1934

Classes of Unemployment

In enumerating the unemployed in 1930, the Bureau of the Census recognized seven different degrees of unemployment. These were designated as Classes A, B, C, D, E, F, and G. Classes A and B, the two classes of idleness due to the depression, represent the most serious aspects of the problem. They include 85% of the unemployed enumerated under all classes. Inasmuch as these two classes are more directly comparable with the unemployed enumerated in the 1934 Census of Unemployment in Massachusetts, they are the only classes with which we shall be concerned in this study.¹ Class A was composed of all persons reported as "out of a job, able to work, and looking for a job". Class B comprised all persons "having jobs but on lay-off without pay, excluding those sick or voluntarily idle".² Many in this category had been laid off for a long period, and some of them were practically in the same position as those in Class A. Nominally they had a job, but actually they were not receiving any income from that job, and they had no definite assurance as to when that income would be resumed.

In 1930, there were 116,210 Class A and 45,184 Class B unemployed in Massachusetts. These comprised 6.4% and 2.5% respectively of the total gainful workers in the state. In Class A, the degree of unemployment was more marked among the males, as shown by the fact that 7.3% of the male gainful workers were in this class while only 4.3% of the female gainful workers were so classified. In Class B, the difference between the sexes was not marked.

The Massachusetts Unemployment Census of 1934 recognized the following classifications:

Employed Full Time. "Full Time" was interpreted to mean not less than 35 hours of work per week. When this Census was taken, many industrial codes provided

that 35 hours of work per week should constitute the maximum number of hours during which wage earners could be employed.

Employed Part Time. All persons employed less than 35 hours per week were classed as "Employed Part Time". The only exception to this was in the case of those employed "temporarily" for less than 35 hours per week. As noted below, these were classed under "Temporarily Employed".

Temporarily Employed. If employed on a temporary basis, all persons, whether working full or part time, were placed in this category. This included persons on government "made-work" projects, such as the PWA, CWA, CWS, and CCC, as well as those on state, county, and local projects of a temporary nature. Persons working only part time in temporary work of this sort were classified here rather than with the part-time group.

Not Seeking Employment. This group comprised all persons who were not desirous of securing remunerative employment. It included housewives, persons at home, pupils and students attending schools and colleges, patients in hospitals, persons confined in jails and other institutions, invalids, and aged and retired persons.

Wholly Unemployed. Persons who under normal conditions would be occupied but who were entirely without work were put in this category.

Ill or Disabled. Persons who were ill or disabled were classified in one of the foregoing groups, as follows:

(1) *Employed.* If the illness had been of short duration and the person reported ill expected to return to work and was still on the pay roll, although not actually receiving compensation, that person was classified as employed.

(2) *Unemployed.* If the illness had been of long duration and the person reported ill expected to be able to work on recovery, that person was classified as wholly unemployed.

(3) *Not Seeking Employment.* If the illness had been of long duration and the person reported ill would probably be unable to return to work because of permanent disability, that person was classified as not seeking employment.

It therefore appears that a combination of the unemployed in Classes A and B in 1930 will give a total that is fairly comparable³ with the total of those re-

¹ Class C was made up of persons "out of a job and unable to work", and Class D of persons "having jobs but idle on account of sickness or disability".

Classes E, F, and G were made up for the most part of persons whose idleness was voluntary and who were included in the unemployment count as an incidental result of the method of selection used. Class E was composed of persons able to work and having no job, who were reported by the enumerator as not looking for work. Class F was made up of persons having jobs but not drawing pay, for whom the reason for idleness was reported to be "voluntary lay-off", or its equivalent. Class G included all those having jobs who were reported by the enumerator as not losing pay as a result of their idleness, being mainly persons on vacation with pay.

² Workers who were not employed full time and who happened to be idle on the day the census was taken were included under Class B. The total number of part-time workers in Massachusetts has been estimated by the Bureau of the Census at 32,606. The average time these persons were working was approximately 3¼ days per week.

³ This difference, however, should be noted: In 1930, persons idle because of illness were not included in Classes A and B, whereas, in 1934, persons who had been ill for a long time but who expected to be able to work on recovery were included among the unemployed. That this is a source of minor discrepancy can be seen from the fact that in 1930 there were all together only 12,540 persons who reported themselves as "having jobs but idle on account of sickness or disability". In 1934, the total number of persons giving "disability" as the reason for their unemployment was only 17,736.

ported in 1934 as "Wholly Unemployed" and "Employed Part Time".

To show the full effect of the depression upon the normal employment of the population, however, Classes A and B in 1930 must be compared with the total of persons wholly unemployed, temporarily employed, and employed only part time¹ in 1934.

In 1934, the number of part-time workers exceeded the entire number of persons unemployed in Classes A and B in 1930. In 1930, of course, there were no persons reported as temporarily employed on government relief work; thus the entire 101,941 shown in this category in 1934 may be said to represent casualties of the depression.

Table 3 indicates the extent of the increase in unemployment in the period from 1930 to 1934. In 1930, only 8.9% of those reporting a customary gainful occupation, whether or not actually employed on the census day, were unemployed because of the depression. By 1934, this percentage had increased to 24.9. If we also count as unemployed those who reported only part-time work in 1934, this percentage is increased to 34.5, although such a calculation probably results in an overstatement of unemployment attributable to the depression. Some part-time employment is a normal phenomenon, and it is only the extent to which this has been increased by the depression that concerns us here. Making rough allowance for this factor,² it probably would not be far from the truth to say that in 1934 the depression was responsible for the disuse of about 29% of the normal labor hours available.

The relative burden of unemployment upon the sexes shows a slight change in the course of the four years from 1930 to 1934. In 1930, the males suffered to a greater extent than the females; 9.8% of the male employables were out of work, while only 6.7% of the female employables were unemployed. By 1934, the number of wholly unemployed males had increased by 93% and the number of unemployed females by 189%. Even so, the extent of unemployment in 1934 among the male employables (26.5%) was still somewhat greater than among the females (21.1%). Clearly the depression dealt less harshly with the female employables than it did with those of the male sex, but the advantage

possessed by the women workers in this respect was much less marked in 1934 than in 1930.

Table 3. Unemployment Returns by Classes, by Sex, for Massachusetts: 1930 and 1934

Description of Classes	Total	Males	Females
1930			
Gainful Workers (persons 10 years old or older reporting a customary gainful occupation whether or not actually employed on census day)*	1,814,315	1,285,316	528,999
Unemployment Returns by Classes:			
Class A (persons out of a job, able to work, and looking for a job)	116,210	93,579	22,631
Class B (persons having jobs but on lay-off without pay, excluding the sick and the voluntarily idle)	45,184†	32,347	12,837
Total of Classes A and B	161,394†	125,926	35,468
Percentage of Gainful Workers	8.9%	9.8%	6.7%
1934			
Employables (persons 14 years old or older, employed or able to work and seeking employment)*	1,808,840	1,286,224	522,616
Unemployment Returns by Classes:			
Wholly Unemployed	346,021	243,480	102,541
Temporarily Employed on Government Projects	101,941	94,724	7,217
on Private Projects	2,893	2,144	749
Total Wholly Unemployed and Temporarily Employed	450,855	340,348	110,507
Percentage of Employables	24.9%	26.5%	21.1%
Part-time Employed	173,671	119,381	54,290
Total Unemployed and Not Fully Employed	624,526	459,729	164,797
Percentage of Employables	34.5%	35.7%	31.5%
Increase in Unemployment from 1930 to 1934:			
Classes A and B in 1930 Compared with Wholly Unemployed in 1934	+114%	+93%	+189%
Classes A and B in 1930 Compared with Total Unemployed and Not Fully Employed in 1934	+287%	+265%	+364%

¹ While a certain amount of part-time employment is a normal phenomenon and may represent, for example, the employment of housewives who "work out" several days a week, to a very large extent it represents partial unemployment and differs in its social effects from full unemployment mainly in degree. That the depression was to a considerable extent responsible for the large number, 173,671, employed in part-time work in 1934 can be seen by comparing this number with the 32,606 persons estimated as working part time in 1930.

² This was done on the assumption that part-time employees were working half time and that only the increase in the number of part-time workers from 1930 to 1934 represented casualties due to the depression.

*Persons under 14 years of age were considered unemployable in 1934 because at that time the provisions of the National Industrial Recovery Act prohibited their employment. That this does not seriously impair the comparability of "employables" in 1934 with "gainful workers" in 1930 is shown by the fact that in 1930 there were only 600 gainful workers under 14 years of age in Massachusetts. †It is estimated that this figure would be about 10,000 greater if all part-time workers were included. Only persons idle on the day before the census day were reported as unemployed.

Sources: Fifteenth Census of the United States, 1930, *Unemployment*, Vol. II, and *Report on the Census of Unemployment in Massachusetts, 1934*.

Incidence of Unemployment upon Heads of Households

The unemployment of the head of a household carries with it more serious implications than does the unemployment of a person with no direct family responsibilities. Table 4, showing the extent to which this status affected unemployment, is therefore of particular interest. There were 953,700 "families" reporting gainful workers in Massachusetts in 1930. Each of these families was represented by a "head" who under normal circumstances would be gainfully employed. The employables who were not heads of families numbered 860,615. Therefore, the extent to which family responsibility affected employment status may be measured by determining the percentage of the unemployed in each class.

Only 6.8% of the heads of households in 1930 were included in Classes A and B, whereas 11.2% of the non-heads of households were so classified. At that time, therefore, unemployment was only about half as severe among the heads of households as it was among persons who did not have family responsibilities.

In 1934, the number of "families" with gainful workers was approximately 1,003,510. The total employables numbered 1,808,840, so that the employables who were not heads of households numbered 805,330. Of the heads of households, 26.9% were unemployed, while 43.8% of those who were not heads of households were out of regular employment. From this it appears that in 1934 the consideration of family responsibility was not given quite so much weight by employers as it had been given in 1930.¹

In 1934, the total number of persons who were either wholly unemployed or working only part time was 624,526. Of these, 269,554 were heads of households, and 354,972 were individuals without that responsibility. The figures in Table 5 suggest the extent to which the policy followed by government relief work agencies favored heads of households. Of the 269,554 heads of households who were affected by unemployment, 22.3% were temporarily at work on government projects at the time the census was taken. On the other hand, only 11.6% of the persons who were *not* heads of households were working on such projects. Whereas 43% of the unemployed were heads of households, the heads of households on government relief work accounted for 59% of the total employed on such work.

¹ This may to some degree understate the extent to which partiality was shown those with family responsibility. Among the wholly unemployed, that group which had neither part-time work nor temporary government work, the incidence of unemployment was almost three times as severe on those who had no family responsibility as it was on the heads of households; but it is to be remembered that the ranks of the latter group were swelled during these years by the addition of many young persons who never had been employed.

Table 4. Relative Importance of Heads of Households among the Unemployed in Massachusetts: 1930 and 1934

Classes	Heads of Households	Non-Heads of Households	Total
1930			
Employables.....	953,700	860,615	1,814,315
Unemployed (Classes A and B)	65,044	96,350	161,394
Percentage in Each Class Unemployed.....	6.8%	11.2%	8.9%
1934			
Employables.....	1,003,510	805,330	1,808,840
Wholly Unemployed and Not Fully Employed.....	269,554	354,972	624,526
Percentage in Each Class Unemployed.....	26.9%	43.9%	34.5%

Incidence of Unemployment upon Persons Living in Municipalities of Different Sizes

The experience of communities of different sizes with respect to the degree of unemployment is significant. To ascertain whether mere size of population had anything to do with the severity of unemployment, a special tabulation was made based on the material collected in the 1934 State Census. This showed the percentages of the employables in each city and town among persons either wholly unemployed or temporarily employed. These percentages varied all the way from zero, in the case of Mount Washington, a town of

Table 5. Relative Importance of Heads of Households in Temporary Government Work in Massachusetts: 1934

Classes	Heads of Households	Non-Heads of Households	Total
Total Unemployed and Not Fully Employed.....	269,554	354,972	624,526
Temporarily Employed on Government Work.....	60,503	41,438	101,941
Percentage in Each Class Employed on Temporary Government Work.....	22.3%	11.6%	16.3%

only 65 inhabitants, to 78.6%, in the case of Peru, a town with 112 inhabitants. The average for the state as a whole, however, was 25%. Table 6 presents a cross-classification of these percentages of unemployment arranged by size of municipality. The nine largest cities showed much less variation than any of the other groups. These unemployment percentages

Table 6. Political Subdivisions of Massachusetts Cross-Classified According to Size and Percentage of Unemployment: 1934

Group According to Population	Number of Places	Percentage of Unemployment* (Based on Total Gainful Workers)														Median for Each Class		
		Less than 5%	5% Less than 10%	10% Less than 15%	15% Less than 20%	20% Less than 25%	25% Less than 30%	30% Less than 35%	35% Less than 40%	40% Less than 45%	45% Less than 50%	50% Less than 55%	55% Less than 60%	60% Less than 65%	65% Less than 70%		70% Less than 75%	75% Less than 80%
100,000 or more	9	1	5	3	23.5
25,000-100,000	21	1	2	7	7	2	2	25.4
10,000-25,000	47	..	2	6	9	16	10	1	1	2	..	..	..	..	..	..	22.0
5,000-10,000	49	..	3	1	11	17	10	5	1	1	..	..	..	..	..	..	22.8
2,500-5,000	54	..	1	4	10	11	17	7	3	1	..	..	..	..	..	..	25.3
Rural Territories under 2,500	175	2†	2	7	25	27	26	29	27	15	8	3	2	..	1	..	29.7	
TOTAL	355	2	8	19	58	83	73	44	34	19	8	3	2	..	1	..	25.5	

*That is, total wholly unemployed and temporarily employed.
 †Includes Mt. Washington (2.0%).
 Source: Report on the Census of Unemployment in Massachusetts, 1934.

varied from 19.5% in Worcester to 29.7% in Boston, with Fall River, Lowell, New Bedford, Somerville, and Springfield falling in the class with degrees of unemployment from 20% to 25%. Four-fifths of the 21 municipalities with population from 25,000 to 100,000 had degrees of unemployment that ranged from 20% to 30%. The median percentage for this group, 25.4%, was nearly 2 points higher than that for the 9 largest cities.

The 47 cities in the next class, with population from 10,000 to 25,000, showed the smallest degree of idleness of any class in the state; the median percentage for this group was only 22.0%. From here on, the tendency was for the smaller communities to show larger and larger degrees of idleness. The 175 rural areas, those with populations of less than 2,500, showed a median of 29.7% of their employables in the ranks of the unemployed.

We are able to compare the situations in 1930 and 1934 by means of Table 7. This shows the arithmetic averages of the degrees of unemployment in places of different size. One very interesting fact emerges. Whereas in 1930 the rural areas appear to have had the smallest amount of unemployment, in 1934 they showed a considerably higher degree of idleness than any other group. This is accounted for in part by the fact that the 1934 State Census was taken as of January 2, when agricultural activity is normally at a low ebb, while the 1930 Federal Census was taken as of April 1, when agricultural work is normally more lively. These small rural areas contain only a small percentage of the total population of Massachusetts; and, while their figures

Table 7. Unemployment Returns for Various Urban Groups and Rural Territories in Massachusetts: 1930 and 1934

1930			
Area	Number of Unemployed, Classes A and B (1)	Number of Gainful Workers (2)	Percentages of Unemployment Ratio of (1) to (2)
The State	161,394	1,814,422*	8.9%
Urban Places			
50,000 and over	94,945	989,971	9.6
10,000 to 50,000	43,578	528,214	8.3
2,500 to 10,000	11,570	134,396	8.6
Rural Territories	11,301	161,841	7.0
1934			
Area	Number of Unemployed (1)	Number of Employables (2)	Average Percentage of Unemployment Ratio of (1) to (2)
The State	450,855	1,808,840	24.9%
Urban Places			
50,000 and over	249,006	978,322	25.5
10,000 to 50,000	130,536	542,626	24.1
2,500 to 10,000	48,088	207,584	23.2
Rural Territories	23,225	80,308	28.9

*The number of gainful workers in Massachusetts was given at first as 1,814,422. This was later revised by the Bureau of the Census. The final total of 1,814,315 could not be used in this table, since the individual classifications according to population were not revised to correspond to the new figure. Sources: Fifteenth Census of the United States, 1930, *Unemployment*, Vol. I, and *Report on the Census of Unemployment in Massachusetts, 1934*.

Table 8. Unemployed Persons in Massachusetts Classified According to Race and Sex: 1930 and 1934

Classification	1930			1934		
	Number Unemployed*	Total Gainful Workers	Percentage Ratio of Unemployed to Total Gainful Workers	Number Unemployed†	Total Gainful Workers	Percentage Ratio of Unemployed to Total Gainful Workers
Total.....	116,210	1,814,315	6.4%	450,855	1,808,840	24.9%
White						
Male.....	92,072	1,266,517	7.3%	334,078	1,270,213	26.3%
Female.....	22,133	520,393	4.3	108,097	515,399	21.0
Total.....	114,205	1,786,910	6.4%	442,175	1,785,612	24.8%
Black						
Male.....	1,452	16,193	9.0%	5,993	14,313	41.9%
Female.....	486	8,479	5.7	2,366	7,091	33.4
Total.....	1,938	24,672	7.9%	8,359	21,404	39.1%
Other						
Male.....	55	2,606	2.1%	277	1,698	16.3%
Female.....	12	127	9.4	44	126	34.9
Total.....	67	2,733	2.5%	321	1,824	17.6%

*Classes A and B.

†Wholly Unemployed and Temporarily Employed Only.

Sources: Fifteenth Census of the United States, 1930, *Unemployment*, Vol. I, and *Report on the Census of Unemployment in Massachusetts, 1934*.

reveal a situation relatively worse than that of larger places, they contain but a small fraction of the unemployed of the state.

Incidence of Unemployment upon Persons of Different Races

The racial characteristics of the population of Massachusetts in 1930 were somewhat peculiar in that all but 1.3% were members of the white race. Only six states (Maine, New Hampshire, Vermont, Wisconsin, Minnesota, and Iowa) have larger percentages of whites in their population than Massachusetts, and these are not states in which industrial employment predominates as it does in Massachusetts. Despite the relatively small importance of the negro and "other races", it is interesting to study the extent to which the factor of

race affected employment status during the depression. (See Table 8.) The data for 1930 show that the negroes suffered slightly more than the whites; 7.9% of the negro gainful workers were unemployed, while only 6.4% of the whites were so classified. Gainful workers belonging to "other races" numbered less than 3,000; and of these only 67, or 2.5%, were idle.¹

That the lot of the negro became more difficult as the depression continued is evident from an analysis of the data for 1934. At that time 39.1% of the employable negroes were unemployed, as compared with a figure of 24.8% for the whites and a figure of only 17.6% for "other races".

¹ Not including those employed part time. In both white and black races there is evidence that female gainful workers suffered less than males in both years. Of "other races" the reverse is true.

INCIDENCE OF UNEMPLOYMENT UPON DIFFERENT CLASSES OF OCCUPATIONS

Shifts in Occupational Classes of Gainful Workers¹

In order to understand the significance of unemployment in the various industrial classes in Massachusetts, it is necessary to have as background a picture of the major occupational divisions of the population and the shifts that have taken place among those divisions in recent years. Table 9 and Chart 1 have been prepared to supply this picture. They reveal the predominant importance of the manufacturing and mechanical occupations in the state, and they enable us to focus attention upon a shift in the size of this class that has an important bearing on the problem of unemployment. From the data for 1930 compared with those for 1920, it is evident that over this period the number of persons working in manufacturing and mechanical occupations had declined from 995,000 to 878,000. This loss of 117,000 workers set the absolute number of workers in these occupations back 20 years, almost to where they had been in 1910.² Between 1910 and 1920, there had been a slight increase in this class of occupations. In the former year they accounted for 55% and in the latter year 58% of all gainful workers. By 1930, however, manufacturing and mechanical occupations had declined to 48% of the total.

During the twenties, while manufacturing and mechanical occupations were declining by 117,000 workers, the other classes of occupations increased enough to counteract this decline and to raise the number of gainful workers by 85,000 to a total, in 1930, of 1,814,000. Much the greatest expansion came in the service occupations, a class which in 1930 totaled 587,000 workers and was two-thirds as large as the manufacturing and mechanical class. Service occupations included 192,000 persons in domestic and personal service, 144,000 in professional service, 138,000 in transportation and communication services, and 43,000 in public service. This group accounted for 32% of the total in 1930. In the 10 years from 1920 to 1930, it had increased by 130,000. Its gain, therefore, exceeded by 13,000 the loss in the manufacturing and mechanical occupations.

"Trade" is a classification that includes the workers

¹ The term "gainful worker" means merely that under normal circumstances a person is engaged in a gainful occupation as a wage earner, a salaried worker, or a proprietor. It does not mean that at the time of the census the person so classified was actually so engaged.

² These observations are based upon figures which include estimates of the number of clerical workers in each group. Excluding the clerical workers, the gainful workers in the manufacturing and mechanical class numbered 773,493 in 1930; 887,898 in 1920; and 774,398 in 1910.

engaged in wholesale and retail distribution, real estate, insurance, banking, and brokerage. In 1930, the total in this class amounted to 285,000. Between 1910 and 1920, the workers in trade had increased from 198,000 to 217,000; and the next decade had showed a growth three and a half times as great. It was during the twenties that most of the automobile and radio sales agencies and gasoline filling stations were established. It was during this period also that the greatest increase occurred in the activities connected with the sale of insurance and securities of all sorts.

Table 9. Gainful Workers in Massachusetts, by Major Occupational Classes: 1910, 1920, and 1930

Occupational Classifications	Number (in thousands)			Percentage		
	1910	1920	1930	1910	1920	1930
Manufacturing and Mechanical Industries	837	995	878	55%	58%	48%
Service Industries	418	457	587	27	26	32
Trade Industries	198	217	285	13	13	16
Extractive Industries	77	59	65	5	3	4
TOTAL	1,531	1,729	1,814	100%	100%	100%

Note: There were reported in clerical occupations 100,237 in 1910; 180,450 in 1920; and 207,819 in 1930. These have been allocated proportionally to the industrial classes other than the Extractive Industries. Source: Fifteenth Census of the United States, 1930, *Population*, Vol. IV (Occupations, by States).

The other gainful occupations are in the extractive industries: agriculture, forestry, fishing, and mining. Together these occupations in 1930 included 65,000 workers, or 3.5% of the total. This number represented a slight increase over 1920, but a loss from the 77,000 reported in 1910.

Let us now examine the statistics of unemployment in these separate categories in 1930 and 1934 to see how each was affected by the depression. We shall study the available evidence bearing upon the course of employment in recent months and the prospects for re-employment in the future.

Indications of Employment Trends and Future Prospects: Manufacturing and Mechanical Occupations

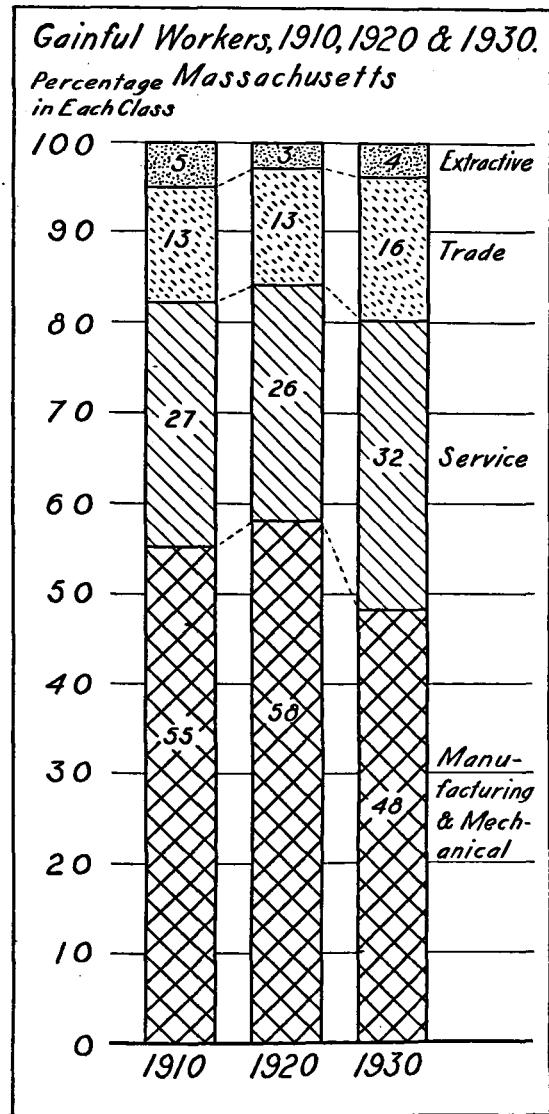
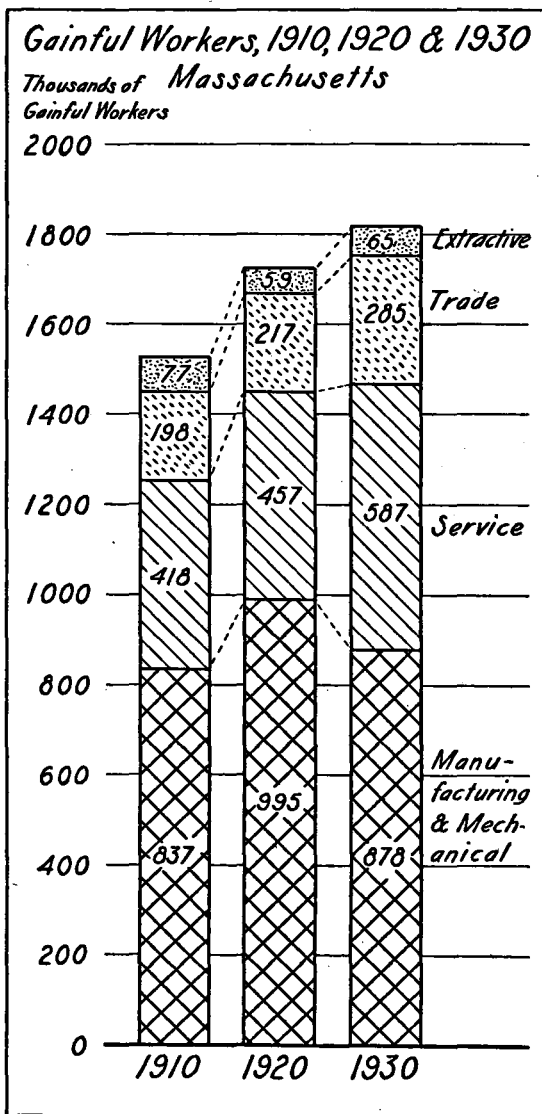
This group consists of two major divisions: *Manufacturing*, to which we shall devote Part II of this study, and *Construction*.

Manufacturing. In 1929, the manufacturing industries of Massachusetts were employing a total of 639,000 salaried workers and wage earners.¹ This was only 6,000 more workers than had been employed in 1909, but 162,000 fewer workers than had been employed in 1919. From 1929 to 1933, the drop in employment can

¹ Employment data for the manufacturing industries have been taken from the reports of the Bureau of the Census on Manufactures. Two classes of employees are given: salaried workers and wage earners. The numbers given are the averages employed during respective years. These figures are therefore not on the same basis as those given in the Census of Occupations. The latter classifies all gainful workers, whether actually employed or not, according to their usual occupation.

be measured only in terms of wage earners since for the latter year no figures for salaried workers were collected. In 1933, the number of wage earners was 159,000 less than it had been four years earlier. This decline of 28.5% in the number of wage earners was no doubt accompanied by a somewhat smaller decline in the number of salaried workers. In 1934, the Census of Unemployment in Massachusetts found 148,000 wholly unemployed and 105,000 part-time workers from the manufacturing industries.

Chart 1.



The analysis shown in the following section reveals a downward trend in employment in manufacturing industries as a whole. This downward trend has persisted since 1919 and has been sharply accentuated by the depression. Indexes of employment, compiled by the Massachusetts Department of Labor and Industries, show very little recovery since the Census of Unemployment was taken in January, 1934, although the levels prevailing during 1934 and 1935 were somewhat higher than the level prevailing in 1933.¹

So much of the unemployment problem of Massachusetts depends upon the future course of the manufacturing industries of the state that these industries have been made the subject of a detailed examination given in Part II of this report. In this section we shall treat of the other occupational divisions and their trends and tendencies.

Construction. The other part of the manufacturing and mechanical category given in the Census of Occupations is that of *Construction*. This industry for the country as a whole was one of the first to turn downward during the late twenties. Statistics compiled by the F. W. Dodge Corporation indicate that, for the 37 eastern states covered in its reports, the peak in construction was reached in 1928, when the value of all contracts awarded reached \$6,628,000,000. During the next four years, construction activity declined rapidly. In 1933, the value of contracts awarded was only 19% of the value of the peak year. If the decline is measured by the changes in the amount of floor space represented in contracts awarded, it appears even worse, inasmuch as the floor space in 1933 amounted to only 15% of what it had been in 1928.²

The statistics given in Tables 10 and 11 show that the pattern of the decline in Massachusetts was quite similar to that of the 37 eastern states. In fact, the indexes of construction activity in Massachusetts and in the entire 37 eastern states started downward at the same time, reached approximately the same level at the same time, and started upward together. It may be pointed out that the total for the 37 eastern states fell to a slightly lower relative level in 1932 and 1933 than did the figures for Massachusetts alone. From this it follows that the percentage of the total within this state in-

¹ The Index of Employment for all manufacturing industries, compiled by the Massachusetts Department of Labor and Industries, follows:

1925.....	100.1	1931.....	73.5
1926.....	102.0	1932.....	59.3
1927.....	97.9	1933.....	64.6
1928.....	91.6	1934.....	68.3
1929.....	94.3	1935.....	70.8
1930.....	81.5		

In the base period, 1925-1926-1927, the index stood at 100. The average number of wage earners during that period was 590,616.

² Valuation includes certain types of construction, such as bridges and tunnels, which are not included in floor space measurements. An unusually large percentage of this sort of work has been done recently by government agencies. This accounts for the greater proportionate increase in the valuation figures.

Table 10. Indexes of Total Construction Contracts Awarded in Massachusetts and 37 Eastern States: 1928-1935 (1928=100)

Year	Valuation*		Floor Space	
	Massachusetts	37 Eastern States	Massachusetts	37 Eastern States
1928	100	100	100	100
1929	81	87	79	82
1930	76	68	59	53
1931	73	47	50	38
1932	25	20	20	16
1933	24	19	17	15
1934	32	23	19	16
1935	33	28	21	26

*See footnote 2, below.
Source: F. W. Dodge Corporation Reports.

creased slightly from 1928 through 1934. In 1935, some of this gain in relative position was lost, since the improvement during that year was more marked in other states than it was in Massachusetts.

It is difficult to state precisely the normal importance of the construction industry to Massachusetts. When the Federal Census of Construction was taken in 1930, it appeared that the value of the construction business in the previous year in the state had been over \$350,000,000. Another method of measuring the importance of this industry is by means of the number of gainful

Table 11. Construction Contracts Awarded in Massachusetts as Percentage of Total for 37 Eastern States: 1928-1935

Year	Percentage Ratios of Massachusetts to 37 Eastern States, on Basis of	
	Valuation	Floor Space
1928	3.9%	4.5%
1929	3.6	4.3
1930	4.3	5.0
1931	6.0	6.0
1932	4.7	5.6
1933	4.9	5.0
1934	5.3	5.5
1935	4.5	3.7

Source: F. W. Dodge Corporation Reports.

workers normally making their living in it. In 1930, the Bureau of the Census reported 117,817 gainful workers in the building industry in Massachusetts; at the same time this industry reported 23,855 persons as unemployed.³ In other words, one out of every five construction workers in the state was then out of a

³ In Classes A and B unemployed.

job. Four years later, on January 2, 1934, the Census of Unemployment in Massachusetts counted over 61,000 construction workers who were wholly unemployed and 12,000 more who were working only part time. The volume of construction at that time was down 53% from its 1929 level; 48% of the gainful workers in the industry had been laid off; and 10% more had been put on a part-time basis. That was about the lowest point reached in the construction industry, but improvement since then has been very slow and of small magnitude. In view of the increase in the productivity of labor that takes place during a depression, there is little doubt that some increase in construction could be accomplished without any increase in the number of workers. Therefore, despite the increase in the floor space index for Massachusetts from 17 in 1933 to 21 in 1935, it is probable that very little increased employment has occurred in the construction industry. It is likely that not more than 5,000 full-time workers have been absorbed from the ranks of the unemployed and put to work on new construction in the state.

The construction industry would have to attain approximately its 1928 level of contracts awarded to absorb all of its own unemployed. In the light of the declining trends in most of the important manufacturing industries and the retardation in the rate of growth of population of Massachusetts, it is probable that building construction will remain at a subnormal level for several years. It is to be expected that even with a return of normal business activity for the United States within the next few years there will remain a surplus of former construction workers who cannot be employed at their old jobs in the state.

Service Occupations

The service occupations have shown a remarkable capacity for growth at a time when the manufacturing and mechanical industries were throwing thousands of workers out of employment. Had it not been for the expansion of the service occupations and of trade at this time, the decline in employment in the manufacturing and mechanical group would have resulted in a serious unemployment problem before the depression set in. It would be reassuring at present if we could expect a continued expansion of the service occupations. Let us examine each class separately to see what bearing it may have upon the prospects for reemployment.

Domestic and Personal Service. If we take as normal

the situation prevailing in Massachusetts in 1930, it appears that of every 1,000 men, women, and children in the population there were 45 engaged in rendering domestic and personal service. At that time there were 189,000 gainful workers employed as housekeepers, cooks, chauffeurs, dressmakers, janitors, waiters, waitresses, porters, barbers, hairdressers, elevator operators, and hotel and restaurant workers, and as workers in laundries and dyeing, cleaning, and pressing establishments. This group accounted for 10.6% of the total gainful workers in the state.

In 1930, there were 10,700 from this group among the unemployed. By January, 1934, the depression had affected the domestic and personal service occupations to such an extent that there were 35,000 reported as wholly unemployed and 12,000 more who had only part-time work. It is important to observe that unemployment was not so great in this group as in others. While this group accounted for 10.6% of the gainful workers, the unemployed from this group amounted to only 7.5% of the total in 1934.

It seems reasonable to expect that a return of normally prosperous times will once more see full employment for this group of workers. It is doubtful, however, whether the demand for personal and domestic services can expand sufficiently and soon enough to be of much help in absorbing persons who have been thrown out of work by the declining industries in Massachusetts.

Professional Service. In the period 1920-1930, no group of gainful workers increased so rapidly as that comprising the physicians, lawyers, teachers, nurses, artists, actors, architects, musicians, authors, chemists, druggists, and engineers. Between 1920 and 1930, this group expanded from 99,000 to 144,000, an increase of 45%.

The statistics of unemployment show that in 1930 and in 1934 the professional service group suffered relatively little as compared with other groups. Whereas in 1930 the group included 7.92% of all gainful workers, it accounted for only 2.47% of the unemployed. In 1934, its share of the unemployed was 3.94%. The return of prosperity will probably see the unemployed from this group reemployed in their chosen professions. Indeed it is possible that service industries such as educational institutions and financial establishments may increase the number of persons they employ as the service they render becomes more national in scope.

Transportation and Communication. There were over 148,000 persons in Massachusetts who reported normal gainful occupations in the industries providing transportation and communication services in 1930. This

group was composed of the following divisions:

Classes	Gainful Workers
Construction and Maintenance of Streets, etc.....	13,899
Garages, Greasing Stations, etc.....	14,786
Steam Railroads.....	32,956
Street Railroads.....	10,060
Telegraph and Telephone.....	24,515
Other Transportation, including Postal Service.....	52,139
TOTAL.....	148,355

In 1930, there were 7.5%, or over 11,000, of these gainful workers reported among the Class A and B unemployed. By January 2, 1934, the wholly unemployed had risen to 39,000 and those employed only part time numbered over 12,000. The several divisions of this group fared variously. In 1934, over nine-tenths of the highway construction and maintenance workers and two-thirds of the garage and greasing station workers were unemployed. Steam and electric railways combined showed about one-fifth of their gainful workers among the unemployed. Employment in the telegraph and telephone industry was more stable, inasmuch as only 13% of the gainful workers in this industry were reported as unemployed in 1934. The largest division of this group is that of "other transportation, including postal service"; the unemployed from this division in 1934 amounted to one-third of those who had reported it as their customary occupation in 1930.

The only current evidence available to indicate the direction in which employment in these occupations is headed is that provided by the Indexes of Employment compiled by the Massachusetts Department of Labor and Industries. This department publishes separate indexes for steam railroads, street and electric railways, passenger bus companies, express and transfer companies, and teaming, trucking, and handling businesses. Unfortunately, none of these indexes was started before 1930 and in some instances they were not started until later, with the result that it is impossible to observe the long-run pre-depression trends. Nevertheless they do indicate what has happened since 1934.

These indexes show that both steam and electric railways employed fewer workers in 1935 than in 1934. There were, however, substantial increases in employment in express and transfer companies and passenger bus companies, and some improvement in the teaming, trucking, and handling companies. It is probable that the divisions registering increases since 1934 balance those recording decreases.

The prospect for employment in this group seems to depend chiefly upon the future course of population, trade, and industry in Massachusetts. Transportation and communication are services rendered mainly to industry, trade, and the population as consumers. Therefore the only reason for expecting these services to absorb more man power than before is through the expansion of industry, trade, and the consumption requirements of the population. In all probability, population will continue to expand, but at a slower rate. This, and improvement in general prosperity, will undoubtedly result in some increase in employment in this group of industries. It does not seem reasonable, however, to expect that in the near future such improvement will do more than absorb persons reported as unemployed from this group in 1934. These occupations can be of little help, therefore, in solving the immediate problem of unemployment.

Public Service (Not Elsewhere Classified). The principal occupations classified under this heading are those found in federal, state, and municipal employment, including the military and naval forces, and in the manufacture of gas and electricity. The importance of the group as a whole may be measured by the 51,000 gainful workers it reported in 1930. That it did not suffer very heavily from the depression is evident from the fact that only 9,000 of the wholly unemployed and 2,000 of the part-time employed were found classified as from this group in 1934.

One of the industries in this group is shown in the current employment indexes of the Massachusetts Department of Labor and Industries, namely, the gas and electric companies. Employment in this industry was at its lowest in 1933, when the index averaged 85.2% of the 1930 level. Some improvement was recorded in 1934 and 1935; but the index at the end of 1935 was only 2.5 points above the level of January 2, 1934, when the Census of Unemployment was taken. While the gas and electric industry is a fairly stable service industry and may be expected to absorb all of its own unemployed with the return of normal conditions, it cannot be relied upon to expand sufficiently to help absorb persons who have been thrown out of employment by declining industries.

Of the federal, state, and municipal employees, including those in the military and naval services, the same may be said. These are service occupations which under normal conditions we cannot expect to expand.

Summary of the Service Occupations. In general, the absolute and relative expansion of the service occupations in the years before the depression is regarded as

an accompaniment of the rapid industrial and commercial expansion that followed the War. This expansion helped to provide employment for what otherwise might have been a surplus of man power during the twenties. That the services have suffered relatively little from unemployment is evidence of the strength of these occupations in the social fabric. It is not likely, however, that the service occupations will expand very greatly in the near future.

Trade

In 1930, over 325,000 gainful workers in Massachusetts gave trade as their normal occupation. Of these, 238,000 persons were engaged in wholesale and retail trade; about 30,000 in banking and brokerage; 35,000 in insurance and real estate; 17,000 in automobile agencies and filling stations; and 8,500 in other trade industries. Four years later the enumeration of the unemployed found 54,000 wholly unemployed persons and 15,000 working only part time who normally were engaged in trade.

An index compiled by the Massachusetts Department of Labor and Industries, based upon a sample drawn from wholesale and retail enterprises, suggests that in this group, despite the improvement in business which occurred between January, 1934, and January, 1936, there may have been no increase in the number of persons employed. In January, 1934, at the time the Census of Unemployment was taken, this index stood at 91.1% of its September, 1931, base. In January, 1935, it was lower, 85.9%, and in January, 1936, still lower, 82.9%.

It is not likely that this index by itself presents the whole picture. For one thing, because of seasonal movements of trade, the month of September, 1931, can scarcely be regarded as affording a desirable base. Equally important is the fact that this index is based upon the number of names on pay rolls and takes no account of hours of labor. Obviously a substantial increase in business might be handled through an advance in the proportion of full-time workers and in the number of hours per week. The large number of part-time employees, particularly in retail trade, furthermore, allows considerable latitude of judgment of the person making a report on the number of persons employed in a business, and conceivably, after NRA had vanished from the stage and social security legislation had appeared, there may have been some change in the motives affecting the exercise of this judgment. Some weight also must be attached to the fact that the employment data accumulated by the Boston Federal Reserve Bank for a somewhat smaller sample, consist-

ing largely of Boston department stores, do not corroborate the downward trend shown in the index of the Massachusetts Department of Labor and Industries.

Whatever the actual situation may have been as of the early part of 1936, it is reasonable to expect that continued improvement in trade, such as that which has been in evidence during the summer of 1936, will require some increase in the number of persons employed.

Extractive Industries

The extractive industries are not of great relative importance in Massachusetts. In 1930, there were only 55,600 persons gainfully occupied in agriculture, or 3.1% of the total gainful workers in the state. The other extractive industries were even less important. Fewer than 1,500 persons were engaged in mining (quarrying, sand, gravel, etc.), and only 7,700 in forestry and fishing. Together the extractive industries reported 64,800 gainful workers in 1930.

As a group, these industries did not suffer quite so much from unemployment as the total of all occupational groups. In 1934, there were 20,700 unemployed from these industries. The ratio of the unemployed in this group in 1934 to the gainful workers in this group in 1930 was only 32%, whereas the corresponding ratio for all industries was 34%. As might be expected, agriculture, with a ratio of 24%, suffered least.¹

In all probability the return of prosperity will see the extractive industries again employing a few more workers than before.

Unemployment in Each Class of Occupations

Table 11 permits a comparison of the incidence of unemployment in the various classes of occupations. The gainful workers reported in 1930 are compared with the unemployed persons in 1930 and 1934, both classified by occupational groups. One outstanding fact emerges: The greatest sufferers from unemployment in 1930 were the workers employed in the manufacturing and mechanical group. More than 71% of the unemployed in that year were from this group, whereas the gainful workers of this class constituted only 48% of the total. The relative impact of the depression on the different groups can be gauged from the percentage ratios of the total unemployed to the number of gainful workers reported. This comparison shows that in 1930 the manufacturing and mechanical group suffered from two-and-a-half to three times as much unemployment

¹ As this goes to press, a release from the U. S. Census of Agriculture places the farm population of Massachusetts in 1935 at 163,210. This is an increase of 32.4% over the figure for 1930 and represents an increase of about 18,000 in the number of gainful workers in this field.

Table 12. Incidence of Unemployment upon Workers of Different Occupational Classes in Massachusetts: 1930 and 1934

Industry Group	Gainful Workers 1930		Total Unemployed 1930*			Total Unemployed 1934†		
	Number	Percentage	Number	Percentage	Percentage Ratio to Gainful Workers in 1930	Number	Percentage	Percentage Ratio to Gainful Workers in 1930‡
All Industries.....	1,814,315§	100.00	161,394	100.00	8.90	557,078	100.00	30.70
Manufacturing and Mechanical.....	877,530	48.37	115,818	71.76	13.20	334,024	59.96	38.06
Service Occupations								
Domestic and Personal Service....	218,070	12.02	10,874	6.74	5.00	46,848	8.41	21.48
Professional Service.....	162,978	8.98	4,237	2.62	2.60	21,967	3.94	13.48
Transportation and Communica- tion.....	157,132	8.66	13,031	8.07	8.29	51,784	9.30	32.06
Public Service.....	48,935	2.70	2,064	1.28	4.22	11,588	2.08	23.68
Total Service Occupations.....	587,115	32.36	30,205	18.71	5.15	132,187	23.73	22.51
Trade.....	284,901	15.70	12,265	7.60	4.31	70,140	12.59	24.62
Extractive								
Agriculture.....	55,643	3.07	2,298	1.42	4.13	13,493	2.42	24.25
Forestry and Fishing.....	7,691	0.42	653	0.41	8.49	4,119	0.75	53.56
Extraction of Minerals.....	1,435	0.08	154	0.10	10.73	3,115	0.56	1 (4)
Total Extractive.....	64,769	3.57	3,105	1.93	4.79	20,727	3.72	1 (4)

*Total of Class A and Class B unemployed.

†Total of persons wholly unemployed, temporarily employed, and part time employed. Not included in the total are 14,581 who reported no industry, and 52,867 who came of working age during the depression and who had never been employed in any industry since leaving school.

‡No data are available to show the number of gainful workers in 1934 in each category.

§The 1930 census figures showed 207,819 clerical workers separately in the total of 1,814,315 gainful workers, and 9,333 unemployed clerical workers in the total of 161,394. These workers were unallocated by industry. To make a more nearly accurate comparison with the 1934 figures, these clerical workers were distributed proportionately in Manufacturing and Mechanical Occupations, Trade and Service Occupations, none being allocated to the Extractive Industries. While this allocation may not be strictly accurate, there is no means of knowing the exact proportion of clerical workers in the various divisions of these industries. It is believed that this method gives an accurate picture of the situation, and that the figures would be substantially the same if detailed data were available.

||There are no mines in Massachusetts. Included under the heading "Extraction of Minerals" in the U. S. Census in 1930 are quarries of limestone, granite, and marble. The Massachusetts Census of Unemployment in 1934 is not comparable in this respect. Its designation in this field was "Quarrying, Sand, Gravel, etc." instead of "Extraction of Minerals". The Census of Unemployment included in this class granite cutters and persons engaged in the making of paving blocks, curbstones, cemetery headstones, etc. This class is so small, however, that the discrepancies in composition may be ignored.

Sources: Fifteenth Census of the United States, 1930, *Unemployment*, Vol. II, and *Report on the Census of Unemployment in Massachusetts, 1934*.

in proportion to its numbers as did the other three major groups.¹

Four years later, as of January 2, 1934, unemployment had increased greatly in all classes of occupations. The total number unemployed had advanced from 161,000 to 624,000. Of these persons, about 15,000 gave no indication of their customary occupations, and almost 53,000 reported that they had never been employed before. With these persons excluded from consideration, for the moment, there were 557,000 who could be classified according to occupations; the manufacturing and mechanical group was still the largest and represented the class most severely affected. The

¹ No significance is attached to the small differences in the relative amount of unemployment among workers in the services, trade, or the extractive industries.

relative weight of unemployment on this class was 70% greater than on the service occupations and 50% greater than on trade.²

Special attention is given to the manufacturing industries in the next part of this study. Measured by the number of gainful workers, manufacturing overshadows other economic activities in Massachusetts. It has been shown that in both 1930 and 1934 more unemployed persons came from the manufacturing industries than from any other group. The severity of the impact of unemployment on the manufacturing industries indicates that the crux of the problem lies there.

² No significance is attached to the high percentage of unemployment in forestry and fishing. This class is insignificant in size and includes occupations subject to a seasonal drop in employment during the period when the census was taken.

PART II

INCIDENCE OF UNEMPLOYMENT AND PROSPECTS FOR REEMPLOYMENT IN THE DIFFERENT MANUFACTURING INDUSTRIES

The data for the following studies of individual manufacturing industries have been obtained from the Federal Census of Manufactures. The relative importance of the various classes of these industries in Massachusetts is indicated by the statistics given below for the number of wage earners employed in the year 1929:

Industrial Groups	Wage Earners Employed in Massachusetts 1929	
	Number	Percentage
Leather Goods.....	76,305	13.69
Cotton Goods.....	74,094	13.29
Iron and Steel Products.....	63,049	11.31
Woolen Goods.....	46,811	8.40
"Other Textiles".....	41,422	7.43
Electrical Machinery.....	29,337	5.26
Food.....	27,486	4.93
Paper and Allied Products.....	26,730	4.79
Heavy Machinery.....	22,851	4.10
Printing, Publishing, and Engraving.....	21,494	3.86
Rubber Goods.....	20,927	3.75
Furniture and Finished Lumber.....	19,860	3.56
Clothing.....	19,118	3.43
Chemicals.....	14,187	2.54
Jewelry, Clocks, Watches, Silverware, etc.	10,252	1.84
Non-ferrous Metals.....	3,950	0.71
Other Manufacturing Industries.....	39,621	7.11
TOTAL.....	557,494	100.00

For each of the industrial groups listed above, a separate study was made of the available data that might throw some light upon its long-run tendencies as contrasted with its reaction during the depression. Two tables are given for each group. The first table presents, for both Massachusetts and the United States, the following data for the period from 1909 to date: number of establishments, number of salaried workers, number of wage earners, horsepower, and value of products. In addition, there is shown for Massachusetts the number of unemployed persons in 1934 who gave the industry in question as the one in which they were customarily engaged.¹ In an analysis of the unemploy-

¹ In comparing changes in the numbers of wage earners from 1929 to 1933 with the number of persons reported as unemployed in 1934, several facts must be borne in mind. First, the figures for "total wage earners" obtained from the Federal Census of Manufactures are averages of data reported by employers in the months of the designated years. These figures do not include salaried workers or employees in central administrative offices. On the other hand, the figures for the "wholly unemployed," obtained from the Massachusetts Census of Unemployment, represent the situation reported to enumerators by the unemployed themselves as of the one day, January 2, 1934. These figures include salaried workers in addition to wage earners and employees in central administrative offices, as well as those in shops and factories. Therefore, the best measures available to gauge the extent of unemployment in the respective industries are those published

ment figures in each industry, the data showing salaried workers and wage earners naturally receive first attention. Unfortunately, data for salaried workers in the individual states are not available for 1931 and 1933. Moreover, the figures for salaried workers have not always been reported on a comparable basis. The study of the trend of occupational opportunity in each case, therefore, narrows down to a consideration of the trend in the number of *wage earners* reported.²

The second table in each group presents an analysis of the data shown in the first table. In the first two columns are traced the changes registered in the position of Massachusetts relative to the United States as a whole, as measured by the number of wage earners and the value of products. The other columns show, for Massachusetts and for the United States, the value of products and the horsepower installed, both on a per worker basis. These data must be interpreted with care since there is often a marked difference in the relative importance of the component parts of a given industry between Massachusetts and the United States as a whole.

Leather Goods³

The enterprises manufacturing leather goods in Massachusetts employ a larger number of wage earners than any other industrial group in the state. In 1929, these industries employed more than 76,000 wage earners and almost 7,800 salaried workers. The importance of the leather trades in the economy of Massachusetts may be gauged from the fact that the value of their products in 1929 amounted to \$427,000,000. Between 1929 and 1933, the number of wage earners in the leather-working industries dropped from 76,000 to 66,000. The 1934 Census of Unemployment reported more than 29,000 leather workers wholly unemployed and more than 21,000 working only part time.

The data shown in Table A were assembled from the report of the United States Bureau of the Census on

in the *Massachusetts Census of Unemployment*. On the other hand, if interest centers on the trends of employment in the various industries, one is forced to use the data on "Total Wage Earners" reported in the *Census of Manufactures*. Under the circumstances, of course, no complete correspondence of the two sets of figures can be expected.

² In the 1934 Census of Unemployment, no distinction was made between salaried workers and wage earners in enumerating the unemployed.

³ This group includes establishments manufacturing boots and shoes other than rubber; lasts for boots and shoes; leather, tanned, curried, and finished; leather belting; cut stock; boot and shoe findings; pocketbooks, purses, and card cases; saddlery and harness; trunks, suitcases, and bags; leather gloves and mittens; and leather goods not elsewhere classified.

Table A. Leather Goods*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	1,162	7,404	96,764	57,444	288,410	5,788	28,624	311,494	284,503	996,873
1914	1,186	8,796	98,753	70,369	313,775	6,824	32,615	309,154	323,204	1,109,184
1919	1,218	12,415	109,171	86,444	720,061	6,461	44,247	352,272	394,972	2,622,701
1921	1,189	10,052	83,086	Not Reported	426,312	4,880	33,873	282,689	Not Reported	1,556,563
1923	1,284	11,580	91,574	92,468	451,221	4,932	40,531	346,803	419,993	1,889,986
1925	1,198	8,793	77,686	89,774	395,351	4,326	35,104	317,323	421,271	1,776,882
1927	1,105	8,765	77,231	95,328	415,334	4,324	34,620	317,709	427,246	1,876,834
1929	1,034	7,794	76,305	94,449	426,731	4,335	33,050	320,175	443,572	1,913,666
1931	967	Not Reported	65,597	Not Reported	268,946	3,753	Not Reported	274,254	Not Reported	1,195,623
1933	906	Not Available	66,726	Not Reported	226,023	3,312	20,119	283,406	Not Reported	1,001,817
1934	29,885	21,678	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*For composition of this group, see Appendix, p. 60.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for lasts and related products in 1925 and 1927.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

Manufactures (1929). These figures permit us to trace the development of this group of industries in Massachusetts in their relation to all similar industries in the United States as a whole.¹ From 1919 to 1929, the trend in the total number of wage earners employed by manufacturers of leather goods in the United States was practically level. However, that part of the industry located in Massachusetts unfortunately does not reveal such stability. Throughout this decade the number of wage earners in Massachusetts declined markedly. The same may be said of the value of leather products produced in Massachusetts. The decline registered in value of products, however, was not so rapid as the decline in the number of wage earners.

We may trace the changes in the relative importance of Massachusetts to the United States from the percentages given in Table A-1. These show that the greatest change took place between 1919 and 1925. Prior to 1919, Massachusetts employed approximately 100,000 wage earners in the leather manufacturing industries. These represented about 31% of the total number of leather wage earners in the United States. Up to 1919, the leather goods produced in this state averaged around 28% of the value of all such products produced in the United States. Between 1919 and 1925, leather goods production in Massachusetts declined both absolutely and relatively in comparison with the growth of the industry in the United States as a whole. From 1925 to 1933, however, the relative position

showed little change; during this period Massachusetts employed roughly 24% of the total wage earners in this field and produced over 22% of the value of leather products.

Strictly comparable data for the years since 1933 are not available. Indexes of monthly employment are compiled by the Massachusetts Department of Labor and Industries², however, on the basis of samples drawn from three classes of leather manufacturers: boots and shoes; leather, tanned, curried, and finished; and boot and shoe cut stock. These show that employment of wage earners has continued to decline in the two largest of these three groups, namely, boots and shoes, and boot and shoe cut stock. These two classes in 1929 accounted for 58,000 wage earners, while leather, tanned, curried, and finished, accounted for 10,700 wage earners. The employment index for boots and shoes, which showed an average of 81.0 in 1933, registered 79.6 in 1934 and 75.2 in 1935. The employment index for boot and shoe cut stock was 92.9 in 1933, 93.2 in 1934, and 88.5 in 1935. Leather, tanned, curried, and finished, on the other hand, did not suffer so much and in 1934 and 1935 registered a significant rise. This index stood at 95.2 in 1933. It rose to 95.8 in 1934, and to 99.1 in 1935. The two classes which show declining employment represent approximately 80% of the leather workers in Massachusetts. On the basis of these three indexes, it appears that there were probably only 60,400 leather wage earners employed on the average in 1935. This was about 2,500 fewer than in 1934, when the Census was taken, and 3,300 fewer than in 1933.

¹ It is quite necessary to bear in mind the fact that in the case of a composite group of industries, such as leather goods, some of the divergences appearing between Massachusetts and the United States as a whole may be due to differing trends in particular sub-groups of the industry and differing proportions of those sub-groups in the composition of the industry as a whole as between Massachusetts and the rest of the country.

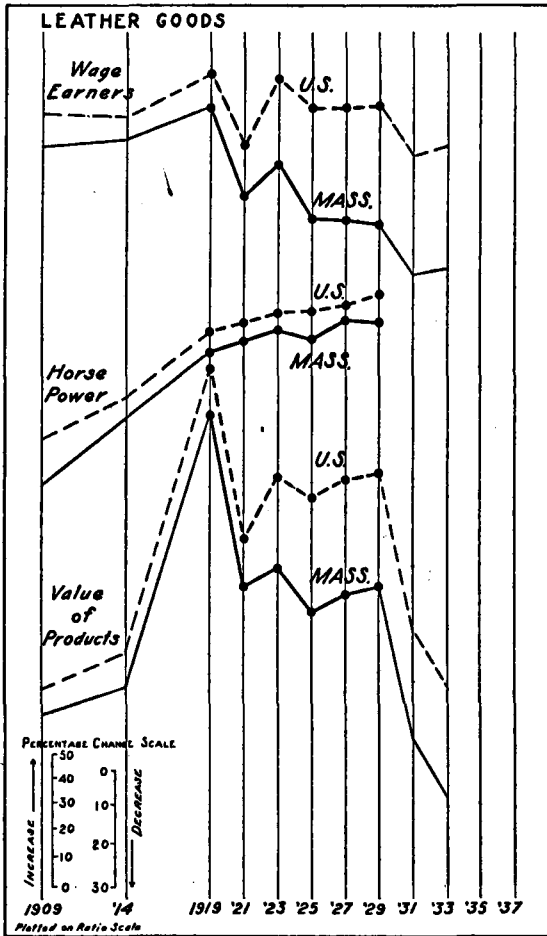
² The base period of the employment indexes compiled by the Massachusetts Department of Labor and Industries is 1925, 1926, and 1927. The average for this period is set equal to 100.

Table A-1. Leather Goods

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	28.93	31.06	\$2,981	\$3,200	0.594	0.913
1914	28.29	31.94	3,177	3,588	0.713	1.045
1919	27.45	30.99	6,596	7,445	0.792	1.121
1921	27.39	29.39	5,131	5,506	*	*
1923	23.87	26.41	4,927	5,450	1.010	1.211
1925	22.25	24.48	5,089	5,600	1.156	1.328
1927	22.13	24.31	5,378	5,907	1.234	1.345
1929	22.30	23.83	5,592	5,977	1.238	1.385
1931	22.49	23.92	4,100	4,360	*	*
1933	22.56	23.54	3,387	3,535	*	*

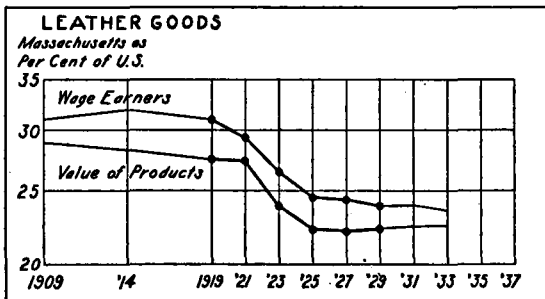
*Data not reported.

Chart A.



Note: The charts of this type are constructed on identical ratio scales. This method makes it possible to interpret the slopes of the lines directly in terms of percentages of increase or decrease. It facilitates the determination of whether the growth or decline in Massachusetts proceeded more slowly or more rapidly than in the country as a whole. The data plotted are found in the accompanying tables; they were derived from the Federal Census of Manufactures.

Chart A-1.



Additional evidence of the continuation of the decline of Massachusetts in this industry is available from the figures published by the U. S. Department of Commerce on the number of pairs of boots and shoes manufactured

in various states. These show that, whereas the United States as a whole produced about 4.5% more shoes in 1935 than in 1934 and 6.5% more than in 1933, Massachusetts produced 3.5% less in 1935 than in 1934 and 7.5% less than in 1933.

Apparently the downward trend in the Massachusetts leather goods industry as a whole¹ is continuing. It seems unlikely that in the next few years the unemployed workers from this industry will find employment in their old trades in the state.

Cotton Goods²

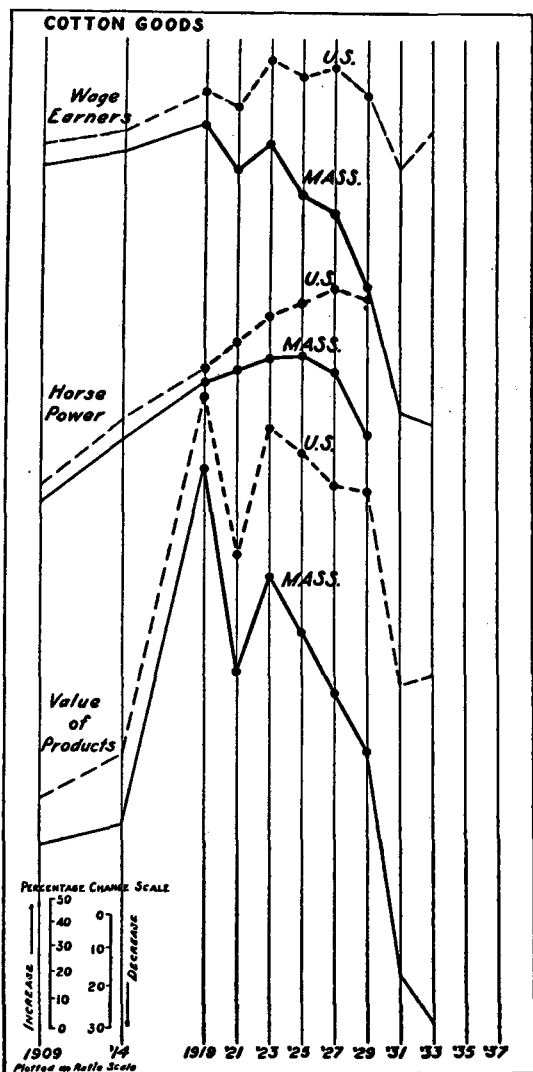
Much has been written about the decline in importance of the cotton textile industry in New England and the migration of the industry to the South. It may not be amiss, therefore, to point out that there are still more wage earners employed in the manufacture of cotton goods in Massachusetts than in any other industry except the manufacture of leather goods. In 1929, the value of cotton goods produced in Massachusetts was \$248,000,000. South Carolina, North Carolina, and Georgia are the only other states that have recently reported greater cotton spindle activity than Massachusetts. The importance of cotton textiles to Massachusetts is still very great. It is of interest, therefore, to examine the recent history of the industry in Massachusetts and in the United States with the problem of unemployment in mind.

The history of the cotton industry is reflected in the figures in Table B. These show that from 1909 to 1927 the industry as a whole continued to expand at a fairly rapid rate. This is evident both from the rated horsepower capacity and from the number of wage earners employed. Massachusetts, however, failed to keep up with this growth. By 1923, it was apparent that the rate at which power was being added in the state was lagging, and in both 1927 and 1929 the installed horsepower showed an actual decline. The 1929 figure, 442,652 horsepower, was 23% lower than that for 1925 and only slightly greater than the horsepower reported in 1914. Employment in the cotton goods industry in Massachusetts reached its peak in 1919, when 124,000 wage earners were reported. With one exception, 1923, each subsequent year showed a decline in employment. In 1929, there were 74,000 cotton textile wage earners in Massachusetts. By 1933, this number had been reduced to 48,000. The Massachusetts Census of Unemployment in 1934 found over 16,000 wholly unem-

¹ An exception should be noted in the case of the manufacture of leather, tanned, curried, and finished, where the number of persons employed in 1935 was 300 greater than in 1934 and 500 greater than in 1933. At the close of 1935, this industry was employing about 10,500 wage earners.

² This group includes establishments manufacturing cotton goods; cotton smallwares; awnings, tents, sails, and canvas covers; and bags, other than paper, not made in textile mills.

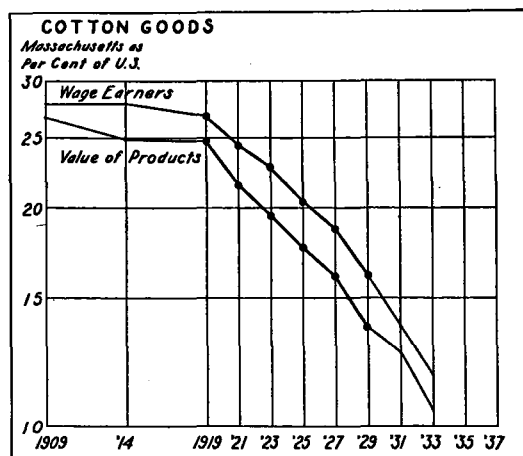
Chart B.



ployed and 14,000 part time employed workers from the cotton textile industry. Let us examine the prospects that these workers will be reabsorbed in their old occupations.

The most recent evidence bearing on the cotton goods industries in Massachusetts is the index of employment compiled for this group by the Massachusetts Department of Labor and Industries. This index is based upon figures reported by cotton manufacturers who employed an average of 92,841 wage earners in the base period, 1925-1926-1927. This sample included about 96% of all cotton wage earners in the state during the

Chart B-1.



base period and may be taken as representative. The index shows annual averages for recent years as follows:

1925.....103.6	1929.....76.3	1933 .. 48.9
1926.....98.5	1930.....57.9	1934....53.1
1927.....97.9	1931.....50.6	1935....49.4
1928.....70.2	1932.....35.0	

From these figures it is apparent that the worst year was 1932, when employment dropped to less than half the 1929 figure. In 1933 and 1934 the index rose, but only to a level of 53.1, which was roughly two-thirds of the 1929 figure. In 1935, the index dropped again to an average level of 49.4. This indicates that the number of unemployed cotton textile workers was slightly greater in 1935 than in 1934 when the Census was taken.

The changes in the relative position of Massachusetts in the cotton textile field may be traced from the percentage ratios given in Table B-1. These show that the Massachusetts percentages started dropping in 1919 and have been declining ever since. In the 10 years from 1909 to 1919 Massachusetts employed approximately 27% of all cotton textile wage earners and produced about 25% of all cotton goods. In 1933, Massachusetts employed less than 12% of the wage earners and accounted for only 10.6% of the value of cotton products.

The data for active spindle hours compiled by the United States Bureau of the Census present additional evidence of the more recent changes in the relative position of Massachusetts. These show that the Massachusetts share of total active spindle hours in the United States rose from 10.9% in 1933 to 12.5% in 1934 and then dropped to 11.2% in 1935. Corresponding figures

Table B. Cotton Goods*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	182	1,729	108,914	362,043	186,462	2,054	10,169	391,090	1,305,394	697,773
1914	247	2,162	113,925	438,201	198,348	2,354	12,158	407,835	1,598,955	798,488
1919	284	3,570	124,565	526,662	608,296	2,607	18,909	463,636	1,877,213	2,455,316
1921	271	2,840	107,804	Not Reported	319,564	2,405	17,001	441,211	Not Reported	1,482,727
1923	297	3,285	117,118	566,699	431,494	2,625	19,603	512,703	2,213,350	2,207,093
1925	285	2,724	99,280	572,432	360,222	2,705	18,442	486,005	2,299,489	2,043,537
1927	279	2,643	93,781	540,593	297,661	2,711	18,020	500,261	2,408,639	1,843,100
1929	241	2,704	74,094	442,652	248,188	2,687	19,085	459,187	2,320,808	1,808,760
1931	213	Not Reported	49,702	Not Reported	124,693	2,416	Not Reported	360,124	Not Reported	984,471
1933	189	Not Available	47,914	Not Reported	107,037	2,149	12,068	407,734	Not Reported	1,013,587
1934	16,849	14,045	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*For composition of this group, see Appendix, p. 69.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for awnings, tents, sails, and canvas covers in 1925 and 1927; or for bags, other than paper, not made in textile mills, in 1927.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

Table B-1. Cotton Goods

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	26.72	27.85	\$1,712	\$1,784	3.324	3.338
1914	24.84	27.93	1,741	1,958	3.846	3.921
1919	24.77	26.87	4,883	5,296	4.228	4.049
1921	21.55	24.43	2,964	3,361	*	*
1923	19.55	22.84	3,684	4,305	4.839	4.317
1925	17.63	20.43	3,628	4,205	5.766	4.731
1927	16.15	18.75	3,174	3,684	5.764	4.815
1929	13.72	16.14	3,350	3,939	5.974	5.054
1931	12.67	13.80	2,509	2,734	*	*
1933	10.56	11.75	2,234	2,486	*	*

*Data not reported.

for the cotton growing states show: 75.9% in 1933, 74.1% in 1934, and 76.6% in 1935.

The downward trends in the relative importance of Massachusetts and the absolute declines in horsepower and in the number of cotton textile wage earners are evidence that, since 1919, Massachusetts has continued to lose its competitive advantage in this field. There is no indication that a resumption of normal business activity will enable the state to regain its former position. There is little probability that cotton textile workers now unemployed will be absorbed in their former jobs. Indeed, unless something happens to alter the geographical shift that is taking place in this industry, there may be still more cotton workers forced into the ranks of the unemployed in Massachusetts.

Iron and Steel Products¹

The third largest industry, from the point of view of employment, in Massachusetts in 1929 was that engaged in the manufacture of iron and steel products. In that year, this industry employed 63,000 wage earners and 11,000 salaried workers and the value of its products reached a total of \$338,000,000. The depression affected this industry with exceptional severity. The value of its products fell to \$134,000,000 in 1933, and the number of wage earners employed dropped to 36,000. When the Census of Unemployment was taken in 1934, there were over 16,000 wholly unemployed and over 9,000 part time employed persons from this industry.

A study of the statistics of this industry for Massachusetts and for the United States reveals a marked contrast. Up to 1919, Massachusetts shared in the

upward growth of the entire iron and steel industry. Since that time, however, the trend of the industry has been downward in Massachusetts, while that for the United States as a whole has been practically level. Over the 10-year period, 1923-1933, the percentage of the total value of iron and steel products produced in Massachusetts approximated 3.5%, while in the preceding decade it averaged 3.9%. The Massachusetts portion of the wage earners engaged in this field declined continuously from 6.42% in 1921 until, in 1933, only 4.15% of all wage earners in the iron and steel industry were employed in the state.

There are two branches of this industry for which more recent figures are available in the state: foundry and machine shops, and textile machinery. For these, indexes of employment are compiled by the Massachusetts Department of Labor and Industries. The index for foundry and machine shops showed a slight improvement in 1934 and 1935 from the low point recorded in 1933. The average of this index for 1935, however, was only 66.7, which compares with the average index of 106.5 for 1929, 92.7 for 1930, and 73.9 for 1931. The index of employment in the manufacture of textile machinery and parts reached its lowest point of 40.7 in 1932. From that point it rose to 62.4 in 1933 and to 68.8 in 1934. The 1935 average dropped again to 64.1.

Although these indexes do not give much evidence of recovery in recent months, it must be kept in mind

¹ The iron and steel products group includes foundries and machine shop products, and establishments manufacturing stoves, ranges (other than electric), warm air furnaces, steam and hot water heating apparatus and steam fittings, cutlery and edge tools, plumbers' supplies, sewing machines and attachments, textile machinery and parts, etc.

Table C. Iron and Steel Products*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	1,057	5,779	59,948	83,387	117,336	17,385	126,718	1,022,418	4,541,810	3,166,467
1914	1,143	7,518	60,353	110,939	125,412	17,807	150,069	1,057,895	5,474,149	3,240,807
1919	1,211	14,339	84,523	157,975	359,017	19,876	235,400	1,483,258	7,718,551	8,872,050
1921	1,085	10,324	63,734	Not Reported	286,992	16,411	173,884	992,909	Not Reported	5,434,919
1923	1,151	11,723	77,088	181,028	351,441	16,032	219,629	1,469,246	8,653,381	9,769,826
1925	1,064	6,940	64,272	174,628	313,874	15,363	205,251	1,360,685	9,161,945	9,297,497
1927	1,066	8,313	61,585	202,116	304,980	15,780	207,903	1,345,585	10,116,041	9,066,800
1929	1,032	10,975	63,049	214,679	338,090	16,542	218,271	1,462,822	11,297,819	10,617,519
1931	942	Not Reported	42,640	Not Reported	175,391	14,387	Not Reported	973,591	Not Reported	4,912,130
1933	843	Not Available	35,662	Not Available	134,143	12,332	120,184	859,940	Not Reported	3,565,897
1934	16,073**	9,343**	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*For composition of this group, see Appendix, p. 69. Note that data for "Steel Works and Rolling Mill Products" for Massachusetts were not given separately after 1923 but were included in "Other Manufacturing Industries" by the Census. For consistency, the figures for this industry have been eliminated from the Massachusetts figures for the earlier years.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for bolts, nuts, washers, and rivets, not made in plants connected with rolling mills; forgings, iron and steel, not made in steel works or rolling mills; nails, spikes, etc., not made in rolling mills or wire works; screw machine products and wood screws; springs, steel, except wire, not made in rolling mills; stamped ware, enameled ware, and metal stampings; structural and ornamental metal not made in rolling mills; and tools not including edge tools, machine tools, files, or saws, in 1925 and 1927; for metal doors, shutters, sash, frames, moulding, and trim, in 1927; or for cutlery and edge tools; hardware not elsewhere classified; plumbers' supplies, not including pipe or vitreous china; saws, scales, and balances; stoves and ranges; and tin cans not elsewhere classified, in 1925.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

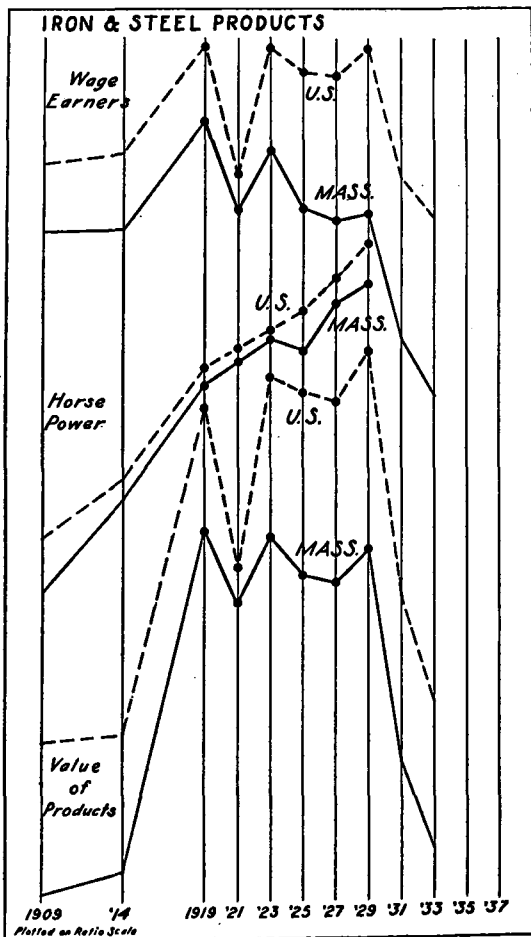
**The figures for the number of persons unemployed do not agree with those indicated in the Massachusetts Census of Unemployment because of the necessity of classifying textile machinery under "Iron and Steel Products" and steel and rolling mill products under "Other Manufacturing Industries" to secure comparability in this study.

Table C-1. Iron and Steel Products

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	3.71	5.86	\$1,957	\$3,097	1.39	4.44
1914	3.87	5.71	2,078	3,063	1.84	5.17
1919	4.05	5.70	4,248	5,981	1.87	5.20
1921	5.28	6.42	4,503	5,474	*	*
1923	3.60	5.25	4,559	6,050	2.35	5.89
1925	3.38	4.72	4,884	6,833	2.72	6.73
1927	3.36	4.58	4,952	6,738	3.28	7.52
1929	3.18	4.31	5,362	7,258	3.40	7.72
1931	3.57	4.38	4,113	5,045	*	*
1933	3.76	4.15	3,762	4,147	*	*

*Data not reported.

Chart C.



that the heavy industries in general have been slow in showing improvement. As soon as business recovers to the point that requires renewed investment in capital goods, the heavy industries should respond. There is little doubt but that recovery in the heavy industries will be reflected by an increase in employment in the iron and steel industry in Massachusetts. Nevertheless, in view of the persistent downward trend of employment in Massachusetts, it is not very likely that in the next few years the industry will reach the level of employment recorded in the state in 1929.

Chart C-1.

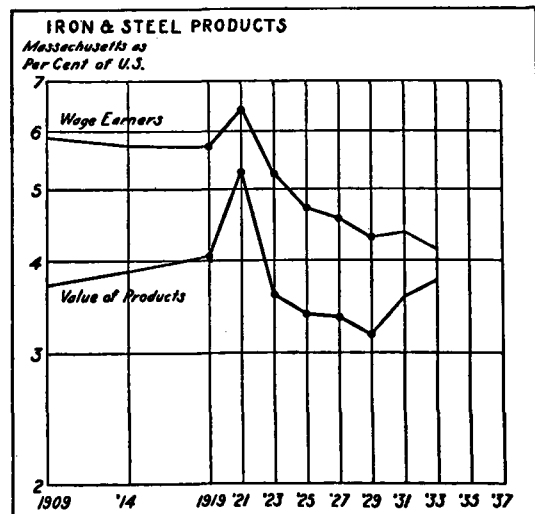


Table D. Woolen Goods*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	210	1,612	54,315	121,807	143,732	1,171	6,253	174,184	385,631	456,030
1914	186	1,572	54,594	147,389	131,281	958	6,164	164,273	405,390	405,180
1919	218	2,874	55,499	187,777	351,810	1,015	10,044	173,001	498,703	1,125,750
1921	210	2,881	57,685	Not Reported	266,886	940	9,372	166,327	Not Reported	779,808
1923	216	3,038	65,950	196,842	357,112	985	10,432	199,690	563,674	1,107,759
1925	225	2,798	55,900	224,918	315,308	968	9,884	160,821	598,032	1,003,750
1927	210	2,754	52,124	217,043	273,806	873	8,958	158,610	583,237	855,257
1929	189	2,715	46,811	225,120	248,946	827	9,894	151,201	595,186	865,136
1931	159	Not Reported	38,232	Not Reported	151,549	705	Not Reported	123,010	Not Reported	515,346
1933	140	Not Reported	40,959	Not Reported	154,071	660	5,794	131,366	Not Reported	484,555
1934	11,763	14,290	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*For composition of this group, see Appendix, p. 60.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods *shipped* or *delivered* for most industries. Amounts for all other years are based on products *manufactured*.

Woolen Goods¹

Employment in the manufacture of woolen goods in Massachusetts increased from 54,000 in 1909 to 66,000 in 1923. That year marked the high point. For the next nine years employment dropped steadily. Nevertheless, in 1929 this industry still ranked fourth in importance in the state as an employer of labor. In that year the woolen industry in Massachusetts gave employment to about 47,000 wage earners and 2,700 salaried workers. The value of woolen products of the state that year amounted to \$248,000,000.

From 1929 to 1933, employment in this industry in Massachusetts continued to decline, and the number of wage earners dropped to 41,000. When the Census of Unemployment was taken in 1934, more than 11,000 wholly unemployed and 14,000 part-time workers were reported in this industry.

The statistics presented in Tables D and D-1 enable us to form some estimate of the future prospects of these unemployed workers. It is apparent from an examination of the figures of employment that, except for the peak year, 1923, general trends in both the United States and Massachusetts have been downward. From 1919 to 1929, however, the decline in the state was slightly more pronounced than in the country as a whole. Nevertheless, the most recent figures showing the percentage of the wage earners employed in Massachusetts in 1931 and 1933 are only slightly below the average for the entire period and show a slight upward tendency. A similar tendency is shown by the percentages of the value of the woolen goods produced

¹ Included in this classification are the establishments manufacturing woolen and worsted goods, wool pulling, horse blankets, nets and related products, wool shoddy, and those engaged in wool scouring.

Chart D.

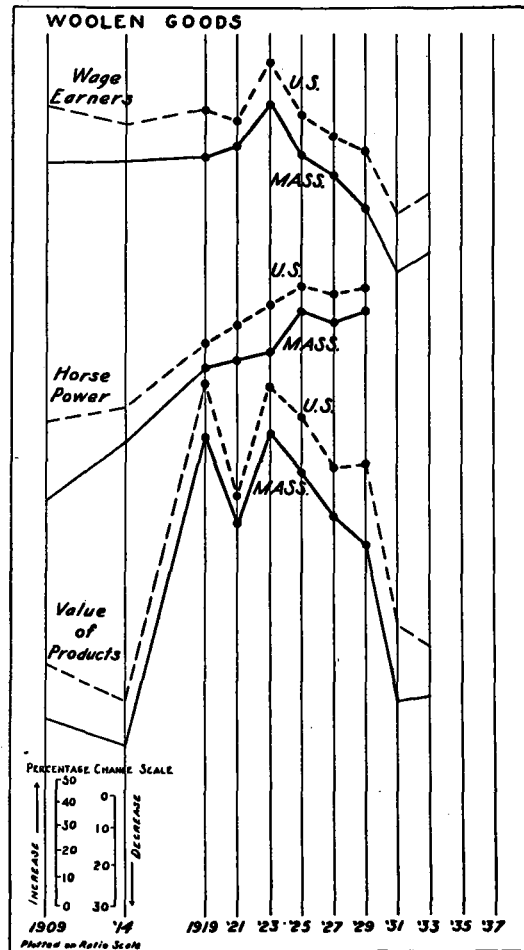


Table D-1. Woolen Goods

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	31.52	31.18	\$2,646	\$2,618	2.24	2.21
1914	32.40	33.23	2,405	2,467	2.70	2.47
1919	31.25	32.08	6,339	6,507	3.38	2.88
1921	34.22	34.68	4,627	4,688	*	*
1923	32.24	33.03	5,415	5,547	2.98	2.82
1925	31.41	32.92	5,641	5,911	4.02	3.52
1927	32.01	32.86	5,253	5,392	4.16	3.68
1929	28.78	30.96	5,318	5,722	4.81	3.94
1931	29.41	31.08	3,964	4,189	*	*
1933	31.80	31.18	3,762	3,689	*	*

*Data not reported.

Table E. Other Textiles*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	219	1,706	36,210	74,455	77,088	4,273	19,862	355,838	482,091	696,812
1914	294	2,555	42,275	102,175	95,888	4,849	27,425	399,948	601,115	899,886
1919	311	3,444	40,985	95,995	237,519	5,824	38,667	446,736	745,768	2,339,491
1921	310	3,417	39,441	Not Reported	206,698	5,647	37,186	414,004	Not Reported	1,928,377
1923	320	3,990	43,991	128,769	255,245	6,000	46,682	487,707	873,834	2,631,280
1925	313	3,611	41,826	144,189	278,572	5,665	42,292	491,718	965,346	2,755,071
1927	362	3,999	42,397	142,097	241,354	7,555	45,136	518,483	1,052,096	2,766,970
1929	400	4,007	41,422	127,255	247,718	7,458	48,464	546,907	1,103,558	2,947,275
1931	369	Not Reported	35,659	Not Reported	168,327	6,604	Not Reported	453,381	Not Reported	1,816,788
1933	341	Not Available	34,652	Not Reported	134,431	5,658	31,117	461,961	Not Reported	1,484,223
1934	6,552	4,937	...	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, p. 70.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

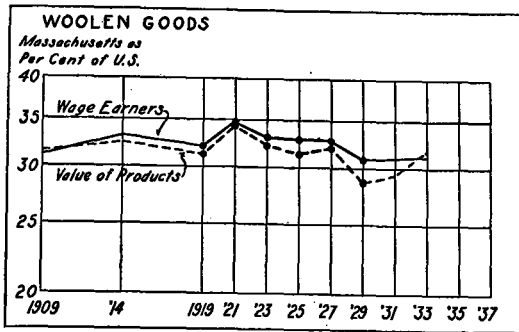
‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for carpets and rugs, rag, cloth sponging and refinishing; house furnishing goods not elsewhere classified; miscellaneous textile articles; and regalia in 1925 and 1927; or for waste processed in 1925.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

Chart D-1.



in Massachusetts. Moreover, the index of employment in this field compiled by the Massachusetts Department of Labor and Industries on the basis of returns from almost the entire industry shows marked improvement, having risen from a low of 53.4 in 1932 to 88.7 in 1935. At this level, employment is above that of any year since 1927 and fully two-thirds greater than the average for 1932. Improvement in the woolen industry is far greater than that in general business. This improvement, while partly due to newer types of textiles which enabled the industry to gain a competitive position, also reflects the very large increase in government orders, including equipment for CCC camps, relief supplies, and so on. Continued improvement of general business conditions may show further expansion of employment in this industry.

The persistence with which Massachusetts has held her relatively high percentage of the entire woolen industry in the face of a declining market is an evidence of strength. Its 1935 recovery is distinctly encouraging. The woolen industry has already absorbed some of the unemployed from other industries.

Other Textiles¹

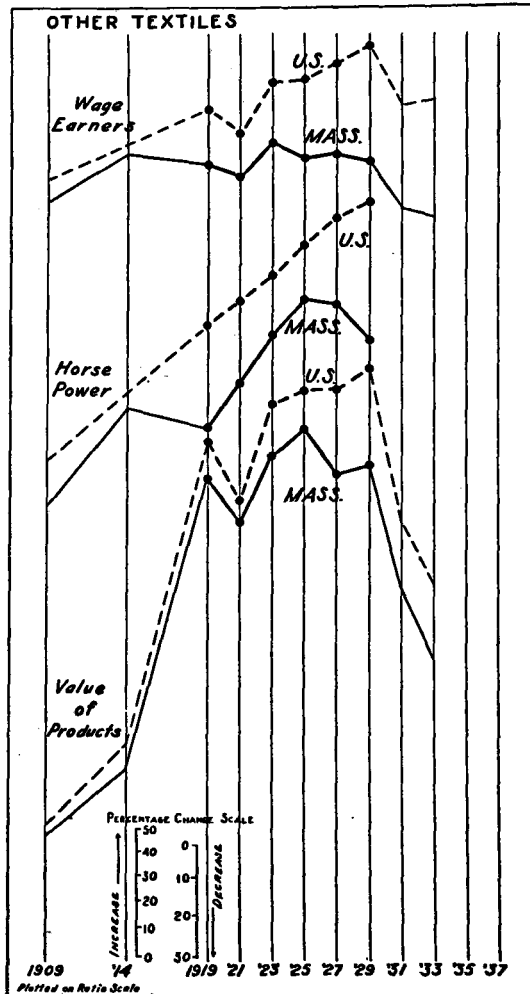
For statistical purposes, all enterprises in the textile industry which are not included in either the cotton or the woolen group have been classified as "Other Textiles". In 1929, the Massachusetts companies represented in this class gave employment to more than 41,000 wage earners and 4,000 salaried workers. The value of their products in that year amounted to \$248,000,000.

Between 1929 and 1933, the number of wage earners employed by these industries declined more than 6,000. In 1934, the enumeration of the unemployed found 6,500 workers who were wholly unemployed and 4,900 who were working only part time.

This group of industries for the entire country showed

¹This classification comprises the enterprises engaged in dyeing and finishing of textiles and those manufacturing knit goods, silks, linens, rayon and allied products, asbestos goods, etc.

Chart E.



a marked upward trend in employment from 1909 to 1929. The rate of growth in Massachusetts was not nearly so great as for the entire industry, and con-

Chart E-1.

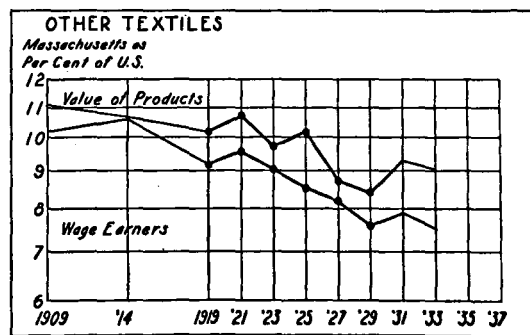


Table E-1. Other Textiles

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	11.06	10.18	\$2,129	\$1,958	2.06	1.35
1914	10.66	10.57	2,268	2,250	2.42	1.50
1919	10.16	9.17	5,798	5,237	2.34	1.67
1921	10.72	9.53	5,241	4,658	*	*
1923	9.70	9.02	5,802	5,395	2.93	1.79
1925	10.11	8.51	6,660	5,603	3.45	1.96
1927	8.72	8.18	5,693	5,337	3.35	2.03
1929	8.40	7.57	5,980	5,389	3.07	2.02
1931	9.27	7.87	4,720	4,007	*	*
1933	9.06	7.50	3,879	3,213	*	*

*Data not reported.

sequently the state declined in relative importance. For example, from 1914 through 1921 Massachusetts accounted for approximately 10.6% of the value of products and 9.9% of the wage earners reported for these enterprises, while in 1933 these figures had declined to 9.1% and 7.5% respectively. Nevertheless, until the depression set in, the value of products produced in Massachusetts amounted to approximately a quarter of a billion dollars, and the number of wage earners on the pay rolls remained relatively stable at approximately 42,000.

The three largest divisions of this group employed three-fourths of the wage earners in 1929 (see Appendix, p. 70). In order of importance they are (1) the dyeing and finishing of textiles, (2) hosiery and knit goods, and (3) silk and rayon. Separate indexes of monthly employment are compiled for each by the Massachusetts Department of Labor and Industries. The most recent figures show somewhat different tendencies. The silk and rayon group has registered a marked increase. Its average indexes for 1932, 1933, 1934, and 1935 are: 83, 136, 138, and 162 respectively. This branch of "Other Textiles" has been above its pre-depression level since 1932. Hosiery and knit goods also show some improvement in employment in the same period. The indexes of employment of this branch of the industry were as follows: 1932—67; 1933—76; 1934—79; 1935—82. It will be noted that this industry is still below its average in the base period 1925-27 and that improvement has been slower than in silk and rayon. Moreover,

the pre-depression trend in hosiery and knit goods is downward. Dyeing and finishing of textiles has much the same story except that its pre-depression trend of employment was practically level. The low point of employment in this group was reached in 1932 when the index stood at 80.4. Figures for later years are as follows: 1933—81; 1934—94; 1935—87.

Taking these three indexes as indicative of the employment situation in this group, we conclude that there were at least 2,000 more wage earners employed in 1935 than in January, 1934. However, employment is still below the pre-depression level and little hope is held that "Other Textiles" as a group will absorb unemployed from other classes.

Electrical Machinery¹

In common with all heavy goods industries throughout the country, the manufacturers of electrical machinery and equipment in Massachusetts suffered greatly in the depression. Almost 30,000 wage earners and 6,500 salaried workers had been employed by the Massachusetts concerns in this field in 1929. By 1933, the number of wage earners had been reduced to less than 13,000. In the same interval, the value of the products had declined from \$187,000,000 to less than \$50,000,000. The wholly unemployed persons coming

¹ This industry is composed of establishments engaged primarily in the manufacture of machinery, apparatus, and supplies for employment directly in the generation, storage, transmission, or utilization of electric energy. It also covers establishments manufacturing electric lighting fixtures and engaged in electroplating. It does not include the manufacture of motor-driven tools, mechanical refrigerators, and other appliances constructed with built-in motors.

from these enterprises in 1934 numbered 7,580, and in addition there were 4,983 who were working only part time.

A survey of the statistics presented in Tables F and F-1 shows that throughout the twenties the manufacture of electrical machinery experienced the most

vigorous upward growth recorded by any industrial group. This was true of both the state of Massachusetts and the United States as a whole, although the rate of increase in Massachusetts was not nearly so great as for the entire country.

A thoroughly representative index of employment in this industry is compiled by the Massachusetts Department of Labor and Industries. The annual averages of this index show little change during the period 1932-1935. However, there has been a persistent and vigorous upward movement in the monthly indexes since the first of 1935. By the middle of August, 1936, the index stood at 73.1 which indicated that employment had increased 25% above the level of January, 1934.

Additional evidence of the situation in this industry is found in Table F-1, which shows the relative position of Massachusetts. From 1919 to 1933, the percentages of the total value of products produced in Massachusetts fluctuated within the range of 7.66 to 8.91, with no persistent trend. The percentage of the wage earners employed in the state to the total number employed in this industry in the United States does not show such satisfactory results. These figures reveal a slow downward trend in the relative importance of Massachusetts until 1929. The percentages reported in 1931 and 1933 are more encouraging and may be interpreted as indicating that a level has been reached on which the state will resist the competition of other areas for this business.¹

Therefore, since growth of the Massachusetts concerns evinces no increasing weakness in competitive position and since the pre-depression trends were strongly upward, we believe that business recovery will

¹ It should be pointed out that the electrical products of Massachusetts are mainly small motors, lighting and welding equipment, transformers, switch gear, lamps, and radio tubes. The demand for these products was not so severely curtailed by the depression as was the demand for heavier equipment.

Chart F:

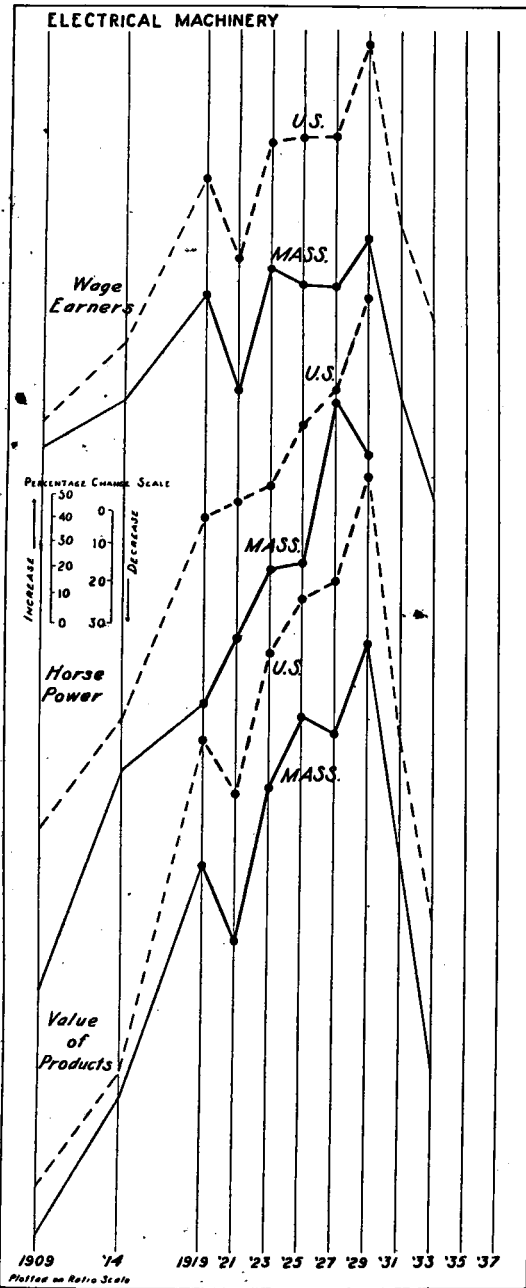


Chart F-1.

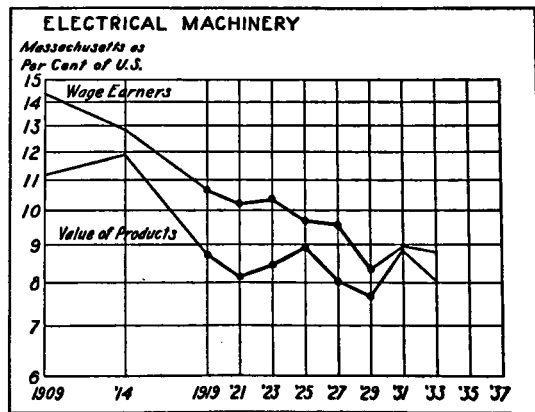


Table F. Electrical Machinery*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	108	2,270	15,170	15,313	29,652	1,628	21,519	106,117	174,630	266,366
1914	113	3,169	17,584	30,318	45,278	1,641	29,608	136,125	246,399	380,548
1919	125	5,652	24,605	37,458	94,100	1,916	62,686	230,529	461,457	1,078,335
1921	119	5,258	18,052	Not Reported	73,736	1,798	60,251	177,070	Not Reported	906,040
1923	147	7,796	26,663	56,923	119,061	2,206	78,073	257,811	510,802	1,411,980
1925	132	5,355	25,357	58,030	148,732	2,256	60,037	262,255	619,436	1,669,700
1927	137	6,031	25,110	96,047	141,388	2,258	69,278	262,596	692,459	1,765,109
1929	121	6,447	29,337	81,059	187,435	2,416	80,626	352,302	933,728	2,445,881
1931	101	Not Reported	17,410	Not Reported	94,593	1,902	Not Reported	194,896	Not Reported	1,070,061
1933	90	Not Available	12,693	Not Reported	49,144	1,656	35,982	144,473	Not Reported	610,984
1934	7,580	4,983	...	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, p. 70.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for gas and electric fixtures in 1925 and 1927, or for lamps and reflectors in 1925.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods *shipped* or *delivered* for most industries. Amounts for all other years are based on products *manufactured*.

Table F-1. Electrical Machinery

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	11.13	14.30	\$1,955	\$2,510	1.01	1.65
1914	11.90	12.92	2,575	2,796	1.72	1.81
1919	8.73	10.67	3,824	4,678	1.52	2.00
1921	8.14	10.19	4,085	5,117	*	*
1923	8.43	10.34	4,465	5,477	2.13	1.98
1925	8.91	9.67	5,866	6,367	2.29	2.36
1927	8.01	9.56	5,631	6,722	3.83	2.64
1929	7.66	8.33	6,389	6,943	2.76	2.65
1931	8.84	8.93	5,433	5,490	*	*
1933	8.04	8.79	3,872	4,229	*	*

*Data not reported.

see the electrical machinery manufacturers reemploying most, if not all, of the workers they were forced to lay off in the depression.

Food¹

Establishments engaged in the manufacture of food products in Massachusetts gave employment to more than 27,000 wage earners and 4,700 salaried workers in 1929. In that year, the value of their products amounted to \$299,000,000. In the four years that followed, the value of their products dropped 43% to \$170,000,000, and the number of wage earners declined 11% to 24,500. At the beginning of the next year, however, when the Census of Unemployment was taken, 7,200 persons wholly unemployed and 3,700 persons working only part time reported that they were usually employed in the food industries.

The perspective afforded by Tables G and G-1 shows that this group of industries offered fairly steady employment during the twenties. A trend fitted to the number of wage earners in Massachusetts shows a slight downward movement. The trend of employment for the country as a whole, however, displays a slow upward growth.

For two of the most important divisions of the food industry in Massachusetts, bread and other bakery products, and confectionery, we have current monthly indexes of employment. The index for each is based on

¹ This group consists of establishments manufacturing foods of all kinds. It includes bakeries, sugar refineries, canneries, and meat packing houses, as well as plants making confectionery, beverages, ice, ice cream, butter, cheese, flavoring extracts, and feeds for animals.

Chart G.

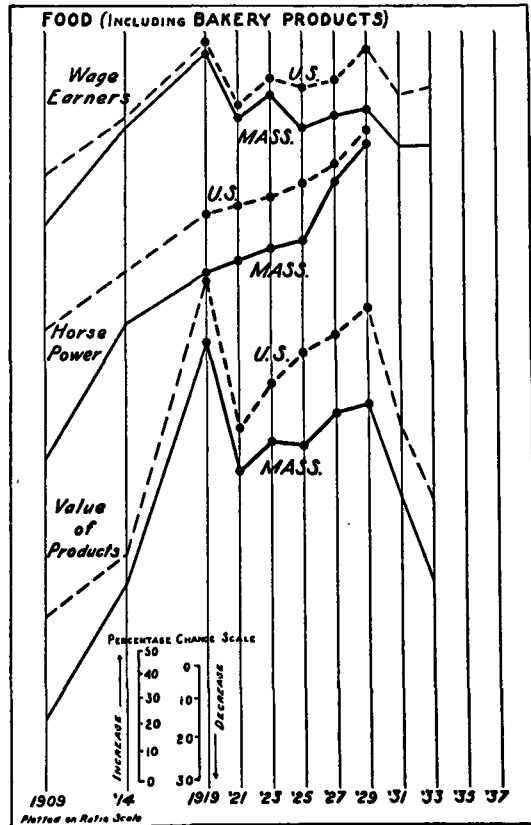


Table G. Food*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909**	1,677	3,286	19,147	32,758	113,634	64,859	107,976	507,671	2,493,559	4,675,654
1914	2,393	4,870	25,940	49,779	171,529	69,546	133,697	609,667	2,990,602	5,671,515
1919	2,260	5,729	32,850	58,297	363,959	70,621	188,137	773,692	3,579,559	13,226,021
1921	1,941	4,709	26,726	Not Reported	242,497	52,280	144,761	631,731	Not Reported	8,353,562
1923	1,940	5,371	28,860	62,948	266,252	51,972	148,068	687,221	3,769,934	9,614,573
1925	1,812	4,479	25,919	64,406	262,997	48,220	125,629	669,351	3,930,352	10,554,270
1927	1,808	4,729	26,898	77,621	291,690	49,875	132,535	683,882	4,186,049	11,137,675
1929	1,916	4,788	27,486	87,356	299,492	56,422	135,840	757,923	4,665,466	12,132,659
1931	1,938	Not Reported	24,465	Not Reported	222,757	48,882	Not Reported	654,565	Not Reported	8,317,451
1933	1,721	Not Available	24,497	Not Reported	170,168	40,325	98,648	668,929	Not Reported	6,636,010
1934	7,259	3,750	....	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, p. 70. To avoid disclosing information for individual establishments, no data for sugar refining, cane, are included for Massachusetts.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices.

§Figures represent average number for each year.

||Total includes electric power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

**The Massachusetts figures for 1909 are smaller than they should be because prior to 1914 data for a number of the smaller classes were not reported separately. In 1914, these industries reported a total of 2,178 wage earners.

Table G-1. Food

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	2.43	3.77	\$5,935	\$9,210	1.71	4.91
1914	3.02	4.25	6,613	9,303	1.92	4.91
1919	2.75	4.25	11,079	17,095	1.77	4.63
1921	2.90	4.23	9,073	13,223	*	*
1923	2.77	4.20	9,226	13,991	2.18	5.49
1925	2.49	3.87	10,147	15,768	2.48	5.87
1927	2.63	3.93	10,844	16,286	2.89	6.12
1929	2.47	3.63	10,896	16,008	3.18	6.16
1931	2.68	3.74	9,105	12,707	*	*
1933	2.56	3.66	6,946	9,920	*	*

*Data not reported.

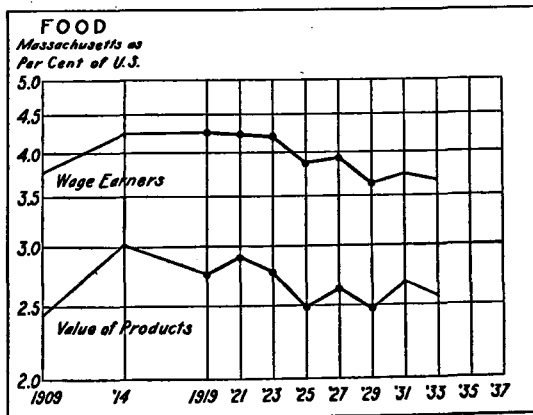
about one-third of the total number of employees of the food group in the period 1925-1926-1927. The movements of these two indexes reveal divergent tendencies. Employment in establishments making bread and other bakery products declined but little from its 1929 level until 1932. From 1933 through 1935 it increased almost steadily. The average of this index in 1935 was 122, which is well above the 1929 average of 122.

With confectionery the story is different. Employment in this field was at its peak during 1926 and 1927. Employment in 1928 and 1929 was approximately 10% less. The decline continued until 1932, when employment averaged only 59.9% of what it had been in the

base period. The figures for 1933, 1934, and 1935 are 67, 71, and 72 respectively.

The marked expansion in employment given by the bread and other bakery products division overbalances the losses in the confectionery division. If these two divisions of the food industry are typical, the indications are that the industry employs more wage earners than in any year since 1933. However, in view of the nature of the food industry and its relatively small size, we do not expect an expansion that would do much more than absorb a small number of the persons thrown out of employment by other industries.

Chart G-1



Paper and Allied Products¹

In the enterprises making paper and allied products in Massachusetts, 27,000 wage earners and 4,300 salaried workers were employed in 1929. In the same year, the value of the products produced by these enterprises amounted to more than \$180,000,000. By 1933, this value had been cut in half and the number of wage earners reduced to 20,000. When the Massachusetts unemployment census was taken at the beginning of the following year, there were 4,800 wholly unemployed and 7,300 part-time workers reported from these industries. To assist in appraising the prospects of

¹This classification of industries includes the manufacture of paper, paper boxes, stationery goods, envelopes, paper bags, and other paper products.

Table H. Paper and Allied Products*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	269	1,765	23,611	125,862	63,911	2,510	15,195	150,387	1,375,207	429,484
1914	274	3,268	25,946	147,168	72,544	2,602	20,679	175,028	1,720,822	543,149
1919	281	3,536	25,106	161,511	144,046	2,845	28,385	217,657	1,986,816	1,310,226
1921	293	3,498	23,457	Not Reported	113,357	2,810	26,065	197,423	Not Reported	1,158,603
1923	321	3,814	26,316	174,436	159,494	2,866	31,076	231,869	2,335,139	1,538,331
1925	311	1,408	25,059	171,281	155,345	2,882	30,408	231,805	2,593,020	1,620,513
1927	305	3,158	24,554	186,912	165,122	3,106	31,260	231,348	2,833,975	1,846,320
1929	302	4,339	26,730	208,779	180,350	3,221	32,616	243,555	3,186,044	1,965,491
1931	289	Not Reported	22,505	Not Reported	117,800	3,139	Not Reported	208,849	Not Reported	1,432,177
1933	277	Not Available	20,083	Not Reported	89,061	2,884	25,871	206,687	Not Reported	1,212,716
1934	4,840	7,357 [§]

*For composition of this group, see Appendix, p. 70.
 †Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.
 ‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried employees was not reported for stationary goods not elsewhere classified in 1927. The Massachusetts figures for 1925 cover only paper, including wood pulp.
 §Figures represent average number for each year.
 ||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.
 ¶Amounts for 1929 represent factory selling value of all goods *shipped* or *delivered* for most industries. Amounts for all other years are based on products *manufactured*.

reemployment in this area, Tables H and H-1 are presented.

This group was one that showed a slow upward trend in the number of wage earners reported in Massachusetts from 1919 to the beginning of the depression. It was also one in which the volume of employment was relatively stable. In the depression year, 1921, the number of wage earners fell only to 23,500; and in the boom year, 1929, it did not quite reach 27,000. In view of the fact that the paper industry in the United States as a whole shows an upward growth at a rate more rapid than in Massachusetts, it is apparent that the share obtained by Massachusetts has been declining steadily. Measured on the basis of the value of products, the share of Massachusetts in this industry, which amounted to 13.36% in 1914, was down to 9.18% in 1929 and 7.34% in 1933.

It should be indicated that this group is composed of two different classes of enterprise. One is the manufacture of pulp and paper, an industry that employed over 12,000 wage earners in 1929. The other is the fabrication of paper into bags, boxes, envelopes, stationery, and paper novelties; this group employed over 14,000 wage earners in 1929. The long-run trend of employment in the pulp and paper group is very slowly but steadily downward. The depression years caused a considerable drop below this trend. A return of employment to the trend would bring the number of wage

earners up to 11,000, approximately 1,000 fewer than in 1929 but over 1,000 more than were employed in 1935. The most recent evidence of developments in this industry is that provided by the monthly index of employment in paper manufacture compiled by the Massachusetts Department of Labor and Industries. This index reached its lowest level, 74.2, in 1933. It rose in 1934 to 77.6 and again in 1935 to 78.1.

In the field of paper making, Massachusetts has long occupied a unique position by reason of the high quality of its products. The firms making paper have specialized in the manufacture of high-grade writing, bond, ledger, and book papers. These papers are made largely from rags; very little wood pulp is consumed. The position of Massachusetts in this field is not seriously threatened by the development of paper making in other states inasmuch as most of that development has been in the cheaper pulp papers.

The second class of industries in this group shows a long-run trend that has been moving slowly upward since 1909. It is this component that gives an upward trend to the "paper and allied products" industry as a whole. It seems reasonable to expect employment in the making of paper products to recover the losses due to the depression and to rise to its former trend. Manufactured paper products have a relatively high value per unit of bulk and can stand the freight necessary to take them to large consuming centers. A continued

Table H-1. Paper and Allied Products

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	14.88	15.70	\$2,707	\$2,856	5.33	9.14
1914	13.36	14.82	2,796	3,103	5.67	9.83
1919	10.99	11.53	5,738	6,020	6.43	9.13
1921	9.78	11.88	4,833	5,869	*	*
1923	10.37	11.35	6,061	6,634	6.63	10.07
1925	9.59	10.81	6,199	6,991	6.84	11.19
1927	8.94	10.61	6,725	7,981	7.61	12.25
1929	9.18	10.97	6,747	8,070	7.81	13.08
1931	8.23	10.78	5,234	6,857	*	*
1933	7.34	9.72	4,435	5,867	*	*

*Data not reported.

Table I. Heavy Machinery*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	148	976	12,813	13,277	28,143	4,835	50,253	545,201	760,422	1,101,027
1914	226	1,518	15,601	20,550	35,239	5,959	71,618	711,215	1,178,111	1,818,976
1919	256	3,490	26,779	41,942	108,143	8,080	165,662	1,548,681	2,499,365	7,930,059
1921	231	2,912	22,541	Not Reported	101,513	6,808	114,234	912,175	Not Reported	4,747,142
1923	255	3,088	25,294	56,632	133,080	6,806	135,520	1,243,299	2,829,387	7,448,546
1925	223	4,056	24,391	60,905	137,542	6,026	129,926	1,143,996	3,349,057	7,534,031
1927	194	3,498	21,183	64,251	97,857	5,824	127,272	1,064,889	3,697,339	6,850,953
1929	217	3,813	22,851	71,591	113,141	6,493	135,557	1,175,432	4,113,239	8,585,139
1931	203	Not Reported	16,539	Not Reported	68,579	5,839	Not Reported	784,857	Not Reported	4,140,970
1933	126	Not Available	8,623	Not Reported	25,723	4,798	69,744	616,058	Not Reported	2,807,796
1934	8,917**	3,552**	...	....	....	....	....	....	....	..	....	....

*For composition of this group, see Appendix, pp. 70-71.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices.

§Figures represent average number for each year.

|| Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

**The figures for the unemployed are lower for this class than indicated in the Massachusetts census of unemployment because of the necessity of classifying textile machinery under "Iron and Steel Products" to secure comparability in this study.

slow upward growth in employment in this total group therefore may be expected, enabling this industry to employ as many wage earners as it employed in 1929 and perhaps even to absorb a few of those thrown out of work by other industries.

Chart H.

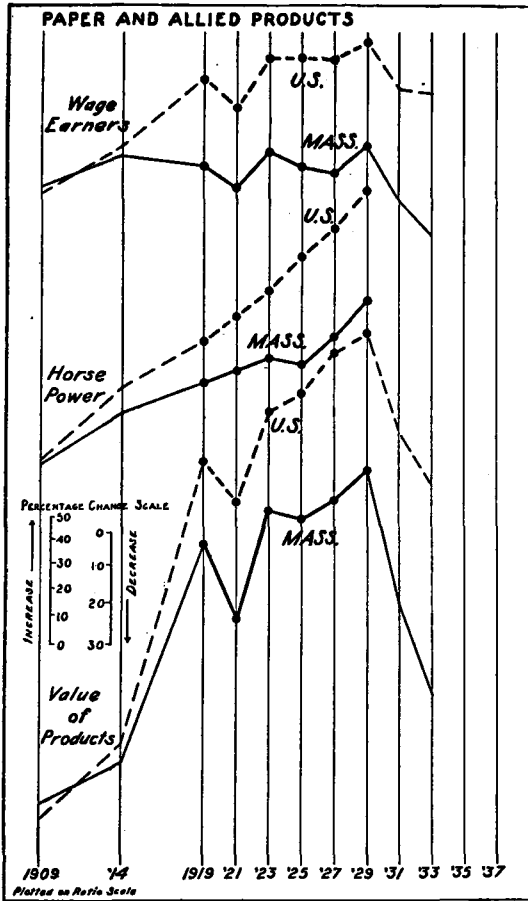
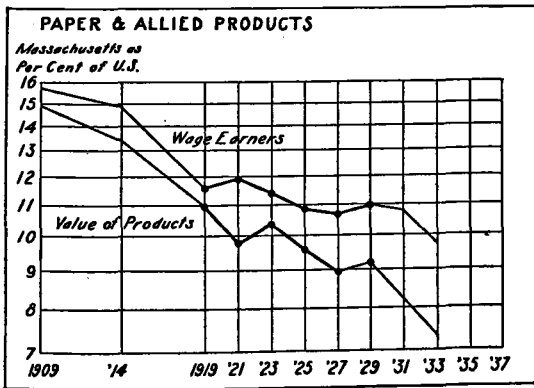


Chart H-1.



Heavy Machinery¹

The enterprises in Massachusetts classified as manufacturers of heavy machinery form a group which ranked next to paper and allied products as employers of labor in 1929. In that year they gave employment to almost 23,000 wage earners and 3,800 salaried workers.

From the statistics presented in Tables I and I-1, it is evident that this industry in Massachusetts was very largely a development of the decade from 1909 to 1919, when the number of wage earners employed more than doubled. From 1919 to 1929, however, the employment trend was downward both in the United States and in Massachusetts. The rate of decline for the entire country was not so great as in Massachusetts. The effect of the depression on the industry in the state was to cut employment to a point almost 33% below its 1909 level. While from 1919 to 1929 employment dropped from 26,800 to 22,800, in 1933 the number of wage earners was only 8,623.

It is well known that industries in this class, dependent as they are upon capital investment, were particularly hard hit by the depression. It is, therefore, expected that they will recover when business conditions improve to the extent of once more demanding large investments in productive capacity. The forces responsible for the downward trend in employment in the state during the twenties, however, are still in opera-

¹ Included in this group of manufactures are machine tools; ship and boat building; motor vehicles, bodies, and parts; and railroad repair shops, electric and steam.

Table I-1. Heavy Machinery

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	2.56	2.35	\$2,196	\$2,019	1.04	1.39
1914	1.94	2.19	2,259	2,558	1.32	1.66
1919	1.36	1.73	4,038	5,121	1.57	1.61
1921	2.14	2.47	4,503	5,204	*	*
1923	1.79	2.03	5,261	5,991	2.24	2.28
1925	1.83	2.13	5,639	6,586	2.50	2.93
1927	1.43	1.99	4,620	6,433	3.03	3.47
1929	1.32	1.94	4,951	7,304	3.13	3.50
1931	1.66	2.11	4,147	5,276	*	*
1933	0.92	1.40	2,983	4,558	*	*

*Data not reported.

tion; and the return of normal conditions will no doubt see fewer wage earners employed in the manufacture of heavy machinery in the state than in 1929.

Chart I.

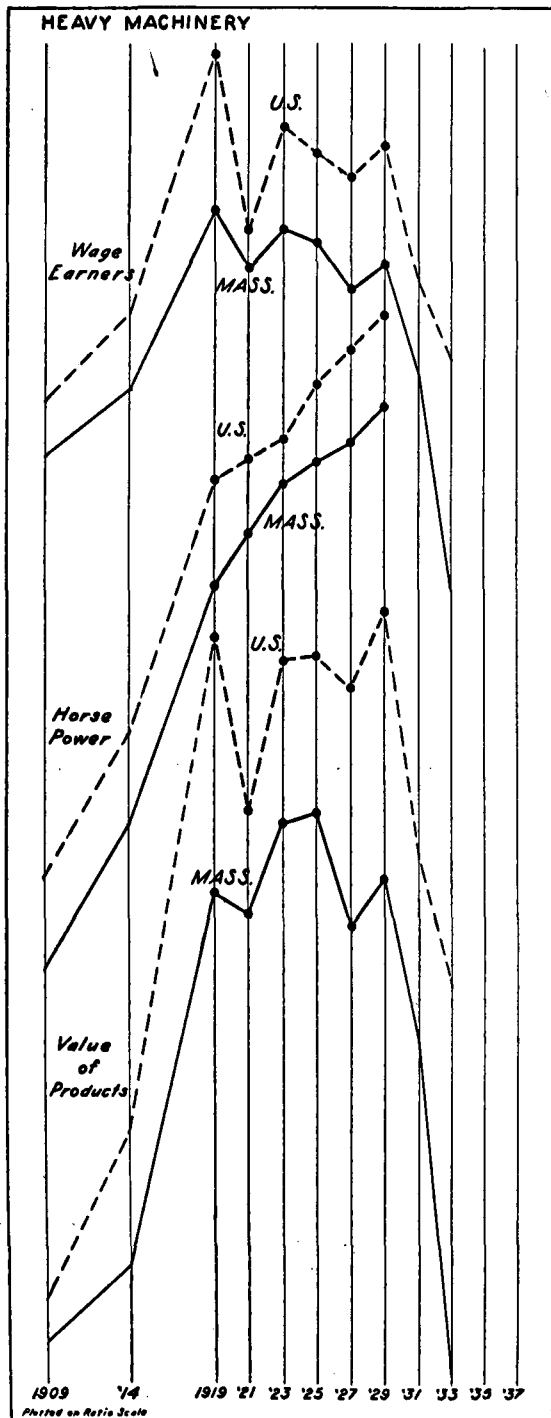
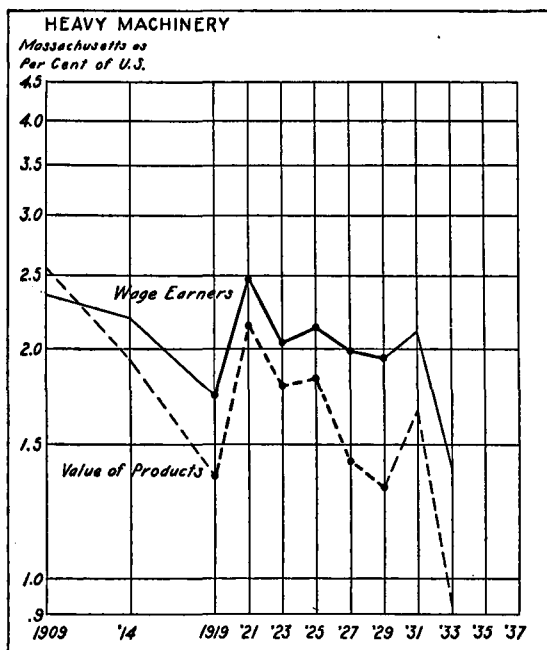


Chart I-1.



Printing, Publishing, and Engraving¹

From the standpoint of employment, the importance of this industry in Massachusetts may be judged from the fact that in 1929 it afforded employment to 21,000 wage earners and more than 10,000 salaried workers. The value of its products in that year amounted to \$167,000,000. The share of this group in the responsibility for unemployment in 1934 is measured by the 6,800 wholly unemployed workers who normally made their living in this industry and the 4,200 more who were working on a part-time basis only.

Indexes of employment in printing and publishing compiled by the Massachusetts Department of Labor and Industries, based upon reports from enterprises employing about 70% of the workers in this field, showed a moderate tendency to advance in 1934 and 1935. This indicates that while the present level of employment is below 1929 it is considerably above the lowest point in the depression and somewhat above the level when the Census of Unemployment was taken.

The long-run view of printing, publishing, and engraving in Massachusetts gives some assurance for the future of this industry. In the period for which figures are given in Tables J and J-1, Massachusetts showed a steady upward growth, interrupted only by a break in 1921 and by the depression which began in 1929. It

¹ Printing and publishing of books, newspapers, and magazines; job printing; book binding and the manufacture of blank books; together with engraving, stereotyping, and lithographing make up this industrial classification.

Table J. Printing, Publishing, and Engraving*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	1,338	6,056	18,564	18,204**	49,517	32,791	104,782	278,261	313,160	782,685
1914	1,468	7,253	19,563	21,457	59,088	35,616	123,011	297,347	359,758	965,476
1919	1,434	8,242	19,351	22,174	108,557	34,626	148,936	317,190	392,120	1,830,446
1921	1,092	8,759	18,104	Not Reported	127,148	23,472	147,293	296,209	Not Reported	2,141,043
1923	1,146	9,761	20,038	26,270	139,693	23,846	172,948	325,100	445,315	2,399,306
1925	1,187	9,441	20,154	30,629	148,988	24,682	182,742	334,505	502,632	2,700,920
1927	1,245	10,324	20,357	32,153	157,532	26,350	196,611	350,582	590,621	2,978,957
1929	1,252	10,540	21,494	37,621	167,433	28,914	213,895	382,462	675,541	3,316,226
1931	1,202	Not Reported	18,924	Not Reported	132,440	25,996	Not Reported	331,232	Not Reported	2,571,895
1933	1,031	Not Available	16,176	Not Reported	96,862	20,243	139,719	276,150	Not Reported	1,780,581
1934	6,821	4,235	....	....	....	....	....	....	....	....	....	....

45

*For composition of this group, see Appendix, p. 71.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for signs and advertising in 1925 and 1927; or for engraving (other than steel, copperplate, or wood), chasing, etching, and dieinking; photo-engraving, not done in printing establishments; and printing materials, in 1925.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

**The figure given in the Census of Manufactures, 48,204, is no doubt a typographical error. A careful study of the detailed figures indicates that it should be corrected to read 18,204.

Chart J.

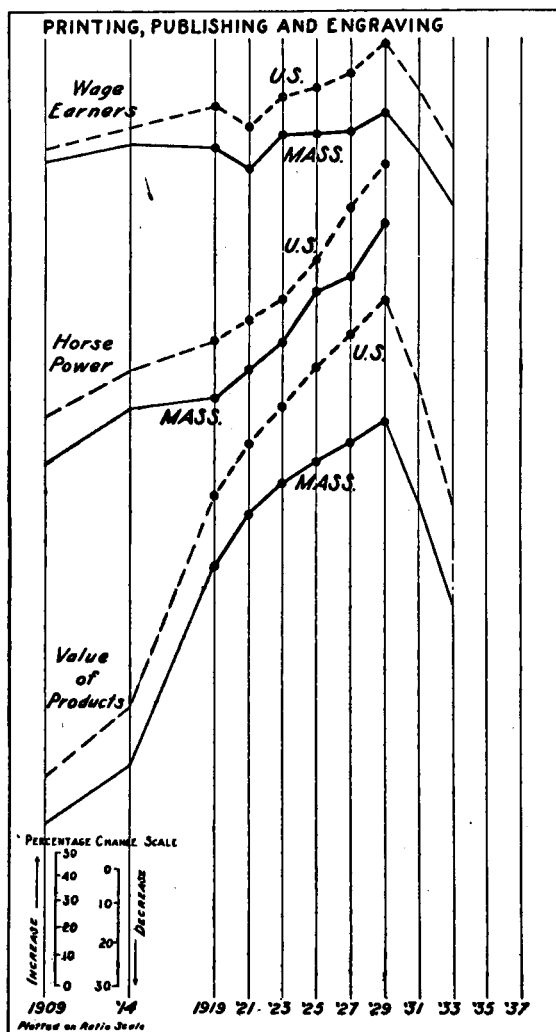
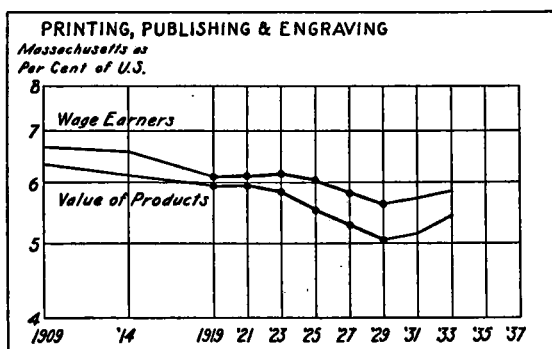


Chart J-1.



is true that the rate of growth in Massachusetts was not quite so rapid as for the country as a whole, and from

1909 until 1929 the percentage of this business done in Massachusetts was declining. The percentages for 1931 and 1933, however, show increases which indicate that the rest of the country in those years lost proportionately more than Massachusetts. These signs of strength, coupled with the persistence in the upward trend, lead to the belief that a resumption of normal business activity will see most of the unemployed workers from this industry reabsorbed in their old trades.

Table J-1. Printing, Publishing, and Engraving

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	6.33	6.67	\$2,667	\$2,813	0.98	1.13
1914	6.12	6.58	3,020	3,247	1.10	1.21
1919	5.93	6.10	5,610	5,771	1.15	1.24
1921	5.94	6.11	7,023	7,228	*	*
1923	5.82	6.16	6,971	7,380	1.31	1.37
1925	5.52	6.03	7,392	8,074	1.52	1.50
1927	5.29	5.81	7,738	8,497	1.58	1.68
1929	5.05	5.62	7,790	8,671	1.75	1.77
1931	5.15	5.71	6,999	7,765	*	*
1933	5.44	5.86	5,988	6,448	*	*

*Data not reported.

Rubber Goods¹

The establishments manufacturing rubber goods in Massachusetts reported a total value of products of more than \$116,000,000 in 1929. In that year they employed almost 21,000 wage earners and 4,000 salaried workers. Between 1929 and 1933 the number of wage earners dropped to 13,500, and when the Census of Unemployment was taken early in 1934 there were almost 5,000 wholly unemployed and 2,400 part-time employed rubber workers.

Massachusetts, at the close of 1933, employed about 12.7% of the wage earners engaged in all rubber goods manufacture in the United States. In 1909, the corresponding figure had been 20.5%. The trend in the employment of wage earners in the rubber goods in-

¹ This group includes concerns manufacturing rubber boots and shoes, tires and tubes, belting, and hose.

Table K. Rubber Goods*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909**	37	1,020	10,346	18,453	34,519	295	6,922	50,452	125,512	202,886
1914**	51	1,510	12,830	25,692	46,800	342	14,712	74,022	199,543	300,994
1919	58	5,400	24,909	66,002	151,544	477	47,555	158,549	429,887	1,138,216
1921	58	2,587	14,371	Not Reported	65,487	496	21,370	103,273	Not Reported	704,903
1923	69	3,659	23,916	83,800	141,017	529	22,186	137,868	605,634	958,518
1925	62	3,715	22,129	89,363	162,221	498	22,878	141,121	656,857	1,255,414
1927	74	4,548	22,445	106,137	154,158	516	26,596	141,997	790,622	1,225,077
1929	72	4,080	20,927	117,915	116,690	525	22,834	149,148	821,312	1,117,460
1931	64	Not Reported	13,005	Not Reported	65,487	453	Not Reported	99,259	Not Reported	614,265
1933	61	Not Available	13,522	Not Reported	54,245	408	14,874	106,283	Not Reported	472,743
1934	4,984	2,442	...	....	....	....	....	....	....	..	....	....

*For composition of this group, see Appendix, p. 71.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for belting and hose, rubber, in 1925.

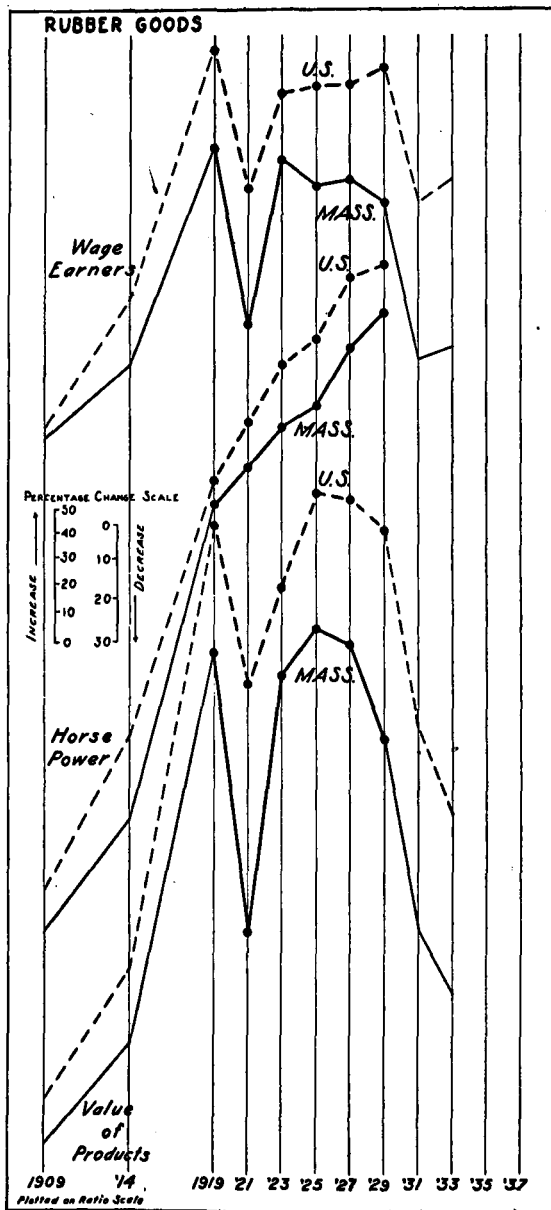
§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

**For 1909 and 1914, figures for belting and hose, rubber, were not given separately for Massachusetts. It is estimated that there were about 1,600 wage earners in this group in 1909 and about 2,000 in 1914. The actual figure for 1919 was 2,441 wage earners.

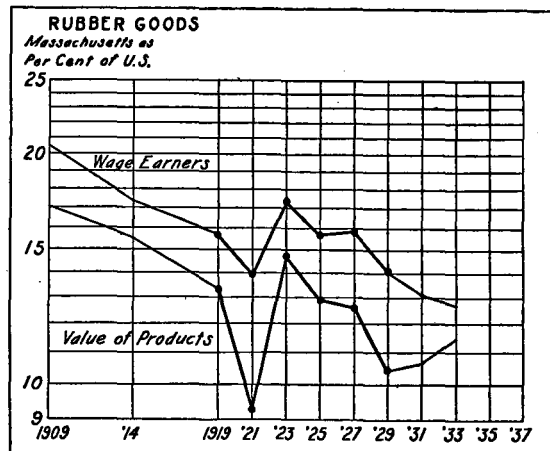
Chart K.



dustries has been upward since 1909 for the country as a whole. The trend for those employed in Massachusetts was upward until 1919 only, since when it has been downward. There is no question but that most of the growth of the rubber industry has been outside the state.

There are for Massachusetts two current indexes of employment that completely cover this field. One is for rubber footwear, and the other for rubber goods,

Chart K-1.



rubber tires, and inner tubes. Both indexes fell precipitously in the early years of the depression, reaching their lowest point in 1932. The rubber footwear index dropped farther than that for rubber goods, rubber tires, and inner tubes. The former averaged 45.2 in 1932, 55 in 1933, 56 in 1934, and 49 in 1935. The latter recovered sharply when the N. R. A. was instituted in the middle of 1933, but has since then receded irregularly. There were, therefore, somewhat fewer rubber workers employed early in 1936 in Massachusetts than in 1934.

Table K-1. Rubber Goods

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	17.01	20.51	\$3,336	\$4,021	1.78	2.49
1914	15.55	17.33	3,648	4,066	2.00	2.70
1919	13.31	15.71	6,084	7,179	2.65	2.71
1921	9.29	13.92	4,557	6,826	*	*
1923	14.71	17.35	5,896	6,952	3.50	4.39
1925	12.92	15.68	7,331	8,896	4.04	4.65
1927	12.58	15.81	6,868	8,627	4.73	5.57
1929	10.44	14.03	5,576	7,492	5.63	5.51
1931	10.66	13.10	5,036	6,189	*	*
1933	11.47	12.72	4,012	4,448	*	*

*Data not reported.

Under these circumstances, the reemployment of a large percentage of the unemployed rubber workers is not likely to occur in Massachusetts in the next few years.

Furniture and Finished Lumber¹

Massachusetts enterprises in this class gave employment to more than 19,800 wage earners and 2,700 salaried workers in 1929. The value of their products in that year amounted to \$98,000,000. By 1933, the average number of wage earners had been reduced to 13,000, and at the beginning of the following year conditions were such that there were 6,000 workers wholly unemployed and 3,000 workers on part time from these industries.

The perspective afforded by the accompanying statistics indicates that employment in this group of industries had been declining slowly since 1914. The decline in Massachusetts had been more rapid than in the rest of the country, with the result that the relative importance of Massachusetts had diminished slightly. The depression, however, appears to have affected the Massachusetts concerns less severely than others throughout the United States. The percentage share of

¹ This category includes establishments manufacturing furniture, carriages, wagons, sleds, show cases, refrigerators, bed springs and mattresses, pianos, organs, boxes, barrels, and other wooden goods. It is to be noted that this group does not include mill work.

Table L-1. Furniture and Finished Lumber

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	3.15	2.59	\$2,210	\$1,822	2.66	3.32
1914	3.20	2.70	2,360	1,992	2.73	3.63
1919	2.60	2.41	4,104	3,791	2.75	3.81
1921	3.01	2.56	4,318	3,682	*	*
1923	2.72	2.43	4,631	4,136	2.66	3.55
1925	2.69	2.33	4,853	4,202	3.11	3.80
1927	2.71	2.37	4,830	4,212	3.29	3.97
1929	2.51	2.20	4,967	4,352	3.62	4.35
1931	3.38	3.03	4,125	3,697	*	*
1933	2.90	2.58	3,201	2,852	*	*

*Data not reported.

Chart L.

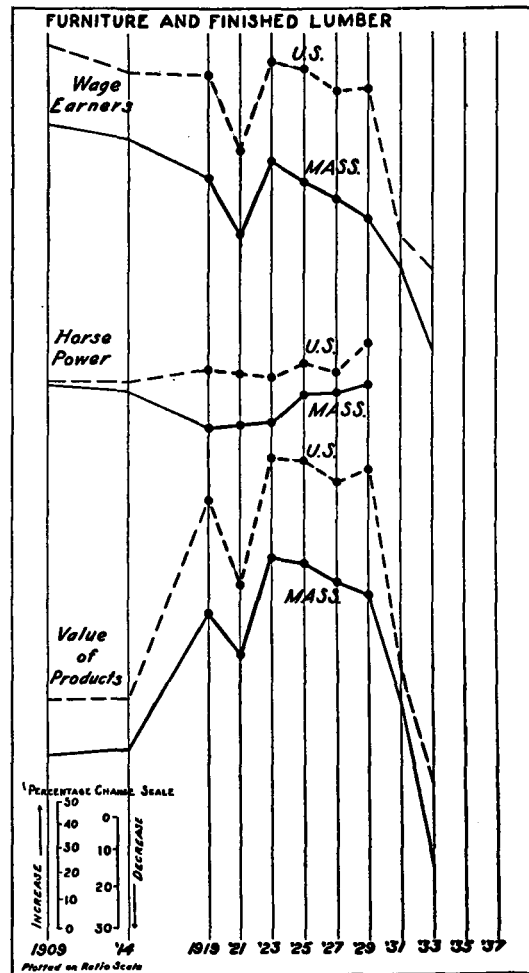
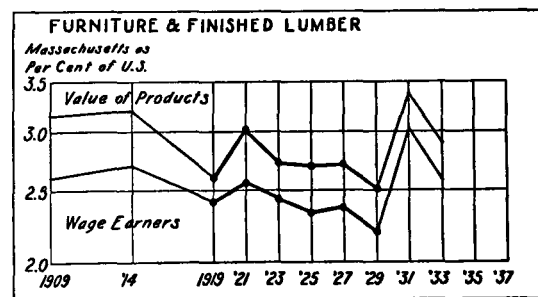


Chart L-1.



Massachusetts in the total value of the product was higher in 1931 and 1933 than it had been for many years, and the same was true of wage earners.

Table L. Furniture and Finished Lumber*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	1,369	2,073	26,952	71,679	59,561	55,852	76,438	1,038,490	3,451,558	1,891,767
1914	1,242	2,335	25,698	70,208	60,650	49,019	81,736	950,551	3,447,203	1,893,396
1919	967	2,415	22,704	62,537	93,168	44,520	92,917	943,705	3,592,759	3,577,694
1921	769	2,098	18,925	Not Reported	81,721	22,978	77,317	738,198	Not Reported	2,718,318
1923	807	2,483	23,910	63,664	110,736	22,935	90,648	984,341	3,498,199	4,071,414
1925	800	2,236	22,423	69,671	108,818	23,107	90,603	963,003	3,663,589	4,046,514
1927	742	2,479	21,224	69,837	102,502	20,964	87,253	896,661	3,559,221	3,776,782
1929	742	2,737	19,860	71,895	98,637	27,854	89,965	904,224	3,935,210	3,935,389
1931	690	Not Reported	17,056	Not Reported	70,356	17,391	Not Reported	562,628	Not Reported	2,079,958
1933	565	Not Available	12,981	Not Reported	41,553	13,186	48,073	503,288	Not Reported	1,435,163
1934	6,126	3,225	...	....	....	....	....	....	....	....	....	....

50

*For composition of this group, see Appendix, p. 71.
 †Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.
 ‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for baskets and rattan and willow ware; mirror and picture frames; refrigerators; window and door screens and weather strips; window shades and fixtures; wood turned and shaped; and other wooden goods, not elsewhere classified, in 1925 and 1927; or for caskets, coffins, and other morticians' goods; mattresses and bed springs, not elsewhere classified; and wall plaster, wall board, and floor, composition, in 1925.
 §Figures represent average number for each year.
 ||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.
 ¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

Additional evidence is available for one division of this group. The Massachusetts Department of Labor and Industries publishes a monthly index of employment for concerns manufacturing furniture. This is based upon a sample of manufacturers which employ 40% of the wage earners in this industry. The index reached its lowest point in 1932, when it stood at 59.9. The figure in the next year rose to 64.7 and remained practically stationary in 1934 and 1935. Further recovery in general business should see an expansion of employment in the manufacture of furniture and finished lumber. In view of the pre-depression trend, however, it does not seem possible that this industry will absorb in the near future all its own excess labor force.

Clothing¹

The clothing industry in Massachusetts gave employment in 1929 to over 19,000 wage earners and over 2,000 salaried workers. In that year the value of their products amounted to almost \$107,000,000. The Massachusetts part of the clothing industry suffered relatively less than the clothing industry in the rest of the country. In fact, there was an actual increase of 2½% in the number of wage earners in Massachusetts from 1929 to 1931, whereas for the country as a whole a decline of 12% was recorded. From 1931 to 1933, however, losses were recorded in both the United States and in Massachusetts. The loss in Massachusetts was a little over 3% while that in the United States amounted to slightly less than 3%. A comparison of the trends of employment in this industry for Massachusetts and for the United States from 1909 through 1933 shows a divergence in directions. For the United States the trend is slightly upward, while for the state the trend is downward.

Some indication of what has happened in the state since 1933 may be obtained from the indexes of employment compiled for the two separate divisions of the industry by the Massachusetts Department of Labor and Industries. The index of employment in the women's clothing division reached its lowest level in 1933 (109.8), approximately 10% below its level in 1929 (121.8). Since 1933, the index has moved irregularly but persistently upward. In 1935, the average level was 123.7 or approximately 1.9 points above the index for 1929 and 19.6 points above the level in January 1934, when the unemployed were enumerated.

The index of employment in the men's clothing division reached its lowest level in 1932 and has moved

¹ Establishments manufacturing clothing for men, women, and children compose this group. Boots and shoes, hosiery, and knit goods are not included here, but are listed under other headings.

Chart M.

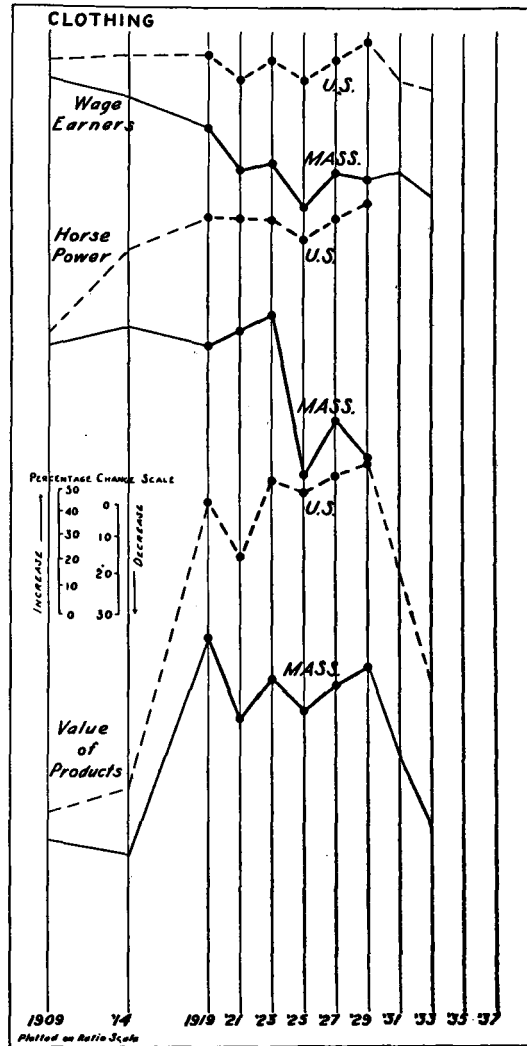


Chart M-1.

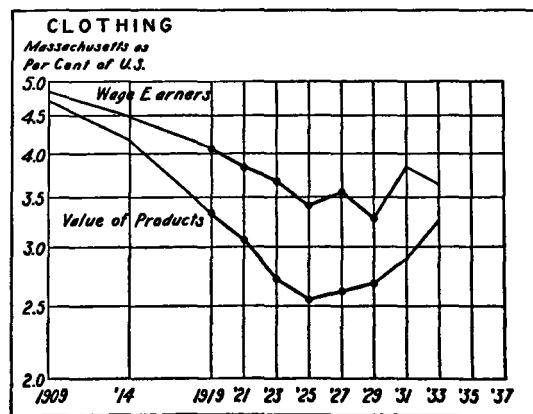


Table M. Clothing*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	647	2,297	26,459	8,167	61,748	15,948	59,702	545,130	120,672	1,310,014
1914	639	2,550	24,873	8,702	58,920	16,872	67,323	554,975	157,966	1,415,448
1919	677	2,476	22,591	8,197	117,987	21,231	84,668	556,683	175,352	3,539,863
1921	643	2,093	19,675	Not Reported	91,086	19,010	68,205	513,009	Not Reported	2,966,920
1923	704	2,299	20,139	9,068	103,406	19,209	86,815	546,843	174,064	3,804,422
1925	623	2,049	17,451	5,414	93,376	17,335	72,801	512,252	163,181	3,658,884
1927	641	2,108	19,529	6,482	101,539	18,721	71,687	547,973	174,505	3,872,915
1929	660	2,117	19,118	5,719	106,546	19,633	68,707	581,991	183,865	4,008,700
1931	627	Not Reported	19,614	Not Reported	80,573	16,726	Not Reported	510,071	Not Reported	2,781,433
1933	537	Not Available	18,031	Not Reported	64,049	12,534	36,152	495,647	Not Reported	1,967,652
1934	6,319	4,529	...	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, p. 71.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

Table M-1. Clothing

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	4.71	4.85	\$2,334	\$2,403	0.31	0.22
1914	4.16	4.48	2,369	2,550	0.35	0.28
1919	3.33	4.06	5,223	6,359	0.36	0.31
1921	3.07	3.84	4,630	5,783	*	*
1923	2.72	3.68	5,135	6,957	0.45	0.32
1925	2.55	3.41	5,351	7,143	0.31	0.32
1927	2.62	3.56	5,199	7,068	0.33	0.32
1929	2.68	3.28	5,625	6,888	0.30	0.32
1931	2.90	3.85	4,108	5,453	*	*
1933	3.26	3.64	3,552	3,970	*	*

*Data not reported.

upward irregularly but markedly since. Its average level in 1935 was 144, while in 1929 it was 100, and in January 1934, 98.3.

The improvement in these two indexes indicates that the clothing industry in the state had absorbed practically all of its own unemployed by 1935. It may be observed that Massachusetts gained slightly in this field relative to the rest of the country in 1931 and 1933. However, the trend of employment for the country as a whole is almost horizontal and continued gain of Massachusetts in relative position will meet with increasing resistance. Therefore, despite the recent increases it is unwise to assume that this industry can do much more than its own share in absorbing the unemployed.

Chemicals¹

The Massachusetts establishments grouped under this heading employed 14,000 wage earners and 5,000 salaried workers in 1929. In that year the value of their products amounted to more than \$168,000,000. By 1933, the value of products had dropped more than 50%, and the number of wage earners employed had declined to 8,700. When the unemployment census was taken in 1934, there were 3,000 wholly unemployed and almost 1,500 part-time workers reported from these industries.

¹ This class is composed of establishments manufacturing chemicals, drugs, cosmetics, paints, fertilizers, explosives, soaps, inks, plastics, artificial leathers, gas, and those engaged in the refining of petroleum.

An examination of the statistics given in Tables N and N-1 discloses that, although this group of industries shows a marked upward trend for the entire United States from 1909 through 1929, Massachusetts participated in that growth only until 1919. Since that time, the trend in employment in Massachusetts has been downward. It is evident that in Massachusetts the depression merely intensified a decline in employment that had been under way throughout the twenties. The drop caused by the depression was more marked in

Chart N.

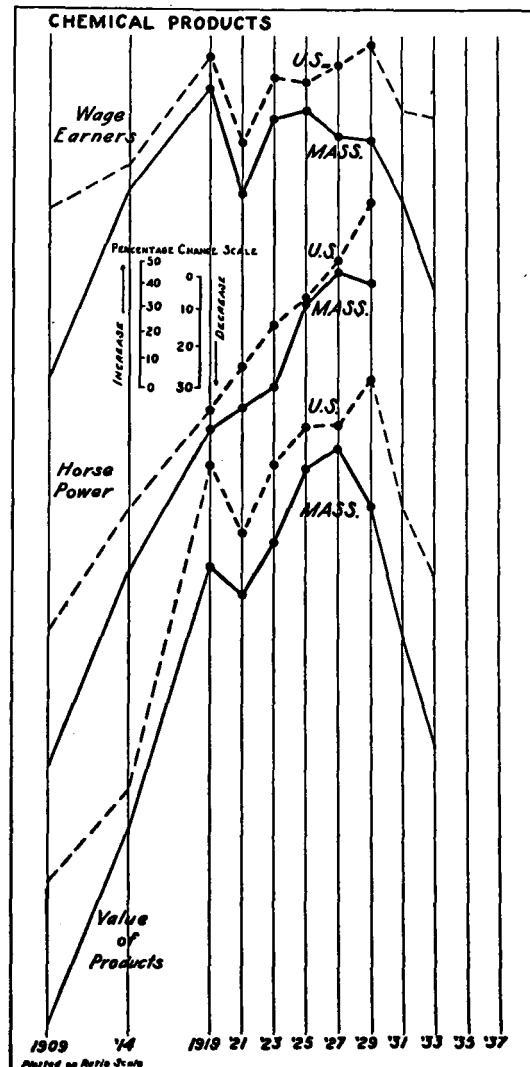


Table N. Chemicals*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	397	1,781	6,669	16,072	33,112	13,186	70,265	286,191	1,066,661	1,549,560
1914	572	2,959	12,132	29,933	61,079	13,384	93,311	330,759	1,569,000	2,066,863
1919**	525	4,696	16,766	46,601	139,060	13,118	140,095	467,499	2,143,239	5,747,723
1921	431	4,418	11,857	Not Reported	126,500	10,275	103,830	353,345	Not Reported	4,620,363
1923	461	4,980	15,146	53,457	151,063	10,454	123,538	436,370	2,819,014	5,789,639
1925	459	4,473	15,573	69,024	188,222	10,338	107,990	429,504	3,073,283	6,504,764
1927	433	3,924	14,283	76,878	201,980	10,620	115,711	455,322	3,457,043	6,569,931
1929	401	5,109	14,187	74,053	168,161	11,316	118,257	485,852	4,161,199	7,563,608
1931	389	Not Reported	11,663	Not Reported	110,111	10,106	Not Reported	392,951	Not Reported	5,015,561
1933	368	Not Available	8,726	Not Reported	77,975	8,910	81,220	384,938	Not Reported	4,034,515
1934	3,062	1,475	...	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, pp. 71-72.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported in 1927 for blacking, stains, and dressing; cleaning and polishing preparations; combs and hairpins, not made from metal or rubber; glue and gelatin; grease and tallow; ink, printing; and oils, not elsewhere classified.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods *shipped or delivered* for most industries. Amounts for all other years are based on products *manufactured*.

**In 1919, figures for "Ammunition and Related Products" were included in the data for Massachusetts, while in all other years these figures were not given separately but were included in "Other Industries". In 1919, there were 2,449 wage earners in this industry; 2,694 horsepower; and a value of products of \$5,901,390. In pre-war and post-war years the figures would be very much smaller.

Massachusetts than in the rest of the country. Therefore, although a general business recovery will probably see some revival of employment in this industry in Massachusetts, it is to be doubted that the total number of wage earners will in the near future be as large as it was in pre-depression years.

Chart N-1.

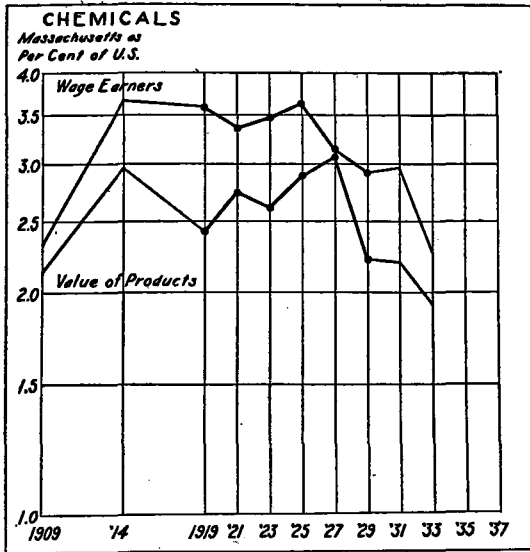


Table N-1. Chemicals

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	2.14	2.33	\$4,965	\$5,414	2.40	3.73
1914	2.96	3.67	5,035	6,249	2.47	4.77
1919	2.42	3.59	8,294	12,295	2.78	4.58
1921	2.74	3.36	10,669	13,076	*	*
1923	2.61	3.47	9,974	13,268	3.53	6.46
1925	2.89	3.63	12,086	15,145	4.43	7.16
1927	3.07	3.14	14,141	14,429	5.38	7.59
1929	2.22	2.92	11,853	15,568	5.22	8.56
1931	2.20	2.97	9,441	12,764	*	*
1933	1.93	2.27	8,936	10,481	*	*

*Data not reported.

Jewelry, Clocks, Watches, Silverware, etc.¹

Massachusetts has long been known as a center for the manufacture of jewelry and related products. In 1929, these industries gave employment to a little more than 10,000 wage earners and 1,800 salaried workers. Since most of the products of the companies in this class are either luxuries or industrial equipment, it is not strange that employment dropped sharply during the depression. In 1933, only 7,300 wage earners were on the pay roll; and by January 2, 1934, there were almost 2,900 wholly unemployed and 2,200 part-time workers from this industrial group.

Figures in Tables O and O-1 show that this group of industries employed more wage earners in 1929 than in any census year except 1919. This was true both of the United States and of Massachusetts. The trends of employment had been definitely upward from 1919 until the depression set in, and the rate of growth was practically identical in both the United States and Massachusetts. The losses sustained in 1931 and 1933 were more pronounced in other states than in Massachusetts, with the result that the percentages reflecting the proportion of the business done in Massachusetts rose from 9.67 in 1929 to 11.65 in 1933. This evidence of strength signifies that most of the drop in employment in this group was because of the business depression. Presumably, therefore, business recovery will

¹ In this class are concerns manufacturing jewelry, silver and plated ware, clocks, watches, compasses, transits, levels, and other precision apparatus.

Table O-1. Jewelry, Clocks, Watches, Silverware, etc.

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	11.07	12.36	\$2,313	\$2,584	0.62	0.61
1914	10.47	12.56	2,252	2,701	0.80	0.77
1919	9.60	10.88	4,591	5,202	0.77	0.76
1921	9.60	10.53	4,232	4,643	*	*
1923	9.51	11.00	4,894	5,656	0.90	1.04
1925	8.41	10.49	5,044	6,292	1.01	1.22
1927	9.20	10.49	5,137	5,854	0.84	1.21
1929	9.67	10.81	5,384	6,018	0.99	1.32
1931	11.90	13.39	4,146	4,665	*	*
1933	11.65	14.73	3,283	4,152	*	*

*Data not reported.

Table O. Jewelry, Clocks, Watches, Silverware, etc.*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	218	1,215	10,147	6,261	23,470	2,520	10,750	82,091	50,213	212,127
1914	281	1,541	10,178	8,101	22,924	2,963	12,963	81,052	62,589	218,946
1919	257	1,637	11,019	8,529	50,585	3,211	17,386	101,282	76,722	526,822
1921	246	1,451	8,260	Not Reported	34,959	2,607	14,865	78,417	Not Reported	364,102
1923	249	1,622	10,018	8,897	49,024	2,609	16,310	91,111	94,585	515,352
1925	246	171	9,293	9,404	46,878	2,447	16,415	88,630	108,446	557,628
1927	245	1,229	9,649	8,108	49,571	2,346	16,656	92,012	111,374	538,606
1929	228	1,818	10,252	10,180	55,201	2,545	17,391	94,870	125,641	570,891
1931	206	Not Reported	8,561	Not Reported	35,492	2,014	Not Reported	63,934	Not Reported	298,237
1933	156	Not Available	7,357	Not Reported	24,153	1,490	9,133	49,941	Not Reported	207,358
1934	2,859	2,210	....	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, p. 72. To avoid disclosing information for individual establishments, data were included in "Other Manufacturing Industries" for Massachusetts establishments producing pens, fountain and stylographic; and pen points, gold, steel, and brass, in 1919 and 1921; watches in 1914 and 1919; and clocks and watches, including cases and materials; instruments, professional and scientific; and jewelry and instrument cases, in 1909. Watch cases were not reported manufactured in Massachusetts in any year.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was reported only for clocks, time recording devices, and clock movements; and watch and clock materials, in 1925 and 1927; and for gold leaf and foil; jewelry; and silversmithing and silverware, in 1927.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

see more wage earners on the pay rolls of these concerns in Massachusetts than in 1929.

Chart O.

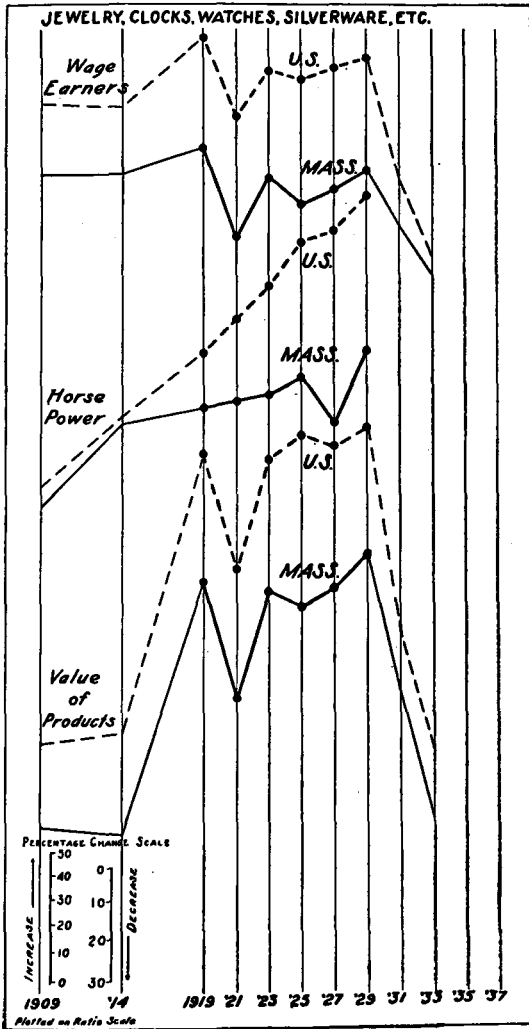
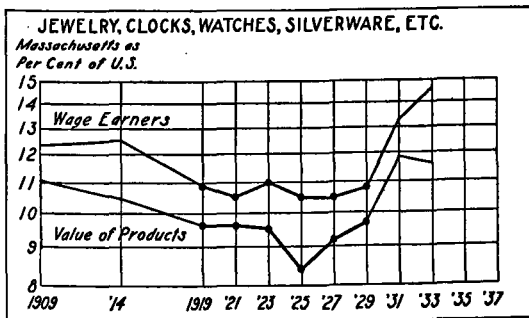


Chart O-1.



Non-Ferrous Metals¹

The non-ferrous metal industries form the smallest of the classes of manufacturing industries in Massachusetts. In 1929, this class accounted for less than three-fourths of one per cent of the total number of wage earners employed in manufacture in the state. The value of the products of this class that year amounted to a little over \$31,000,000. The depression seriously affected the non-ferrous metal industry. The number of wage earners decreased 40% from 3,950 in 1929 to 2,020 in 1933 and the value of products declined 70% from \$31,000,000 to \$9,000,000 in the same time. This drop in activity was reflected in the unemployment figures obtained in January, 1934 when over 1,400 wholly unemployed and more than 600 part-time workers were reported from the non-ferrous metal industry.

An examination of the curves showing the number of wage earners employed in the United States and in Massachusetts shows that for the decade preceding the depression the basic trends extend in different directions. The trend of employment for the United States is slightly upward while that for Massachusetts is definitely downward. It will be observed moreover, that while employment in Massachusetts did not decline as much from 1929 to 1931 as in the United States as a whole, from 1931 to 1933 the reverse was true.

¹ This group includes concerns manufacturing aluminum, brass, bronze, bearing metals, metal musical instruments, copper, tin, gold, and silver in foil.

Table P-1. Non-Ferrous Metals

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	1.31	3.19	\$2,613	\$6,372	1.75	2.56
1914	1.02	2.84	3,003	8,373	2.59	3.63
1919	1.44	2.81	5,454	10,617	3.67	4.63
1921	1.54	2.76	4,722	8,455	*	*
1923	1.32	2.66	5,616	11,370	4.62	5.84
1925	1.19	2.71	5,922	13,458	4.53	6.21
1927	1.17	2.27	6,628	12,883	5.68	6.70
1929	1.11	2.15	7,935	15,436	5.08	7.30
1931	1.52	2.36	5,584	8,681	*	*
1933	1.27	1.87	4,680	6,882	*	*

*Data not reported

Table P. Non-Ferrous Metals*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	307	616	5,039	8,834	13,166	6,313	17,385	157,841	403,540	1,005,821
1914	275	515	3,512	9,083	10,545	6,674	15,837	123,613	448,751	1,034,994
1919	286	943	5,002	18,370	27,281	7,207	27,100	178,220	825,748	1,892,121
1921	223	501	3,094	Not Reported	14,610	5,004	19,446	112,238	Not Reported	948,995
1923	251	646	4,563	21,099	25,626	4,571	24,852	171,298	1,000,022	1,947,726
1925	236	318	4,304	19,505	25,489	4,196	22,688	158,623	984,619	2,134,735
1927	226	402	3,538	20,079	23,450	4,104	25,056	156,188	1,046,744	2,012,245
1929	220	838	3,950	20,068	31,344	4,452	29,670	183,718	1,341,270	2,835,895
1931	210	Not Reported	2,811	Not Reported	15,696	3,778	Not Reported	119,030	Not Reported	1,033,318
1933	176	Not Available	2,020	Not Reported	9,454	2,952	16,515	108,067	Not Reported	743,769
1934	1,465	632	....	....	....	....	....	....	....	....	....	....

*For composition of this group, see Appendix, p. 72. To make this category consistent throughout, data for needles, pins, hooks and eyes, and snap fasteners were excluded from this group and thrown into the class of "Other Manufacturing Industries" inasmuch as they were not reported separately for Massachusetts in 1909 or after 1923.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers was not reported for copper, tin, and sheet-iron works, including galvanized-iron works, not elsewhere classified, or for electroplating, in 1925 and 1927.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

The curves showing the installations of horsepower also reveal that Massachusetts failed to share in the general expansion of capacity in this industry that took place in the twenties. This fact, coupled with the persistent downward trend in employment in the state and the loss in relative position, suggests that the return of normal business activity may not correct this situation. We do not expect this industry in the next few years to employ as many as it did in 1929.

Chart P.

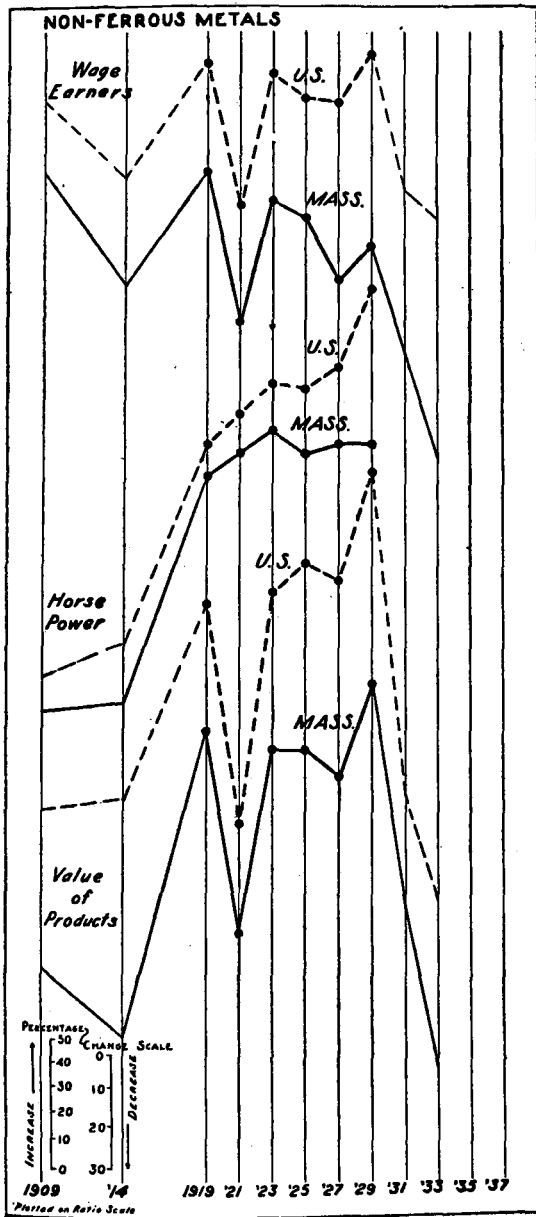
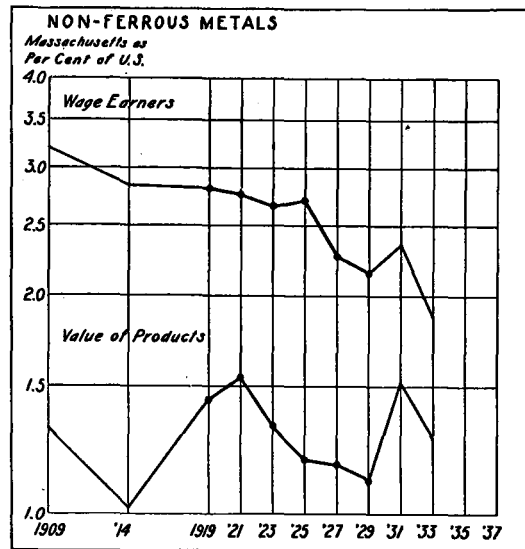


Chart P-1.



Other Manufacturing Industries¹

The preceding 16 industrial groups represent the great bulk of manufacturing activity and employment. In 1929, they accounted for all but 7.11% of the number of wage earners employed in manufacture in Massachusetts. Nevertheless, the industrial picture is not complete without the inclusion of the residual group of manufacturers classified as "Other Manufacturing Industries". This group is made up of two entirely different kinds of enterprises. On the one hand, it comprises all those industries which do not belong in any of the 16 groups described in the foregoing sections. On the other hand, it includes some enterprises which logically belong in one or another of these specific groups but which are reported in the miscellaneous classification to avoid disclosing information pertaining to individual establishments.

¹ This group includes enterprises manufacturing abrasive wheels; stones; paper; cloth and related products; artificial stone products; artificial and preserved flowers and plants; artificial limbs; artists' materials; bells; brooms; brushes other than rubber; buttons; carbon paper and inked ribbon; cement; china firing and decorating, not done in potteries; cigars and cigarettes; clay products (other than potters and non-clay refractories); concrete products; crucibles; dairymen's supplies; dentists' supplies; emery; fancy miscellaneous articles; feathers, plumes and manufactures thereof; glass; graphite ground and refined; grindstones; hand stamps, stencils, brands; hair work; hones and whetstones; ivory shell, and bone work; kaolin and ground earth; marble, granites, slate, and other stone products; matches; mineral and earth, ground or otherwise treated; models and patterns, not including paper patterns; motion pictures; nets (fish), seines; optical goods; paving materials, blocks (except brick and stone and mixtures); pencils, lead, (including mechanical); photographic apparatus and materials, and projection apparatus; pipes (tobacco); pottery, including porcelain ware; roofing, built-up and roll, asphalt shingles; roof coatings other than paint; rules, ivory and wood, etc.; sand paper emery; steam and other packing, pipe and boiler coverings; sand-lime brick; sporting and athletic goods; soda fountains and accessories; statuary and art goods (except concrete, factory production); theatrical scenery and stage equipment; surgical and orthopedic appliances and related products; tobacco, chewing and smoking, and snuff; toys (not including children's wheel goods or sleds), games and playground equipment; umbrellas, parasols, and canes; whips.

Table Q. Other Manufacturing Industries*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners‡	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	2,339	7,061	53,491	111,055	167,066	37,083	57,454	612,190	1,340,813	1,216,921
1914	1,337	5,099	42,593	106,267	131,284	35,108	69,607	640,316	1,747,637	1,452,665
1919	1,259	8,148	65,829	141,983	330,076	30,963	87,425	628,721	2,023,870	2,980,594
1921	907	7,695	42,323	Not Reported	272,200	18,446	77,427	536,342	Not Reported	2,840,899
1923	904	7,506	46,609	148,800	325,625	17,732	88,818	648,876	2,287,901	3,450,249
1925	851	493	40,421	159,444	284,682	16,376	82,060	623,664	2,682,073	3,599,605
1927	875	1,456	42,180	188,821	297,928	15,939	86,450	625,657	3,098,470	3,734,817
1929	845	6,849	39,621	178,130	358,060	15,319	84,653	586,974	3,027,602	3,805,168
1931	736	Not Reported	30,058	Not Reported	254,659	11,228	Not Reported	416,394	Not Reported	2,570,779
1933	618	Not Available	27,970	Not Reported	210,642	8,279	37,224	350,880	Not Reported	1,899,580
1934	8,132**	3,554**	....	....	....	....	....	....	....	....	....	....

*In addition to items included to avoid disclosing information for individual establishments, this category includes all industries that could not be grouped under any of the classes previously described. See Appendix, pp. 72-73.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. For Massachusetts the number of salaried workers in 1925 and 1927 was not reported for most industries, and such figures as were reported were not comparable with returns for other years.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods *shipped* or *delivered* for most industries. Amounts for all other years are based on products *manufactured*.

**These figures do not include unemployed from the independent hand trades, such as cigar makers, cobblers, and so on.

No attempt has been made to treat this group as we have the others which face more or less common problems and possess some degree of homogeneity. The number of wage earners reported in "Other Manufacturing Industries" in 1929 was 39,621, which was lower than the number reported for any year since 1921. The depression operated to reduce the number of wage earners to 27,970 in 1933. The Massachusetts Census of Unemployment in 1934 reported 8,132 wholly unemployed and 3,554 part-time workers from this group. It is probable that the return of normal business conditions will see a resumption of the pre-depression trend in the industries classified under this head. Little hope is entertained that an expansion of "Other Manufacturing Industries" will solve the problem of unemployment in Massachusetts.¹

Table Q-1. Other Manufacturing Industries

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	13.73	8.74	\$3,123	\$1,988	2.08	2.19
1914	9.04	6.65	3,082	2,269	2.49	2.73
1919	11.07	10.47	5,014	4,741	2.16	3.22
1921	9.58	7.89	6,431	5,297	*	*
1923	9.44	7.18	6,986	5,317	3.19	3.53
1925	7.91	6.48	7,043	5,772	3.94	4.30
1927	7.98	6.74	7,063	5,969	4.48	4.95
1929	9.41	6.75	9,037	6,483	4.50	5.16
1931	9.91	7.22	8,472	6,174	*	*
1933	11.09	7.97	7,531	5,414	*	*

*Data not reported.

All Manufacturing Industries—Summary

A composite picture of all manufacturing activity in Massachusetts is afforded by the statistics presented in Tables R and R-1. They enable us to measure the significance of manufacture in the economy of the state and to observe its bearing on the problem of unemployment. In 1929, over 557,000 wage earners and 81,700

¹ This should not be interpreted as precluding the possible development of new industries that might require large numbers of workers. It merely means that those manufacturing enterprises which have been classified as "Other Manufacturing Industries" do not, as a group, show any evidence of capacity to expand in the state.

salaried workers were engaged in manufacturing activities in Massachusetts. These workers represented about 35% of all persons gainfully employed in the state. The products of manufacture in Massachusetts in that year were valued at \$3,392,000,000. By 1933, this value had been cut in half and the number of wage earners had declined by 29%. The Census of Unemployment in 1934 found 148,000 wholly unemployed and 105,000 part-time workers from the manufacturing industries, or 33% of all persons wholly unemployed and 61% of those who were employed only part time. Of the persons who were either wholly unemployed or only partly employed in 1934, four out of every ten were in that position because of the decline in manufacturing activity in Massachusetts.

The tables give a perspective of the changes that have occurred in manufacturing both in Massachusetts and in the United States. Measured by the number of wage earners, it is apparent that employment in manufacturing for the country as a whole experienced a healthy upward growth from 1909 to 1929. It is also apparent that employment in manufacturing in Massachusetts shared in that growth only from 1909 to 1919. Since that time, manufacturing has been declining at a fairly rapid rate. This is also reflected in the figures showing the Massachusetts percentages of all wage earners employed in manufacture. These indicate that whereas the state accounted for 8.84% in 1909, its share had declined to 6.31% in 1929.² The percentages for 1931 and 1933 show a slight improvement which indicates that Massachusetts did not suffer quite so severely as other states in these years. Nevertheless, the wide divergence in the employment trend of the state from that of the United States makes it seem unlikely that the return to normal business conditions will see a great expansion of factory employment in Massachusetts. This conclusion finds some substantiation in the recent figures for factory employment. The index numbers for the United States show greater improve-

² It must not be inferred that the loss of manufacturing employment in Massachusetts was merely relative, because of the growth of manufacturing in the smaller states, and no worse than that experienced in other important manufacturing states. The bulk of the manufacturing in the United States is done in the following states:

New York	Pennsylvania
Illinois	Ohio
Michigan	New Jersey
Massachusetts	California

Together these states accounted for 64.7% of the value of all manufactured products in 1914. Fifteen years later, in 1929, they accounted for very slightly less—63.6% of the total. The share of Massachusetts, on the other hand, had declined almost steadily from 8.63% in 1914 to 6.31% in 1929.

The unique nature of the decline in Massachusetts is also reflected in the fact that, in each of the above states except Massachusetts, increases ranging from 4.3% to 208.6% were registered in employment in manufacturing industries between 1914 and 1929. These 15 years reduced the number of wage earners in Massachusetts by 8.1%. In fact, of these states, Massachusetts was the only state to report fewer manufacturing wage earners in 1929 than in 1909.

It may be pointed out also that Massachusetts was the only one of these states in which a decrease in horsepower was reported in 1929 over 1927.

Table R. All Manufacturing Industries*

Year	Massachusetts							United States				
	Wholly Unemployed	Part-Time Employed	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶	Number of Establishments†	Total Salaried Workers‡	Total Wage Earners§	Rated Capacity of Installed Prime Movers in Horsepower||	Value of Products in Thousands of Dollars¶
1909	11,684	48,646	584,559	1,145,071**	1,490,529	268,491	790,267	6,615,046	18,675,376	20,658,267
1914	11,927	59,190	606,350	1,396,331	1,640,584	272,518	962,533	7,023,775	22,531,194	24,216,515
1919	11,627	89,006	712,254	1,728,454	4,005,209	274,598	1,438,219	9,041,311	29,422,101	62,193,427
1921	10,018	75,493	579,135	Not Reported	2,851,264	196,267	1,146,380	6,946,570	Not Reported	43,653,283
1923	10,522	86,641	667,193	1,931,800	3,570,591	196,309	1,355,729	8,778,156	33,094,228	60,555,998
1925	10,027	63,060	591,438	2,013,017	3,426,617	187,390	1,255,736	8,384,261	35,772,628	62,713,714
1927	10,037	73,360	578,068	2,130,503	3,317,852	191,866	1,301,002	8,349,755	38,825,681	62,718,347
1929	9,872	81,670	557,494	2,068,521	3,392,162	210,959	1,358,775	8,838,743	42,931,061	70,434,863
1931	9,305	Not Reported	434,441	Not Reported	2,157,450	175,319	Not Reported	6,523,026	Not Reported	41,350,465
1933	8,145	Not Available	398,592	Not Reported	1,668,733	141,776	802,437	6,055,748	Not Reported	31,358,946
1934	148,071††	105,605††	....	....	....	....	....	....	....	....	....	....

*Includes combined totals of industries summarized in Tables A-Q. Since the Census of Manufactures includes "Automobile Repairing" only in 1914 and 1916, figures for this industry have been deducted from the summaries for Massachusetts and the United States.

†Beginning with 1921, data were collected for plants with minimum value of products of \$5,000 rather than \$500.

‡Beginning with 1925, data were not included for employees of central administrative offices. The total given for salaried workers in the United States summary in 1925 was 586 in excess of the actual number. This accounts for the difference between the reported total in the Census of Manufactures for 1925 and the figure presented in this study. Figures for 1925 and 1927 were not given for many industries in Massachusetts and are not comparable with the returns for other years.

§Figures represent average number for each year.

||Total includes power of prime movers and of electric motors driven by purchased current but not of electric motors driven by current generated in the same plant, since this secondary power duplicates that of the prime movers which generate the energy.

¶Amounts for 1929 represent factory selling value of all goods shipped or delivered for most industries. Amounts for all other years are based on products manufactured.

**The figure given in the Census of Manufactures is 1,175,071, but the corrections made in Table I (Printing, Publishing, and Engraving) reduces the number by 30,000.

††Unemployed persons from the independent hand trades not included in these figures numbered 4,777 wholly unemployed and 2,071 part-time employed.

Table R-1. All Manufacturing Industries

Year	Percentage Ratio of Massachusetts to United States		Value of Products per Wage Earner		Horsepower Installed per Wage Earner	
	Value of Products	Number of Wage Earners	Massachusetts	United States	Massachusetts	United States
1909	7.22	8.84	\$2,550	\$3,123	1.96	2.82
1914	6.77	8.63	2,706	3,448	2.30	3.21
1919	6.44	7.88	5,623	6,879	2.43	3.25
1921	6.53	8.34	4,923	6,284	*	*
1923	5.90	7.60	5,352	6,898	2.90	3.77
1925	5.46	7.05	5,794	7,480	3.40	4.27
1927	5.29	6.92	5,740	7,511	3.69	4.65
1929	4.82	6.31	6,085	7,969	3.71	4.86
1931	5.35	6.66	4,966	6,339	*	*
1933	5.32	6.58	4,187	5,178	*	*

*Data not reported.

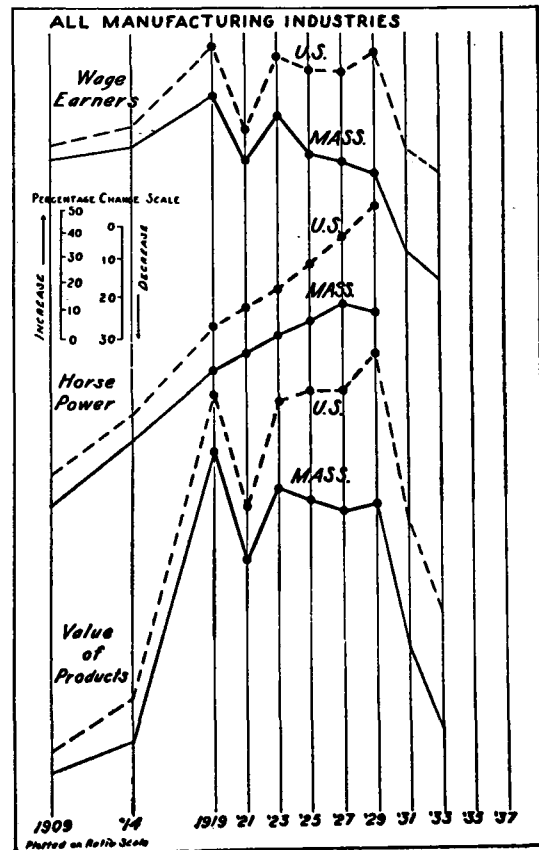
ment than do similar index numbers relating solely to the state of Massachusetts.¹

The index of employment compiled by the Department of Labor and Industries of Massachusetts stood at 76.4 in December, 1935. It had stood at 69.0 in January, 1934, when the Census of Unemployment was taken. It is likely that this recovery in manufacturing employment had absorbed between 35,000 and 45,000 of those who were unemployed in 1934. At the close of the year 1935, however, employment was still 18% below the 1929 level, and 24% below the level of the base period (1925-27).

¹The indexes of factory employment for the United States, as compiled by the U. S. Bureau of Labor Statistics and published in the *Federal Reserve Bulletin*, are given below in the first column. The indexes of employment in all manufacturing establishments in Massachusetts compiled by the Massachusetts Department of Labor and Industries appear in the second column. The revisions of April 1936 have been used.

Year	U. S. Factory Employment 1925-27 = 100	Massachusetts Employment in Manufacturing Industries 1925-27 = 100
1925	99	100
1926	101	102
1927	99	98
1928	99	92
1929	105	94
1930	92	82
1931	77	74
1932	64	59
1933	69	68
1934	79	72
1935	82	74

Chart R.



The employment situation in manufacturing in Massachusetts, as contrasted with that for the United States as a whole, may be summarized by comparing the pre-depression trends in the respective industrial groups. This comparison is made in Table R-2 and Chart R-2. The industrial groups are arranged in order of the rate of change shown by the trends of employment in the state. The figures in the first column show the average number of wage earners employed in 1929 in Massachusetts and are included to give some conception of the relative importance of each group. The figures in the last two columns indicate the percentage changes in the trends over the ten-year period from 1919 to 1929.

Of the five groups in which Massachusetts reported growth there was only one, "Jewelry, Clocks, Watches, Silverware, etc.", in which the rate of growth appeared to be as great as it was for the country as a whole. In the other four, the upward trends registered in Massachusetts showed rates of growth which were much less marked than for the United States as a whole.

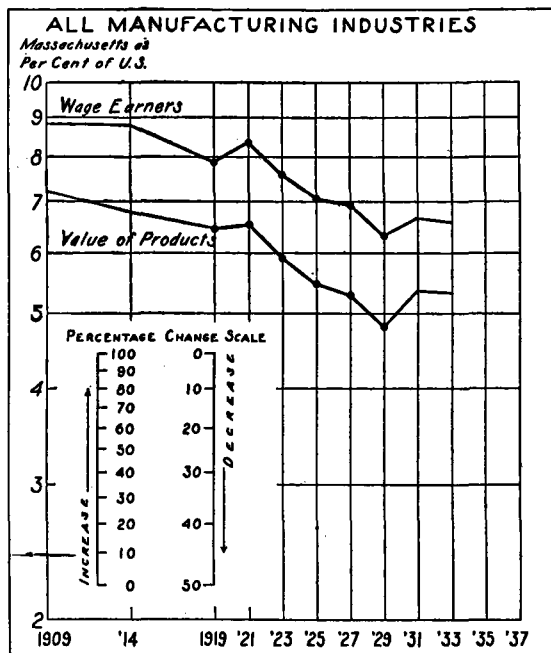
The remaining 12 groups all showed downward trends of employment in Massachusetts. In three of these, "Furniture and Finished Lumber", "Woolen Goods", and "Heavy Machinery", the trends for the entire United States were also downward. In every instance, however, the rates of decline for Massachusetts were

much greater than those for the country as a whole. In all the other industrial groups, the employment trends in the United States were either upward or horizontal, while those in Massachusetts were downward. It appears that over 75% of the wage earners employed in "Manufacturing" in 1929 were in industries which showed definite downward trends. In other words, only one out of four factory workers in Massachusetts was employed in industries that showed upward trends in the pre-depression decade.

While a return of normal business activity will see increased employment in the manufacturing industries of the United States, Massachusetts, in the next two or three years at least, is not likely to share to any great extent in this improvement. Unless some new factors enter the situation, it is reasonable to expect a continuation of those factors responsible for the downward trends in operation before the depression. It seems highly probable that for some time a large percentage of the unemployed from the manufacturing industries will not be absorbed in their old occupations in Massachusetts.

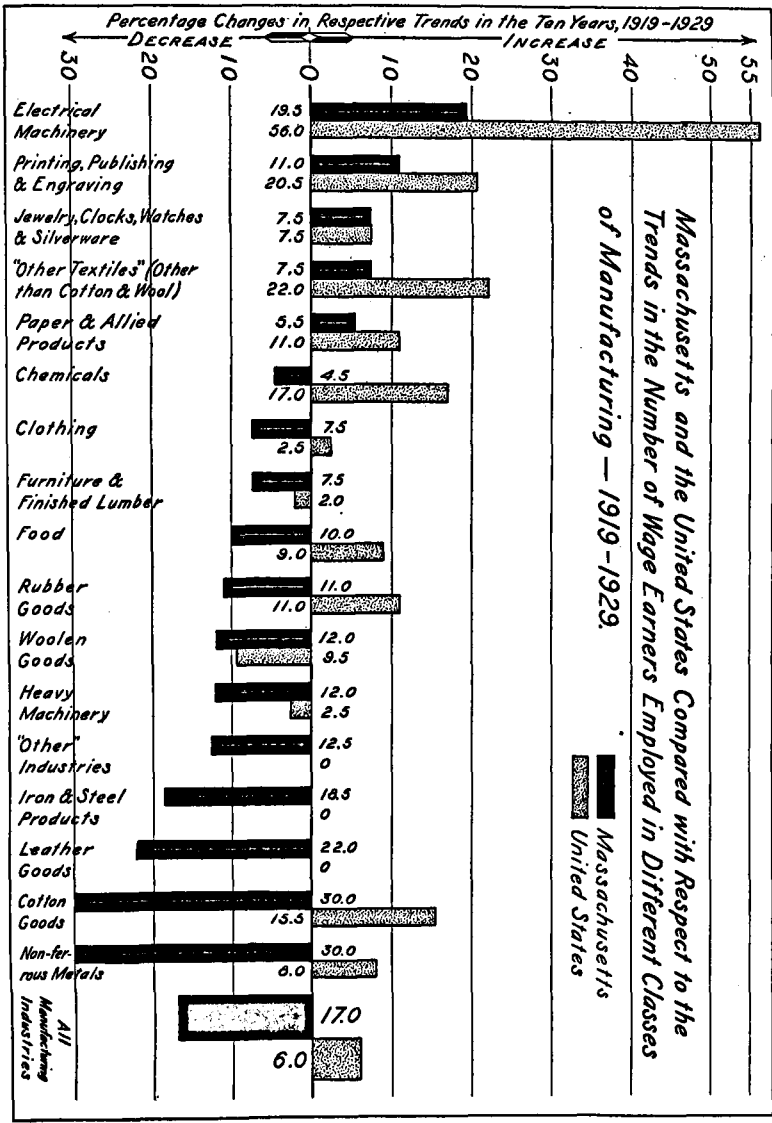
Table R-2. Massachusetts and the United States Compared with Respect to Changes in the Trends in the Number of Wage Earners Employed in Various Classes of Manufacturing

Chart R-1.



Classes of Manufacturing	Average Number of Wage Earners Employed in 1929 in Massachusetts	Percentage Changes in Trends of Employment in the 10 Years 1919 to 1929	
		Massachusetts	United States
Electrical Machinery and Equipment.....	29,337	+19.5%	+56.0%
Printing, Publishing, and Engraving.....	21,494	+11.0	+20.5
Jewelry, Clocks, Watches, Silverware, etc.....	10,252	+7.5	+7.5
"Other Textiles".....	41,422	+7.5	+22.0
Paper and Allied Products....	26,730	+5.5	+11.0
Chemicals.....	14,187	-4.5	+17.0
Clothing.....	19,118	-7.5	+2.5
Furniture and Finished Lumber.....	19,860	-7.5	-2.0
Food.....	27,486	-10.0	+9.0
Rubber Goods.....	20,927	-11.0	+11.0
Woolen Goods.....	46,811	-12.0	-9.5
Heavy Machinery.....	22,851	-12.0	-2.5
"Other Industries".....	39,621	-12.5	0.0
Iron and Steel Products.....	63,049	-18.5	0.0
Leather Goods.....	76,305	-22.0	0.0
Cotton Goods.....	74,094	-30.0	+15.5
Non-Ferrous Metals.....	3,950	-30.0	+8.0
All Manufacturing Industries	557,494	-17.0%	+6.0%

Chart R-2.



Part III

CONCLUSIONS—PROSPECTS FOR REEMPLOYMENT IN MASSACHUSETTS

An expansion of business activity in Massachusetts necessitating the reemployment of the unemployed is the only solution to the unemployment problem that can be regarded as entirely satisfactory. Such a development would eliminate unemployment relief expenses and minimize the probability of population loss through emigration. The foregoing analysis throws some light upon the prospects for reemployment, particularly in the manufacturing industries. The conclusion we draw from the employment trends in the important existing manufacturing industries is that the unemployed will certainly not all be reemployed at their old jobs in the state within the next few years.

The crux of the unemployment problem in Massachusetts is in the manufacturing industries. The extractive industries employ few persons and are not expected to expand materially. The trade, transportation, and service industries probably cannot expand their labor requirements very greatly in the near future unless there is a substantial recovery in manufacturing activity, though the extent to which such industries can thrive in communities with few manufacturing enterprises but many residents who are owners of invested wealth must not be underestimated. Further growth in the summer resort and tourist business and continued expansion in the management and financial services, quite possibly in the educational services, may reasonably be expected. But all these possibilities still leave on the manufacturing industries the chief burden of absorbing the unemployed during the next few years. On the prospects of employment afforded by new industries and new products and by unforeseen technological changes this study must perforce remain silent, though such possibilities are manifestly of particular importance. All we can say is that the trends brought to light in this investigation make it appear unlikely that the existing manufacturing industries in Massachusetts will be able in the near future to reabsorb their own unemployed.

It is thoroughly evident that the depression which began in 1929 was not responsible for all the unemployment suffered by Massachusetts. The declining employment trends established between 1919 and 1929 in many manufacturing industries and the loss of population between 1920 and 1930 through emigration to

other manufacturing states indicate that employment opportunities were declining in Massachusetts before the depression set in. In part, this downward secular trend of employment opportunities in Massachusetts reflects the more or less normal shifting of industry in response to changes in markets, in raw materials, in natural resources, in manufacturing technology, and in types of labor required. But this is not all; Massachusetts has not merely been left in an exposed position by the temporary ebb of an industrial tide that may be expected shortly to flow back again through other channels, she has in many respects deliberately taken a position on such high ground in matters of taxation and labor legislation that numerous industrial navigators have perforce had to seek other waters to keep their craft from going aground.

The most obvious effect of the depression was to increase greatly the number unemployed. A less obvious but equally important effect was to cause a virtual cessation of interstate migration. Although Massachusetts may have had a more serious unemployment problem than the majority of states, its citizens found the depression no time in which to move to another state looking for a job. Moreover, in the handling of relief, many states frowned upon unemployed persons from other states and gave preferential treatment to their own citizens. The passing of the depression will remove these barriers to population movement, and the factors that during the twenties made other states appear more attractive may again stand out.

Moreover, if the possibilities of getting a job are greater in other states, not only will Massachusetts lose people who are now living in the state, but it will no longer attract its share of the foreigners who come to this country. The population of Massachusetts under these circumstances will show a much slower rate of growth than that of other states. This possibility appears the more probable when it is realized that migration is a selective process that takes predominantly the younger men and women, the parents of the next generation.

If the state faces the prospect of exporting its surplus man power, it must realize that emigration will tend to increase still further the proportion of the old people among those who remain. Also, inasmuch as migration

takes more males than females, the uneven distribution of the sexes already noted will tend to become still further unbalanced. An increasing proportion of the aged implies a heavier burden of dependents and a greater relief load to be borne by the smaller number of productive workers who remain. It is true that emigration represents a solution to the unemployment problem, but it is far from a satisfactory one. It is a symptom that the population is not maintaining itself and is destined to decline.

Lest Massachusetts view too complacently the prospect of allowing its problem of unemployment to be solved through the migration of surplus workers to other states, the state should contemplate the cost this involves. The migration of workers seeking employment is a loss of productive power. Each worker who leaves represents an investment on the part of the people of the state in the cost of rearing, educating, and training him to the point where he is ready to produce more than he consumes. It is poor economy for the state to let him go.

Then, too, it can be pointed out that real property values depend upon population. Increasing values re-

sult from a growing population. Property values form the basis of the tax system. The revenues that must be raised by property taxes can be obtained more easily when property values increase than when they decrease. If population declines, however, the tax base is reduced, with the result that the tax rate rises. Delinquencies increase. The property owner is caught between the reduction in value and in rents, on the one hand, and the increase in tax rates, on the other. To the extent that increasing taxes must be borne by industries, an addition to their burdens is made and this addition tends to make the prospect of location beyond the borders of the state seem more advantageous by contrast.

If this interpretation of conditions is justified by the tendencies observed in this study, the situation constitutes a challenge to those who have the future of Massachusetts at heart. It suggests the need of cooperation among state and municipal officials, business men, labor leaders, and educators, to find ways and means of making possible a satisfactory solution to these industrial employment problems that are in many respects peculiar to Massachusetts.

APPENDIX

Composition of the Various Classes of Manufacturing Activity in Massachusetts and in the United States as Measured by Number of Wage Earners in 1929

Classification	Wage Earners		Classification	Wage Earners	
	Massachusetts	United States		Massachusetts	United States
Leather Goods			Iron and Steel Products—Continued		
Boots and shoes, other than rubber	55,093	205,640	Forgings, iron and steel, not made in steel works or rolling mills	2,146	20,882
Leather, tanned, curried, and finished	10,707	49,932	Screw machine products and wood screws	1,768*	19,881
Trunks, suitcases and bags	485	11,359	Cast iron pipe and fittings	*	19,741
Pocket-books, purses, and card-cases	696	10,430	Tools, not including edge tools, machine tools, files, or saws	2,860*	19,305
Boot and shoe findings, not made in shoe factories	4,844	10,376	Typewriters and parts	*	16,945
Boot and shoe cut stock, not made in shoe factories	2,814*	9,499	Cash registers, adders, calculators, and tabulators	*	16,840
Gloves and mittens, leather	*	9,203	Bolts, nuts, washers, and rivets, not made in plants connected with rolling mills	1,377	16,175
Leather goods, not elsewhere classified	459	6,035	Cutlery and edge tools (not including silver and plated cutlery)	3,467	14,991
Saddlery and harness	46	3,339	Wrought pipe, welded and heavy riveted, not made in rolling mills	*	11,417
Belting and packing, leather	433	2,602	Sewing machines and attachments	586	10,467
Lasts and related products	728	1,760	Metal doors, shutters, sash, frames, molding, and trim	302	9,557
Total	76,305	320,175	Washing machines, wringers, and ironing machines, household	*	8,189
Cotton Goods			Firearms	1,692*	6,838
Cotton goods	70,788	424,916	Meters, gas and water and gas generators	*	6,101
Cotton smallwares	2,924	15,281	Springs, steel, except wire not made in rolling mills	21	5,842
Bags, other than paper, not made in textile mills	74	11,828	Saws	627	4,137
Awnings, tents, sails, and canvas covers	308	7,162	Scales and balances	*	4,118
Total	74,094	459,187	Steel barrels, kegs, and drums	*	4,110
Iron and Steel Products			Files	*	3,974
Foundry and machine shop products, n.e.c.	21,243*	454,441	Nails, spikes, etc., not made in rolling mills or wire works	780	2,027
Steel works and rolling mill products	*	394,574	Galvanizing and coating, not done in rolling mills	46	1,125
Structural and ornamental metal, not made in rolling mills	1,377	54,947	Foundry supplies	*	853
Hardware, n.e.c.	775	52,306	Iron and steel, processed or welded	25	511
Stoves and ranges (other than electric), and warm air furnaces	2,033	46,616	Textile machinery and parts	10,597	27,019
Stamped ware, enamelled ware, and metal stampings	1,409	40,000	Total	63,049	1,462,822
Steam and hot water heating apparatus and steam fittings	2,879	39,621	Woolen Goods		
Tin cans, n.e.c.	605	31,497	Worsted goods	29,962	88,485
Plumbers' supplies, not including pipe or vitreous china	629	27,960	Woolen goods	15,711	58,474
Blast furnace products	*	24,960	Wool shoddy	503	1,762
Wire drawn from purchased rods	4,178	22,467	Wool scouring	635	1,302
Wire work, n.e.c.	1,627	22,388	Woolpulling	*	596
			Horse-blankets, nets, and related products	*	582
			Total	46,811	151,201

*Not reported.
n.e.c. Not elsewhere classified.

Classification	Wage Earners	
	Massachusetts	United States
Other Textiles		
Knit goods	8,817	208,488
Silk and rayon goods	7,390	130,467
Dyeing and finishing textiles	14,450	79,327
Carpets and rugs, wool	4,297	32,623
House furnishing goods, n.e.c., and miscellaneous textile articles	1,703	15,794
Cordage and twine	1,882	14,489
Asbestos products, other than steam packing and boiler covering	*	8,092
Trimmings (not made in textile mills) and stamped art goods for embroidering	112	7,934
Lace goods	*	6,854
Embroideries	45	6,622
Linoleum	*	5,544
Felt goods	863	5,540
Jute goods	**	4,931
Waste processed	469	3,905
Artificial leather	318	2,590
Asphalted base floor covering	*	2,345
Linen goods	880	2,195
Regalia	79	1,757
Carpets and rugs, rag	76	1,529
Oil cloth	*	1,412
Upholstering materials, n.e.c.	*	1,410
Flags and banners	*	938
Cloth sponging and refinishing	41	902
Mats and matting, grass, and coir	*	467
Hair cloth	*	450
Belting, other than leather or rubber, not made in textile mills	*	255
Flax and hemp	*	47
Total	41,422	546,907

Electrical Machinery		
Electrical machinery, apparatus and supplies	28,844	328,722
Elevators and elevator equipment		
Lighting equipment, electric and gas, lamps and reflectors	493	23,580
Total	29,337	352,302

Food		
Bread and other bakery products	10,413	200,841
Meat packing, wholesale	2,594	122,505
Canned and dried fruits and vegetables, preserves, jellies, fruit butters, pickles, and sauces	518	98,866
Confectionery	7,471	63,501
Manufactured ice	288	32,184
Beverages, non-alcoholic	1,304	28,281
Flour and other grain mill products	65	27,028
Ice cream	975	22,399
Butter	14	19,097
Sugar-beet or cane (refining only—no growing)	*	13,912
Canning and preserving: fish, crabs, shrimps, oysters, and clams	907	13,612

*Not reported.
**Reported with felt.
n.e.c. Not elsewhere classified.

Classification	Wage Earners	
	Massachusetts	United States
Food—Continued		
Food preparations, n.e.c.	488	10,616
Feeds, prepared for animals and fowl	157	10,223
Sugar	*	9,815
Coffee and spices, roasting and grinding	467	9,053
Peanuts	*	7,933
Poultry killing, dressing and packing, wholesale	*	7,760
Condensed and evaporated milk	30	7,065
Corn syrup, corn sugar, corn oil, and starch	*	6,730
Cereal preparations	*	6,488
Chocolate and cocoa products, not including confectionery	899	6,249
Sausage, meat puddings, headcheese, etc., and sausage casings, not made in meat packing establishments	485	5,897
Macaroni, spaghetti, Vermicelli, and noodles	192	5,072
Flavoring extracts and flavoring syrups	153	5,041
Cheese	*	3,401
Baking powder, yeast, and other leavening compounds	*	3,006
Shortenings (other than lard) vegetable cooking oils and salad oils	*	2,712
Chewing gum	*	2,265
Rice cleaning and polishing	*	1,589
Oleomargarine, not made in meat packing establishments	*	1,534
Liquors, distilled and ethyl alcohol	*	1,484
Vinegar and cider	66	979
Malt	*	590
Liquors, vinous	*	186
Total	27,486	757,923

Paper and Allied Products		
Paper	12,138	103,320
Boxes, paper, n.e.c.	5,349	55,654
Pulp, wood and other fiber	223	24,729
Paper goods, n.e.c.	4,053	20,227
Stationery goods, n.e.c.	2,331	11,078
Envelopes	2,211	10,367
Bags, paper, exclusive of those made in paper mills	193	6,970
Wall paper	*	4,705
Pulp goods and molded composition products	*	3,558
Card-cutting and designing	232	2,338
Card board, not made in paper mills	*	609
Total	26,730	243,555

Heavy Machinery		
Railroad repair shops, steam	4,144	368,681
Motor vehicles, not including motorcycles	*	226,116
Motor vehicle bodies and parts	3,393	221,332
Engines, turbines, tractors, waterwheels, and windmills	221	62,702
Ship and boat building, steel and wooden, including repairs	3,635	55,089
Machine tools	3,361	47,391
Agricultural implements	*	41,663
Cars, electric and steam railroad, not made in repair shops	*	40,015

Classification	Wage Earners	
	Massachusetts	United States

Heavy Machinery—Continued

Railroad repair shops, electric	1,094	29,475
Machine tool accessories	3,239	26,682
Pumps, hand and power, and pumping equipment	2,558	23,106
Aircraft and parts	*	14,710
Locomotives, other than electric, not made in repair shops	*	11,045
Motorcycles, bicycles, and parts	1,206	4,392
Safes and vaults	*	3,033
Total	22,851	1,175,432

Printing, Publishing, and Engraving

Printing and publishing, book and job	9,341	150,649
Printing and publishing, newspaper and periodical	5,775	129,660
Bookbinding and blankbook making	2,645	24,754
Signs and advertising novelties	359	20,000
Lithographing	1,052	18,979
Photo-engraving, not done in printing establishments	679	12,353
Engraving, steel, copperplate, and plate printing	769	10,130
Stereotyping and electrotyping, not done in printing establishments	362	6,487
Labels and tags	60	4,474
Engraving (other than steel, copperplate, or wood) chasing, etching and die-sinking	329	2,240
Printers' supplies	41	1,004
Printing and publishing, music	82	810
Type founding	*	467
Engravers' materials	*	313
Engraving, wood	†	142
Total	21,494	382,462

Rubber Goods

Rubber tires and tubes	9,764	83,263
Rubber belting and hose	*	*
Rubber boots and shoes	11,163	25,659
Rubber goods, n.e.c.	†	40,226
Total	20,927	149,148

Furniture and Finished Lumber

Lumber and timber products, n.e.c.	1,016	419,084
Furniture, including store and office fixtures	8,598	193,399
Planing mill products, including general millwork	2,011	90,134
Boxes, wooden, except cigar boxes	1,797	39,554
Refrigerators	181	26,667
Wood turned and shaped and other wooden goods, n.e.c.	833	18,712
Mattresses and bed springs, n.e.c.	671	17,187

*Not reported.
†Included in steel and copper.
‡Reported with tires and tubes.
n.e.c. Not elsewhere classified.

Classification	Wage Earners	
	Massachusetts	United States

Furniture and Finished Lumber—Continued

Musical instruments, organs and pianos	1,356	15,440
Radios and phonographs	343	14,416
Caskets, coffins, burial cases, and other morticians' goods	418	13,033
Cooperage	483	10,691
Baskets and rattan and willow ware, not including furniture	131	9,353
Wall plaster, wall board, and floor composition	*	7,462
Carriages and sleds, children's	1,436	7,102
Mirrors and other glass products made of purchased glass	97	4,782
Window shades and fixtures	151	4,708
Mirror and picture frames	165	4,446
Boxes, cigar, wooden	*	4,374
Window and door screens and weather strips	173	4,034
Cork products	*	3,842
Carriages, sleds, wagons, and sleighs	*	3,554
Excelsior	*	1,241
Total	19,860	904,224

Clothing

Clothing, women's, n.e.c.	6,874	187,500
Clothing (except work clothing), men's, youths', and boys', n.e.c.	5,551	149,868
Shirts and nightwear, men's	1,277	59,830
Clothing, work (including sheep-lined and blanket-lined coats but not including shirts), men's	749	38,201
Millinery	1,307	32,206
Furnishing goods, men's, n.e.c.	1,321	26,588
Hats, fur felt	241	16,539
Fur goods	228	15,752
Corsets and allied garments	706	13,664
Gloves and mittens, cloth or cloth and leather combined made from purchased fabrics	*	9,279
Handkerchiefs	*	6,014
Hats and caps, except felt and straw, men's	220	5,826
Furs, dressed and dyed	*	5,167
Suspenders, garters, and other elastic woven goods, made from purchased webbing	644	4,341
Hats, straw, men's	*	3,380
Collars, men's	*	2,952
Hat and cap materials, men's	*	2,564
Hats, wool felt	*	2,028
Clothing, men's, buttonholes	*	292
Total	19,118	581,991

Chemicals

Petroleum refining	1,071	80,596
Chemicals, n.e.c.	2,936	62,109
Gas, manufactured	4,006	43,065
Turpentine and rosin	*	40,157
Rayon manufacture	*	39,106
Paints and varnishes	789	29,211
Fertilizers	387	20,926
Coke	*	20,552
Patent medicines	1,564	16,434

Classification	Wage Earners	
	Massachusetts	United States

Chemicals—Continued

Oil, cake and meal, cottonseed	*	15,825
Soap	*	14,363
Perfumes, cosmetics, and toilet preparations	106	13,109
Wood preserving	63	13,077
Druggists' preparations	104	10,688
Lime	317	8,554
Ammunition and related products	*	7,223
Explosives	*	5,614
Grease and tallow	624	5,475
Salt	*	5,458
Wood distillation and charcoal manufacturing	*	4,648
Compressed and liquefied gases	108	3,390
Glue and gelatin	729	2,993
Cleaning and polishing preparations	115	2,713
Oil, cake and meal, linseed	*	2,715
Lubricating oils, greases (not made in refineries)	*	2,577
Mucilage, paste, etc. (not including glue or rubber cement)	27	414
Ink, printing	*	2,448
Tanning materials, natural dyestuffs, mordants, sizes, etc.	200	2,419
Bone black, carbon black, and lampblack	*	1,915
Fireworks	*	1,811
Blackings, stains, and dressings	381	1,617
Oils, n.e.c.	39	1,234
Candles	*	781
Drug grinding	*	677
Combs and hairpins (not made of metal or rubber)	531	656
Fuel	*	426
Ink, writing	*	416
Oils, essential	*	265
Bluing	*	105
Total	14,187	485,852

Jewelry, Clocks, Watches, Silverware, etc.

Jewelry	5,422	27,922
Clocks, watches, recording devices and materials, and parts (not including watch cases)	485	21,450
Instruments, professional and scientific, and gauges (except machinists' gauges)	671	16,876
Silverware and plated ware	2,697	15,735
Pens, fountain and stylographic, pen points (gold, steel, and brass)	227	4,600
Watch cases	*	3,404
Jewelry and instrument cases	496	2,269
Gold leaf and foil	133	1,177
Gold, silver, and platinum refining and alloying	18	931
Lapidary work	*	506
Total	10,252	94,870

Non-Ferrous Metals

Non-ferrous metals, alloys, etc.	1,861	79,183
Copper, tin, sheet iron work	1,316	28,593

*Not reported.
 ||Reported with smelting, other.
 n.e.c. Not elsewhere classified.

Classification	Wage Earners	
	Massachusetts	United States

Non-Ferrous Metals—Continued

Aluminum products	112	21,210
Smelting and refining, copper	||	14,544
Smelting and refining, zinc	||	11,618
Needles, pins, hooks and eyes, and snap fasteners	*	6,242
Electroplating	391	5,928
Smelting and refining, lead	||	4,819
Smelting and refining, other	64	4,134
Musical instruments and parts, n.e.c.	206	3,176
Collapsible tubes	*	1,821
Tin and other foils, not including gold and silver	*	1,710
Fire extinguishers	*	740
Total	3,950	183,718

Other Manufacturing Industries

Cigars and cigarettes	1,169	105,308
Clay products (other than potters) and non-clay refractories	676	93,336
Glass	171	67,527
Marble, granites, slates, and other stone products	2,064	37,817
Pottery, including porcelain ware	*	35,409
Cement	*	33,368
Fancy miscellaneous articles	2,102	18,722
Toys	1,714	16,660
Concrete products	673	16,505
Photographic apparatus and materials, and projection apparatus	*	12,967
Tobacco, chewing and smoking, snuff	*	10,811
Sporting and athletic goods	1,778	10,793
Motion pictures	*	10,784
Optical goods	*	9,701
Buttons	41	9,034
Surgical and orthopedic appliances and related products	*	7,910
Brushes other than rubber	1,002	7,261
Models and patterns, not including paper patterns	550	6,778
Glass products except mirrors	*	6,029
Roofing, built-up and roll; asphalt shingles; roof coatings, other than paint	*	6,027
Pencils, lead (including mechanical)	*	5,703
Dairymen supplies	*	5,450
Dentists' supplies and equipment except instruments	90	4,559
Brooms	41	4,542
Emery and abrasive wheels	*	3,873
Matches	*	3,760
Artificial and preserved flowers and plants	*	3,216
Hand stamps, stencils, and brands	133	2,971
Umbrellas, parasols, and canes	109	2,855
Soda fountains and accessories apparatus	*	2,764
Paving materials, blocks (except brick, stone, and mixtures)	113	2,375
Statuary and art goods (except concrete, factory production)	117	2,112
Pipes (tobacco)	*	1,680
Mineral and earths, ground or otherwise treated	72	1,679
Carbon paper and inked ribbon	*	1,251
Sand paper, emery	*	1,228

Classification	Wage Earners	
	Massachusetts	United States

Other Manufacturing Industries—Continued

Artists' materials	*	1,167
Nets (fish), seines	*	903
Sand-lime brick	*	566
Theatrical scenery and stage equipment	*	547
Graphite, ground and refined	*	494
Ivory, shell and bone work	*	391
Hair work	22	359
Crucibles	*	321

*Not reported.

Classification	Wage Earners	
	Massachusetts	United States

Other Manufacturing Industries—Continued

China firing and decorating, not done in potteries	*	317
Feathers, plumes, and manufactures thereof	*	257
Hones, whetstones	*	174
Whips	*	57
Billiard tables	33	1,390
Steam and other packing	151	7,266
All other industries	26,800	*
Total	39,621	586,974

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