

WORKS PROGRESS ADMINISTRATION

HARRY L. HOPKINS
Administrator

CORRINGTON GILL
Assistant Administrator

NATIONAL RESEARCH PROJECT

on

Reemployment Opportunities and Recent Changes
in Industrial Techniques

DAVID WEINTRAUB
Director

IRVING KAPLAN
Associate Director

In cooperation with

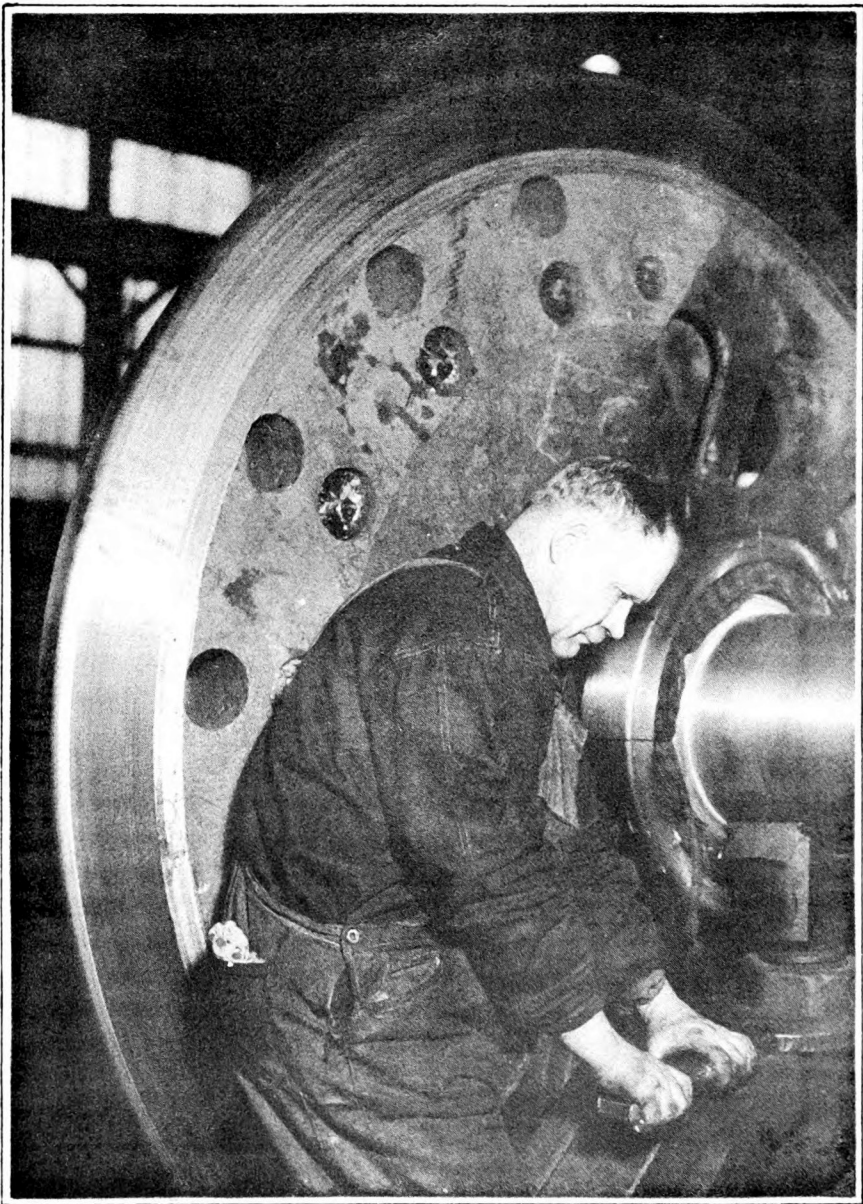
**INDUSTRIAL RESEARCH DEPARTMENT
WHARTON SCHOOL OF FINANCE AND COMMERCE
UNIVERSITY OF PENNSYLVANIA**

JOSEPH WILLITS
Director

ANNE BEZANSON
Director

Philadelphia Labor Market Studies

Gladys L. Palmer, Economist in Charge



WPA - National Research Project (*Hine*)

MACHINIST FINISHING AXLE OF LARGE DRIVING WHEEL
FOR NEW TYPE OF LOCOMOTIVE

**TEN YEARS OF WORK EXPERIENCE OF
PHILADELPHIA MACHINISTS**

by

Helen Herrmann

WORKS PROGRESS ADMINISTRATION, NATIONAL RESEARCH PROJECT
In cooperation with
INDUSTRIAL RESEARCH DEPARTMENT, UNIVERSITY OF PENNSYLVANIA

Report No. P-5

Philadelphia, Pennsylvania

September 1938

PHILADELPHIA LABOR MARKET STUDIES

Members of Staff Who Worked on This Study

GLADYS L. PALMER, Research Associate, Industrial Research Department, University of Pennsylvania; Consultant, National Research Project, directing studies of this section

JANET H. LEWIS, Statistician

HELEN L. KLOPPER, Associate Economist

MURRAY P. PFEFFERMAN, Associate Statistician

MARGARET W. BELL, Assistant Statistician

VIRGINIA F. SHRYOCK, Chief Statistical Clerk

HELEN HERRMANN, Research Economist in charge of field work for Schedule #20

WORKS PROGRESS ADMINISTRATION

WALKER-JOHNSON BUILDING
1734 NEW YORK AVENUE NW.
WASHINGTON, D. C.

HARRY L. HOPKINS
ADMINISTRATOR

September 14, 1938

Hon. Harry L. Hopkins
Works Progress Administrator

Sir:

There is transmitted herewith a report on 10 years of work experience of machinists, millwrights, and tool makers who were either working or seeking work in Philadelphia in May 1936. The report analyzes in detail their employment and unemployment histories between 1925 and 1936.

As the production of Philadelphia's industries mounted after 1933, machinists who had been out of work were reemployed in substantial numbers. By 1935 and 1936 there were frequent reports of a labor shortage in the occupation. Yet in May 1936 one out of every eight machinists was found to be unemployed, and another was working at some other occupation, most often at less skilled work. More than half of the unemployed had been without a job for at least a year. Since there were some unemployed among those customarily attached to each of the industries employing machinists, the labor shortage, if it existed, must have been restricted to highly specialized jobs.

The age of machinists was significantly related to their employment status and to their chances for reemployment. Compared with other industrial workers, the machinists were relatively old (45 years of age) and had had long years ($22\frac{1}{2}$) of experience at their trade. Half of them reported no unemployment lasting 1 month or more in the 10-year period 1926-35. This half was somewhat older than the average. On the other hand, those who were unemployed in May 1936 were also older than the average. Thus, although advanced years may be no bar

to retaining a job as machinist, once an older man becomes unemployed, he has less chance than a younger worker of being hired to fill the next job opening.

The report, *Ten Years of Work Experience of Philadelphia Machinists*, was prepared by Helen Herrmann under the supervision of Gladys L. Palmer. This is one of the series of reports on the "Philadelphia Labor Market Studies" conducted jointly by the National Research Project on Reemployment Opportunities and Recent Changes in Industrial Techniques and the Industrial Research Department of the University of Pennsylvania.

Respectfully yours,

A handwritten signature in cursive script that reads "Corrington Gill". The signature is written in black ink and is centered on the page.

Corrington Gill
Assistant Administrator

C O N T E N T S

Section	Page
PREFACE.	xiii
I. INTRODUCTION	1
Purpose of study	1
Place of machinists in Philadelphia's industries	2
Method of conducting the study	6
Method of analysis	10
II. OCCUPATIONAL CHARACTERISTICS OF THE MEN STUDIED. .	12
Age.	12
Nativity	12
Schooling.	13
Entrance into the labor market	14
The first job.	15
Apprenticeship	17
Industrial group of customary attachment	20
Longest job and usual occupation	22
Employment status in May 1936.	25
Summary.	26
III. UNEMPLOYMENT, 1926-35.	29
Employment experience of industrial groups . . .	29
Incidence of unemployment.	33
Characteristics of the men who experienced unemployment between 1926 and 1935.	34
Part-time employment	39
Number and length of unemployment periods. . . .	39
Characteristics of the men who were unemployed in May 1936	42
Reemployment by May 1937 of workers unemployed in May 1936	45
Characteristics of workers who had no unemploy- ment between 1926 and 1935.	46
Summary.	49
IV. WORK EXPERIENCE, 1926-35	51
Division of time between work at the usual occupation and at other occupations	51
Division of time between work in the usual industry and in other industries.	56
Job separations.	58
Shifts of employers, occupations, and industries	60
Summary.	64
V. SUMMARY AND CONCLUSIONS.	67
Summary.	67
Conclusions.	72

Appendix	Page
A. TABLES	75
B. SCHEDULE AND DEFINITIONS OF TERMS USED	125
Schedule	126
Definitions of terms used.	127

CHARTS AND ILLUSTRATIONS

Figure

Machinist finishing axle of large driving wheel for new type of locomotive	<i>Frontispiece</i>
1. Machinist milling down part of a drive shaft for a locomotive	5
2. Age distribution of machinists and of all employable men in Philadelphia, May 1936.	12
3. Turret-lathe operator setting machine.	16
4. Industrial group of usual employment and of present or last job.	20
5. Employment status, January 1926-December 1935, by usual industrial group	30
6. Percentage distribution of man-months of specified types of employment experience, 1926-35, by usual industrial group	32
7. Employment history of individual machinists in four industrial groups who reported unemployment, January 1926-December 1935	34
8. Employment history of individual machinists unemployed in May 1936, January 1926-December 1935	36
9. Average number of months of specified types of employment experience, 1926-35, by age in May 1936	39
10. Socioeconomic character of employment at occupations other than the usual, 1926-35, by age in May 1936	54
11. Percentage distribution of machinists by type and frequency of separations, 1926-35.	61
12. Tool builder planing for a taper shoe on steam hammer ram	68

TEXT TABLES

Table

1. Occupational group of first job of machinists.	15
2. Number of years in the labor market.	24
3. Frequency and duration of unemployment experience for workers reporting unemployment, 1926-35, by industrial group	41

CONTENTS

ix

TEXT TABLES-*Continued*

Table	Page
4. Employment status in May 1937 of machinists unemployed in May 1936	45
5. Occupational distribution of workers who reported no unemployment in the 10-year period 1926-35	48
6. Number of periods of work at occupations other than the usual, 1926-35, by employment status preceding these periods and by socioeconomic character of the occupations.	55
7. Number of job separations, 1926-35, by employment status in May 1936, age, and type of shift	62
8. Number of job separations, 1926-35, by usual industrial group and type of shift	63

APPENDIX TABLES

Table	
A-1. Wage earners in the metal industries of the Philadelphia industrial area, 1929.	76
A-2. Employment status in May 1936 by age.	76
A-3. Nativity by age	77
A-4. Number of years of continuous residence in Philadelphia, by nativity and employment status in May 1936	77
A-5. School grade completed by age and employment status in May 1936.	78
A-6. Age of beginning work by age and employment status in May 1936	79
A-7. Year of entering the labor market by age and employment status in May 1936	80
A-8. Apprenticeship by age and employment status in May 1936.	81
A-9. Length of apprenticeship by number of months unemployed, 1926-35	82
A-10. Apprenticeship by usual industrial group.	82
A-11. Usual industry of workers	83
A-12. Usual industrial group by age and employment status in May 1936.	84
A-13. Industrial group of present or last job by age and employment status in May 1936	85
A-14. Length of service on longest job by age and employment status in May 1936	86

CONTENTS

APPENDIX TABLES-*Continued*

Table	Page
A-15. Occupation of longest job by the usual occupation.	87
A-16. Number of years employed at usual occupation by age and employment status in May 1936	88
A-17. Number of years employed at usual occupation by usual industrial group and age.	89
A-18. Occupation of last job by usual occupation, for machinists employed in May 1936	90
A-19. Employment status by months, 1926-35, for 284 machinists whose usual industrial group was the manufacture of machinery, machine tools, and electrical goods.	94
A-20. Employment status by months, 1926-35, for 158 machinists whose usual industrial group was the manufacture of transportation equipment	95
A-21. Employment status by months, 1926-35, for 94 machinists whose usual industrial group was the manufacture of metal products, including professional instruments.	96
A-22. Employment status by months, 1926-35, for 145 machinists whose usual industrial group was government agencies and public utilities and miscellaneous manufacturing and other industries	97
A-23. Number of months unemployed, 1926-35, by usual industrial group.	98
A-24. Total man-months of employment experience, 1926-35, by usual industrial group	99
A-25. Total number of months unemployed, 1926-35, by age and employment status in May 1936	99
A-26. Unemployment as a percentage of time in labor market, 1926-35, by age	100
A-27. Number of months employed part time, 1926-35, by age	101
A-28. Year of loss of last job at usual occupation by employment status in May 1936	102
A-29. Average number of months of specified types of employment experience, 1926-35, by age.	102
A-30. Average length of unemployment periods, 1926-30 and 1931-35, by age and employment status in May 1936	103
A-31. Average length of unemployment periods, 1926-30 and 1931-35, by usual industrial group.	104
A-32. Length of longest period of unemployment, 1926-35, by age and year of beginning longest period of unemployment.	105

CONTENTS

APPENDIX TABLES-Continued

Table	Page
A-33. Length of longest period of unemployment, 1926-35, by number of periods of unemployment.	105
A-34. Length of longest period of unemployment, 1926-35, by employment status in May 1936 and year of beginning longest period of unemployment.	106
A-35. Number of months since loss of last job for machinists unemployed in May 1936, by age	107
A-36. Length of service on longest job for machinists who reported no unemployment in the 10-year period 1926-35, by age	107
A-37. Number of months since loss of last job for machinists unemployed in May 1936, by usual industrial group.	108
A-38. Usual industrial group for machinists who reported no unemployment in the 10-year period 1926-35, by age.	108
A-39. Number of months employed at occupations other than the usual, 1926-30 and 1931-35, by age.	109
A-40. Frequency of employer separations from jobs at usual and other occupations, 1926-35, by age.	110
A-41. Number of months employed at usual occupation, 1926-30 and 1931-35, by age	111
A-42. Average length of service on each job at usual occupation for all machinists and for those who reported no unemployment in the 10-year period 1926-35, by age	112
A-43. Number of months employed at usual occupation, by age, 1926-30 and 1931-35, for machinists who reported no unemployment in the 10-year period 1926-35	113
A-44. Number of months employed at occupations other than the usual, by age, 1926-30 and 1931-35, for machinists who reported no unemployment in the 10-year period 1926-35.	114
A-45. Socioeconomic character of man-months of employment at occupations other than the usual, 1926-35, by age.	115
A-46. Socioeconomic character of man-months of employment at occupations other than the usual, 1926-35, by age, for machinists who reported no unemployment in the 10-year period 1926-35	115
A-47. Frequency of job separations, 1926-30 and 1931-35, by age and employment status in May 1936.	116

APPENDIX TABLES-*Continued*

Table	Page
A-48. Frequency of job separations, 1926-30 and 1931-35, by usual industrial group	117
A-49. Frequency of job separations and employer, industrial, and occupational shifts for machinists who reported no unemployment in the 10-year period 1926-35, by age	118
A-50. Frequency of employer shifts, 1926-30 and 1931-35, by usual industrial group	119
A-51. Frequency of industrial shifts, 1926-30 and 1931-35, by usual industrial group	120
A-52. Frequency of occupational shifts, 1926-30 and 1931-35, by usual industrial group.	121
A-53. Number of job separations for machinists 30-44 years of age, by employment status in May 1936, usual industrial group, and type of shift, 1926-35. . .	122
A-54. Number of job separations for machinists reporting no unemployment in the 10-year period 1926-35, by age and type of shift	123

PREFACE

It has commonly been assumed that the machinist, a highly skilled workman, is in a preferred position in the labor market. His skill is required not only in the industries which build the wide range of mechanical equipment needed in factories and mines and on railroads, highways, and farms, but also - for repairing and maintaining this equipment - in the industries which use it. It has therefore been contended that a machinist can usually find a job in another industry if employment conditions in the industry in which he has been working are unfavorable. This study of the 10-year work experience of 683 Philadelphia machinists (including millwrights and tool makers) throws some light on the machinist's position in the labor market.

The machinist's chances of employment are determined primarily by the industry in which he is usually employed rather than by his occupation. For instance, it was found that those customarily employed in the manufacture of transportation equipment were unemployed in much higher proportions than those attached to other industries. The transportation-equipment industries, which include locomotive and streetcar building, railroad equipment and repair shops, shipbuilding, and automobile and parts manufacture, were especially depressed after 1929 and in May 1936 had not recovered so much as had most other industries. Twelve percent of all machinists were unemployed in May 1936, but 20 percent of those attached to transportation-equipment manufacture were unemployed. More than half of these had been without a job for a year or more, and a fifth had been out of work for 4 years.

The rate of unemployment of these machinists in comparison with that of others suggests an important degree of immobility of machinists between industries in spite of the commonly supposed high rate of transferability of their skill. As compared, for instance, with the hand cigar maker, whose skills are useful in making only one type of product, the machinist has similar work in a wide variety of industries. Special experience is required for certain types of work, however, and the skill of the machinist is not entirely transferable.

Within given industries, the machinist's security of employment depends considerably on whether he is a production man or a maintenance man. It was found that machinists customarily employed

in the production of machinery and equipment of all sorts were unemployed in greater proportion in May 1936 than those who usually do maintenance work in other manufacturing industries or for government agencies or public utilities. Among machinists who reported having no unemployment of 1 month or more in duration within the 10-year period 1926-35, there were relatively more maintenance than production workers. Only a comparatively small proportion of machinists doing maintenance work for government agencies and for public utilities experienced unemployment, but among those who did a high proportion were unemployed for long periods.

In general, machinists as a group had less unemployment during the 10-year period 1926-35 than other groups of Philadelphia workers studied. Also, in May 1936, 12 percent of the machinists included in the sample were unemployed compared with 31 percent of all employable men in Philadelphia. In view of the fact that reports of a shortage of machinists were widely current in 1936, however, their rate of unemployment may be considered high.

High standards of selection, particularly with respect to age, and the limits of transferability of the machinist's skill from one industry to another were the primary determinants of the employment status of individual machinists in 1936. As the demand for experienced machinists became more pressing, many of those unemployed in May 1936 were found upon a checkup to have been reabsorbed. Also, the Philadelphia Survey of Employment and Unemployment found a much lower rate of unemployment among machinists in May 1937 than in May 1936.

The materials for this study were obtained by interviewing machinists in their homes. We are deeply appreciative of the cooperation of the men whose work histories the report analyzes. The assistance of local trade-association and plant executives and local trade-union officials who were consulted from time to time is also gratefully acknowledged.

DAVID WEINTRAUB

IRVING KAPLAN

PHILADELPHIA

July 22, 1938

SECTION I

INTRODUCTION

PURPOSE OF STUDY

The group of occupations including machinists, tool makers, and millwrights is relatively standardized. Although there are gradations of skill within it, training requirements for each occupation are definite and usually have as a minimum a 4-year apprenticeship as machinist. The group is important among skilled trades because of the number of workers involved. In the Philadelphia labor market the group is particularly important. Of the 10 largest cities in the United States in 1930, only Detroit and Cleveland reported a larger proportion of skilled workers classified as machinists, tool makers, and millwrights.¹

With increasing business activity during 1935 to 1937, a shortage of workers in this group of skilled occupations had been announced in many quarters. It is not the function of this study to determine whether such a shortage existed. The purpose is to examine the employment experience of the available labor supply in Philadelphia at a time when a shortage was claimed for this and other areas.² This examination requires an analysis of the relationship of age and other employment qualifications to the extent of unemployment experienced by individual workers, and the character of the industrial and occupational shifts they made over a period of years. Since machinists, tool makers, and millwrights are employed in many industries and their skill is considered to be transferable in high degree, the character of their work experience in relation to the volume of unemployment in the major industries in which they work becomes important. This is, therefore, a study of the labor market of an allied

¹Figures for machinists, millwrights, and tool makers are obtained from *Fifteenth Census of the United States: 1930*, "Population" (U. S. Dept. Com., Bur. Census, 1933), Vol. IV, table 4, p. 1385. Figures for total skilled workers by cities are obtained from a socioeconomic grouping of occupations computed from the United States Census and supplied by the National Resources Committee. In 1930 the census notes 20,432 machinists, millwrights, and tool makers in Philadelphia. For purposes of comparison, it is well to remember that in 1920, 30,465 workers were reported in these occupations [*Fourteenth Census of the United States: 1920*, "Population: 1920" (U. S. Dept. Com., Bur. Census, 1923), Vol. IV, p. 1193] and in 1910, 19,771 [*Thirteenth Census of the United States: 1910*, "Population" (U. S. Dept. Com., Bur. Census, 1914), Vol. IV, p. 184].

²National Industrial Conference Board, *Wanted: Skilled Labor* (New York: NICB, Study No. 216, June 1935).

group of skilled occupations which cross industry lines in a diversified metropolitan area in a period of alleged labor shortage.

PLACE OF MACHINISTS IN PHILADELPHIA'S INDUSTRIES

Machinists, tool makers, and millwrights³ find their chief employment in the metal-working industries. The importance of these industries in the Philadelphia industrial area and in the city itself can be judged from the detailed list of industries and the average number of wage earners in each in 1929, as presented in table A-1.⁴ The products of the metal industries vary from heavy locomotives and turbines to hooks and eyes and pen points.

Work in the selected occupations, however, is not confined to industries producing metal goods. Wherever machinery is found, there must be people to keep it in order. Philadelphia is a city of diversified industries, many of them using delicate and expensive machinery. Consequently, many machinists and millwrights are employed on maintenance work, not only in the city's factories but also in nonmanufacturing establishments. Men who do maintenance work, in the opinion of one official of the Machinists' Union, are among the most highly skilled and all-round men in the trade. They must be prepared to work on a variety of machines and to use their ingenuity at any time.

During the period of the World War the metal industries of Philadelphia underwent great expansion. New plants were established and existing ones were enlarged. In still other cases

³The machinist's work has to do in the main with giving a special shape, size, or finish to metal machine parts, and with assembling, testing, erecting, and repairing machinery. It involves a wide range of operations, most of which are performed with machine tools, that is, machines of various types fitted with tools made of special steels hardened sufficiently to cut metals. The shapes and sizes of these cutting tools vary according to the nature of the work to be performed.

"Tool and die making, which are subdivisions of the trade, call for a high degree of skill and an extensive practical knowledge of the working properties of iron and steel. The men who do this work must have a general knowledge of the machinist's trade, but in addition they require a considerable amount of special knowledge and skill relating to the designing, shaping, and sharpening of tools. The all-round machinist must know how to use all the machine tools of the trade, but usually he does not possess the special training and experience required in tool making." Quoted from R. R. Lutz, *The Metal Trades* (Cleveland, Ohio: The Survey Committee of the Cleveland Foundation, 1916), p. 14.

"The machine tool millwright's duties consist of installing general machinery or machine tools in any shop, plant, or factory." Quoted from *Metal-working, building and general construction, railroad transportation and shipbuilding*, "Descriptions of Occupations" (U. S. Dept. Labor, Bur. Labor Statistics, 1918), p. 46.

⁴Since in some cases machinists living in the city work outside the city limits, in such plants as the Baldwin Locomotive Works in Eddystone, figures have been presented for the Philadelphia industrial area.

plants were converted from other uses to the manufacture of munitions and various metal products used in war. This activity so increased the demand for skilled metal workers that in the 1920 *Census of Population* one and one-half times as many individuals in Philadelphia reported themselves as machinists as had done so in 1910.⁵ After the war the demand for machinists declined with the result that the occupation was a surplus one. By 1930 the number of machinists had fallen almost to the 1910 level. This post-war decline in the employment opportunity for machinists has affected the more recent employment experience of this group and is important to bear in mind in the following analysis.

The shrinkage in the supply may have gone too far, for, with the first evidence of renewed business activity after the depression of 1929-33, complaints arose⁶ of a lack of machinists. The evidence of such a shrinkage has increased, until in the spring of 1937 the Regents' inquiry on education in the State of New York reported that apprentice training was needed to enlarge the supply of skilled craftsmen, particularly machinists.⁷

It is an open question whether the employment of skilled workers such as machinists in the metal industries in Philadelphia has increased or declined as a result of recent changes in methods of production. It is said, however, that the kinds of skills needed have changed. An example of such change was brought out in a job analysis of manufacturing plants in another city. There it was found that the proportion of factory operations in which the machine set-ups were complicated had increased from 25 percent to 27 percent between 1931 and 1936. Of these, however, 25 percent, as against 11 percent in 1931, were handled by experienced set-up men. It was specifically mentioned that a number of the operations in which the machine set-up is complicated are found in the metal-working industries. In connection with the use of machinery the author of that study says: "The ever-growing use of automatic machinery has been an important factor in producing the far reaching changes that have taken place in our whole industrial system. . . . it has greatly increased the proportion

⁵See footnote 1 for the number of machinists in Philadelphia in each census year, 1910-30.

⁶NICB. *Wanted: Skilled Labor*.

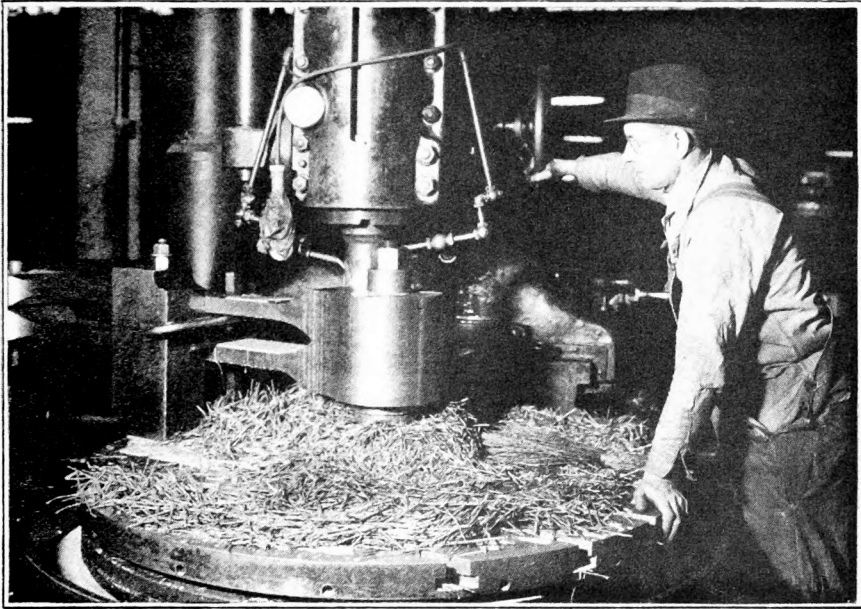
⁷Apprentice Training Council of the Regents of the University of the State of New York, *Apprenticeship and the Need for Apprenticeship Training* (Albany: University of the State of New York Press, 1937).

of workers in the semiskilled classes. . . . It has also favored the growth of a small group of skilled workmen called 'machine setters.' . . . To 'set-up' automatic machinery, however, skill on the part of the workman will always be necessary."⁸

It is possible that the kind of work demanded of machinists in Philadelphia may have undergone alteration, even though the proportion of machinists to total individuals employed in an industry may have remained the same. The character of the metal industries here is changing. The manufacture of large and heavy goods such as, for instance, locomotives is becoming less important. In addition, some of the manufacturing processes are now performed outside the locomotive factory in an electrical-goods plant. Another example of change is found in the manufacture of heavy engineering machinery. Some of the plants in this industry have moved from the city. Although both these industries were active during the time at which the study was made, they were less important to the life of the city and its surrounding areas than they had been formerly. The work in industries making heavy products is not so fine or exacting as the work in certain other industries that have grown in relative importance during the decline of these industries. Consequently, workers from the heavy industries, though they are first class in their own line, may not be hired by metal firms doing precision work.

Other evidence concerning employment trends in the metal industries of importance in Philadelphia indicates that although employment had begun to rise early in 1933, by the end of 1935 it had not risen above 1926 levels. If it is assumed that changing technology has not affected the proportion of machinists needed in these industries, there was an increasing demand for machinists in 1935 and, if current comment was correct, a restricted supply. Withdrawals of machinists from the labor market have not been balanced by accessions. Men withdraw every year because of death, old age, and retirement. In addition, it is claimed that "many skilled machinists have withdrawn from factory work to set up small shops of their own, or to fill the demand for garage and other repair-shop mechanics. . . . Some found jobs

⁸Charles A. Koepke, A Second Job Analysis of Manufacturing Plants in Minnesota (Works Progress Administration, National Research Project in cooperation with Employment Stabilization Research Institute, University of Minnesota, report in preparation).



WPA - National Research Project (*Fine*)

FIGURE 1.- MACHINIST MILLING DOWN PART OF A DRIVE SHAFT
FOR A LOCOMOTIVE

where they could adapt their acquired skill to new tasks. Others went into new types of work or branched out for themselves as farmers, small store keepers, gasoline filling station proprietors and attendants, or delivery salesmen."⁹ On the other hand, it is also claimed that the supply of new workers has not been maintained by immigration or by apprenticeship and that, in consequence, there was a greater demand for competent machinists than could be met.¹⁰ According to one trade-association official, the shortage was reflected in the Philadelphia area in an increase in the hourly rate of pay, which was claimed to be 12 percent higher in 1937 than it had been in 1929, and in the fact that certain companies in the city were reviewing their old personnel records and calling back men of 60 years of age and over. A union official said that wage rates had shown little increase as a result of the claimed scarcity. The shortage in the early part of 1937, he thought, was being met by overtime,

⁹NICB, *Wanted: Skilled Labor*, pp. 3-4.

¹⁰"perhaps now for the first time the full impact of immigration restrictions is being felt. At one time thousands of skilled mechanics, particularly from England, Scotland, Germany and Sweden, annually replenished the forces of skilled labor." (*Ibid.*, p. 4.)

which, in certain shops, was paid double the usual rate, and by the use of machine operators wherever possible.

In such a situation, with demand stable or expanding, but changing in character, a study of the occupational characteristics and employment experience of workers who have had steady employment and of those who have had periods of no work may shed needed light on the incidence of unemployment within an occupation.

METHOD OF CONDUCTING THE STUDY

The sample consists of 683 skilled metal workers customarily attached to one of four occupations. The persons selected for study were located through the Philadelphia Survey of Employment and Unemployment made in May 1936.¹¹ A visit was made to all households with men whose usual occupation was that of machinist, tool or die maker, millwright, or apprentice to these occupations. An occupational history based on National Research Project Form #20¹² was sought from each of these workers in a personal interview.

Work-history data obtained through interviews with workers are not likely to be statistically correct in all respects. The most important of these are dates of separation from and accession to jobs and dates and amount of part-time and full-time employment. These, however, may be set against known facts concerning employment in the given occupation or industry and are thus, in some measure, subject to check and correction. On the other hand, the vital information that only the individual can give is his own work experience interpreted in the light of his years in the labor market and his own psychology. This information is contained in his testimony on the amount of employment and unemployment he has had and on the number of times he has changed employers or types of work in relation to his age, schooling, and training for work. The misdating of the information by a few months seemed far less important than the internal consistency of the facts.

The schedule covered a detailed history of employment and unemployment since January 1926, information concerning the first and the longest jobs, and the social and industrial characteristics of the worker. In addition the field staff made it clear

¹¹The Philadelphia Survey of Employment and Unemployment covers approximately 9 percent of the city's employable population and in May 1936 included about 45,000 households.

¹²For copy of schedule see appendix B.

that information of all kinds pertaining to the working life of the man interviewed would be welcome, and that, in particular, employment history preceding the year 1926 would add to the adequacy of interpretation of the material. The result of this request was that in four-fifths of the cases complete work histories beginning with the first job ever held were returned, together with some interesting narratives on early training, experience in finding jobs, and other items of importance in labor-market research.

After all inadequate schedules had been eliminated, the sample was found to consist of 545 machinists, 96 tool and die makers, 27 millwrights, and 15 apprentices to these occupations, or a total of 683. Apprentices were not included unless they were serving their time in May 1936. Machine operators were excluded except where the work histories showed the men to have had the training and apprenticeship of machinists at some time.¹³ The entire group of 683 will be referred to throughout the study as machinists, since the work done in every case requires the basic training that machinists receive, and since most of the men studied had spent a considerable portion of their working life at machinists' work. The group studied either were employed or had last been employed by 271 different firms in the Philadelphia industrial area.

The general basis for selection of the sample was work at the usual occupation in or after January 1926. Fifteen individuals were included who had spent much of their working life at their usual occupation, although since 1926 their employment as skilled metal workers was at occupations other than their usual one. The reasons for their inclusion were long service as machinists and the similarity between their usual occupations and the occupations to which they had shifted. Two men, for example, were machinists before 1926 and then became tool makers but still considered their usual occupation to be that of machinist. On the other hand, two tool makers had worked as machinists, but not as tool makers, since 1926. Five additional men who did

¹³Basis for exclusion was lack of apprenticeship combined with lack of time at all-round machinists' work. Since the study is theoretically confined to the 10 years 1926-35, it is possible that a machinist who had served a 4-year apprenticeship, served some years as machinist and spent the last 10 years as specialist on 1 machine would have been eliminated by these criteria. Actually, however, the large majority of schedules gave complete work histories, thus including supplementary material from which it could be judged whether or not the work done was that of a machinist. In the case of certain doubtful schedules the opinion of a specialist on occupations in the Philadelphia metal trades was sought.

not work at their usual occupation between 1926 and 1935 reported such work between January and May of 1936.

It is believed that the sample selected represents a cross section of machinists, tool makers, and millwrights in the Philadelphia labor market in May 1936. The Philadelphia Survey of Employment and Unemployment sample, from which this group has been selected on the basis of occupation, has been shown to be representative of all occupations in the city.¹⁴ The representativeness of this sample of machinists, tool makers, and millwrights has been tested by data from the United States *Census of Population* of 1930 and material from a study of applicants at the Philadelphia State Employment Office in 1935 and 1936. Comparisons between the sample and census and State Employment Office data will be outlined below.

It should, however, be kept in mind that while the sample is considered representative of the labor market for machinists in the spring of 1936, it is not necessarily a cross section of the machinists' labor market in years prior to 1936. It excludes all individuals who, though formerly workers at one of the selected occupations, have left the work so long ago that they no longer consider it their usual occupation. It is possible that there are vital differences between workers who stay at a given occupation and those who leave it. Since there is such a possibility, no attempt will be made to infer that the information on the employment status of the individuals in the study in any year prior to 1936 is typical for the occupation in that year, tempting as such a generalization might be.

In using figures from the Census of the United States as criteria of representativeness of the sample, allowance must be made for the fact that the word "machinist" is loosely used by members of households giving information to census enumerators. Consequently, census figures may overstate the number of machinists in the labor market at any given time.¹⁵ According to

¹⁴For further details concerning the original sampling procedure see J. F. Dewhurst and E. A. Tupper, *Social and Economic Character of Employment in Philadelphia, April, 1929*, "Employment and Unemployment Series" (U. S. Dept. Labor, Bur. Labor Statistics, Bull. No. 520, June 1930).

¹⁵The basis for this statement is a comparison of returns in the Philadelphia Survey of Employment and Unemployment with this study of machinists. Many individuals, whose families had reported them as "machinists" in the Philadelphia Survey, said themselves that they were helpers or semiskilled operatives. Any man who has anything to do with machinery is likely, in the eyes of his family, to be a machinist. A small number of individuals whose households returned them incorrectly in this way, were also classified as machinists in the *City Directory*. Since information is given to the *City Directory*, to the Philadelphia Survey, and to the United States Census in the same way, it seems probable that if one source overstates the number of machinists in the city, the others do also.

the 1930 census figures, which must, however, be regarded in the light of the above qualifications, the sample studied in 1936 is numerically equal to 3.3 percent of the machinists reported in 1930. The downward trend in this occupation from 1920 to 1930, however, presumably continued after 1930,¹⁶ so that some allowance should be made for a decline in the number of machinists that would have been reported in a complete census taken in 1936.

When the figures on the nativity of machinists of this sample are compared with the census figures for Philadelphia, the proportions of foreign-born and native-born machinists are found to agree. According to the 1930 census, 68 percent of the machinists in Philadelphia were native-born and 32 percent were foreign-born.¹⁷ In the sample 67 percent are native-born and 33 percent foreign-born. One interesting difference should be noted. Although there is only one Negro in the sample, the census reports 1.7 percent of all Philadelphia machinists as Negroes.¹⁸ This may be accounted for by the previously noted use of the word "machinist."

Measured in terms of average age, the sample is also representative of the Philadelphia labor market for machinists. The median age for all machinists in Philadelphia, according to the United States Census for 1930, was 39.2 years. In the sample studied 6 years later the median age was 45.2 years. The occupation, it will be recalled from earlier discussion, has not been receiving many accessions in the last 6 years. Consequently, the median age should be higher than in 1930.

Since no census material concerning the education of Philadelphia machinists is available, the grade of school attained by machinists in the sample is compared with that attained by machinists and tool makers placed by the Philadelphia State Employment Office in 1935 and 1936. In 1935 half the group of 446 machinists and tool makers placed by the Philadelphia State Employment Office who reported on education went beyond 8.6 grades of school. In 1936 half the group went beyond 8.8 grades of school. For machinists alone the corresponding figures are 8.5 and 8.7. The educational level for tool makers in the State Employment Office placements, as in the sample in the present study, was higher

¹⁶See earlier discussion of this point.

¹⁷*Fifteenth Census of the United States: 1930, "Population"* (U. S. Dept. Com., Bur. Census, 1933), Vol. IV, p. 1413.

¹⁸*Ibid.*

than that for machinists by 0.1 grades in 1935 and 0.2 grades in 1936. Since the representation of tool makers in the State Employment Office data in both years is higher than it is in the present study, it has raised the educational level of those groups.¹⁹ According to the present study the average machinist and tool maker completed 8.4 grades.

METHOD OF ANALYSIS

In the succeeding sections the data gathered through interviews are analyzed according to age, industrial group of usual employment, and, for some material, employment status in May 1936.²⁰ The basis for choosing these three controls is discussed in the following paragraphs.

Because of the close relationship between age and many other characteristics, it would be almost meaningless to attempt statements for the group as a whole without taking into account the influence of age. Opportunities for schooling, for instance, have been quite different for young workers as compared with workers 45 years of age and older. Because of the immigration legislation of the 1920's, nationality cannot be considered apart from age. The most cogent reason for careful analysis in terms of age is the need for all possible light on the relationship of age to present or recent employment opportunities. Conflicting opinion on this important subject increases the need for segregating the influence of age from that of other characteristics.

It has seemed important to analyze separately workers attached to certain industries. The study includes some workers who are customarily employed in the manufacture of metal products and others who usually work in other industries. The experience of the latter group, since the work they do is chiefly of a maintenance character, differs from the experience of individuals doing production work in the manufacture of metal products. Further-

¹⁹Data secured from special tabulations of Philadelphia State Employment Office records which will be described in a later report in this series of "Philadelphia Labor Market Studies."

²⁰Unless otherwise specified, these data are the basis of all text and appendix tables in this report.

more, not all industries were, in the spring of 1936, at the same stage of development or recovery.²¹

One objective of the study is to analyze any differences between workers employed on a given date and those without work. For that reason the third point of analysis covered employment status in May 1936, the month in which the Philadelphia Survey of Employment and Unemployment was made. The reason for the choice of this date is twofold. In the first place it represents a period when recovery in the metal industries in Philadelphia was well along, a date therefore when certain differences might be expected between those who had been reabsorbed in the course of recovery and those who had not. The second reason for the choice of the date is that it is the time at which the sample is considered completely representative of the labor market for machinists (see page 8).

At that time 12.4 percent of the machinists were unemployed. Of the employed workers, 82.4 percent reported that they were working at their usual occupation. A preliminary analysis was made to determine the difference in characteristics and experience between the group of individuals working at some occupation other than their usual one in May 1936, those employed at their usual occupation, and the unemployed. Since there did not seem to be any consistent or well-marked difference between the first two groups mentioned, though there was a distinct difference between the employed and the unemployed, the analysis according to employment status was limited to two categories only: employed and unemployed.

²¹On the basis of an adaptation of Bulletin #4, Industry Code (Works Progress Administration, National Research Project in cooperation with Industrial Research Department of the University of Pennsylvania, mimeo., Apr. 1936), the industries to which individuals considered themselves customarily attached were classified in 5 industrial groups. In general, the grouping followed the grouping in the Industry Code, with separate classifications for manufacturing of metal products; for manufacturing of machinery, machine tools, and electrical goods; for manufacturing of transportation equipment; for government agencies and public utilities, together; and for a residual group including all other industries. Included in the metal-products group are the manufacture of musical instruments, which is classified as a separate manufacturing group in the Industry Code, and the manufacture of professional and scientific instruments, which is included in other manufacturing industries in the code; these 2 changes affected only 3 individuals.

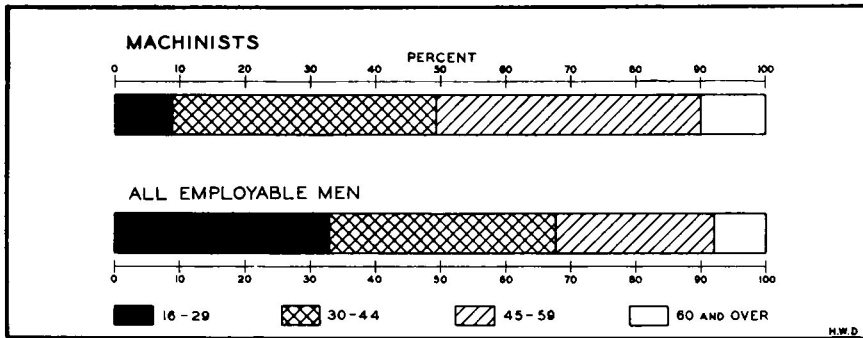
SECTION II

OCCUPATIONAL CHARACTERISTICS OF THE MEN STUDIED

AGE

The machinists in the study are a middle-aged and older group. From table A-2 and figure 2 the concentration of workers in the two age groups, 30 to 44 and 45 to 59, can be seen. The average age for the whole group is 45.2 years.¹ So high an average is unusual except for highly skilled occupations. The average age for all men included in the Philadelphia Survey of Employment and Unemployment of 1936, for example, was 37.5 years.²

Figure 2.- AGE DISTRIBUTION OF MACHINISTS AND OF ALL EMPLOYABLE MEN IN PHILADELPHIA, MAY 1936



Based on table A-2 and *Recent Trends in Employment and Unemployment in Philadelphia*, p. 55

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

P-20

NATIVITY

An examination of the nativity and length of residence in this city shows the machinists in the sample to be predominantly native-

¹With this age composition it is to be expected that a large proportion of the sample would report that they are married. 572 out of the 679 reporting on the question were married. Of the single men, two-fifths are in the age group under 30 years of age.

²Gladys L. Palmer, *Recent Trends in Employment and Unemployment in Philadelphia* (Works Progress Administration, National Research Project in cooperation with Industrial Research Department, University of Pennsylvania, Report No. P-1, Dec. 1937).

born white workers with relatively long residence in Philadelphia.³ Approximately one-third of the men reporting were born abroad; two-thirds are native whites. If nativity and age are considered, it is found that almost three-eighths of the workers 45 years of age and over were born abroad (table A-3).

Foreign-born machinists have lived in Philadelphia a long time, half of them for more than 20 years (table A-4). It follows, as a result of our immigration laws, that a certain proportion of any group of foreign-born workers would necessarily have lived in this country for some time preceding a study made in 1936. The fact of long residence in this particular city, however, is probably partly a matter of family connections and friendships and partly a matter of Philadelphia's reputation as a center of metal-working industries. Many machinists who came directly to the city from the boat had jobs before they landed and others had friends in one plant or another. Men who drifted from city to city are the exception. Among the machinists who came from abroad, the chief countries of birth are Germany, Great Britain, and Austria-Hungary. Over four-fifths of the native-born machinists have lived in Philadelphia for more than 20 years and many of them since birth.

SCHOOLING

The individuals in the study are, on the whole, graduates of elementary school⁴ (table A-5). Half the men went beyond 8.4 grades of school. The grade finished in school, as might be expected because of the recent increase of educational facilities and stricter laws controlling school attendance, varies inversely with age. For the small group of machinists under 30 years of age included in the study, half went beyond the eighth grade, whereas less than one-quarter of those between 30 and 44 years of age and less than one-fifth of those 45 years of age and over did so. It is not the higher educational level of this young group, however, that has pulled the general level of machinists' education up to eighth grade. When the two middle age groups are compared, the median grade of leaving school proves to be 8.4 for

³Data for the 1 Negro worker have not been tabulated separately. He was born in South Carolina and worked there until 1929 when he came to Philadelphia, where he has secured only unskilled work. He is now 47 years of age.

⁴It is possible, of course, that some of the emphasis on eighth grade comes because it is easier to generalize than to remember exactly. Amount of schooling is likely to be overemphasized.

machinists from 30 to 44 years of age and 8.3 for machinists from 45 to 59 years of age.

ENTRANCE INTO THE LABOR MARKET

Almost one-half of the individuals in the study reported that they began paid work at the age of 14 or 15. A little over one-third started to work at a later age (table A-6). The proportion of young men under 30 who began work at 16 years of age or over was larger than that of any other age group.⁵

Comments of machinists made in connection with the age at which they began work reveal a variety of attitudes. Although many a young man of 13 or 14 took any kind of job to help his family, there were individuals who told interviewers that, despite the desire of their families to keep them in school, they themselves "wanted to get to work because all the other kids had jobs."

For the most part the machinists in the study got jobs the same year in which they left school. The great majority of the group entered the labor market some time ago (table A-7). Only 41 men have entered in or after 1926, the beginning of the 10-year period for which intensive analysis of employment and unemployment experience is presented in later sections.⁶ The span of years during which entry took place is great, extending from 1872 to 1935. The individual who began work in 1872 was among the unemployed in May 1936. He lost his last job as a skilled metal worker in 1932, when the firm by which he was employed closed down. Beginning with 1877, some individuals entered the labor market in every year except 1930 and 1931. The worker who entered in 1877 was engaged at his trade in May 1936.

The 4-year period 1904 through 1907 was the period during which a larger number of machinists entered the labor market than in any other 4-year interval. This might have been anticipated from the age distribution within the sample. When the two largest age groups are considered separately, the period 1912 to 1915 is the time during which the largest group of machinists between the ages of 30 and 44 (in May 1936) entered the labor market. Large numbers of men between the ages of 45 and 59 (in May 1936) entered the labor market during the 6-year period from 1898 to 1903.

⁵For definition of age at beginning work see appendix B.

⁶All but 2 of these 41 men are under 30 years of age.

Thus for machinists the all-time peak of entrance into the labor market was not the war period 1916 to 1919. It seems that the urgent demand for machinists at this time was met by transfers from other occupations, rather than by new entrants. This seems particularly likely in view of the large proportion of machinists who reported that they had done other work before they entered the trade.

THE FIRST JOB

Among the men in the sample it is certainly true that entrance into the labor market took place in no very well-calculated way. Jobs were picked up in a most informal manner. Somebody's friend knew of somebody's friend who knew of an opening. In a few cases the father of the family had a sufficiently well-established position to bring his young son in to work with him. This was exceptional rather than general.

The first jobs reported include a wide range of occupations within each occupational group listed in table 1.

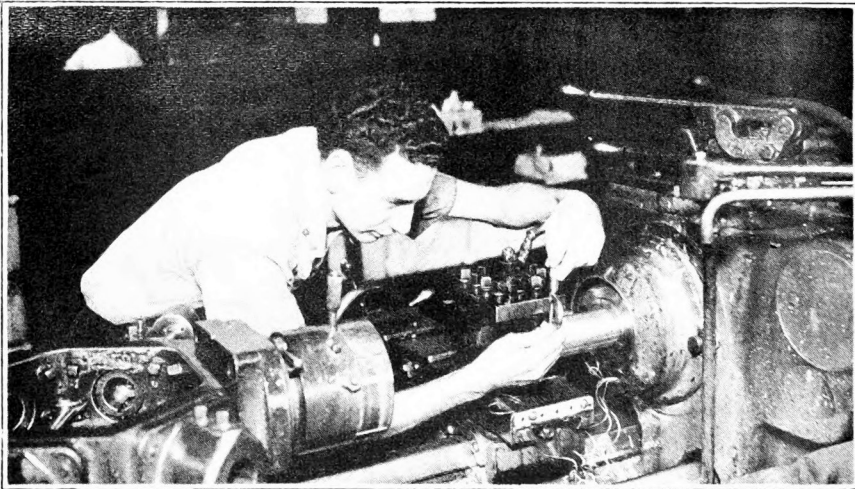
Table 1.- OCCUPATIONAL GROUP OF FIRST JOB OF MACHINISTS

Occupational group	Number	Percent
Total ^a	676	100.0
Skilled and semiskilled occupations in manufacturing and mechanical industries	456	67.4
Building and construction	4	0.6
Metal products, machinery, and electrical-goods manufacturing	80	11.8
Textile and clothing manufacturing	51	7.5
Other	321	47.5
Apprentice to:		
Usual occupation	234	34.6
Other occupations	17	2.5
All other	70	10.4
Unskilled labor	56	8.3
Clerical work	113	16.7
Transportation and trade pursuits	39	5.8
Domestic and personal service	2	0.3
Executive, professional, and semi-professional occupations	10	1.5

^aExcludes 7 men who did not report occupation of first job.

Over one-third of the workers, however, did start learning their trade through an apprenticeship as soon as they entered the labor market. In some cases the young worker himself wanted to learn the trade; in others, the father of the family thought the trade a good one.

In addition to the 34.6 percent of the men whose first work was an apprentice job in their usual occupation, many served



WPA - National Research Project (*line*)

FIGURE 3.- TURRET-LATHE OPERATOR SETTING MACHINE

their time later. A variety of reasons accounts for delay in the case of individuals who eventually served an apprenticeship. In some cases a definite effort had been made to keep the son of the family away from the workbench. Doubtless, some of these efforts were successful. Of these we have no record, but in the course of the study several machinists told of a variety of jobs held in youth before they were "their own men" because their families had no sympathy with their interest in machine work. In still other cases, boys were sent to work far too young to become apprentices. One worker came here from Germany, knowing no English, when only 11 years old. He was allowed to go to school until his twelfth birthday, and then was sent to work because "a boy 12 was old enough and had book-learning enough to earn his way." He was taken on as fireboy. It was not until 19 years later that he had acquired sufficient education in night courses to fulfill the simple educational prerequisites of an apprenticeship. But then he "ate the work up" and, when he finished his apprenticeship, was kept on at the same shop. Although

an apprenticeship served at the age of 31 was unusual in the study, many respondents told stories similar to the first part of the one cited above. The others, however, managed to enter the trade of their choice some years sooner and many of them as soon as they were old enough to do the work.

APPRENTICESHIP

On the whole, individuals in the sample show a high degree of training for the trade. The following paragraphs describe the character of training received by 562 individuals in the study.⁷

Over three-quarters of the machinists for whom complete work histories are available reported some apprenticeship⁸ (table A-8). One-fifth of those who served an apprenticeship learned the trade in Europe; the others, in the United States. Four years is generally accepted as the length of apprenticeship in the machinists' trade. Of those reporting on apprenticeship, over half served for at least this length of time, and some for longer periods. Apprenticeships of over 4 years are generally accounted for, according to men reporting them, by an extra year to learn tool making or particularly complicated machine work or by inability to find a job at the end of 4 years.

Factors tending to curtail apprenticeship seem to be the amount of knowledge acquired beforehand through school courses, through the aid of friends or relatives at home, or through odd jobs around machinery in factories. One man reported only 3 years of formal apprenticeship, but said in addition, "There was a lathe, a drill press, and a shaper in the cellar at home, and as soon as we were big enough to reach the handle on the press we started learning the trade." Shortened apprenticeship is also made possible by the feeling of knowing the trade, combined with the ability to impress possible employers with that fact. Any unusually heavy demand for an increased supply of workers, such as the war

⁷This is primarily a study of the last 10 years; in 575 cases, however, a record from first job to the date of interview was made. The closing date of apprenticeship for 13 men who were still serving their time in May 1938 was not known. This discussion is based, therefore, on 562 cases. These constitute 82.3 percent of the whole sample. Each industrial group is represented in this group in approximately the same degree as in the entire study.

⁸The method of selecting the sample may have created a bias in favor of apprenticeship. The specialists on machine tools, mentioned in the "Introduction," were included partly because they had served apprenticeships. A large number of such specialists were excluded because, in default of any knowledge of their training, there was no evidence that they were machinists rather than machine-tool operators.

created after 1914, makes this easier. This is reflected in the fact that a smaller proportion of machinists beginning apprenticeship in the years from 1912 through 1915 reported learning periods of 4 years or more than did those in the sample as a whole. Satisfactory adjustment does not always result, however, from this feeling of confidence. After about 2 years of apprenticeship one man, for example, decided he knew enough to earn more money. He found a job, but said, "I only got by with it because it was rough work." On the other hand, another machinist's apprenticeship was interrupted, when half completed, by the death of his father. He needed, then, a man's wages. The war was on and factories did not inquire very diligently into a man's experience. He "got his job and made the grade." After the war he was laid off and filled in with miscellaneous jobs for a while, but since 1923 he has worked as a machinist. Although he had had 3 years of unemployment during the depression, he had been reabsorbed into employment as a machinist by May 1936.

One-quarter of the men reporting complete histories entered the trade with no formal apprenticeship at all. For the most part they picked up knowledge of the work at home. Typical of this situation is the family of one man who has a small tool and die shop and has taught the work to his three sons. Another man opened a jobbing machine shop very early in life. Although he gave it up shortly after the war, he seems to have learned his trade quite thoroughly without an apprenticeship, for upon closing his shop he immediately got a job as a tool maker.

About one-fifth of the men in the two younger age groups lack formal training; a slightly larger proportion of the men from 45 to 59 years of age and about one-third of the individuals 60 years of age and over seem to have entered the trade without formal learning periods (table A-8). This sequence may seem strange if one considers the general impression that recently "apprenticeship has been dying out." It must, however, be considered in the light of two other possibilities. Since the war the demand for machinists has been decreasing, and with a lessened demand it seems reasonable to anticipate that only those with the best preliminary training would be taken on. Further, in line with general cultural trends in America, the cellar workbench, a first-rate training device, may well have been more common in the homes of older men than of younger ones.

The question of the relationship of apprenticeship to later employment experience is of such general interest that it seems important to point out the findings even though they are negative. If one examines the character of training according to the total amount of unemployment in the 10-year period for all 562 individuals (table A-9), little relation can be found between apprenticeship and the amount of unemployment experienced. While half the machinists serving 4-year apprenticeships reported that they had experienced no unemployment lasting 1 month or more, half of those serving no apprenticeship at all also reported experiencing no unemployment. When the average amount of unemployment is calculated according to the length of apprenticeship for those reporting unemployment, it is found that individuals without an apprenticeship report more unemployment than those with an apprenticeship. It is important to note, however, that enough of the men with no apprenticeship reported full employment during the 10 years to make the average time lost through unemployment less for those without an apprenticeship than for those with an apprenticeship. It would seem from this analysis that other factors are more important than length of apprenticeship in determining amount of unemployment.

Character of training varies somewhat among the industrial groups in which the individuals have been classified. This may be, primarily, the result of the nature of the work involved in different industries. The proportion of individuals in the total sample customarily attached to miscellaneous manufacturing and other industries is exactly reflected in the proportion without an apprenticeship (table A-10). On the other hand, the proportions attached to the manufacture of transportation equipment and to the production of metal goods are overrepresented among those without an apprenticeship, whereas a lower proportion of workers usually employed in the manufacture of machinery and a negligible proportion of workers attached to government agencies and to public utilities, compared with their proportions in the total sample, report no apprenticeship. In government jobs, positions are for the most part filled by open competitive examinations and one of the prerequisites of admission to the examinations is completion of an apprenticeship or its equivalent.

Two-fifths of the workers reporting served their time in what they now consider their usual industry.⁹ Certainly in the past

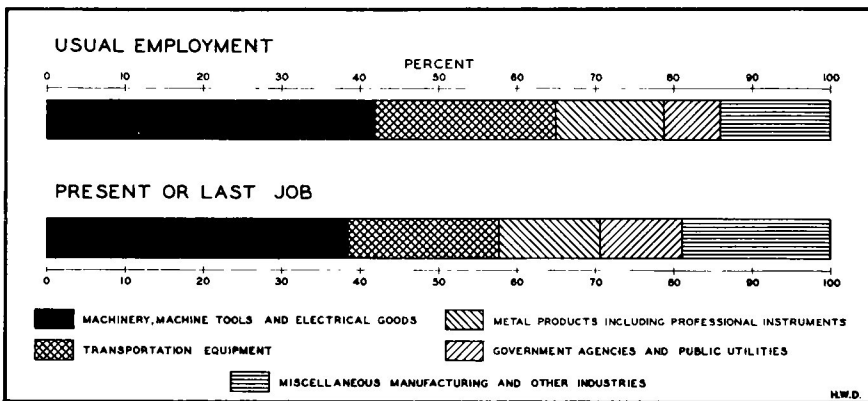
⁹Four hundred and twenty-six individuals reported industry of apprenticeship. Of these, 174 served apprenticeship in the usual industry. 7 men reported apprenticeship, but failed to mention industry.

a machinist's skill has generally been considered readily transferable from industry to industry, and more than occasionally men told in the interviews of shifting from one industry to another to acquire new knowledge. One former machinist described vividly how, in the old days, if the boss was really interested, he would tell you the industries that would make you an all-round man. This same machinist said it was far more usual nowadays to continue not only in the industry of apprenticeship, but even in the shop where the trade was learned.

INDUSTRIAL GROUP OF CUSTOMARY ATTACHMENT

Although a great many different industries are represented in the sample, the workers are concentrated in those metal industries which employ large numbers in Philadelphia. Table A-11 lists the industries of the individuals in some detail and indicates in which of the five industrial groups the workers have been classified. For the most part future discussion of industries will be in terms of industrial groups, rather than of specific industries. Figure 4 shows the proportion of individuals in the study found in each industrial group.

Figure 4.- INDUSTRIAL GROUP OF USUAL EMPLOYMENT AND OF PRESENT OR LAST JOB



Based on tables A-11 and A-13

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

P-21

The largest single group of workers in the sample consists of those who have been usually engaged in the manufacture of machinery. Included in this group of industries are the production of

electrical machinery and apparatus, other machinery, all jobbing shops, and radio manufacture. The findings of the study in this respect are in line with data on the employment of machinists in the city as a whole. The manufacture of machinery and machine-shop products normally employs the largest proportion of wage earners in the metal industries of the city.¹⁰

Almost one-quarter of the workers are found to be normally engaged in the manufacture of transportation equipment. Among the industries included are the manufacture of locomotives, railroad repair shops, and the manufacture of motor vehicles and parts.

The usual industrial group of almost one-seventh of the machinists is the production of some other metal product. These workers are scattered in steel works, blast furnaces, and factories producing small ironware, tin cans and other tin goods, aluminum and brass products, and professional instruments.

Approximately four-fifths of the individuals in the study are attached to industries producing metal goods of one kind or another, and one-fifth are found in other industries. One-third of the latter, or 7.2 percent of the total sample, worked for public utilities and government agencies. Many of these are employed at the Philadelphia Navy Yard¹¹ to repair ships. A smaller number are normally employed at the Frankford Arsenal, where some of them are engaged in the manufacture of munitions. Of the total group, the majority not engaged in the manufacture of metal products of one kind or another are, presumably, maintenance machinists. In addition to the work they do for government agencies and public utilities, they are attached to plants processing and packaging foods, textile mills of several kinds, furniture factories, tobacco plants, and chemical firms.

There are some differences with respect to age among the workers customarily attached to each industrial group (table A-12). The median age of transportation-equipment workers is higher than the average age of the sample; the median age for metal-products workers is lower.

When the industrial group of last job is compared with the usual industrial group (table A-13, figure 4), the proportion

¹⁰See table A-1.

¹¹The Philadelphia Navy Yard is known officially as the Navy Yard of the Fourth Naval District or as the U. S. Navy Yard, Philadelphia, Pennsylvania, and is known locally as League Island Navy Yard.

of workers in the production of machinery, transportation equipment, and metal products is found to have declined. The shift has been to the service industries, to government agencies and public utilities, and to a slight degree to miscellaneous manufacturing. Data concerning the industrial group of last job will be analyzed further in a later section of this report.

LONGEST JOB AND USUAL OCCUPATION

Regardless of the industries in which they have worked, individuals in the study reported relatively long periods of employment on jobs. This is characteristic of a highly skilled occupation such as machinist, tool maker, and millwright. Among the individuals reporting, the average length of service on the longest job is slightly over 10 years.¹²

Length of service is necessarily related to time in the labor market. When the youngest group in the sample is omitted from consideration (since many members of it have not been working long enough to hold a 10-year job) the proportion of individuals 30 years and over who held their longest jobs for 10 years or more is 55.5 percent, and jobs lasting 25 years or more are not rare (table A-14). Almost 9 percent of the individuals in the sample held jobs of this length. Thirty-four percent of the group whose longest job lasted 25 years or longer reported that their usual industrial group is the production of transportation equipment, whereas only 23 percent of the total sample reported that they are customarily attached to these industries. Two machinists reported working ever since the early nineties for one firm making railroad equipment. Both were laid off "when work got slack" in 1931 and one of them reported part-time work before that time. One of these men, still out of work in May 1936, was called back to the company during the summer of 1936, after 54 months of unemployment. The other, after 51 months of lay-off during which he sold scrap iron on a commission basis, was called back to the plant where he had spent most of his working life. Shortly before that, however, he had finally found a job as a maintenance machinist in a candy factory and had de-

¹²In this study a job was defined as continuous service at 1 occupational assignment with 1 employer for 1 month or longer. The longest job was defined as the longest job beginning before 1926 for individuals in the labor market before that time.

cided to stick by it, fearing the locomotive work would be too strenuous for his 67 years.¹³

For two-thirds of the sample the longest jobs were at the usual occupation. When the occupation of longest job differs from the usual occupation, it is one of a wide variety of occupations (table A-15). The proportion of machinists whose longest job was at their usual occupation was higher than that of tool makers, 72 percent compared with 56 percent. That was to be expected because the work of tool maker is more skilled than that of machinist and many workers become tool makers only after long experience at other occupations. Almost one-half the workers for whom the occupation of the longest job differed from the usual occupation reported an apprenticeship as the occupation of the longest job. These were, for the most part, younger men.¹⁴ Other occupations ranged from unskilled (a negligible proportion) to supervisory work.

Twenty-six tool makers reported an apprenticeship as the occupation of their longest job. Ten of these stayed on at the plant after their time was done; another man was laid off by the company of his apprenticeship, but was shortly recalled as a full-fledged tool maker. Many of the machinists whose longest job was an apprenticeship continued working at the same plant when their service was finished.

Individuals whose longest job was in the metal trades at work less skilled than their usual occupation do not have a comparable record of promotion at the same plant. They seem to have found it necessary to move on before becoming full-fledged workers at their chosen occupation. For instance, 10 tool makers who had held their longest job as machinist immediately afterwards promoted themselves to tool maker, but in no case at the same plant where they had worked as machinist.

Many of the longest jobs were closely related to the usual occupation and others were very far afield. One machinist, for example, had worked on a farm for 26 years and did not leave until the farm failed to yield a living for his family. Another

¹³The definition of the longest job sometimes underestimates length of employment. 1 worker reported a job of only 34.5 years as a tool maker in a display stand. Actually, however, he had worked at the plant for 10 years previously, then had worked elsewhere for 7 months, and had returned to his old plant at the end of that time. The 10-year period was, of course, not included in the longest job, which would have been 44.5 years if it had.

¹⁴Of the 105 men reporting an apprenticeship as the occupation of the longest job, 93 were under 45 years of age and 39 were under 30 years of age.

also had had his longest job in agriculture. He had been a farm hand in Austria-Hungary for 27 years and had left to come to the United States, where he picked up the trade and advanced to his status of tool maker by slow degrees. A third man had had his longest job in the British Navy. He, however, did learn his trade in the course of that employment.

Since the longest job was so frequently at the usual occupation and since this job lasted a long time it follows that much of the working life of individuals in this study was spent at their usual occupation. The median number of years employed at the usual occupation¹⁵ for all individuals in the study is 22.5 (table A-16) or approximately three-fourths of the average number of years in the labor market. The number of years employed at the usual occupation increases with age.

Table 2.- NUMBER OF YEARS IN THE LABOR MARKET

Number of years and months ^a	Number of machinists
Total ^b	675
6 months - 4 years 5 months	11
4 years 6 months - 9 years 5 months	18
9 years 6 months - 14 years 5 months	37
14 years 6 months - 19 years 5 months	60
19 years 6 months - 24 years 5 months	104
24 years 6 months - 29 years 5 months	101
29 years 6 months - 34 years 5 months	106
34 years 6 months and over	238
Median number of years	29.8

^aIncludes time not seeking work after entrance into the labor market.

^bExcludes 8 men who did not report date of entering the labor market.

When the number of years employed at the usual occupation is compared for workers normally attached to different industrial groups, the most noticeable difference is for workers in the industries producing metal products (table A-17). They have a lower average number of years at the usual occupation than have other industrial groups. It should be noted that the low

¹⁵The number of years employed at the usual occupation is the respondent's estimate and includes time employed as a paid apprentice, as an operator of special machine tools, as a tool maker, die setter, or instrument maker, as a millwright, or as a supervisor of men employed at any of these machinists' trades.

average is not explained by the fact that these industries have younger workers, because when identical age groups are compared it is found that the average is lower for each of the two age groups in which the majority of the workers are concentrated, i. e., from 30 to 44 and from 45 to 59.

EMPLOYMENT STATUS IN MAY 1936

In May 1936 all but 12.4 percent of the machinists studied were employed. Eighty-two percent of the employed, or 72 percent of the total, were working at their usual occupation. Many of the jobs held by those employed at other occupations were at work so similar to their usual occupation that the men unhesitatingly included these jobs in their estimates of the number of years they had spent at their usual occupation. For example, a machinist who has served an apprenticeship, has done all-round machinist work, and then has been assigned to special work on an engine lathe or automatic screw machine, where he not only does the work but also sets up the machine, does not consider this a change of occupation. A foreman of machinists may or may not consider becoming foreman a change of occupation, depending on whether or not he continues to do some machinists' work. In this study, however, such changes have been classified as changes in occupation,¹⁶ thus increasing the number of occupational shifts. Table A-18 lists the occupation of the last job of all individuals working at some occupation other than their usual one in May 1936. More of this group changed their occupation in 1932 and 1933 than in any other years in the 10-year period, 1926-35 (table A-28). As was pointed out above, however, the job obtained after the loss of the last one at the usual occupation was sometimes closely related to the usual occupation.

It was found in some preliminary comparisons of this group of 105 workers, whose last job was not at their usual occupation, with the total sample that there was not enough difference between the two groups to warrant separate analysis of the 105 men.

The 85 men, i. e., 12.4 percent of the sample, who were not employed in May 1936, were, for the most part, seeking work. Only 12 of the 85 were temporarily out of the labor market.¹⁷

¹⁶The code used was an adaptation of Bulletin #3, Occupation Code, Works Progress Administration, National Research Project in cooperation with Industrial Research Department of the University of Pennsylvania (mimeo., April 1936).

¹⁷For data on reabsorption see discussion of "Reemployment by May 1937 of Workers Unemployed in May 1936" in section III.

Because their withdrawal was only temporary, they have been included in the study and classified as unemployed workers.

The proportions of workers at each employment status vary from one age group to another. Almost all of the youngest group, 16 to 29 years of age, are employed. The employed workers are present in greater proportion in the two 5-year age groups, 30 to 34 and 35 to 39, than in the next, 40 to 44, in which the unemployed are more than proportionately present. In the age groups 45 to 50 and 60 years of age and over, there are also higher relative proportions of unemployed machinists (table A-2).

Two-fifths of the unemployed workers were foreign-born. This proportion is higher than that for the sample as a whole (33.0 percent). A larger proportion of the unemployed than of the employed, among both foreign-born and native-born workers, had lived in the city over 20 years. When the median school grade completed by the unemployed group is compared with that of the total group, the difference is only 0.2 grades.

There is no difference in the length of service on the longest job between those who were employed and those who were unemployed in May 1936. Within each age group, however, there are differences in the number of years spent at the usual occupation. Men found in the group of unemployed report fewer years at the usual occupation.

There are some differences among the workers customarily attached to each industrial group with respect to employment status in May 1936. Of the two most important industrial groups, workers normally engaged in the manufacture of transportation equipment, while of less importance in the sample as a whole than workers engaged in the production of machinery, included 37.6 percent of the individuals unemployed on May 1, 1936. The group of government-agencies and public-utilities workers included 7.2 percent of the total sample, but only 1.2 percent of the unemployed. Individuals making metal products and scientific instruments were also represented among the unemployed of May 1936 in smaller proportions than in the total sample (table A-12).

SUMMARY

The sample includes men from 18 to 76 years of age, with a great concentration between the ages of 30 and 59. The median

age for the whole sample is 45.2 years. The median age for those unemployed in May 1936 is 47.6 years.

Two-thirds of the individuals in the study were born in this country. One-third were born abroad, for the most part in Germany, Austria-Hungary, and Great Britain. The foreign-born are underrepresented among the youngest men and overrepresented among men of 60 years of age and over. They are also overrepresented among the unemployed of May 1936. Both foreign-born and native-born workers reported long residence in Philadelphia.

The workers studied are, on the whole, elementary-school graduates. Half of the men under 30 years of age completed 9.1 grades of school, compared with 8.4 grades in the whole sample.

Over three-fifths (63 percent) of the individuals in the study reported that they began work before the age of 16. An early start was less typical of men under 30 years of age and of the unemployed than of the whole sample. The first job for two-thirds of the workers included many different kinds of semiskilled manufacturing and the less-skilled grades of clerical work. The remaining one-third reported an apprenticeship at the usual occupation as their first job.

More detailed information concerning apprenticeship is at hand for 562 individuals from whom complete schedules were obtained. A little over three-quarters of these men reported apprenticeships of varying length, with half of them serving at least 4 years.

Four-fifths of the individuals in the sample consider themselves attached to one of the city's many metal industries, with the largest number customarily employed in the production of machinery, machine tools, and electrical equipment. Seven percent of the workers are attached to government agencies and public utilities and the remainder to miscellaneous manufacturing and other industries. Slightly more than half the men working in industries manufacturing transportation equipment, in government agencies and public utilities, and in miscellaneous manufacturing and other industries are 45 years of age and over. The industries manufacturing transportation equipment also account for a more-than-proportionate share of the unemployed of May 1936.

Two-thirds of the individuals in the sample held their longest job at their usual occupation. An apprenticeship was the occupation most frequently reported by those whose longest job was not at their usual occupation. These longest jobs were very

long indeed, with the median length falling at 10 years. The time employed at the usual occupation was also considerable; it averaged 22.5 years.

When the sample was selected in May 1936, 88 percent of the machinists, tool makers, and millwrights were employed and 12 percent were unemployed. The backgrounds of these two groups differ to a marked extent.

SECTION III

UNEMPLOYMENT, 1926-35

When the Philadelphia Survey of Employment and Unemployment was made in May 1936, machinists who were unemployed ranged from the short-time unemployed (a minority) to those who had lost their last jobs as machinists in the late twenties or early thirties.

Among the 85 unemployed machinists, 12.4 percent of the total, was a man, aged 52, who was customarily attached to machine work in a railroad repair shop. He reported no unemployment periods lasting 1 month or more during his entire working life until the middle of 1929. At that time he was laid off and ever since has been without any job lasting 1 month or more. Another machinist, aged 60, worked with one concern manufacturing textile machinery from 1901 to 1933, when the firm went out of business. He reports that he has made every effort to get employment since that date, but fears that his age is against him.

In addition to the group of 85 who were unemployed in May 1936, many men working at that time reported unemployment of 1 month or more at some time during the 10-year period, January 1926-December 1935. For example, after 2 years of apprenticeship, one man left to make better wages. He shortly returned to the plant of his apprenticeship as a machinist and stayed there for over 20 years until the concern closed, when he found himself unable to obtain a job. After a little over a year without work, he found employment with another firm making the same product. At the time of the interview he was still working there.

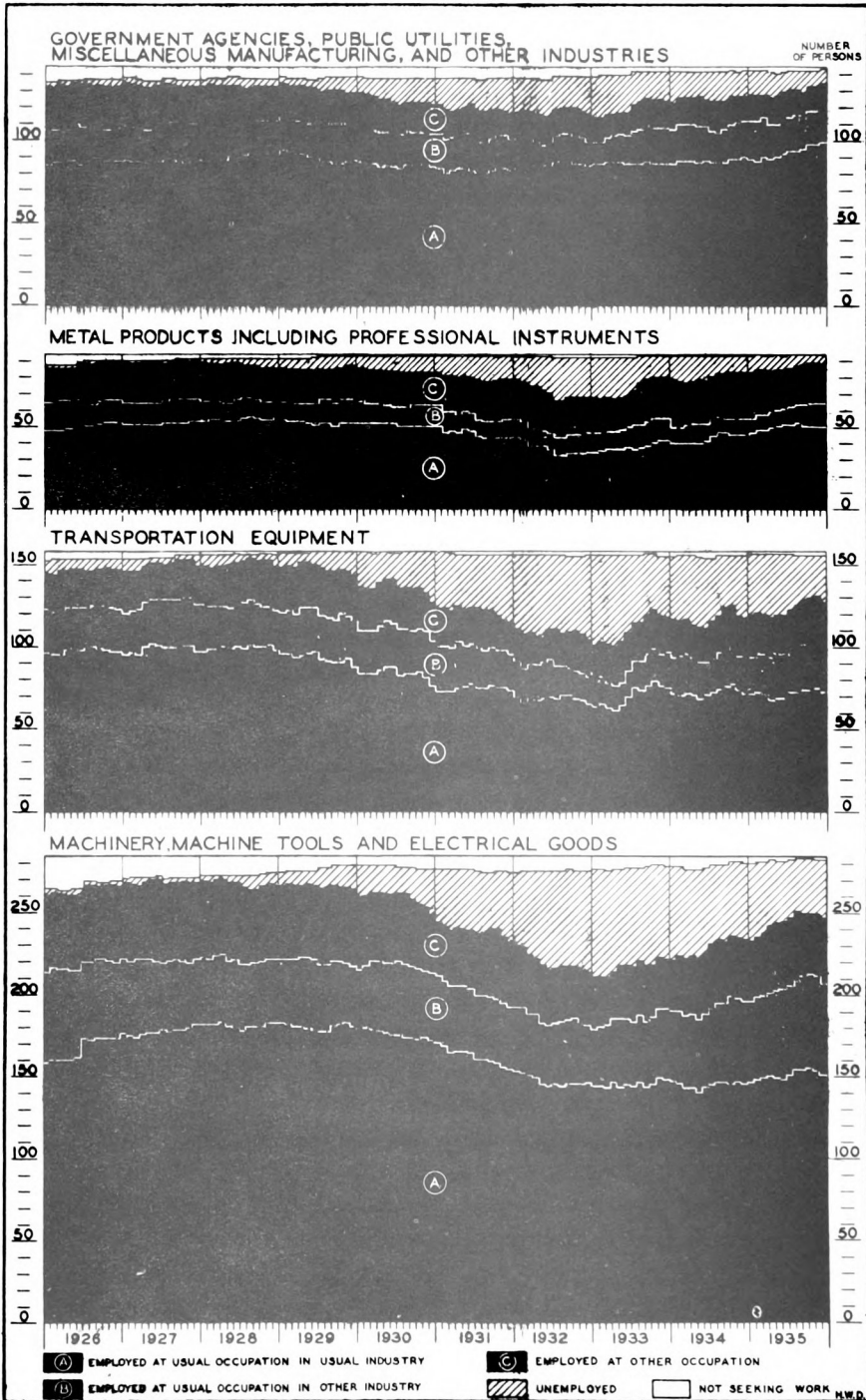
In this section the incidence of unemployment on various groups within the sample is shown according to several different measures.

EMPLOYMENT EXPERIENCE OF INDUSTRIAL GROUPS

Figure 5 and tables A-19 to A-22 show the employment status of every machinist in the sample during every month of the years 1926 through 1935. These data are shown for all machinists according to the industrial group to which they considered themselves customarily attached.¹ In these charts employment is divided

Figure 5.- EMPLOYMENT STATUS, JANUARY 1926-DECEMBER 1935

By Usual Industrial Group



Based on tables A-19 to A-22

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

into work at the usual occupation in the usual and other industries and work at other occupations. The amount of shifting by Philadelphia machinists from occupation to occupation and industry to industry, as represented in the sample, will be discussed at greater length in section IV. Here it should be mentioned that a change in occupation is usually accompanied by a change in industry; therefore, sections B and C on each chart show, for the most part, work in an industry other than the usual, and section A shows work in the usual industry. Periods of unemployment and of time not seeking work are shown separately. Part-time employment has been included as employment on these charts. The average worker spent about one-tenth of his employed time in part-time work.

The period of deepest depression and the greatest volume of unemployment in all four industrial groups alike was at the end of 1932 and the beginning of 1933. By the end of 1935, employment had almost reached the 1926 levels in the smaller industry groups but was below 1926 in the machinery and transportation-equipment groups. Of these two, transportation-equipment manufacturing had recovered less by 1935 than had machinery manufacturing. Unemployment was more serious, in terms of the proportions of unemployed to employed, in industries manufacturing transportation equipment throughout the 10-year period (figure 6).

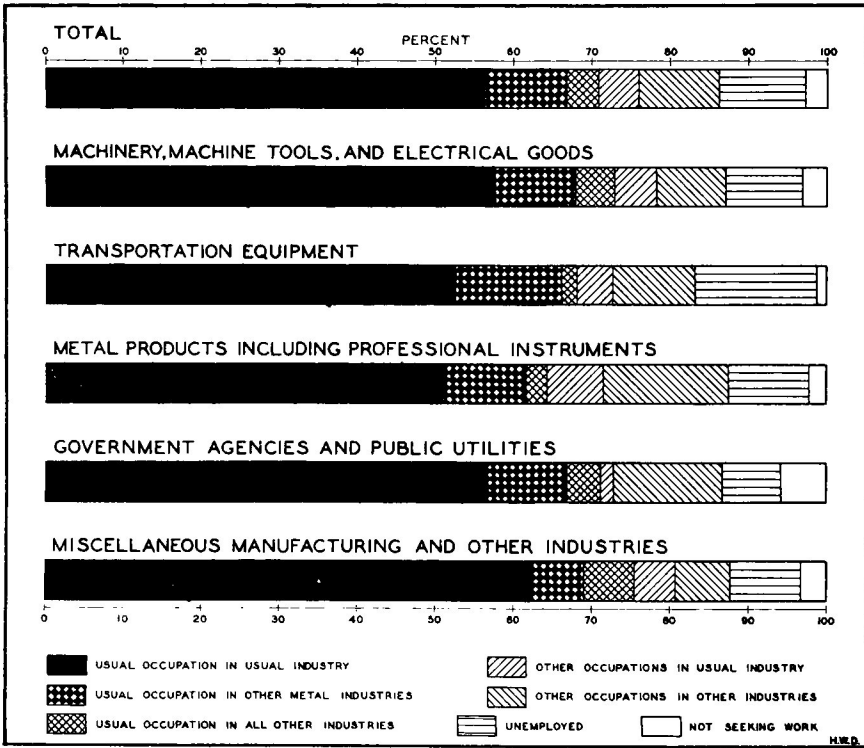
In figure 6 is summarized in terms of man-months, for the sample as a whole and for the industrial groups separately, the distribution of employment and unemployment during the 10-year period shown in figure 5. Had every individual been fully employed throughout the period studied, there would have been 81,720 man-months of employment reported.² The employment reported by the group was 86.2 percent of the possible maximum, if part-time work is considered employment (table A-24).

¹In all previous discussions in this study and in most of the future discussions, 5 groups are considered. In figures 5 and 7, however, 2 of the 5 groups, miscellaneous manufacturing and other industries and government agencies and public utilities, have been combined to form a group composed, predominantly, of maintenance machinists. If separate charts were presented for each of these 2 groups they would be similar. The other 3 groups are composed, primarily, of production machinists.

²Although there are 683 machinists in the sample, most of the unemployment calculations are based on 681, since 2 schedules failed to give enough information to permit complete tabulation. These 2 individuals have been eliminated from all discussion in this section.

Figure 6.- PERCENTAGE DISTRIBUTION OF MAN-MONTHS OF SPECIFIED TYPES OF EMPLOYMENT EXPERIENCE, 1926-35

By Usual Industrial Group



Based on table A-24

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

P-23

The time reported as not seeking work in the last 10 years, which was less than 3 percent, was, for the most part, time before entering the labor market. Out of the small total of 2,000 man-months of not seeking work, 1,500 man-months are accounted for by men who entered the labor market in or after 1926. The remaining months represent, for the most part, time reported out of the labor market because of physical disability, illness, or industrial accident. The individuals in the study who took unpaid vacations of 1 or more months to travel, to rest, or to attend school were scarce indeed. Few workers reported loss of time because of strikes or lock-outs. All in all, once these skilled metal workers entered the labor market, they did not leave.

Eleven percent of possible total employment, as measured in this study,³ was wasted in full-time unemployment. The amount of time lost in this way varied with the industrial group. Although there is an increase in employment from 1932 to 1935 in each industrial group, the rise is not the same in each group. Measured in terms of the ratio of man-months of unemployment to possible total employment, workers usually employed by government agencies and public utilities fared best. The industries offering least security to machinists, according to this measure, were those manufacturing transportation equipment; one-third of all man-months of unemployment reported in the study, were accounted for by these industries, although less than one-fourth of the workers considered these to be their usual industries.

INCIDENCE OF UNEMPLOYMENT

The distribution of the total unemployment among individuals may be seen in figure 7.⁴ On this chart, workers in each industrial group who reported unemployment periods of 1 month or more are ranked by total amount of unemployment in the 10-year period. It should be borne in mind that the black sections of the bar represent all types of employment, i. e., at the usual and at other occupations, in the usual and in other industries, and part-time and full-time. Comparison of these charts with the ones previously presented giving data on the employment status of all workers in a given industrial group for each month, will show that the total unemployment reported was distributed among approximately half the men in the study and that a large number of men came through the entire 10 years with no unemployment. The proportions reporting some unemployment differed among the industrial groups (table A-23). Only one-third of the workers customarily attached to government agencies and public utilities and less than two-fifths of those attached to miscellaneous industries reported unemployment. These groups are composed primarily of maintenance machinists. At the other extreme, two-thirds of

³Throughout the study, unemployment refers to consecutive periods of 1 month or longer without work. In some cases lay-offs of less than that time are reflected as partial employment, through a report of part-time work. In other cases, however, a shorter-than-a-month period is not reflected at all in any estimate of unemployment. An example of this would be a man who leaves 1 job and gets another within 1 month. Both the job he left and the one he went to may have been full-time. The weeks between are not, therefore, accounted for. (See definitions and schedule, appendix B, for further detail on this matter.)

⁴The schedules on which this chart is based are in the files of the Philadelphia Labor Market Studies section of the National Research Project of the Works Progress Administration.

the machinists customarily attached to industries manufacturing transportation equipment reported time lost through unemployment.

Much of the unemployment experienced by the whole group of 683 machinists was concentrated in the group of 85 individuals found unemployed when the sample was selected in May 1936. In figure 8 the 10-year employment histories of these individuals are shown separately. Twelve percent of all workers in the study were unemployed in May 1936, but they reported over 33 percent of the total unemployment in the sample in the 10-year period.

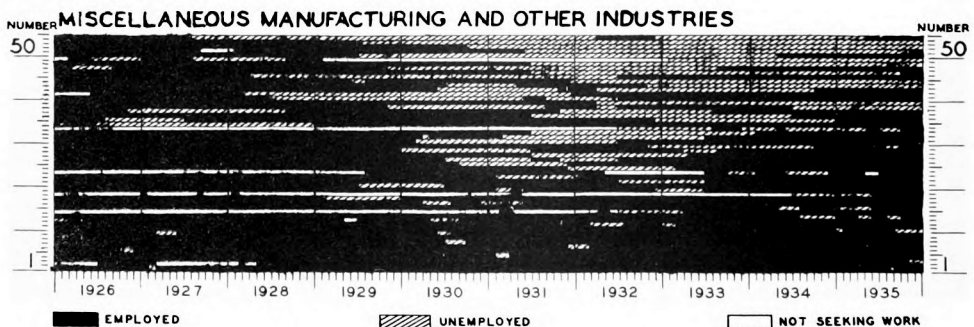
CHARACTERISTICS OF THE MEN WHO EXPERIENCED UNEMPLOYMENT BETWEEN 1926 AND 1935

Examining the total time unemployed for the half of the sample who reported unemployment periods of 1 or more months, we find that it varies in amount with age and employment status in May 1936 and with industrial group.

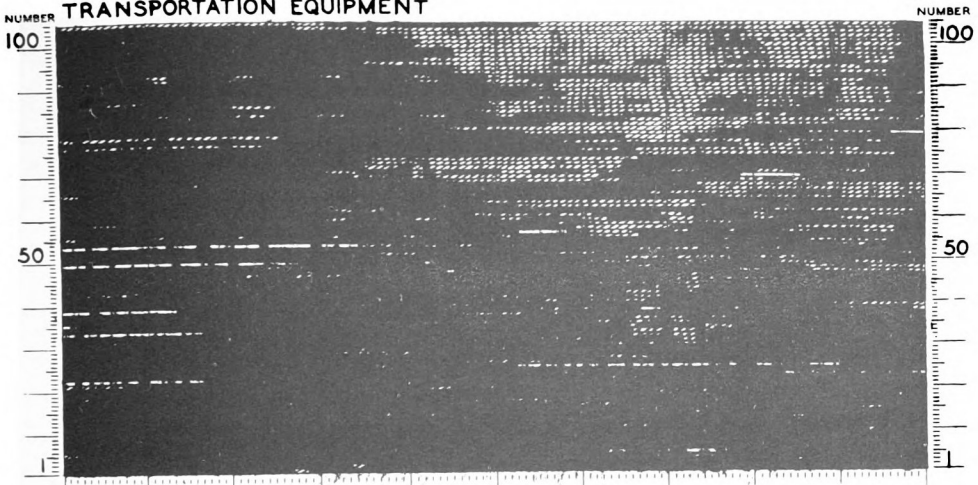
Slightly more than two-fifths of those who were unemployed at some time reported amounts totaling more than 2 years in the 10-year period (table A-25). As age rises, the proportion of individuals reporting this much unemployment increases until it reaches almost three-quarters of the group 60 years of age and over. When the fact is taken into consideration that young men under 30 were not, in all cases, in the labor market during the entire 10 years, it is evident that this group suffered as much unemployment as did workers between the ages of 30 and 44, though not so much as older men. The percentage of their total time in the labor market that workers were unemployed and seeking

**Figure 7.- EMPLOYMENT HISTORY OF INDIVIDUAL MACHINISTS
IN FOUR INDUSTRIAL GROUPS WHO REPORTED UNEMPLOYMENT
JANUARY 1926-DECEMBER 1935**

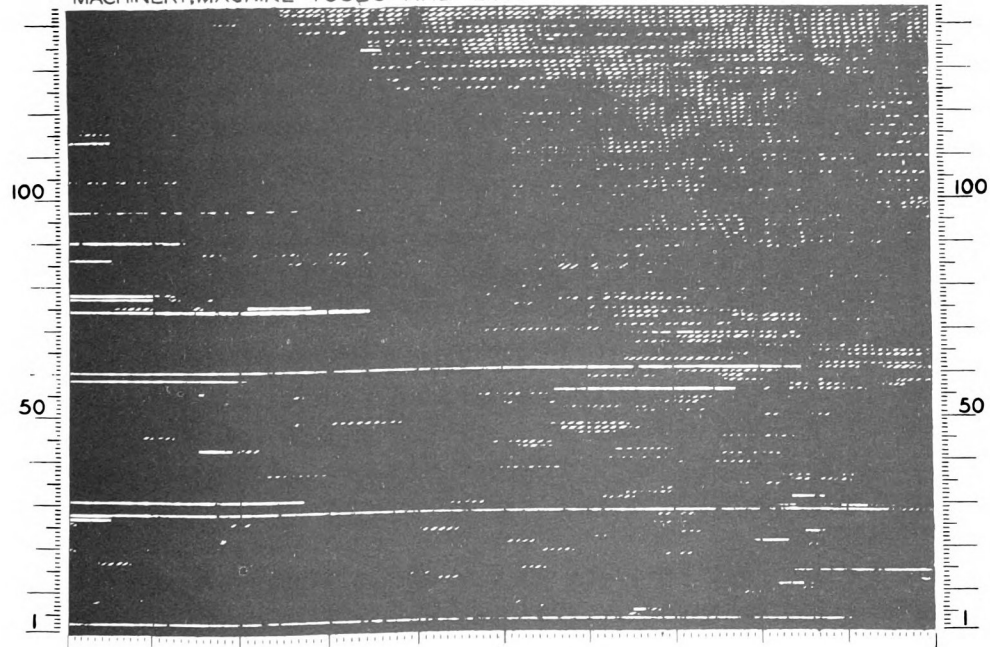
(Ranked by total amount of unemployment)



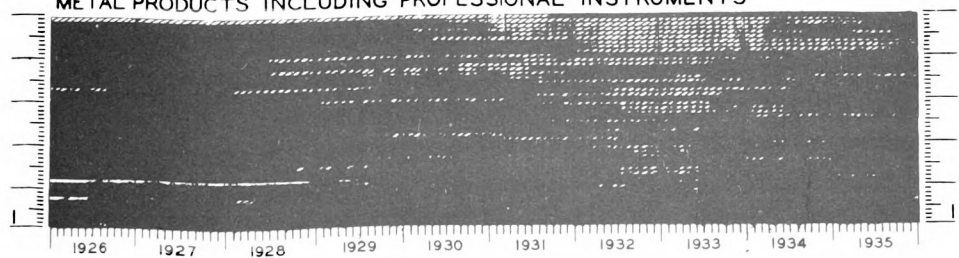
TRANSPORTATION EQUIPMENT



MACHINERY, MACHINE TOOLS AND ELECTRICAL GOODS



METAL PRODUCTS INCLUDING PROFESSIONAL INSTRUMENTS



EMPLOYED
 UNEMPLOYED
 NOT SEEKING WORK

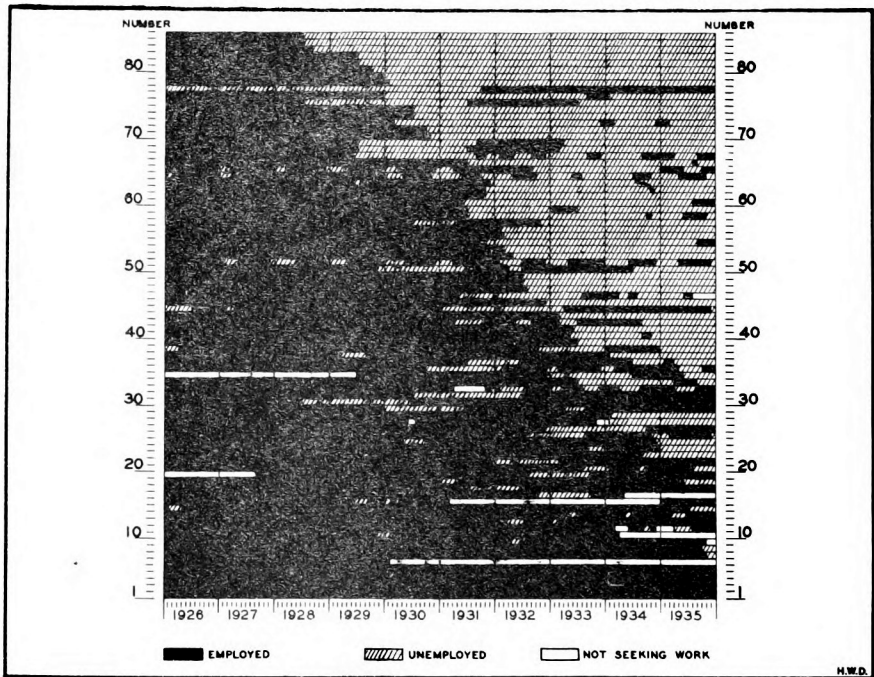
EACH LINE REPRESENTS THE HISTORY OF AN INDIVIDUAL WORKER WHO REPORTED ONE MONTH OR MORE OF UNEMPLOYMENT

Based on data in files of Philadelphia Labor Market Studies Section. WPA - National Research Project

Industrial Research Department - University of Pennsylvania and WPA - National Research Project

Figure 8.- EMPLOYMENT HISTORY OF INDIVIDUAL MACHINISTS
UNEMPLOYED IN MAY 1936
JANUARY 1926-DECEMBER 1935

(Ranked by total amount of unemployment)



Based on data in files of Philadelphia
Labor Market Studies Section,
WPA - National Research Project

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

P-25

work was 17.9 for those under 30 years of age and 17.0 for those 30 to 44 years of age (table A-26). Men from 45 to 59 years of age were unemployed 21.6 percent of their total time in the labor market and men 60 years of age and over, 41.7 percent.

It was found that 68 percent of those unemployed in May 1936 who were also unemployed at some time during the 10-year period reported a total of more than 2 years of unemployment, whereas only 36 percent of those employed at that time reported as much unemployment.

The proportions with this much unemployment varied in the industrial groups (table A-23). Below are the percentages of individuals in each of the five industrial groups who reported unemployment periods totaling more than 2 years between 1926 and 1935:

Industrial group	Percent of total reporting some unemployment	Percent of total in group
Total (all industries)	43.7	22.5
Manufacture of machinery, machine tools, and electrical goods	38.2	19.5
Manufacture of transportation equipment	50.0	33.0
Manufacture of metal products, including professional instruments	41.7	21.3
Government agencies and public utilities	41.2	14.3
Miscellaneous manufacturing and other industries	51.4	19.7

In measuring the incidence of unemployment it is necessary to consider the number of persons who experienced some unemployment, as well as the amount of this unemployment. Miscellaneous manufacturing and other industries had the highest proportion of men with more than 2 years of unemployment in the period 1926 to 1935 when only individuals reporting some unemployment are considered. On the other hand, this industrial group ranks third in respect to the proportion who experienced this much unemployment when workers who had no unemployment are included. In other words, a high proportion of the workers attached to miscellaneous manufacturing and other industries experienced no unemployment in the 10-year period, but half of those with some unemployment were unemployed for periods totaling over 2 years. Government agencies and public utilities had the largest proportion with no unemployment, and a relatively small proportion of the workers in this group who experienced 1 or more months of unemployment were out of work for over 2 years. Workers attached to the transportation-equipment industries suffered most severely in the number experiencing some unemployment. This group also had almost the largest proportion with 2 or more years of unemployment among those who experienced some unemployment in the 10-year period.

When the years from 1926 to 1935 are divided into two 5-year periods, more individuals had unemployment of over 2 years in the second period than in the first. The experience of one of

the men with a large amount of unemployment in the latter period is of interest at this point. He was 50 years of age in 1936 and had been in the machinists' trade for many years. He was with a bridge-construction company in Philadelphia from 1923 until February 1930. Until July 1929, the work was full-time and then part-time for the next half year. When he was laid off because there was no further work, he tried to find a job elsewhere, but for the next 3 years found nothing except an occasional odd job, such as washing automobiles. He was too proud to "go on relief", so his family had a very hard time. In June 1933 he accepted a job as foreman in a CCC reforestation camp, but he quit in March 1934 saying, "I have another job to go to." He did not have another job at that time, but 2 months later was engaged as night watchman by a corporation manufacturing radios. At the time of the interview he was still there and is convinced that because of his age he will never get work in his own line again.

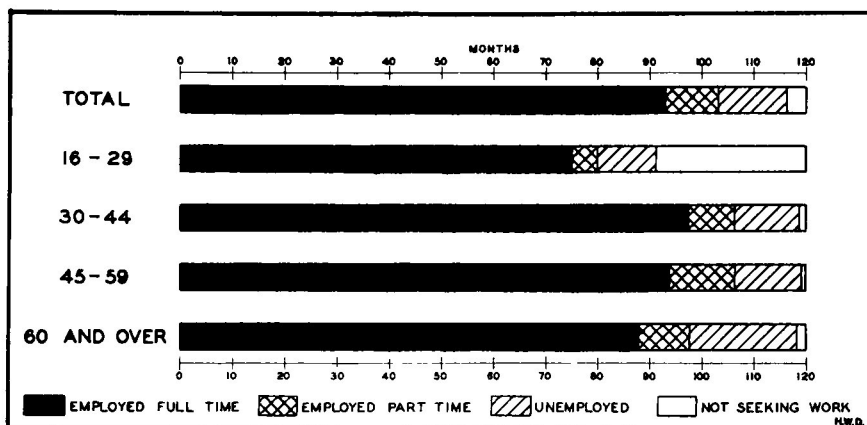
Not all the machinists who suffered severe unemployment in this period were old, however. One man was only 30 years of age at the time of interview and had served his apprenticeship in a textile mill. That he learned to work with other kinds of machinery is evidenced by the fact that for over 2 years he held a job making auto bodies. At the end of that time (October 1929) he was laid off and did not find work for nearly 2 years. In September 1931 he obtained a job with a construction company. That job lasted until the contract was finished, a year and a half later. He was out of work for 2 months after that. In July 1932 the Philadelphia State Employment Office referred him to a distilling company where he was hired as a machinist. Eighteen months later he left in order to take a job with an auto-truck manufacturing company, thus getting back into his usual industry. The job ended in 3 months. At another automobile plant he found a job that lasted another 3 months, though he never worked full-time in that period. After that he found a few brief jobs, but soon went on relief. He was still unemployed at the time of the interview and reported that he does not qualify for modern production work, since he is not familiar with the latest developments in electrically driven machinery. He is further handicapped in his search for work by the loss of his tools. He had a thousand dollars worth of tools, but had to pawn them while he was out of a job.

PART-TIME EMPLOYMENT

One hundred and ninety-one individuals reported some part-time work between 1926 and 1935⁵ (table A-27). For machinists 30 years of age and over, the average number of months of part-time work in the 10-year period increases as age increases, but the proportion of workers reporting some part-time work decreases as age increases.

Figure 9 shows the arithmetic average of the number of months of full-time and part-time work and of unemployment for each age group. The data on which it is based are shown in table A-29.

Figure 9.- AVERAGE NUMBER OF MONTHS OF SPECIFIED TYPES OF EMPLOYMENT EXPERIENCE, 1926-35
By Age in May 1936



Based on table A-29

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

P-26

It can easily be seen that older machinists have lost out in two ways. Not only have they had more unemployment, but the work they have had has been part-time in a greater degree.

NUMBER AND LENGTH OF UNEMPLOYMENT PERIODS

The extent to which resources can be husbanded and plans made depends in part on the length of each period of unemployment and

⁵It has already been pointed out how difficult it is to secure accurate information on duration and extent of part-time work. In view of these difficulties information on this point is offered with hesitation.

the number of such periods. Unemployment is not a seasonal phenomenon for machinists. Even casual inspection of the charts yields a definite impression of long-term unemployment once unemployment occurs. The fact that half of those reporting unemployment reported average periods of over 1 year bears out this impression. Information on the average duration of unemployment periods is summarized in tables A-30 and A-31. On the whole, periods of unemployment were longer for older workers than for younger ones. They were also longer for those unemployed in May 1936 than for those working at that time. When industrial groups are considered separately, men in the metal-products industries report a larger proportion with average unemployment periods longer than 1 year than any other industrial group (table A-31).

The incidence of prolonged unemployment, as shown in the percentages of individuals with average periods of 1 year or over, varies with the man's age and the industrial group to which he normally has been attached. There was some variation in the average length of unemployment periods in the two 5-year periods. An increase in the length of unemployment periods in the years after 1930 might be anticipated in view of the increase in total unemployment reported, but the extent of this increase varies with age and industrial group. The increase in average duration of unemployment periods was greater for older men than for younger ones, and it was greater for individuals employed in manufacturing transportation equipment and machinery and in miscellaneous manufacturing and other industries than for those in the other two industrial groups.

An analysis was made not only of the average length of unemployment periods, but also of the average number of periods of unemployment experienced by individuals reporting some unemployment and of the average length of the longest period of unemployment.⁶ This information is presented in table A-33 and confirms the evidence that for machinists, unemployment, when it occurs, is of long-time character rather than seasonal or intermittent and is primarily the result of depression forces. Over half the individuals reporting unemployment experienced only one period.

⁶It was thought necessary to consider all 3 averages because average duration of unemployment is subject to too many artificial influences to be an entirely satisfactory measure of unemployment without a check on the number of periods over which total unemployment is spread and the length of the longest of these.

Reference to figure 7 gives an indication of the length of some of the longest periods.

For the whole sample the usual years in which the longest period of unemployment begins are 1931 and 1932 (table A-32). For some individuals in the study, however, unemployment began before this date and lasted well beyond it. Examining the medians of the length of the longest periods of unemployment reported, according to the years in which they started, it is found that periods beginning in 1928 were the longest, 33 months. The number beginning their longest unemployment period in this year, however, was small. For machinists of 60 years of age and over, in fact, the modal year was 1930.

Table 3 shows for each industrial group the percentage of workers who reported a period of unemployment of 1 year or more and the percentage who reported two or more periods of unemployment. These proportions are based on the totals of all individuals reporting some unemployment in the 10-year period. For the same group, the percentage of total time in the labor market between 1926 and 1935 that was spent in unemployment is also shown.

Table 3.- FREQUENCY AND DURATION OF UNEMPLOYMENT EXPERIENCE FOR WORKERS REPORTING UNEMPLOYMENT, 1926-35
By Industrial Group

Industrial group	Percent of workers reporting ^a -		Time unemployed as percent of time in labor market
	Period of 1 year or more	Two or more periods lasting 1 month or more	
Manufacture of machinery, machine tools, and electrical goods	55.2	35.9	20.1
Manufacture of transportation equipment	63.5	51.0	24.2
Manufacture of metal products, including professional instruments	75.0	20.8	20.3
Government agencies and public utilities	64.7	41.2	25.6
Miscellaneous manufacturing and other industries	62.2	51.4	23.8

^a Percentages are based on totals of workers reporting some unemployment.

Three-quarters of the workers usually employed in the manufacture of metal products who experienced some unemployment in the 10-year period reported an unemployment period lasting 1 year or more, and a relatively small proportion of them reported two or more periods of unemployment. The unemployment periods of workers attached to the manufacture of transportation equipment were frequent and long. Workers customarily employed in miscellaneous manufacturing and other industries also experienced frequent and long unemployment periods. Machinists customarily attached to plants manufacturing machinery, machine tools, and electrical goods who experienced unemployment reported fewer periods and a smaller proportion with long consecutive unemployment. While the percentage of total time in the labor market spent in unemployment was greatest for workers attached to government agencies and public utilities when only those reporting some unemployment are considered, it will be recalled that a large proportion of the machinists in this group experienced no unemployment.

CHARACTERISTICS OF THE MEN WHO WERE UNEMPLOYED IN MAY 1936

More machinists reported beginning their longest period of unemployment in 1932 than in any other year. The year 1931 was reported by the next largest group. If the relative size of the group of unemployed workers is considered, it is apparent that, although 1931 and 1932 saw the start of a long stretch of unemployment for almost equal numbers of workers employed in May 1936, 1932 was the year in which workers who were still unemployed in May 1936 began their longest unemployment periods (table A-34).

For all workers unemployed in May 1936, 12.4 percent of the total, the average number of months since the last job was 18.7 (table A-35). Eighteen months is a long time to remain without work in a recovery period such as 1935 and the beginning of 1936. Long-continued unemployment at such a time indicates that the problem of reabsorption into industry for this group is different from that of the machinists who, unemployed at some time during the 10-year period, had become reemployed by May 1936. The following paragraphs present an analysis of certain characteristics of all workers unemployed in May 1936, according to the duration of unemployment since the loss of the last job.

Among the 85 workers unemployed in May 1936, 38 had been unemployed for less than 1 year, 27 had been unemployed between 1 and 4 years, and 20 had been without work for 4 years or more. Duration of unemployment varied directly with age. For individuals under 45 years of age, the average was 10.5 months, whereas for those of 45 years of age and over it was 27.4 months (table A-35). With such a small number of cases and such a direct relationship between age and duration of unemployment since last job, it is difficult to isolate the influence of other factors on duration of unemployment. The number of years at the usual occupation, for instance, varies directly with duration of unemployment since the last job. Men of 45 years of age and over who have been unemployed for less than 1 year report fewer years at their usual occupation than men in that age group who have been unemployed for 4 years or more. However, "45 years and over" covers a wide range in age, and the sample is too small to permit a further break-down. Within that age group it is the oldest men who have been unemployed the longest. There is no evidence, therefore, that length of time at the usual occupation and duration of unemployment since last job are any more closely related than length of time at usual occupation and age. Similar reasoning applies to other measures such as the average length of unemployment periods, total unemployment in the 10-year period, date of beginning longest job, and length of service on it.

The relationships between age and schooling, age and job separations, and age and usual industry are not so close as the relationships listed above. It has therefore seemed worth while to present data on the relationship between these items and the average number of months since the last job for the 85 individuals found unemployed in May 1936.

There is little relationship between schooling and duration of unemployment since the last job. Individuals who went through the eighth grade reported shorter periods of unemployment than those who stopped before the eighth grade. On the other hand, those machinists who stopped in the eighth grade reported shorter periods than did those who went to the ninth grade or beyond. The last was too small a group, however, on which to base any conclusions.

The average duration of unemployment since the last job declined as the number of job separations reported increased.

The 85 men unemployed in May 1936 were not found in all five industrial groups in the same proportions that all men in the study were found in these groups. Workers in the manufacture of transportation equipment were more heavily represented. When the industrial group of customary attachment is examined in relation to duration of unemployment, however, individuals normally attached to the industries producing machinery, machine tools, and electrical goods are found to have reported the longest periods of unemployment since the last job, i. e., a median of 21.7 months (table A-37). Transportation-equipment workers unemployed in May 1936 reported a somewhat shorter length of time without work after the last job (17.4 months). This would indicate that a larger proportion of men customarily attached to industries producing machinery, machine tools, and electrical goods have been reabsorbed into industry, but those who have remained unabsorbed have had long periods without work preceding the date of this study. In the transportation-equipment industries, on the other hand, fewer workers have been reabsorbed, although those now unemployed have been out of a job for shorter periods on the average.

Following is the story of one man who considers himself attached to the transportation-equipment industry. He is a skilled machinist, 59 years old. He followed his trade for 32 years, including a 4-year apprenticeship, and, except for one lay-off of 3 or 4 months in 1925, was not unemployed for a period of 1 month or more until 1930. Since then he has had no work at all. He says that during the first 6 months of 1936 he was called in by his old firm for a few days' work every now and then, but never for more than a week at a time and that, added altogether, the odd days amounted to less than two months. He doesn't consider such uncertain employment a job.

One man learned to be a machinist and a millwright while he was working as a machine operator in a textile-machine manufacturing plant in England. He spent his first few years in this country as a machinist in a plant making elevators. He then secured a job in one of the city's largest textile factories and stayed there until it closed down, almost 20 years later. By that time he evidently considered that industry his own, for his subsequent jobs were all in factories making fabrics of one kind or another. None lasted very long and, by the end of 1931, at the age of 56, he was totally unemployed. Since then he has been without work.

Reemployment by May 1937 of Workers Unemployed in May 1936

"I didn't think I'd ever be called back again," said one machinist who found his first job in several years in August 1936. At the time the Philadelphia Survey of Employment and Unemployment was made in May 1936 he was without work, and, at 61 years of age, felt he was on the scrap heap of industry. Just before he was interviewed in August 1936, he had been called back to the plant where he had spent much of his working life on the machining of locomotive parts. Since this experience was found in several other cases, it seemed worth while to check in May 1937 the employment status of the 85 machinists who were unemployed in May 1936. The results of this checkup are shown in table 4.

Table 4.- EMPLOYMENT STATUS IN MAY 1937 OF MACHINISTS UNEMPLOYED IN MAY 1936

Employment status in May 1937	Number of machinists
Total	85
Employed at the usual occupation	22
In the usual industry	10
In other industries	12
Employed at other occupation	20
Unemployed	26
Not seeking work	2
Could not be located	15

All but 15 of the 85 were located. Of the 70 men, 22 were working at their usual occupation and 20 were employed at some other kind of work. One man in this latter group was a cab driver, another was an elevator operator, a third was a salesman, and a fourth and fifth were, respectively, welder and laborer. Ten of the 22 men who returned to their usual trade also returned to the industry to which they had considered themselves customarily attached. Seven of them were reemployed in the manufacture of transportation equipment. Of the 20 men who found work at an occupation other than their usual one, 7 were also absorbed into the manufacture of transportation equipment. If the experience of this group is any criterion, the proportion of unemployed workers reabsorbed by the transportation-equipment industries between 1936 and 1937 was large. It will be recalled that up to

May 1936 comparatively few people customarily employed in those industries had been rehired after long periods of unemployment.

This study bears out the findings of other studies, namely, that employment is found more frequently when the preceding period of unemployment is short than when it is long. Over two-thirds of the men unemployed in May 1936 who were reabsorbed into their usual occupation had been continuously unemployed for less than 1 year prior to May 1936. Only half of those who obtained work at some occupation other than the usual one, on the other hand, and one-fourth of those still unemployed in May 1937 were among those with less than 1 year of unemployment before May 1936.

The 28 men who were not at work when the check was made in 1937 are, on the whole, the long-time unemployed. Only one-quarter of them (8 men) were at work in May 1935, and three of the eight had had a good deal of unemployment before that time. Two of the 28 machinists dropped out of the labor market between 1936 and 1937. The other 26 were still seeking work in 1937. Their average age was 54.4 years. Two of them who were over 65 years of age had not worked since 1932 and should probably not be considered part of any potential labor supply.

It seems that, as recovery proceeded and as the demand for machinists increased, more of the long-term unemployed and aged workers were called back, but there still remained a group who did not find as skilled work as they had been accustomed to doing and another residual group who did not find any employment at all. When the records of this residual group were examined in detail, it was found that its members were not old enough to qualify for old age pensions and yet were unable to secure employment which would qualify them for unemployment compensation in later periods of unemployment.

CHARACTERISTICS OF WORKERS WHO HAD NO UNEMPLOYMENT BETWEEN 1926 AND 1935

"There'll always be work for machinists," said one man in the course of interview. Another echoed him more moderately, "With a good apprenticeship, plus natural ability, a young man can be almost sure of a lifetime job." On the other hand, a third machinist said to the interviewer, "I've got a good name in my trade, but for over 3 years now, I've sat and warmed a chair most of the day." The question of which is the truer picture

for recent years of these skilled metal workers is difficult to determine.

The outstanding fact about the 10-year work histories of Philadelphia machinists from January 1926 through December 1935 is that half of them reported no unemployment periods lasting 1 month or more.⁷ In this section will be described the industrial background and employment experience of these machinists with comparisons and contrasts between them and the total sample. The data are not analyzed by employment status in May 1936, because all but 6 were employed at that date,⁸ and 286 out of the total of 330 were working at their usual occupation in May 1936. Other occupational characteristics and the type of industrial experience are also examined.

Many of the men in the group were engaged primarily in maintenance work. Those who were production machinists were apparently kept on by employers even during slack times so that when prosperity returned there would be the nucleus of an organization of skilled workmen. Except for differences in the industrial distribution, the 330 machinists who came through the 10-year period with no unemployment periods lasting 1 month or more have background characteristics which differ very little from those of the sample as a whole.

These 330 workers were, on the whole, slightly older than all workers studied. Their median age is 46.5 years as against 45.2 years for the entire sample. As found in the entire sample, individuals of 30 years of age and over have been in the labor market the entire 10 years. Not all of those under 30 years of age have worked during the entire period. Of the 41 machinists who entered the labor market in or after 1926, only one-third reported that they were not unemployed 1 month or more. This group of 330 men, therefore, may be considered to be composed, as is the case for the entire sample, of workers who have been in the labor market during the entire 10-year period studied.

The group reporting no unemployment has relatively more native-born workers than the sample as a whole (71 percent as against 67 percent) and a larger proportion have lived in the city for over 20 years.

⁷It is particularly important in thinking about the group with no unemployment to remember that unemployment periods are defined in this study as lasting continuously for 1 month or more. Every one of these 330 men may have been unemployed at some time during the 10 years, but not (according to their reports) for a continuous period of 1 month or more.

⁸These 6 men lost their jobs between December 1935 and May 1936.

The differences in schooling between workers reporting no unemployment and all individuals studied are very slight. Measured in medians, workers in each age interval of the group with no unemployment report about one-tenth of a grade more education than do machinists as a whole. The proportion stopping school before the seventh grade and the proportion going beyond the eighth grade are similar for both groups. The first job was an apprenticeship more often in this group than in the complete sample. Thirty-six percent of this group reported that their first job was an apprenticeship at usual occupation as against 34 percent of the entire sample.

The occupational distribution of this group is very much the same as that of the total sample. There is less than 1 percent difference in the proportions of apprentices and millwrights. There is a slightly lower proportion of machinists in the group of 330 (77.0 percent as against 79.8 percent in the total sample) and a slightly higher proportion of tool makers, die setters, and instrument makers (17.6 percent as against 14.1 percent in the total sample). (See table 5.)

**Table 5.- OCCUPATIONAL DISTRIBUTION OF WORKERS
WHO REPORTED NO UNEMPLOYMENT IN THE
10-YEAR PERIOD 1926-35**

Occupation	Number	Percent
Total	330	100.0
Machinists	254	77.0
Tool makers, die setters, and instrument makers	58	17.6
Millwrights	12	3.6
Apprentices to above	6	1.8

The five industrial groups appear in this study of 330 men in somewhat different proportions than they appear in the study of the entire group of 683 men. Of the two most important industrial groups, the manufacture of transportation equipment is underrepresented (table A-38). Government agencies and public utilities and miscellaneous manufacturing and nonmanufacturing industries are more than proportionately represented. This difference can, perhaps, be accounted for by the fact that workers in both these industrial groups are largely maintenance machinists whose work must go on in bad times as well as in good.

When the average lengths of the longest job for these 330 machinists and for the sample as a whole are contrasted, a considerable difference is found (table A-36). Machinists reporting no unemployment held jobs lasting, on the average, 3 years longer than those held by all machinists.

SUMMARY

While one-half of the machinists studied experienced no unemployment in the 10-year period, 1926-35, lack of work has constituted a serious problem for the other half. In this occupation unemployment during the past 10 years has been cyclical rather than seasonal or intermittent in character. Of machinists reporting unemployment, slightly over two-fifths have experienced more than 2 years without work, not necessarily consecutive months. The average duration of unemployment periods for this group has been over 1 year. Part-time employment has also contributed to the effects of unemployment.

The depth of the depression in this occupation was at the end of 1932 and the beginning of 1933. Although recovery proceeded steadily from that time to the middle of 1937, it was slow at first. 1932 was also the year in which the greatest number of workers began their longest period of unemployment, although the average length of the longest period was greater for men whose longest period began earlier in the 10 years.

Of the various factors affecting unemployment, the industrial group of customary attachment and age seem to be the most important. Transportation-equipment manufacturing industries have contributed more than proportionately to unemployment, both in terms of the number of individuals who report unemployment, and in terms of the total amount of unemployment reported. Workers attached to these industries have shared to a lesser extent in recovery than have other workers. A disproportionately large number of workers unemployed in May 1936 reported transportation-equipment industries as their usual ones. The rate of reemployment for these workers may be due not only to slow recovery in those industries, but also to the difficulty experienced in changing from work on transportation equipment to other kinds of work requiring more precision. As might have been anticipated, machinists attached to industries other than those manufacturing metal products have had less unemployment. This is accounted for, at least in part, by the fact that much of the work they do is

maintenance work. On the other hand, workers attached to these industries experienced long periods of unemployment when they did lose their jobs.

There is a definite increase in the total amount of unemployment, as well as in the average duration of unemployment periods, with increasing age. This statement must be modified, however, by the qualification that if an older machinist had a job when the depression started, he seems no more likely than any other machinist to have become unemployed. It will be recalled that the median age of machinists reporting no unemployment was slightly higher than that of all machinists studied.

In this occupation, as in many others, there seems to be a residual group of unemployed persons who are not reabsorbed during the recovery period. In May 1936, a date when recovery had proceeded so far that complaints of labor shortages had been heard for a year, 12.4 percent of the men studied were still unemployed and reported an average time of 18 months since the last job. In the case of 24 men, the last jobs had not been at the usual occupation.

These men are, on the average, slightly older than the other men studied and the longer the unemployment since the last job, the older they are. As noted above, they are attached in disproportionate numbers to industries manufacturing transportation equipment (almost two-fifths, as against less than one-fourth of the sample as a whole).

About half of the total group of machinists experienced no unemployment in the 10 years under review. There is little difference in their education, occupational distribution, the proportion who entered the labor market in or after 1926, or the proportion whose first job was an apprenticeship. There is some difference in age, nativity, and years of continuous residence in Philadelphia. The machinists reporting no unemployment from 1926 to 1935 tend to be slightly older. There is, however, a pronounced difference in their industrial distribution. Those industrial groups that employ mostly maintenance and repair machinists, such as government agencies and public utilities and miscellaneous manufacturing and other industries, are more than proportionately represented. This group spent more time at the usual occupation and on the longest job than did other machinists.

SECTION IV

WORK EXPERIENCE, 1926-35

That machinists have had a record of long jobs and that many of them have had extremely steady work has been apparent from previous sections of the study. In this section appear data on various aspects of their work history in the last 10 years. Expressed in general terms, the questions to be answered by such material are how much shifting has taken place not only from job to job, but also from occupation to occupation, industry to industry, and employer to employer? and how much does the amount of shifting vary with age, employment status on a given date, the industry of customary attachment, and conditions in the industrial world? Material presented in the section will be of four major types.

The division of time between the usual occupation and other occupations and between the usual industry and other industries throughout the 10-year period will be shown and an effort made to determine what variations there may be for age, employment status, or industrial group. In this connection, separations from employers will also be examined.

The grade of skill of work done at occupations other than the usual will be examined in some detail in order to determine in what direction shifting takes place and whether there are variations within the sample in the direction of shifting. The industries other than the usual, in which work at the usual occupation is concentrated, will also be discussed.

Lastly, to supplement the picture of division of time among the various kinds of work, quantitative data on the number of separations from jobs and the number of shifts in occupations, industries, and employers will be presented.

DIVISION OF TIME BETWEEN WORK AT THE USUAL OCCUPATION AND AT OTHER OCCUPATIONS

It will be recalled that at the time the study was made, 18 percent of the employed workers were engaged in some occupation other than their usual one. Figure 5 shows by industrial group of customary attachment the number of men in each month working

at some occupation other than the usual one. That there was some shifting back and forth between occupations is shown by the fact that two-fifths of the workers in the study reported some time at occupations other than their usual one (table A-39). This proportion is considerably larger than any proportion in a single month working at other occupations than their customary ones. Measured in man-months of possible employment, 15.3 percent of the total man-months in the entire 10 years was accounted for by work at other occupations than the usual.

The average length of time for all workers with time at other occupations than their usual one increases with each age group from 30 years of age upward. Young men from 16 to 29 years of age, however, spent a longer time, on the average, at some occupation other than their usual one than did other machinists studied. This employment probably represents their first job experience, since the time they spent in this way decreased markedly between the first and second 5-year periods. For every age group studied, the average length of time spent at other occupations than the usual, however, was less between 1931-35 than between 1926-30, reflecting, perhaps, the greater ease of finding jobs in the first period.

Jobs at occupations other than the usual one seem to be shorter, on the whole, than those at the usual occupation, as measured by the average number of employer separations per worker per year of employment from jobs at the usual occupation and from jobs at other occupations.¹ This may be due in some cases, at least, to

¹The statement in the text is based on the following computations:

Employment with respect to usual occupation	Total	Age in years			
		16-29	30-44	45-59	60 and over
Average number of employer separations from jobs ^a					
At usual occupation	2.6	2.4	2.9	2.4	1.9
At other occupations	2.3	2.2	2.5	2.0	1.5
Average number of years employed ^b					
At usual occupation	7.0	3.3	7.4	7.4	7.3
At other occupations	1.6	3.4	1.5	1.5	0.9
Average number of employer separations per year of employment					
At usual occupation	0.4	0.7	0.4	0.3	0.3
At other occupations	1.4	0.6	1.7	1.3	1.7

^aTable A-40.

^bBreak-down of number of months employed (table A-41), by type of employment. This measure gives only a rough comparison between average length of jobs at the usual occupation and at other occupations, because of the possibility that the occupation may change without an accompanying change in employer.

the fact that such jobs are taken to fill in when regular employment is lacking and are left as soon as possible. One machinist's recent employment history illustrates this kind of change. He was a truck driver for the first 8 months of 1926. He left this job to return to the machinist trade with a firm making auto bodies. Five years later he was laid off and was entirely without work for 6 months. When he did find a job it was as a plumber's helper. A year and a half later, however, he returned to the auto firm as machinist and has been there ever since.

The average length of service on jobs at the usual occupation in the 10-year period, 1926-35, was considerably longer for the 330 individuals in the group who experienced no unemployment in the 10-year period than for the group as a whole. Fifty-six percent held their job for 8 years, as against 27 percent in the sample as a whole (table A-42). When the length of time spent at the usual occupation by the 330 men between 1926 and 1930 is compared with the corresponding time between 1931 and 1935, little difference is found between the two periods (table A-43).

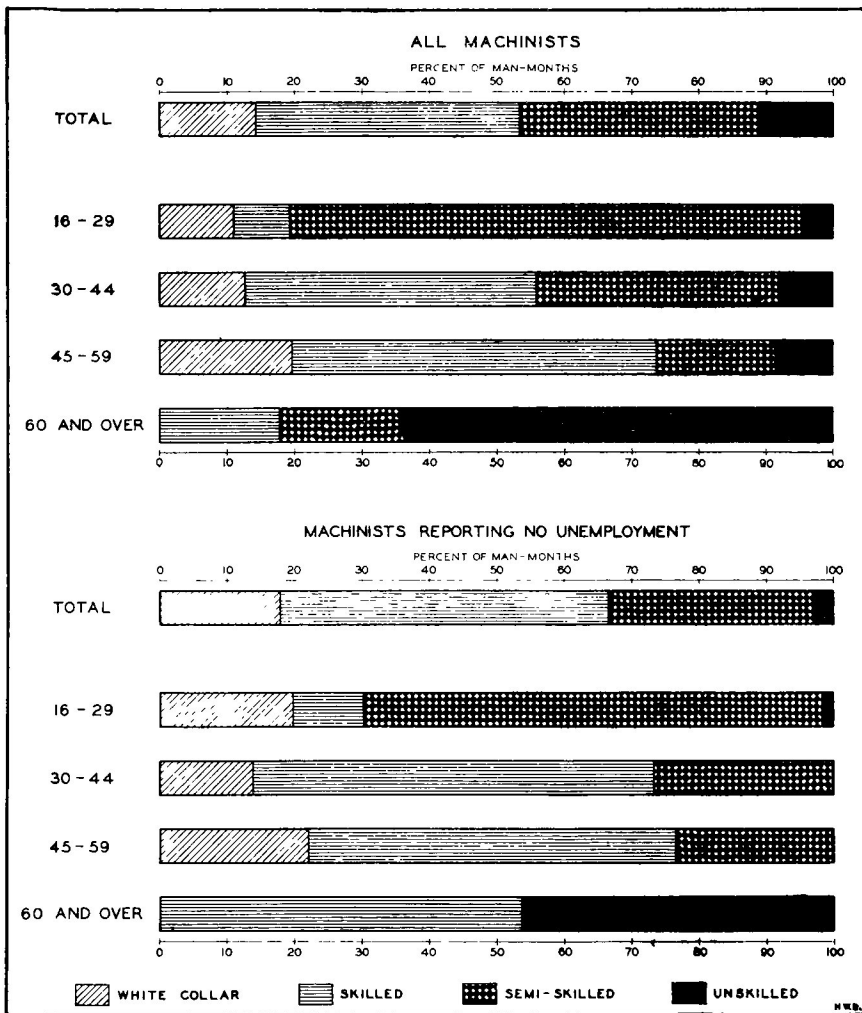
Two hundred and thirty of those who were continuously employed during the 10-year period spent no time at occupations other than their usual one (table A-44). For those who did, the average length of employment at other occupations was almost 4 years in the course of the 10-year period. When the two 5-year periods are considered separately, there is an increase in the time employed at other occupations in the second period in each of the two largest age groups, i. e., 30 to 44 and 45 to 59 years of age, for those who spent time at occupations other than the usual one. There is a decrease in the time at other occupations in the second 5-year period for the youngest age group. It will be recalled that for the whole group, including those who experienced unemployment in the 10-year period, the average length of time spent at other occupations than the usual one was less between 1931 and 1935 than between 1926 and 1930 for every age group.

Measured in man-months, the group of 330 men spent a slightly smaller proportion of their employed time at occupations other than the usual one than did the total group (12 percent against 15 percent).

A variety of work has been done by the group in the course of the years from 1926 to 1935. Figure 10 and table A-45 show the

Figure 10.- SOCIOECONOMIC CHARACTER OF EMPLOYMENT
AT OCCUPATIONS OTHER THAN THE USUAL, 1926-35

By Age in May 1936



Based on tables A-45 and A-46

Industrial Research Department -
University of Pennsylvania and
WPA - National Research Project

P-27

kind of work done classified according to a socioeconomic arrangement of the Philadelphia Labor Market Studies Occupation Code.²

²These groups are obtained from a rearrangement of the Occupation Code. The rearrangement, based on Alba M. Edwards' socioeconomic classification of occupations for United States Census material, is available in the files of the Philadelphia Labor Market Studies Section of the National Research Project of the Works Progress Administration. In the code used, the grading is biased downward, so that skilled work, akin to machinists' work, is understated. Screw-machine work and inspection work are classified as semiskilled. In metal industries, however, the work of inspectors and that of foremen are sometimes interchangeable.

In considering work at various occupations, it must be remembered that a great deal of the shifting from one occupation to another included in this study is shifting among very closely allied occupations, such as from machinist to tool maker, or engine-lathe set-up man, or foreman, where some machinist work may still be done.

From figure 10 and table A-45 it is apparent that when machinists work at occupations other than their own, this work is more likely to be skilled or white-collar than it is to be semiskilled or unskilled, even though apprenticeship is included in semiskilled occupations and represents over one-third of the man-months of this kind of work. The unskilled work has been done, on the whole, by men of 45 years of age and over.

The impression that the men who experienced no unemployment during the 10-year period are very highly skilled workers is reinforced by a classification of the other occupations according to degree of skill (table A-46 and figure 10). Two-thirds of the man-months of work outside the usual occupation was at skilled and professional work as against slightly more than half for the whole sample. Men of 60 years of age and over, who accounted for practically all of the unskilled work done by the continuously employed group, reported 109 man-months of unskilled work and 126 man-months of skilled work. In the sample as a whole men of the same age reported 452 man-months of unskilled work and 126 man-months of skilled work.

The chances are two to one that when work is unskilled it followed unemployment. In the case of semiskilled work the chances are about even that such work will follow unemployment.

Table 6.- NUMBER OF PERIODS OF WORK^a AT OCCUPATIONS OTHER THAN THE USUAL, 1926-35

By Employment Status Preceding These Periods and by Socioeconomic Character of the Occupations

Employment status preceding work at other occupations	Total periods	Socioeconomic character			
		Skilled	White-collar	Semi-skilled	Unskilled
Total periods	481	167	79	178	57
Employment	273	114	55	84	20
Unemployment	208	53	24	94	37

^aA period may consist of more than 1 job if the jobs follow each other consecutively. Periods of work following time not seeking work were considered to follow unemployment.

Semiskilled and unskilled jobs, as noted earlier, were preceded in many cases by unemployment. It was rarer for skilled and professional jobs to be so preceded. In the case of such work, the explanation given for the change was more often "promotion", or "went into business for self", or "left to be manager", than it was "slack", or "laid off", or "lost a job and had to find another."³

In the case of some of the younger men, these jobs at other occupations represent neither promotion nor demotion, but, as was indicated previously, the first search for a job, for a trade, or, sometimes, for a few dollars a week. One man, after a business course at school, started work in a sugar refinery as a clerk. His work was near the machine shop and he became interested in the machines. He felt that there was very little for him to look forward to in the office and asked to be transferred to the shop as a helper. They had no regular apprenticeship, but they trained him in the operation of various machine tools. At night school he took up mechanical drawing and mathematics. He is now considered a full-fledged machinist and is paid machinists' wages. Another man worked in a cigar factory after school as an oiler of machinery, a semiskilled job. It was just a job found through the uncle of a next-door neighbor. Since he liked machines and gladly took the chance of an apprenticeship when it was offered, 92 man-months of employment on the chart are represented by that first chance job.

DIVISION OF TIME BETWEEN WORK IN THE USUAL INDUSTRY AND IN OTHER INDUSTRIES

Most of the work done by machinists at occupations other than their own is done in industries other than those to which they consider themselves customarily attached. In addition, however, much of the work they do at their own occupation is in various industries. Figure 6 shows, for the 10 years studied, the proportion of man-months spent as machinists in other industries than the usual one. From this chart and from the fact that the majority of machinists in the study reported shifts in industries, it can be seen that work in industries other than the usual is more common than work at occupations other than the usual.

³Although no information on reason for changing job was tabulated, the questions on this topic were asked in the interview and some information was collected.

When the time spent at the usual occupation in industries other than the usual one is considered according to the industrial group, it is found that a larger proportion was spent in the production of machinery, machine tools, and electrical goods than in any other group of industries. These industries are numerically important in the city and in the sample, and in 1936 recovery in them had apparently proceeded further than in some of the other industrial groups. Below is listed the percentage of man-months employed at the usual occupation in industries other than the usual one, according to the industrial group in which they were spent:

Industrial group	Percent of man-months
Total	100.0
Manufacture of machinery, machine tools, and electrical goods	42.5
Manufacture of transportation equipment	15.8
Manufacture of metal products, including professional instruments	14.0
Government agencies and public utilities	4.2
Miscellaneous manufacturing and other industries	23.5

Work in the industrial group consisting of miscellaneous manufacturing and nonmanufacturing industries was scattered among many industries.⁴

According to the comments of the machinists interviewed, change from one industry to another takes place for a variety of reasons. Some left one industry to "get more experience." On the other hand, many changes took place because jobs were not available in the usual industry. The metal industries in Philadelphia are somewhat localized; a few changes in industry took place as a result of change of residence.

⁴The method of calculating work in industries other than the usual one must not be confused with the method of classifying men into industrial groups. An individual who considers himself attached to the transportation-equipment group of industries is considered to be working in an industry other than his usual one if, for instance, he is working in shipbuilding, when his usual industry is locomotive manufacturing, even though both industries are in the group to which he considers himself attached. Individual industries and industrial groups in which workers were classified are listed according to an adaptation of Bulletin #4, Industry Code, Works Progress Administration, National Research Project in cooperation with the Industrial Research Department of the University of Pennsylvania (mimeo., Apr. 1936).

JOB SEPARATIONS

So far the discussion has concerned only those individuals who between 1926 and 1935 worked at some occupation or in some industry other than the one in which they were normally employed. The rest of the section deals with the amount of shifting of employers, occupations, and industries by all workers and with the characteristics of the group who reported no job separations during the 10-year period, 1926-35. Over one-quarter of the machinists studied held only one job⁵ during this entire time. The proportion holding only one job increases with age (table A-47).

From the point of view of holding one job for a long time, maintenance work in miscellaneous manufacturing and other industries and government agencies and public utilities is the best. One-third of the men in each of these industrial groups reported no separations. This is well above the average for the entire sample (table A-48) and is to be expected from the character of the work. One of these men with a record of very steady employment has worked in various plants manufacturing goods other than metal products since 1897, when he entered the labor market. In 1923 he left a job with a linoleum factory to work with a firm making carpets and rugs, since he anticipated higher wages at this job. In May 1936 he was still with that firm though only on a part-time basis.

Another worker, customarily attached to the Philadelphia Navy Yard, ended his apprenticeship with a construction firm in 1895 but stayed with them for 3 years more. After some years without work because of illness, he found work in 1907 as a machinist at the navy yard. He was working there full time on the day of interview, but has since retired.

If we turn from those who reported no job separations during the 10-year period to those who reported separations, the following facts are evident. Practically all machinists unemployed in May 1936 and seven-tenths of those working at that time reported job separations in the 10-year period. A larger proportion of young than of older machinists reported separations. When these data are analyzed by industrial group of normal employment, it is found that more workers in the transportation-equipment group than in any other group reported job separations.

⁵For the purpose of this study, a job was defined as continuous service at occupational assignment with 1 employer lasting 1 month or longer.

The fact that for machinists who were continuously employed throughout the 10-year period the proportion reporting job separations was smaller than the corresponding proportion of all machinists is another indication of the stability of this group of 330 men (table A-49). The separations, by the very nature of the group, were followed by other jobs and periods of not seeking work, but not by periods of unemployment.

When the two 5-year periods are considered separately, the relations between number of separations and age and employment status remain approximately the same in both periods. The unemployed, as might be expected, show a smaller proportion with no job separations in the second 5 years than in the first. When the number of workers with job separations in each industrial group in the period from 1926 to 1930 is contrasted with the number in the period 1931-35, certain differences are found. Of workers attached to government and public utilities, a considerably larger proportion reported no job separations in the years from 1931 to 1935 than in the years from 1926 to 1930, two-thirds against three-eighths. This same difference between the two periods may be noted in the case of workers attached to the groups consisting of miscellaneous manufacturing and other industries.

Among the workers who reported some job separations in the first 5 years, but none in the second, is an individual who entered industry in 1906 and now considers himself a worker at the navy yard where he first started work in 1914. Ever since, he has worked there off and on. In 1927, when work was dull, he left, but returned the next year when called back. He has been there ever since and was steadily employed throughout the depression.

Another machinist reported a history differing even more markedly as between the first and second periods. The beginning of 1926 found him at his first job as a full-fledged machinist. He left this job in the following year "to get more experience." The work he found in a plant manufacturing machinery lasted only 4 months. When he was laid off, he found employment as service man with a retail radio shop. When the radio shop closed in 1930, he got work almost immediately as a machinist with a firm making fishing reels. The first 3 years he had only part-time work, but he reports full time on the job since 1933.

In a group as stable as the machinists, individuals who frequently change jobs stand out as exceptional. Only 237 men in

the study reported three or more separations in the 10 years. Although the majority of the machinists reporting this number of changes are under 45 years of age, it may be worth noting that the proportion of older machinists reporting three or more separations is higher among those unemployed in May 1936 than among those employed. Considering industrial groups separately, the proportion is higher for workers customarily attached to transportation-equipment industries than for those attached to other industries. Examination of figures 7 and 8 will show many short jobs with intervals of unemployment between them among the unemployed of May 1936 and among workers in transportation-equipment industries. These account, at least in part, for individuals with three or more separations.

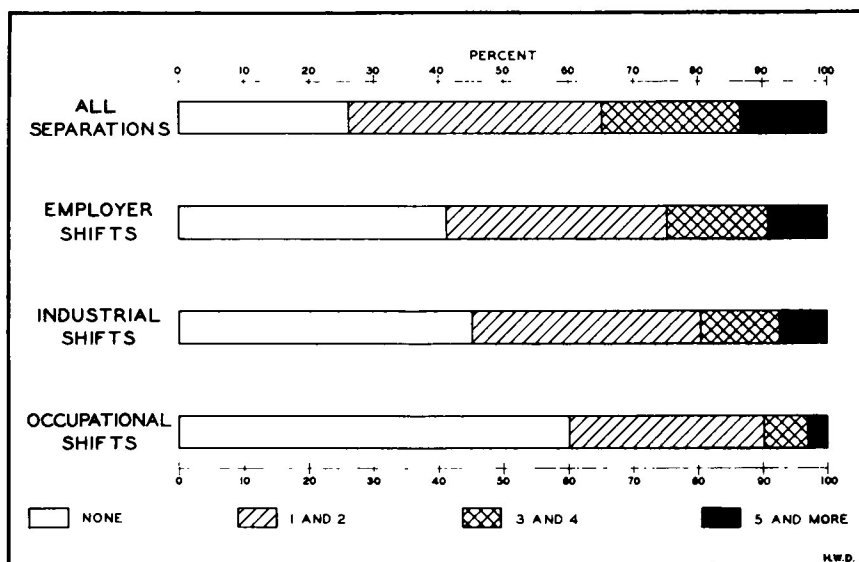
SHIFTS OF EMPLOYERS, OCCUPATIONS, AND INDUSTRIES

A separation from a job may result in a period of unemployment with return to the same job, in an immediate new job, or in a new job following unemployment. In the case of a new job, the industry, occupation, and employer may all change, or any one may change alone, or any two in combination. Of single shifts, those in employer are most frequent, and those in occupation are next in frequency. Shifts in industry without change in employer are rare.⁶

Three-fifths of the machinists reported some employer shifts. Slightly over one-half reported industrial shifts, and only two-fifths reported changes in occupations (figure 11 and tables A-50 to A-52). The proportion reporting each kind of shift decreased with age. In other words, younger machinists are more mobile. The proportion reporting employer shifts was smaller in the two industrial groups composed largely of maintenance machinists. Men attached to these two groups, however, were no less likely to shift their occupation than those attached to the manufacture of machinery or of transportation equipment. Men attached to miscellaneous manufacturing were least likely to change their industry. A smaller proportion of the group who experienced no unemployment during the 10-year period than of the total group reported changes of employer, occupation, and industry.

⁶For example, an industry shift but not an employer shift was counted for persons employed at the Victor Talking Machine Company during the time at which the plant changed its product from victrolas to radios.

Figure 11.- PERCENTAGE DISTRIBUTION OF MACHINISTS BY TYPE AND FREQUENCY OF SEPARATIONS, 1926-35



Based on tables A-48 and A-50 to A-52

Industrial Research Department - University of Pennsylvania and WPA - National Research Project

P-28

Most of these changes, however, were in combination. In the following tables each job separation is analyzed according to other changes involved. From table 7 it can be seen that only 15.7 percent of all job separations involved changes in employer, industry, or occupation alone. Slightly under one-third involved a shift in industry and employer. An additional three-tenths involved a change in occupation as well.

In the light of tables 7 and 8, in one of which are analyzed job separations for each age group and in the other, job separations for each industrial group, it is easy to tell what the brief summary of shifts, given above, means. Almost twice as many of the separations reported by men 45 years of age and over as those reported by younger men involved a return to the same employer, occupation, and industry, when and if any employment was secured. Men of 45 years and over are somewhat less likely to experience broad shifts, involving changes in employer, industry, and occupation than are younger men. A larger proportion of the separations of older men (45 and over) than of the younger men involved changes in employer alone.

Table 7.- NUMBER OF JOB SEPARATIONS, 1926-35
By Employment Status in May 1936, Age, and Type of Shift

Employment status in May 1936 and age in years	Total job separations		Type of shift																	
			Returned to same job ^a				Employer		Occupational		Industrial		Employer and occupational		Employer and industrial		Occupational and industrial		Employer, occupational, and industrial	
	After a period of unemployment		After a period of not seeking work																	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total job separations ^b	1,522	100.0	284	18.7	24	1.6	136	8.9	96	6.3	7	0.5	26	1.8	478	31.4	7	0.5	462	30.3
16-29	178	100.0	23	12.9	1	0.6	8	3.4	26	14.6	1	0.6	5	2.8	34	19.1	0	-	82	46.0
30-44	773	100.0	118	15.3	13	1.7	66	8.5	42	5.4	3	0.4	14	1.8	275	35.6	6	0.8	236	30.5
45-59	497	100.0	111	22.3	6	1.2	60	12.1	23	4.6	3	0.6	9	1.8	151	30.4	1	0.2	133	26.8
60 and over	74	100.0	32	43.2	4	5.4	4	5.4	5	6.8	0	-	0	-	18	24.3	0	-	11	14.9
Employed	1,266	100.0	174	13.7	17	1.3	119	9.4	88	7.0	6	0.5	27	2.1	424	33.5	7	0.6	404	31.9
16-29	171	100.0	21	12.3	1	0.6	8	3.5	24	14.0	1	0.6	5	2.9	32	18.7	0	-	81	47.4
30-44	649	100.0	79	12.2	8	1.2	57	8.8	38	5.9	3	0.5	13	2.0	241	37.1	6	0.9	204	31.4
45-59	402	100.0	66	16.4	4	1.0	54	13.5	21	5.2	2	0.5	9	2.2	136	33.9	1	0.2	109	27.1
60 and over	44	100.0	8	18.2	4	9.1	2	4.5	5	11.4	0	-	0	-	15	34.1	0	-	10	22.7
Unemployed	256	100.0	110	43.0	7	2.7	17	6.6	8	3.1	1	0.4	1	0.4	54	21.1	0	-	58	22.7
16-29	7	100.0	2	28.6	0	-	0	-	2	28.6	0	-	0	-	2	28.6	0	-	1	14.2
30-44	124	100.0	39	31.5	5	4.0	9	7.3	4	3.2	0	-	1	0.8	34	27.4	0	-	32	25.8
45-59	95	100.0	45	47.4	2	2.1	6	6.3	2	2.1	1	1.0	0	-	15	15.8	0	-	24	25.3
60 and over	30	100.0	24	80.0	0	-	2	6.7	0	-	0	-	0	-	3	10.0	0	-	1	3.3

^aIncludes 83 separations with no return to any job within the 10-year period.

^bIncludes one job separation each for 3 men who reported an industrial shift but no actual job separation when the plants at which they were employed changed their major product.

Table 8. - NUMBER OF JOB SEPARATIONS, 1926-35
By Usual Industrial Group and Type of Shift

Usual industrial group	Total job separations		Type of shift																	
			Returned to same job ^a				Employer		Occu- pational		Industrial		Employer and occu- pational		Employer and industrial		Occu- pational and industrial		Employer, occu- pational, and industrial	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Total job separations ^b	1,522	100.0	284	18.7	24	1.6	136	8.9	96	6.3	7	0.5	28	1.8	478	31.4	7	0.5	462	30.3
Manufacture of machinery, machine tools, and electrical goods	626	100.0	97	15.5	8	1.3	88	14.0	30	4.8	1	0.2	13	2.1	218	34.8	3	0.5	168	26.8
Manufacture of transportation equipment	452	100.0	134	29.7	5	1.1	26	5.8	24	5.3	2	0.4	4	0.9	141	31.2	2	0.4	114	25.2
Manufacture of metal products, including professional instruments	186	100.0	20	10.8	0	-	8	4.3	15	8.1	0	-	5	2.7	48	25.8	1	0.5	89	47.8
Government agencies and public utilities	85	100.0	11	12.9	5	5.9	2	2.4	7	8.2	3	3.5	2	2.4	24	28.2	1	1.2	30	35.3
Miscellaneous manufacturing and other industries	173	100.0	22	12.7	6	3.5	12	6.9	20	11.6	1	0.6	4	2.3	47	27.2	0	-	61	35.2

^a Includes 83 separations with no return to any job within the 10-year period.

^b Includes one job separation each for 3 men who reported an industrial shift out no actual job separation when the plants at which they were employed changed their major product.

WORK EXPERIENCE

When job separations are considered by industrial groups, it is found that 29.7 percent of all changes made by workers customarily attached to transportation-equipment industries are to unemployment with return to the same job if to any employment. This proportion is considerably larger than that for any other industrial group. The machinery, machine-tools, and electrical-goods industries are next, with 15.5 percent. The findings for the transportation-equipment group, however, are by no means unexpected in the light of the widespread unemployment found among workers normally employed in those industries. Table A-53 presents an analysis of job separations for men from 30 to 44 years of age by industrial groups. This age group was chosen for illustration because of the mobility of men at this time of life. The predominance of job separations to unemployment with return to the same job, if to any employment, for transportation-equipment workers compared with other workers can be seen in this table, too.

Table A-54 analyzes for each of the 388 job separations of machinists reporting continuous employment during the 10-year period the kind of shift involved. Slightly over one-third of all job separations reported by the group involved changes in employer and industry; another third involved changes in occupation, industry, and employer. These proportions are slightly larger than are found in the sample as a whole, in which 18.7 percent of the separations are to unemployment with return to the same job if to any employment, without a change in occupation, industry, or employer. When the shifting is examined for age groups separately, there is little difference to be found except in the youngest and oldest groups. In the youngest group, two-fifths of the job separations involved shifts in employer, occupation, and industry, and one-fifth involved changes in employer and industry. In the oldest age group this is reversed.

SUMMARY

Most of the 1926-35 employment experience of the machinists, millwrights, and tool makers in the study has been at their usual occupation. Two-fifths of the workers reported some time at occupations other than their usual one. A far larger proportion of young men from 16 to 29 years of age than of any other age group worked outside their usual occupation. They also reported, on the average, a longer time spent in this way than did older

workers. This may have been due to their inability to get started at their regular work for some years after entering the labor market. In connection with work at occupations other than the usual one, however, it is important to recall that data on this phase of the work histories overemphasize the amount of shifting among occupations and the time spent at occupations other than the usual one, because of the detailed nature of the occupational code used in tabulating. Changes in work, which would not be considered changes in occupation by the machinists themselves, were coded as occupational changes.

Over half of the work at occupations other than the usual one was at skilled and professional work. Much of the former was in occupations very closely allied to the usual one, such as foreman or operator of special machines requiring a high degree of skill. Semiskilled and unskilled work was done to some extent, but over one-third of the semiskilled work represented apprenticeship; 33 percent of unskilled work was done by men 60 years of age and over, many of whom were unemployed in May 1936. The machinists who reported continuous employment throughout the 10-year period spent more of their time at occupations other than the usual one in skilled and professional work than did machinists as a whole. Although work at skilled occupations other than the usual one does not seem, on the whole, to be an alternative to unemployment for machinists, it may be that semiskilled and unskilled work is such an alternative. The chances were approximately even that semiskilled or unskilled work followed unemployment or an interruption in employment at the usual occupation. The chances that skilled and professional work followed unemployment were less than one to two.

Shifting from industry to industry is more common for machinists than shifting from occupation to occupation. Fifty-six percent reported work in some industry other than the usual one during the 10-year period. The largest proportion of time employed in this way was spent in industries producing machinery, machine tools, and electrical goods. According to comments of machinists, shifting from one industry to another is sometimes a deliberate choice for the sake of new experience, sometimes a necessity "to get any work", and occasionally a convenience following a change in residence.

One-quarter of the men studied reported the same job over the entire period. The largest proportion of job separations were

followed by change in employer and industry. Almost as large a proportion, however, were followed by changes in employer, occupation, and industry. When age groups were considered separately, it was found that a smaller proportion of young men (16 to 44) reported job separations followed by shifts in employer and industry than reported separations followed by all three kinds of shifts. Job separations involving unemployment followed by return to the same job, if to any employment, were reported twice as often by men of 45 years of age and over as they were by younger men. This kind of separation was reported for 29.7 percent of the separations made by workers normally employed in transportation-equipment industries. This was a larger proportion than in any other industrial group.

It would seem that the experience of Philadelphia workers attached to the machinists' labor market in May 1936 bears out the impression given by their background and early experience. They are a stable group of men, making few changes in jobs and still fewer in occupations. Their shifts from industry to industry are somewhat more frequent, because, at least to some extent, their skill is transferable and because their work is needed in almost all of Philadelphia's industries. When they lose or leave their jobs, it seems to be harder for men 45 years of age and over and for workers usually employed in the manufacture of transportation equipment to secure new jobs. Mobility of machinists seems to be connected with age and industry of usual employment. There are undoubtedly other factors that determine the ability of certain men to avoid unemployment more readily than others do. With the material at hand, it is not possible to generalize about any other factors.

SECTION V

SUMMARY AND CONCLUSIONS

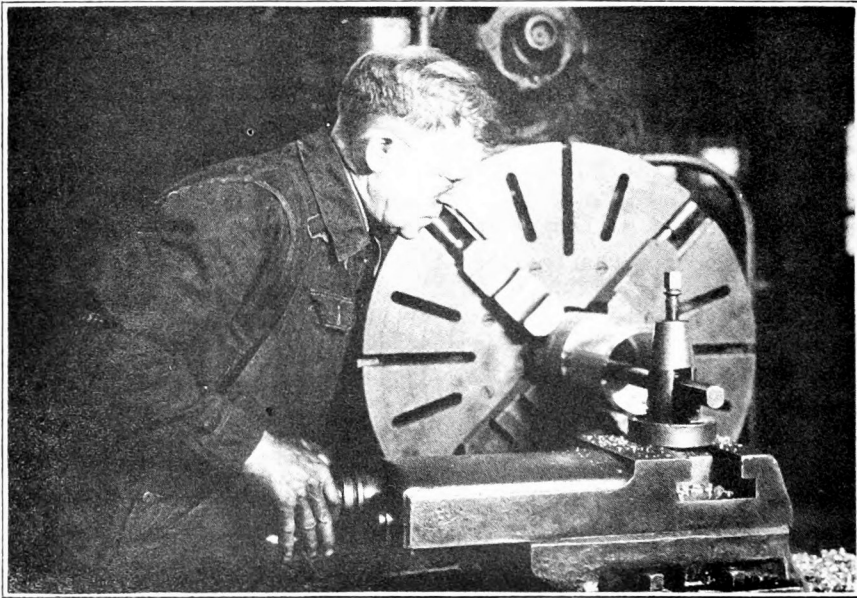
SUMMARY

The trades of machinist, millwright, and tool maker are, even in this day of mechanization, highly skilled occupations. They also involve a good deal of responsibility, since carelessness and bad work can ruin materials worth many thousands of dollars or cause accidents involving many lives.

The exacting nature of the work, in the opinion of the interviewers for this study, has attracted a very dependable group of workers with characteristics somewhat different from those of individuals attached to many other occupations. On the average they are older and they have a good educational background. Even in the days when it was not unusual for a youngster to go to work at the age of 12, future machinists were staying at school until they had finished at least the elementary grades. Both the two-thirds who were native-born and the one-third who were foreign-born have lived in Philadelphia a long time. Many of those who were born abroad did not feel that foreign birth was the handicap that some unskilled workers find it. On the contrary, many told of the eagerness of shops to secure machinists with foreign training, but there were also cases in which it was evident that less skilled work had to be accepted while the language was being learned.

Employment in the metal industries had been increasing from 1933 to the end of the period covered by this study. In May 1936, when the sample was selected, seven-eighths of the machinists were employed, the great majority at their own trade. Since machinists are needed in almost all of the city's industries, the men in the study were attached to plants manufacturing a variety of products, as well as to nonmanufacturing enterprises. Four-fifths of the individuals, however, were customarily attached to industries manufacturing various metal products ranging from small wares to large engines.

The years of training required, the character of the responsibility, and in some cases long identification with one firm have resulted in developing a group of men who believe in their skill and who take their responsibilities seriously. Their own comments



WPA - National Research Project (*Hine*)

FIGURE 12.- TOOL BUILDER PLANING FOR A TAPER SHOE ON STEAM HAMMER RAM

concerning their occupation, aside from their accounts of actual experience, ranged from the remarks of the worker who thought that today all that is wanted is a "specialist" or machine operator to the comment of the man who thought that the trouble with the trade is that "they expect a man to know too much, more than any man can know" and the comment of the man who has left the trade because "there was too much responsibility for the money."

The men studied proved to have spent most of their working life at their usual occupation, if not practicing it, then learning or supervising. In many cases, supervising and actual practice of the trade go hand in hand, especially in the smaller shops of the city. Entrance to the trade, or rather to an apprenticeship to the trade, took place coincidentally with entrance to the labor market for only one-third of the machinists studied. Four-fifths of the group, however, sooner or later served a paid apprenticeship lasting anywhere from a few months to 6 years. Since wages of apprentices are notably meager, the choice of the trade must have required forethought, planning, and a little economic leeway. The choice meant giving up the immediate benefit of wages higher than those of an apprentice for the future benefit of the wages of a skilled worker.

Of those who served apprenticeship, some stayed with the same firm for the rest of their working lives. Others left the shop to secure more varied experience. It seems to be the general opinion that moving from industry to industry to obtain an increased knowledge of the trade was more common in earlier days than today. Two-fifths of the men furnishing information on this aspect of their work, however, served apprenticeships in the industry to which they considered themselves attached in the spring of 1936. In the light of this fact it may be that the commonly accepted idea that machinists are able to change from industry to industry needs reexamination. Most of the complaints of a shortage of machinists during 1935 and 1936 seem to imply that the skill is easily transferable, since the complaints do not stress the industry of the shortage.

The machinists included in this study have held their jobs for a long time. The average length of service on the longest job was 10 years and the average length of jobs at the usual occupation during the 10 years from 1926 to 1935 was almost 4 years. Provided job interruptions of 1 month or more are adequately reported, this indicates that there is less seasonality in this occupation than in many others. During this 10-year period machinists have been for the most part employed at their usual occupation, an indication that even through the depression there was a demand for machinists. Over half of the total employment of the group was in the usual industry as well. When a change in occupation directly followed employment, the new work was in many cases skilled or white-collar, showing that machinists have a good deal of leeway before they are forced down the economic scale by inability to find work as well-paid as their usual work. Semiskilled or unskilled work was likely to follow a period of unemployment.

Job separations were usually followed or accompanied by changes in employer, occupation, and industry. A change in any one of these without a change in at least one other was rare. On the other hand, many machinists returned to the same employer, occupation, and industry after a period of unemployment.

The unemployment reported was by no means evenly divided among individuals attached to the occupation in 1936. An outstanding fact concerning the employment experience of machinists in Philadelphia between 1926 and 1935 is the difference in the experience

of workers attached to different industrial groups. One-half of the machinists studied experienced no continuous unemployment of 1 month or longer during the period from 1926 to 1935. Only one-third of the workers customarily attached to the manufacture of transportation equipment, however, were in this group, while 65 percent of the men in government agencies and public utilities and 62 percent of those in miscellaneous manufacturing and other industries experienced no unemployment. In this connection it should be noted that the opportunity of machinists in the sample to obtain and hold employment in the last 10 years is probably superior to that of many other machinists, who perhaps became so discouraged by unemployment that they left the trade permanently before 1936 and were therefore not covered by this study.

Except for differences in the industrial distribution, the differences in the background experience and the 10-year histories of all machinists and of those who experienced no unemployment between 1926 and 1935 were not great. The history of the machinists reporting no unemployment demonstrated greater stability than the total group. Their longest jobs were longer and more frequently at the usual occupation than were those of the total group. If they worked at other occupations, the work was more likely to be skilled or professional than in the case of all machinists. In the last 10 years the average time they spent on each job at the usual occupation was also longer. On the average, this group was slightly older than all men studied. The fact that they were attached to government agencies and public utilities and miscellaneous manufacturing and other industries in larger proportions than were machinists as a whole indicates that there were more maintenance machinists among those reporting no unemployment; this group, however, was by no means entirely composed of maintenance machinists. As reflected in the work histories of the group, there seems to be no connection between the serving of a 4-year apprenticeship and the ability to come through a long depression with no unemployment.

One-half the men studied experienced at least 1 month of unemployment in the 10-year period between 1926 and 1935. Unemployment for this group seems to have been of long-term character rather than seasonal. The difference between the average length of unemployment periods and the total amount of unemployment experienced, for each individual, was 9 months. The problem of unemployment has been aggravated by part-time employment.

Machinists who reported any of it at all reported an average of 30 months of part-time work.¹

For the group who reported unemployment, there seems to be a relationship between the total amount of unemployment experienced and age and also the industrial group of customary attachment. This statement must be modified, however, in the light of the findings concerning the group of men reporting no unemployment. If a machinist has a job, he is not likely to be discharged because of his age. The value of experience seems to outweigh the handicap of age in the case of such men. In this connection it should be recalled that the average age of the men reporting no unemployment was slightly higher than that of all machinists in the study. There were, of course, some examples of men being kept on by their employers but being given janitorial work or some other light duty. This was, however, far from customary. In the majority of cases men who remained with the same firm throughout this period were still working at their usual occupation when studied. On the other hand, when older men lost their jobs they were less likely than younger men to secure new ones. The total amount of unemployment for those experiencing time without work increased directly with age.

On the average, the age of the 85 machinists unemployed in May 1936 was higher than that of employed machinists (47.6 years compared with 44.7 years). These 85 men were for the most part a residual group of the unemployed. Over half of them had been unemployed consecutively for 1 year or longer. As the demand for experienced machinists became more and more pressing, some were reabsorbed. In May 1937, when a check was made of the employment status of machinists reported unemployed in May 1936, it was found that 28 were still unemployed. Two of these 28 had withdrawn from the labor market between 1936 and 1937 because of illness. Two more, though seeking work, were over 65 years of age. The remaining members of the group seemed to be genuinely in the machinists' labor market in May 1937.

The amount of unemployment contributed by different industries varied greatly. In this connection two measures need to be considered, the proportion of workers attached to the industry who suffered unemployment and the amount of unemployment experienced. By both these measures the manufacture of transportation equipment

¹This figure is based on the experience of 191 men who reported 1 month or more of part-time work in the 10-year period.

contributed most to the unemployment of machinists. Not only did these industries contribute a disproportionate number of man-months of unemployment, but they also affected more people. At the other end are government agencies and public utilities and miscellaneous manufacturing and other industries. By both measures their contribution to the unemployment of machinists was comparatively light. It should be noted, however, that when individuals attached to miscellaneous manufacturing and other industries became unemployed, they were likely to stay unemployed for a very long time. The average duration of unemployment periods was longer for men attached to this group than for those attached to any other, except for the manufacture of metal products, including professional instruments.

The transportation-equipment industries recovered less rapidly than others because of the declining demand for the products of the particular industries located in Philadelphia. Machinists customarily attached to these industries have faced an additional problem with regard to employment. Work required of them is less exacting than that required of machinists in other industries. Consequently it has been harder for men attached to these industries than for machinists attached to certain other industries to make a transfer to precision work.

On the other hand, the situation of machinists in industries other than those producing metal goods is reflected in the record of workers attached to the miscellaneous-industries group. Each factory employs one maintenance machinist or, at the most, a small group of them. These men are needed even when work is very slack. If the factory is farsighted, and equipped with enough money to put its farsightedness into practice, it is then that repairs, renovations, and installations take place. Maintenance machinists in these industries experienced less unemployment in the years under review.

CONCLUSIONS

One metal-trades executive remarked about the findings of this study that if all the machinists studied had been as experienced workers as the group who reported continuous employment in the 10 years, 1926 to 1935, the industries of Philadelphia would not have had sufficient business to employ them in 1932 and 1933. This substantiates the point that the outstanding differences in

the recent employment experience of Philadelphia machinists arise not from differences in their personal or occupational characteristics but from changes in the business activity of the industries to which the men were customarily attached. Within these industrial groups, however, differences in work experience reflect individual backgrounds and personal characteristics. The most important of these is age. Although age is no handicap to a skilled machinist in retaining a job, once he becomes unemployed it becomes a distinct liability.

The size and character of the unemployment problem of "marginal" workers has been outlined. Machinists who in May 1936 had been unemployed 1 year or longer were 7 percent of the total sample. In actual numbers this is not a large group. The great majority of these individuals are genuinely attached to this labor market, are in need of work and are seeking work, are able and willing to work, and are not old enough to be eligible for old age pensions. Although they had been first-class machinists, either they had not been offered a job because of their age or they had been unable to adjust their skill to current requirements in the labor market for this occupation in Philadelphia. Even so, as business improved between 1936 and 1937, more than half of these "marginal" men found jobs.

It is obvious that selective factors enter into the retention of skilled workers on pay rolls during a depression and the absorption or reabsorption of the unemployed into jobs when jobs are scarce. When jobs are more plentiful and there is likelihood of a labor shortage, such as was reported in Philadelphia in 1936 and 1937, selective employment factors are much less important and even the "marginal" workers secure jobs.

APPENDIX A

TABLES

The sample on which these tables (except table A-1) are based is described in the Introduction.

For definitions of terms used in tables, see appendix B.

The occupation and industry codes used in classifying the work-history material are adaptations of Bulletin #3, Occupation Code, and Bulletin #4, Industry Code, Works Progress Administration, National Research Project in cooperation with the Industrial Research Department of the University of Pennsylvania (mimeo., April 1936).

Socioeconomic groups (tables A-45, A-46) were based on an adaptation of Alba M. Edwards' socioeconomic classification for the United States Census occupational returns, presented in "A Social-Economic Grouping of the Gainful Workers of the United States," *Journal of the American Statistical Association*, XXVIII, No. 184 (Dec. 1933), 377-87.

Table A-1.- WAGE EARNERS IN THE METAL INDUSTRIES
OF THE PHILADELPHIA INDUSTRIAL AREA, 1929^a

Industry	Average number of wage earners
Total wage earners	82,753
Iron and steel and their products (not including machinery and machine tools)	19,270
Foundry and machine-shop products, n.e.c.	14,315
Machinery and machine tools	18,095
Transportation equipment	14,335
Railroad repair shops	5,728
Hardware, cutlery, bolts, nuts, etc.	2,973
Other metal industries	8,039

^aCompiled from Fifteenth Census of the United States,
"Manufactures: 1929" (U. S. Dept. Com., Bur. Census, 1932),
III, 452-4.

Table A-2.- EMPLOYMENT STATUS IN MAY 1936 BY AGE

Age in years	Total persons		Employed		Unemployed	
	Number	Percent	Number	Percent	Number	Percent
Total persons	683	100.0	598	100.0	85	100.0
16-19	4	0.6	4	0.7	0	-
20-24	20	2.9	20	3.3	0	-
25-29	36	5.3	33	5.5	3	3.5
30-34	68	10.0	62	10.4	6	7.1
35-39	100	14.6	92	15.4	8	9.4
40-44	109	16.0	94	15.7	15	17.7
45-49	113	16.6	92	15.4	21	24.7
50-54	100	14.6	89	14.9	11	12.9
55-59	65	9.5	58	9.7	7	8.2
60-64	46	6.7	37	6.2	9	10.6
65 and over	22	3.2	17	2.8	5	5.9
Median age	45.2		44.7		47.6	

Table A-3.- NATIVITY BY AGE

Age in years	Total persons		Native-born		Foreign-born	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Total persons ^a	681	100.0	456	67.0	225	33.0
16-29	60	100.0	49	81.7	11	18.3
30-44	277	100.0	183	66.1	94	33.9
45-59	277	100.0	186	67.1	91	32.9
60 and over	67	100.0	38	56.7	29	43.3

^aExcludes 2 men who did not report nativity.

Table A-4.- NUMBER OF YEARS OF CONTINUOUS RESIDENCE IN PHILADELPHIA BY NATIVITY AND EMPLOYMENT STATUS IN MAY 1936

Nativity and number of years of residence	Total persons		Employed		Unemployed	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Total persons ^a	679	100.0	594	100.0	85	100.0
Under 5 yr. 6 mo.	26	3.6	23	3.9	3	3.5
5 yr. 6 mo.-10 yr. 5 mo.	54	8.0	49	8.2	5	5.9
10 yr. 6 mo.-15 yr. 5 mo.	58	8.5	53	8.9	5	5.9
15 yr. 6 mo.-20 yr. 5 mo.	48	7.1	40	6.7	8	9.4
20 yr. 6 mo. and over	218	32.1	184	31.0	34	40.0
Since birth	275	40.5	245	41.3	30	35.3
Native-born	454	100.0	403	100.0	51	100.0
Under 5 yr. 6 mo.	17	3.7	16	4.0	1	2.0
5 yr. 6 mo.-10 yr. 5 mo.	18	4.0	15	3.7	3	5.9
10 yr. 6 mo.-15 yr. 5 mo.	17	3.7	17	4.2	0	-
15 yr. 6 mo.-20 yr. 5 mo.	26	5.7	22	5.5	4	7.8
20 yr. 6 mo. and over	101	22.3	88	21.8	13	25.5
Since birth	275	60.6	245	60.8	30	58.8
Foreign-born	225	100.0	191	100.0	34	100.0
Under 5 yr. 6 mo.	9	4.0	7	3.7	2	5.9
5 yr. 6 mo.-10 yr. 5 mo.	36	16.0	34	17.8	2	5.9
10 yr. 6 mo.-15 yr. 5 mo.	41	18.2	36	18.8	5	14.7
15 yr. 6 mo.-20 yr. 5 mo.	22	9.8	18	9.4	4	11.8
20 yr. 6 mo. and over	117	52.0	96	50.3	21	61.7

^aExcludes 2 men who did not report years of residence and 2 men who did not report nativity.

Table A-5.- SCHOOL GRADE COMPLETED BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Employment status in May 1936 and school grade completed	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	673	100.0	60	100.0	273	100.0	274	100.0	66	100.0
Under 7	148	22.0	5	8.3	56	20.5	68	24.8	19	28.8
7 and 8	370	55.0	25	41.7	155	56.8	155	56.6	35	53.0
9 and over	155	23.0	30	50.0	62	22.7	51	18.6	12	18.2
Median grade ^b	8.4		9.1		8.4		8.3		8.2	
Employed	590	100.0	57	100.0	246	100.0	235	100.0	52	100.0
Under 7	123	20.8	5	8.8	48	19.5	53	22.6	17	32.7
7 and 8	328	55.6	24	42.1	142	57.7	137	58.3	25	48.1
9 and over	139	23.6	28	49.1	56	22.8	45	19.1	10	19.2
Median grade ^b	8.4		8.9		8.4		8.4		8.3	
Unemployed	83	100.0	3	100.0	27	100.0	39	100.0	14	100.0
Under 7	25	30.1	0	-	8	29.6	15	38.5	2	14.3
7 and 8	42	50.6	1	33.3	13	48.2	18	46.1	10	71.4
9 and over	16	19.3	2	66.7	6	22.2	6	15.4	2	14.3
Median grade ^b	8.2		#		8.3		8.2		#	

^aExcludes 10 men who did not report school grade completed.

^bComputed from more detailed breakdown.

#Median not calculated for fewer than 15 cases.

Table A-6.- AGE OF BEGINNING WORK BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Age in years and employment status in May 1936	Total persons		Age of beginning work in years									
			Under 12		12-13		14-15		16-17		18 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	681	100.0	19	2.8	96	14.1	315	46.2	188	27.6	63	9.3
Employed	597	100.0	18	3.0	84	14.1	285	47.7	159	26.6	51	8.6
Unemployed	84	100.0	1	1.2	12	14.3	30	35.7	29	34.5	12	14.3
16-29	60	100.0	0	-	2	3.3	21	35.0	25	41.7	12	20.0
Employed	57	100.0	0	-	2	3.5	20	35.1	24	42.1	11	19.3
Unemployed	3	100.0	0	-	0	-	1	33.3	1	33.4	1	33.3
30-44	276	100.0	3	1.1	20	7.2	150	54.4	79	28.6	24	8.7
Employed	247	100.0	3	1.2	16	6.5	140	56.7	69	27.9	19	7.7
Unemployed	29	100.0	0	-	4	13.8	10	34.5	10	34.5	5	17.2
45-59	277	100.0	13	4.7	54	19.5	123	44.4	64	23.1	23	8.3
Employed	239	100.0	12	5.0	48	20.1	110	46.0	50	20.9	19	8.0
Unemployed	38	100.0	1	2.6	6	15.8	13	34.2	14	36.9	4	10.5
60 and over	68	100.0	3	4.4	20	29.4	21	30.9	20	29.4	4	5.9
Employed	54	100.0	3	5.6	18	33.3	15	27.8	16	29.6	2	3.7
Unemployed	14	100.0	0	-	2	14.3	6	42.8	4	28.6	2	14.3

^aExcludes 2 men who did not report age of beginning work.

Table A-7.- YEAR OF ENTERING THE LABOR MARKET^a BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Employment status in May 1936 and age in years	Total	1872-73	1874-75	1876-77	1878-79	1880-81	1882-83	1884-85	1886-87	1888-89	1890-91	1892-93	1894-95	1896-97	1898-99	1900-01	1902-03
		1904-05	1906-07	1908-09	1910-11	1912-13	1914-15	1916-17	1918-19	1920-21	1922-23	1924-25	1926-27	1928-29	1930-31	1932-33	1934-35
Total persons ^b	675	1	1	1	3	7	3	6	15	12	25	25	29	25	40	47	40
16-29	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-44	274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45-59	276	0	0	0	0	0	0	0	0	3	13	18	29	25	40	47	39
60 and over	65	1	1	1	3	7	3	6	15	9	12	7	0	0	0	0	0
Employed	591	0	1	1	3	4	3	6	13	8	20	23	25	23	36	42	33
16-29	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-44	245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
45-59	238	0	0	0	0	0	0	0	0	2	11	18	25	23	36	42	32
60 and over	51	0	1	1	3	4	3	6	13	6	9	5	0	0	0	0	0
Unemployed	84	1	0	0	0	3	0	0	2	4	5	2	4	2	4	5	7
16-29	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-44	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45-59	38	0	0	0	0	0	0	0	0	1	2	0	4	2	4	5	7
60 and over	14	1	0	0	0	3	0	0	2	3	3	2	0	0	0	0	0
Total persons ^b	44	47	42	34	44	42	34	25	21	9	12	18	12	0	5	6	
16-29	0	0	0	0	0	1	0	0	4	5	11	16	12	0	5	6	
30-44	7	24	40	34	44	41	34	25	17	4	1	2	0	0	0	0	
45-59	37	23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
60 and over	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Employed	32	43	32	30	40	41	32	23	18	9	11	17	11	0	5	6	
16-29	0	0	0	0	0	1	0	0	3	5	11	15	11	0	5	6	
30-44	6	22	30	30	40	40	32	23	15	4	0	2	0	0	0	0	
45-59	26	21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
60 and over	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Unemployed	12	4	10	4	4	1	2	2	3	0	1	1	1	0	0	0	
16-29	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	
30-44	1	2	10	4	4	1	2	2	2	0	1	0	0	0	0	0	
45-59	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
60 and over	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

^aSee appendix B for definition of date of entering labor market.^bExcludes 8 men who did not report date of entering labor market.

Table A-8.- APPRENTICESHIP BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Age in years and employment status in May 1936	Total persons		No apprenticeship		Apprenticeship abroad				Apprenticeship in United States			
					Under 4 years		4 years and over		Under 4 years		4 years and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	561	100.0	129	23.0	35	6.2	50	8.9	106	18.9	241	43.0
Employed	495	100.0	108	21.8	31	6.3	47	9.5	95	19.2	214	43.2
Unemployed	66	100.0	21	31.8	4	6.1	3	4.5	11	16.7	27	40.9
16-29	47	100.0	10	21.3	3	6.4	2	4.2	11	23.4	21	44.7
Employed	44	100.0	10	22.7	3	6.8	2	4.6	10	22.7	19	43.2
Unemployed	3	100.0	0	-	0	-	0	-	1	33.3	2	66.7
30-44	251	100.0	54	21.5	17	6.8	24	9.6	59	23.5	97	38.6
Employed	225	100.0	50	22.2	16	7.1	22	9.8	53	23.6	84	37.3
Unemployed	26	100.0	4	15.4	1	3.8	2	7.7	6	23.1	13	50.0
45-59	210	100.0	48	22.9	11	5.2	19	9.0	31	14.8	101	48.1
Employed	181	100.0	35	19.3	9	5.0	19	10.5	28	15.5	90	49.7
Unemployed	29	100.0	13	44.8	2	6.9	0	-	3	10.4	11	37.9
60 and over	53	100.0	17	32.1	4	7.6	5	9.4	5	9.4	22	41.5
Employed	45	100.0	13	28.9	3	6.7	4	8.9	4	8.9	21	46.6
Unemployed	8	100.0	4	50.0	1	12.5	1	12.5	1	12.5	1	12.5

^aExcludes 1 man who did not report length of apprenticeship and 121 men who did not report apprenticeship.

Table A-9.- LENGTH OF APPRENTICESHIP BY NUMBER OF MONTHS UNEMPLOYED, 1926-35

Number of months unemployed	Total persons		Length of apprenticeship in years							
			None		Under 2		2-3		4 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	561	100.0	129	100.0	23	100.0	118	100.0	291	100.0
None	275	49.0	68	52.7	7	30.4	65	46.6	145	49.8
1-12	89	15.9	16	12.4	7	30.4	21	17.8	46	15.5
13-24	68	12.1	10	7.8	1	4.4	19	16.1	38	13.1
25-36	53	9.5	12	9.3	4	17.4	8	6.8	29	10.0
37-48	40	7.1	10	7.8	3	13.0	8	6.8	19	6.5
49-60	20	3.6	5	3.8	1	4.4	5	4.2	9	3.1
61-72	7	1.2	4	3.1	0	-	0	-	3	1.0
73-84	3	0.5	1	0.8	0	-	0	-	2	0.7
85-96	6	1.1	3	2.3	0	-	2	1.7	1	0.3
Median number of months										
Total	1.8		0.9		9.6		3.6		1.3	
Those reporting 1 or more months	22.6		30.0		26.5		19.9		22.0	

^aExcludes 1 man who did not report length of apprenticeship and 121 men who did not report apprenticeship.

Table A-10.- APPRENTICESHIP BY USUAL INDUSTRIAL GROUP

Apprenticeship	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	562	100.0	227	40.4	132	23.5	81	14.4	40	7.1	82	14.6
No apprenticeship	129	100.0	60	38.7	33	25.6	25	19.4	2	1.6	19	14.7
Apprenticeship in the United States	347	100.0	140	40.3	76	21.9	43	12.4	36	10.4	52	15.0
Apprenticeship abroad	86	100.0	37	43.0	23	26.8	13	15.1	2	2.3	11	12.8

^aExcludes 121 men who did not report apprenticeship.

Table A-11.- USUAL INDUSTRY OF WORKERS

Usual industry ^a	Number of persons	Percent
Total persons	683	100.0
Machinery manufacturing	286	41.9
Electrical machinery and apparatus	68	9.9
Machine shops, n.o.s. (e.g., blacksmiths', jobbing, and machine shops)	27	4.0
Other machinery and parts (e.g., agricultural equipment)	179	26.2
Radio	12	1.8
Transportation-equipment manufacturing	158	23.1
Motor vehicles and parts	56	8.2
Railroad equipment and repair shops	77	11.2
Ships	8	1.2
Street railway	15	2.2
Other	2	0.3
Metal-products manufacturing, including musical and professional instruments	94	13.8
Blast furnaces, steel works, and rolling mills	23	3.4
Foundries, forgings, and castings	10	1.5
Bolts, washers, nuts, etc.	6	0.9
Cutlery, firearms, etc.	14	2.0
Piping, tubing, etc.	6	0.9
Tin cans, tinware, etc.	6	0.9
Aluminum, brass, bronze, etc.	7	1.0
Professional and scientific instruments	11	1.6
Other	11	1.6
Government agencies and public utilities	49	7.2
Electric light and power plants	3	0.4
City (education and other)	4	0.6
War Department (e.g., the Frankford Arsenal)	11	1.6
Philadelphia Navy Yard	27	4.0
Other	4	0.6
Other industries	96	14.0
Manufacturing, other than metal	91	13.3
Food products	8	1.2
Carpets and rugs	7	1.0
Other textile and clothing products	18	2.7
Furniture and lumber products	5	0.7
Leather products	3	0.4
Paper and printing	7	1.0
Petroleum refining and other chemicals	15	2.2
Tobacco products	8	1.2
Stone, clay, and glass products	5	0.7
Other	15	2.2
Nonmanufacturing	5	0.7

^aIn this and following tables "n.e.c." is an abbreviation for "not elsewhere classified"; "n.o.s.", for "not otherwise specified."

Table A-12.- USUAL INDUSTRIAL GROUP BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Employment status in May 1936 and age in years	Total persons	Manufacture of -			Government agencies and public utilities	Miscellaneous manufacturing and other industries
		Machinery, machine tools, and electrical goods	Transportation equipment	Metal products, including professional instruments		
Total persons	683	286	158	94	49	96
16-29	60	26	8	13	6	7
30-44	277	118	62	41	18	38
45-59	278	125	69	27	19	38
60 and over	68	17	19	13	6	13
Median age	45.2	44.9	47.3	42.7	45.6	46.0
Employed	598	252	126	88	48	84
16-29	57	26	7	12	6	7
30-44	248	105	54	38	17	34
45-59	239	109	51	26	19	34
60 and over	54	13	14	12	6	9
Median age	44.7	44.5	45.9	42.7	45.8	45.5
Unemployed	85	34	32	6	1	12
16-29	3	1	1	1	0	0
30-44	29	13	8	3	1	4
45-59	39	16	18	1	0	4
60 and over	14	4	5	1	0	4
Median age	47.6	46.8	50.4	#	#	#

#Median not calculated for fewer than 15 cases.

Table A-13.- INDUSTRIAL GROUP OF PRESENT OR LAST JOB BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Age in years and employment status in May 1936	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons	683	100.0	262	38.4	132	19.3	88	12.9	72	10.5	129	18.9
Employed	598	100.0	240	40.1	100	16.7	81	13.6	70	11.7	107	17.9
Unemployed	85	100.0	22	25.9	32	37.6	7	8.2	2	2.4	22	25.9
16-29	60	100.0	24	40.0	7	11.7	13	21.6	7	11.7	9	15.0
Employed	57	100.0	23	40.3	6	10.5	12	21.1	7	12.3	9	15.8
Unemployed	3	100.0	1	33.3	1	33.3	1	33.4	0	-	0	-
30-44	277	100.0	107	38.6	52	18.8	36	13.0	33	11.9	49	17.7
Employed	248	100.0	98	39.5	42	16.9	33	13.3	32	12.9	43	17.4
Unemployed	29	100.0	9	31.0	10	34.5	3	10.4	1	3.4	6	20.7
45-59	278	100.0	112	40.3	60	21.6	29	10.4	26	9.4	51	18.3
Employed	239	100.0	104	43.5	44	18.4	27	11.3	25	10.5	39	16.3
Unemployed	39	100.0	8	20.5	16	41.0	2	5.1	1	2.6	12	30.8
60 and over	68	100.0	19	28.0	13	19.1	10	14.7	6	8.8	20	29.4
Employed	54	100.0	15	27.8	8	14.8	9	16.7	6	11.1	16	29.6
Unemployed	14	100.0	4	28.6	5	35.7	1	7.1	0	-	4	28.6

Table A-14.- LENGTH OF SERVICE ON LONGEST JOB BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Age in years and employment status in May 1936	Total persons		Length of service in years														Median
			Under 1		1-4		5-9		10-14		15-19		20-24		25 and over		
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	
Total persons ^a	682	100.0	7	1.0	156	22.9	173	25.3	156	22.9	88	12.9	47	6.9	55	8.1	10.2
Employed	598	100.0	7	1.2	143	23.9	145	24.2	131	21.9	81	13.5	41	6.9	50	8.4	10.2
Unemployed	84	100.0	0	-	13	15.5	28	33.3	25	29.8	7	8.3	6	7.1	5	6.0	10.3
16-29	60	100.0	7	11.7	44	73.3	8	13.3	1	1.7	0	-	0	-	0	-	3.1
Employed	57	100.0	7	12.3	42	73.7	7	12.3	1	1.7	0	-	0	-	0	-	3.1
Unemployed	3	100.0	0	-	2	66.7	1	33.3	0	-	0	-	0	-	0	-	#
30-44	277	100.0	0	-	93	33.6	92	33.2	61	22.0	23	8.3	7	2.5	1	0.4	7.5
Employed	248	100.0	0	-	86	34.7	76	30.6	55	22.2	23	9.3	7	2.8	1	0.4	7.5
Unemployed	29	100.0	0	-	7	24.1	16	55.2	6	20.7	0	-	0	-	0	-	7.5
45-59	278	100.0	0	-	18	6.4	71	25.5	77	27.7	50	18.0	31	11.2	31	11.2	13.3
Employed	239	100.0	0	-	14	5.9	61	25.5	64	26.8	45	18.8	25	10.5	30	12.5	13.5
Unemployed	39	100.0	0	-	4	10.3	10	25.6	13	33.3	5	12.8	6	15.4	1	2.6	12.3
60 and over	67	100.0	0	-	1	1.5	2	3.0	17	25.4	15	22.4	9	13.4	23	34.3	19.7
Employed	54	100.0	0	-	1	1.8	1	1.8	11	20.4	13	24.1	9	16.7	19	35.2	20.8
Unemployed	13	100.0	0	-	0	-	1	7.7	6	46.1	2	15.4	0	-	4	30.8	#

^aExcludes 1 man who did not report length of service on longest job.

#Median not calculated for fewer than 15 cases.

Table A-15.- OCCUPATION OF LONGEST JOB BY THE USUAL OCCUPATION

Occupation of longest job	Total persons		Usual occupation			
	Number	Percent	Machinist	Tool maker, die setter, or instrument maker	Millwright	Apprentice
Total persons ^a	682	100.0	545	95	27	15
Same as usual	475	69.6	394	53	17	11
Different from usual	207	30.4	151	42	10	4
Skilled and semiskilled occupations in manufacturing and mechanical industries	177	26.0	126	39	8	4
Metal products, machinery, and electrical-goods manufacturing	154	22.6	106	39	7	2
Machinists	12	1.8	0	11	1	0
Tool makers, die setters, and instrument makers	5	0.8	5	0	0	0
Foremen	12	1.8	11	0	1	0
Apprentices	94	13.8	68	26	0	0
Machine-tool operators	11	1.6	10	1	0	0
Machinists' helpers	7	1.0	3	0	3	1
Operatives, iron and steel	6	0.9	3	1	1	1
Smelters	1	0.1	1	0	0	0
Solderers	1	0.1	0	0	1	0
Blacksmiths	2	0.3	2	0	0	0
Mechanics	3	0.4	3	0	0	0
Building and construction	5	0.8	4	0	1	0
Textile and clothing manufacturing	7	1.0	7	0	0	0
Loom fixers	1	0.1	1	0	0	0
Weavers	2	0.3	2	0	0	0
Textile-clothing operatives	3	0.5	3	0	0	0
Finishers	1	0.1	1	0	0	0
Other	11	1.6	9	0	0	2
Unskilled occupations	4	0.6	4	0	0	0
Clerical occupations	7	1.0	7	0	0	0
Transportation and trade	10	1.5	7	1	2	0
Executive, professional, and semiprofessional occupations	5	0.7	4	1	0	0
Public service	4	0.6	3	1	0	0

^aExcludes 1 tool maker who did not report longest job.

Table A-16.- NUMBER OF YEARS EMPLOYED AT USUAL OCCUPATION BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Age in years and employment status in May 1936	Total persons	Under 4 years 6 months	4 years 6 months to 9 years 5 months	9 years 6 months to 14 years 5 months	14 years 6 months to 19 years 5 months	19 years 6 months to 24 years 5 months	24 years 6 months to 29 years 5 months	29 years 6 months to 34 years 5 months	34 years 6 months and over	Median number of years
Total persons ^a	680	19	61	75	116	117	102	84	106	22.5
Employed	596	17	54	65	101	101	89	74	95	22.5
Unemployed	84	2	7	10	15	16	13	10	11	22.2
16-29	60	16	32	11	1	0	0	0	0	6.8
Employed	57	15	31	10	1	0	0	0	0	6.8
Unemployed	3	1	1	1	0	0	0	0	0	#
30-44	276	3	22	51	89	75	35	1	0	18.0
Employed	247	2	18	54	82	68	32	1	0	18.2
Unemployed	29	1	4	7	7	7	3	0	0	16.6
45-59	277	0	7	13	23	36	62	79	57	29.3
Employed	238	0	5	11	16	27	54	71	54	30.0
Unemployed	39	0	2	2	7	9	8	8	3	24.4
60 and over	67	0	0	0	3	6	5	4	49	40.4
Employed	54	0	0	0	2	6	3	2	41	42.3
Unemployed	13	0	0	0	1	0	2	2	8	#

^aExcludes 3 men who did not report years at usual occupation.

#Median not calculated for fewer than 15 cases.

Table A-17.- NUMBER OF YEARS EMPLOYED AT USUAL OCCUPATION BY USUAL INDUSTRIAL GROUP AND AGE

Usual industrial group and age in years	Total persons	Under 4 years 6 months	4 years 6 months to 9 years 5 months	9 years 6 months to 14 years 5 months	14 years 6 months to 19 years 5 months	19 years 6 months to 24 years 5 months	24 years 6 months to 29 years 5 months	29 years 6 months to 34 years 5 months	34 years 6 months and over	Median number of years
Total persons*	680	19	61	75	116	117	102	84	106	22.5
16-29	60	16	32	11	1	0	0	0	0	6.8
30-44	276	3	22	51	89	75	55	1	0	18.0
45-59	277	0	7	13	23	38	62	79	57	29.3
60 and over	67	0	0	0	3	6	5	4	49	40.4
Manufacture of machinery, machine tools, and electrical goods	286	10	23	26	47	52	48	40	40	23.1
16-29	26	9	13	3	1	0	0	0	0	6.2
30-44	118	1	8	15	38	39	16	1	0	19.2
45-59	125	0	2	8	8	12	32	38	25	29.6
60 and over	17	0	0	0	0	1	0	1	15	40.3
Manufacture of transportation equipment	156	0	11	16	26	30	21	25	27	23.8
16-29	8	0	7	1	0	0	0	0	0	#
30-44	62	0	2	15	19	17	9	0	0	16.3
45-59	68	0	2	0	6	12	11	23	14	30.3
60 and over	18	0	0	0	1	1	1	2	13	42.5
Manufacture of metal products, including professional instruments	93	2	17	16	19	14	5	8	12	17.7
16-29	13	1	8	4	0	0	0	0	0	#
30-44	40	1	7	8	13	9	2	0	0	16.2
45-59	27	0	2	4	5	4	2	8	2	23.3
60 and over	13	0	0	0	1	1	1	0	10	#
Government agencies and public utilities	49	4	2	6	9	4	8	6	10	24.4
16-29	6	4	1	1	0	0	0	0	0	#
30-44	18	0	1	5	5	2	5	0	0	18.0
45-59	19	0	0	0	3	1	3	6	6	32.0
60 and over	6	0	0	0	1	1	0	0	4	#
Miscellaneous manufacturing and other industries	96	3	8	11	15	17	20	5	17	22.9
16-29	7	2	3	2	0	0	0	0	0	#
30-44	38	1	4	8	14	8	3	0	0	16.8
45-59	38	0	1	1	1	7	14	4	10	27.9
60 and over	13	0	0	0	0	2	3	1	7	#

*Excludes 3 men who did not report number of years employed at the usual occupation.

#Median not calculated for fewer than 15 cases.

Table A-18.- OCCUPATION OF LAST JOB BY USUAL OCCUPATION, FOR MACHINISTS EMPLOYED IN MAY 1936

Occupation of last job	Total persons		Usual occupation			
	Number	Percent	Machinist	Tool maker, die setter, or instrument maker	Millwright	Apprentice
Total persons	598	100.0	476	86	21	15
Same as usual	493	82.4	390	71	17	15
Different from usual	105	17.6	86	15	4	0
Skilled and semiskilled occupations in manufacturing and mechanical industries						
Building and construction	2	0.3	1	1	0	0
Paperhangers	1	0.2	0	1	0	0
Plumbers and pipe, gas, and steam fitters	1	0.1	1	0	0	0
Metal products, machinery, and electrical-goods manufacturing	41	6.9	33	5	3	0
Boring-machine operators	2	0.3	2	0	0	0
Drill-press operators	2	0.3	2	0	0	0
Filers and grinders (metal)	3	0.5	2	0	1	0
Instrument makers	1	0.2	0	1	0	0
Engine-lathe operators	1	0.2	1	0	0	0
Lathe operators	5	0.9	4	1	0	0
Machinists	2	0.3	0	2	0	0
Machinists', tool makers', and millwrights' helpers	2	0.3	2	0	0	0

Mechanics, automobile and aircraft	1	0.2	1	0	0	0
Mechanics, other	2	0.3	1	1	0	0
Milling-machine operators	1	0.2	1	0	0	0
Millwrights	1	0.2	1	0	0	0
Operatives, n.e.c., iron and steel industries	2	0.3	2	0	0	0
Platers and enamelers	2	0.3	1	0	1	0
Punch-press operators and press operators, n.o.s.	3	0.5	3	0	0	0
Screw-machine operators	1	0.2	1	0	0	0
Tool makers and die setters	9	1.5	9	0	0	0
Welders	1	0.2	0	0	1	0
Textile and clothing manufacturing	2	0.3	1	1	0	0
Knitters, full-fashioned hosiery	1	0.2	0	1	0	0
Operatives, n.e.c., textile	1	0.1	1	0	0	0
Other	29	4.9	23	6	0	0
Assemblers	1	0.2	1	0	0	0
Engineers, stationary, n.e.c.	1	0.2	1	0	0	0
Firemen, stationary	1	0.2	1	0	0	0
Foremen, other than building and construction	15	2.5	12	3	0	0
Inspectors and examiners (except in trade, transportation, and communication)	6	1.0	3	3	0	0
Operatives, n.e.c., chemical manufacturing	2	0.3	2	0	0	0
Operatives, n.e.c., food manufacturing	2	0.3	2	0	0	0
Operatives, n.e.c., paper-goods manufacturing (except printing)	1	0.2	1	0	0	0

Table continued on following page.

Table A-18.- OCCUPATION OF LAST JOB BY USUAL OCCUPATION, FOR MACHINISTS EMPLOYED IN MAY 1936 - Continued

Occupation of last job	Total persons		Usual occupation			
	Number	Percent	Machinist	Tool maker, die setter, or instrument maker	Millwright	Apprentice
Different from usual - continued						
Unskilled occupations	17	2.8	16	1	0	0
Dock hands, longshoremen, and stevedores	1	0.2	1	0	0	0
Laborers and helpers, n.e.c., in building and construction	1	0.2	1	0	0	0
Laborers, manufacturing	4	0.6	3	1	0	0
Watchmen and guards	10	1.6	10	0	0	0
Laborers, n.e.c.	1	0.2	1	0	0	0
Clerical occupations	4	0.7	3	1	0	0
Clerks, filing, mail, and general office	1	0.2	1	0	0	0
Estimators and appraisers	1	0.2	1	0	0	0
Shipping and receiving clerks	1	0.2	1	0	0	0
Stock clerks	1	0.1	0	1	0	0
Transportation and trade pursuits	2	0.3	2	0	0	0
Agents, insurance and real estate	1	0.2	1	0	0	0
Truck and tractor drivers	1	0.1	1	0	0	0

Domestic and personal service	4	0.7	3	0	1	0
Day workers and office cleaners	1	0.2	1	0	0	0
Elevator operators	1	0.2	0	0	1	0
Hostesses, head waiters, and stewards	1	0.2	1	0	0	0
Janitors and caretakers	1	0.1	1	0	0	0
Executive, professional, and semi- professional occupations	3	0.5	3	0	0	0
Managers, officials, and executives, n.e.c.	2	0.3	2	0	0	0
Musicians and teachers of music	1	0.2	1	0	0	0
Public service: Watchmen, policemen, and guards (public)	1	0.2	1	0	0	0

Table A-19.- EMPLOYMENT STATUS BY MONTHS, 1926-35, FOR 284 MACHINISTS WHOSE USUAL INDUSTRIAL GROUP WAS THE MANUFACTURE OF MACHINERY, MACHINE TOOLS, AND ELECTRICAL GOODS^a

Month	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
	1926					1927					1928					1929					1930				
January	159	55	46	4	20	177	45	46	2	14	182	41	46	3	12	183	39	44	8	10	179	36	44	19	6
February	161	56	45	2	20	175	46	46	4	13	182	40	46	4	12	182	40	45	8	9	180	38	42	18	6
March	161	55	45	2	21	174	48	44	5	13	182	42	46	2	12	181	41	44	9	9	179	42	41	16	6
April	161	55	44	3	21	176	46	46	3	13	183	42	45	2	12	181	42	43	9	9	178	43	41	16	6
May	161	54	45	4	20	177	45	48	1	13	181	40	47	4	12	180	43	44	8	9	177	43	41	17	6
June	162	53	46	3	20	177	44	49	2	12	180	42	46	4	12	179	43	44	9	9	176	44	41	17	6
July	174	46	46	3	15	179	41	47	3	14	178	41	46	7	12	178	41	45	13	7	176	45	41	15	7
August	173	47	46	3	15	178	43	47	3	13	181	38	44	9	12	178	41	46	12	7	174	45	43	15	7
September	174	48	43	3	16	179	43	46	3	13	181	39	43	9	12	181	40	45	12	6	174	44	40	19	7
October	174	48	44	2	16	179	42	48	2	13	181	40	45	7	11	182	39	44	13	6	173	43	39	21	8
November	174	47	45	3	15	180	40	48	3	13	183	39	45	7	10	183	37	45	13	6	174	41	38	23	8
December	174	46	45	4	15	182	40	46	3	13	183	39	44	8	10	181	37	46	14	6	173	41	34	28	8
	1931					1932					1933					1934					1935				
January	171	41	32	32	8	154	39	37	44	10	145	35	31	65	8	148	43	30	57	6	147	50	36	47	4
February	169	40	32	35	8	153	40	36	46	9	145	36	30	65	8	147	44	33	54	6	149	50	36	46	3
March	165	40	33	38	8	151	38	35	51	9	144	38	29	64	9	144	44	34	54	8	150	50	37	44	3
April	165	40	34	36	8	150	39	33	53	9	147	39	28	62	8	144	45	35	52	8	151	51	40	40	2
May	166	40	33	37	8	146	37	35	57	9	144	42	32	59	7	141	45	36	54	8	150	53	41	37	3
June	165	39	35	37	8	145	37	33	60	9	146	40	32	59	7	144	45	36	52	7	149	55	41	36	3
July	161	39	37	38	9	146	37	33	59	9	145	39	33	60	7	146	46	39	48	5	151	55	41	35	2
August	161	39	37	37	10	145	39	33	58	9	147	41	33	56	7	147	48	39	45	5	155	54	42	32	1
September	160	39	41	34	10	146	39	32	59	8	144	41	33	60	6	147	48	37	47	5	155	57	38	33	1
October	159	39	42	35	9	146	40	31	58	9	146	41	31	61	5	146	53	37	45	3	156	57	37	33	1
November	156	39	40	40	9	146	37	32	60	9	150	42	31	56	5	147	51	37	46	3	154	58	38	32	2
December	155	38	38	43	10	147	35	32	61	9	149	43	30	56	6	146	51	37	46	4	151	57	39	35	2

^aA denotes "employed at usual occupation, usual industry"; B, "employed at usual occupation, other than usual industry"; C, "employed at other than usual occupation"; D, "unemployed"; E, "not seeking work." Tables A-19 and A-24 include 1 man who worked at odd machinist's jobs for about 1 year. In order to use the information given for the rest of the 10-year period and to keep the same total, the first year was considered as a full year of employment. In all other tables dealing with total amounts of employment or unemployment this person is considered as not reporting.

Table A-20.- EMPLOYMENT STATUS BY MONTHS, 1926-35, FOR 158 MACHINISTS WHOSE USUAL INDUSTRIAL GROUP WAS THE MANUFACTURE OF TRANSPORTATION EQUIPMENT^a

Month	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
	1926					1927					1928					1929					1930				
January	96	27	21	8	6	95	25	26	7	5	97	29	23	7	2	96	25	27	9	1	84	26	26	22	0
February	95	26	22	10	5	96	26	24	7	5	98	27	23	8	2	96	26	27	8	1	84	26	25	23	0
March	95	27	24	7	5	95	28	23	7	5	98	27	24	7	2	94	26	28	9	1	84	26	25	22	1
April	98	26	23	6	6	100	27	22	4	5	100	25	24	7	2	95	29	27	6	1	86	27	26	19	0
May	99	25	23	6	5	102	27	22	3	4	99	25	26	6	2	96	28	27	6	1	88	28	25	17	0
June	98	26	23	6	5	101	28	22	3	4	100	25	26	5	2	97	27	26	8	0	88	27	26	16	1
July	99	25	22	7	5	100	29	21	4	4	99	28	25	4	2	93	26	29	10	0	83	28	24	22	1
August	100	25	21	7	5	100	29	22	3	4	101	28	25	2	2	92	26	28	12	0	84	27	25	22	0
September	99	26	22	6	5	100	29	24	3	2	100	26	26	4	2	91	26	29	12	0	84	26	25	23	0
October	98	27	23	5	5	101	29	23	3	2	100	25	28	4	1	91	29	27	11	0	85	26	25	22	0
November	97	27	23	6	5	101	29	23	3	2	101	24	28	4	1	93	26	27	12	0	82	28	23	25	0
December	97	26	24	6	5	97	29	23	7	2	98	24	28	7	1	88	28	26	15	1	77	27	23	31	0
	1931					1932					1933					1934					1935				
January	73	28	23	34	0	70	22	19	45	2	64	16	21	55	2	72	22	23	38	3	72	22	25	38	1
February	73	28	23	34	0	66	21	20	49	2	66	16	21	53	2	71	24	21	40	2	73	23	25	36	1
March	73	27	22	35	1	69	21	18	48	2	63	16	23	54	2	72	24	21	39	2	71	25	24	37	1
April	75	28	22	31	2	68	22	17	49	2	62	15	23	56	2	71	22	21	42	2	68	26	24	39	1
May	76	25	22	33	2	69	22	17	48	2	65	14	24	53	2	69	22	21	43	3	69	27	24	37	1
June	78	24	22	32	2	70	23	18	45	2	70	16	23	47	2	71	20	20	43	4	69	26	25	37	1
July	76	24	24	32	2	70	19	21	46	2	76	16	23	41	2	74	19	23	38	4	73	27	25	34	1
August	76	22	24	34	2	72	17	19	48	2	74	18	23	41	2	76	21	22	37	2	73	29	24	30	2
September	78	22	22	34	2	72	16	21	46	3	77	19	24	37	1	78	21	26	31	2	74	28	27	27	2
October	77	21	21	37	2	70	16	24	45	3	80	19	24	34	1	79	21	26	30	2	74	28	28	26	2
November	76	22	19	39	2	68	17	23	47	3	77	19	22	37	3	74	21	24	37	2	75	28	28	25	2
December	74	22	19	41	2	66	16	22	52	2	76	21	22	36	3	72	21	25	38	2	73	26	28	29	2

^aA denotes "employed at usual occupation, usual industry"; B, "employed at usual occupation, other than usual industry"; C, "employed at other than usual occupation"; D, "unemployed"; E, "not seeking work."

Table A-21.- EMPLOYMENT STATUS BY MONTHS, 1926-35, FOR 94 MACHINISTS WHOSE USUAL INDUSTRIAL GROUP WAS THE MANUFACTURE OF METAL PRODUCTS, INCLUDING PROFESSIONAL INSTRUMENTS*

Month	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
	1926					1927					1928					1929					1930				
January	48	17	20	2	7	52	13	24	1	4	54	12	23	2	3	55	11	20	5	3	53	13	20	7	1
February	48	17	20	2	7	52	13	24	1	4	55	11	22	3	3	54	11	20	6	3	53	12	20	8	1
March	48	18	19	2	7	52	13	24	1	4	55	11	22	3	3	54	11	20	6	3	53	12	20	8	1
April	49	17	19	2	7	52	13	24	1	4	54	11	23	3	3	54	11	20	6	3	53	12	20	8	1
May	49	17	19	2	7	52	13	24	1	4	54	11	24	2	3	53	12	20	6	3	53	11	20	9	1
June	50	17	20	2	5	52	13	24	1	4	54	13	22	2	3	52	13	19	8	2	53	10	21	9	1
July	51	14	23	2	4	53	13	22	2	4	56	12	19	4	3	53	14	18	8	1	51	12	20	10	1
August	51	13	23	3	4	53	14	22	1	4	57	11	19	4	3	53	14	18	8	1	51	12	20	10	1
September	52	14	23	1	4	53	14	23	1	3	56	11	20	4	3	51	14	20	8	1	51	13	19	10	1
October	53	14	22	1	4	53	14	23	1	3	55	11	20	5	3	53	14	19	7	1	51	13	19	10	1
November	53	14	22	1	4	54	13	23	1	3	55	11	20	5	3	53	14	20	6	1	51	13	19	10	1
December	53	14	22	1	4	54	13	23	1	3	56	11	19	5	3	53	14	20	6	1	51	13	19	10	1
	1931					1932					1933					1934					1935				
January	51	13	19	10	1	44	11	24	14	1	35	12	21	24	2	41	12	26	14	1	47	11	25	10	1
February	47	13	21	12	1	43	11	23	16	1	36	11	20	25	2	41	12	25	15	1	49	11	25	9	0
March	48	12	21	12	1	39	10	26	18	1	37	11	20	24	2	41	13	23	16	1	49	11	25	8	1
April	47	11	22	13	1	39	10	26	18	1	37	11	19	25	2	41	14	23	15	1	50	12	22	9	1
May	49	11	21	12	1	39	9	25	20	1	37	12	19	24	2	41	14	24	14	1	51	12	22	9	0
June	48	11	21	13	1	37	10	24	22	1	38	13	18	23	2	42	13	23	15	1	52	12	21	8	1
July	45	10	24	14	1	33	11	22	26	2	37	15	20	20	2	45	13	23	12	1	52	13	21	8	0
August	44	10	23	16	1	33	11	22	26	2	38	14	25	16	1	47	12	23	11	1	53	13	21	7	0
September	44	10	23	16	1	34	12	22	24	2	39	15	25	14	1	47	11	24	11	1	51	15	22	6	0
October	44	10	24	15	1	34	12	22	24	2	41	15	24	13	1	46	12	26	10	1	51	16	22	5	0
November	44	11	24	14	1	34	12	22	24	2	42	14	24	13	1	46	12	25	10	1	51	16	22	5	0
December	44	11	24	14	1	35	12	21	24	2	42	14	24	13	1	46	12	25	10	1	51	16	21	6	0

*A denotes "employed at usual occupation, usual industry"; B, "employed at usual occupation, other than usual industry"; C, "employed at other than usual occupation"; D, "unemployed"; E, "not seeking work."

Table A-22.- EMPLOYMENT STATUS BY MONTHS, 1926-35, FOR 145 MACHINISTS WHOSE USUAL INDUSTRIAL GROUP WAS GOVERNMENT AGENCIES AND PUBLIC UTILITIES AND MISCELLANEOUS MANUFACTURING AND OTHER INDUSTRIES^a

Month	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
	1926					1927					1928					1929					1930				
January	85	21	27	2	10	88	21	26	3	7	88	21	24	4	8	94	21	20	4	6	87	21	21	10	6
February	86	20	26	3	10	87	21	26	4	7	89	21	24	4	7	93	20	20	5	7	86	21	21	10	7
March	86	20	27	3	9	87	21	25	4	8	89	21	23	5	7	92	20	21	5	7	86	20	21	11	7
April	87	21	25	3	9	86	20	26	4	9	88	22	22	6	7	92	20	21	5	7	84	21	20	13	7
May	87	23	25	1	9	86	20	26	4	9	90	21	22	6	6	90	20	22	5	8	85	20	20	13	7
June	85	23	25	3	9	87	21	25	3	9	91	21	21	6	6	90	19	22	6	8	84	21	18	15	7
July	87	21	26	3	8	88	23	24	3	7	91	18	22	7	7	87	21	21	9	7	83	21	17	17	7
August	89	20	24	4	8	88	23	23	4	7	92	17	22	7	7	87	23	21	8	6	85	21	17	15	7
September	89	20	25	3	8	87	24	22	4	8	92	20	21	5	7	86	24	21	8	6	85	20	18	15	7
October	87	19	27	4	8	86	24	22	5	8	92	20	21	5	7	86	24	21	8	6	85	20	18	15	7
November	87	19	26	5	8	87	23	23	4	8	92	20	21	5	7	87	23	19	10	6	85	20	18	15	7
December	87	20	26	4	8	88	22	23	4	8	92	20	21	5	7	88	22	19	10	6	84	20	18	16	7
	1931					1932					1933					1934					1935				
January	83	21	18	16	7	83	18	16	21	7	86	13	15	25	6	86	21	16	19	3	89	23	16	15	2
February	81	20	18	19	7	83	18	17	20	7	86	13	15	26	5	88	22	16	16	3	88	24	16	15	2
March	82	20	16	20	7	84	17	17	20	7	87	15	14	24	5	88	22	16	16	3	90	24	14	15	2
April	83	20	16	19	7	85	14	17	22	7	87	16	13	24	5	88	22	16	16	3	88	22	16	16	3
May	83	21	16	18	7	85	13	17	22	8	87	17	13	23	5	87	22	18	15	3	90	21	17	14	4
June	82	22	18	16	7	85	13	17	22	8	86	17	14	23	5	88	21	16	17	3	93	20	17	12	3
July	81	18	19	19	8	87	16	16	20	6	86	20	16	20	3	87	19	18	18	3	94	20	17	12	2
August	81	18	19	19	8	87	17	16	19	6	86	21	17	18	3	87	18	19	18	3	94	21	16	12	2
September	82	19	18	19	7	87	17	16	19	6	87	22	17	16	3	87	20	17	18	3	95	18	16	14	2
October	83	20	16	19	7	86	17	17	19	6	86	22	17	17	3	89	21	17	16	2	98	20	15	10	2
November	83	20	15	20	7	86	16	16	21	6	86	22	17	17	3	89	22	16	15	3	98	20	15	10	2
December	82	19	15	22	7	85	14	15	25	6	86	22	16	18	3	90	22	15	16	2	99	19	16	10	1

^aA denotes "employed at usual occupation, usual industry"; B, "employed at usual occupation, other than usual industry"; C, "employed at other than usual occupation"; D, "unemployed"; E, "not seeking work."

Table A-23.- NUMBER OF MONTHS UNEMPLOYED, 1926-35, BY USUAL INDUSTRIAL GROUP

Number of months unemployed	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Total persons ^a	680	100.0	283	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	330	48.5	139	49.1	54	34.2	46	48.9	32	65.3	59	61.5
1 or more	350	51.5	144	50.9	104	65.8	48	51.1	17	34.7	37	38.5
1-12	111	16.3	50	17.6	26	16.4	13	13.8	8	16.3	14	14.6
13-24	86	12.7	39	13.8	26	16.4	15	16.0	2	4.1	4	4.2
25-36	60	8.8	24	8.5	20	12.7	8	8.5	2	4.1	6	6.2
37-48	46	6.8	17	6.0	14	8.9	8	8.5	1	2.0	6	6.2
49-60	27	4.0	7	2.5	9	5.7	3	3.2	4	8.2	4	4.2
61 and over	20	2.9	7	2.5	9	5.7	1	1.1	0	-	3	3.1
Median number of months												
Total	2.1		1.7		12.8		2.4		0.8		0.8	
Those reporting 1 or more months	22.0		19.9		25.3		22.2		19.0		27.0	

^aExcludes 3 men who did not report number of months unemployed.

Table A-24.- TOTAL MAN-MONTHS OF EMPLOYMENT EXPERIENCE, 1926-35, BY USUAL INDUSTRIAL GROUP

Usual industrial group	Total months		Employed at the usual occupation								Employed at other occupations						Unemployed		Not seeking work	
			Total		Usual industry		Other metal industries		Other industries		Total		Usual industry		Other industries					
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent		
Total months ^a	61,720	100.0	57,928	70.9	45,871	56.1	8,699	10.7	3,358	4.1	12,534	15.3	4,187	5.1	8,347	10.2	8,967	11.0	2,291	2.8
Manufacture of machinery, machine tools, and electrical goods ^b	34,080	100.0	24,868	73.0	19,646	57.7	3,519	10.3	1,703	5.0	4,769	14.0	1,814	5.3	2,955	8.7	3,368	9.9	1,075	3.1
Manufacture of transportation equipment	18,960	100.0	12,917	68.1	9,997	52.7	2,576	13.6	344	1.8	2,831	15.0	862	4.6	1,969	10.4	2,960	15.6	252	1.3
Manufacture of metal products, including professional instruments	11,280	100.0	7,250	64.3	5,749	51.0	1,202	10.6	307	2.7	2,619	23.2	813	7.2	1,806	16.0	1,159	10.3	244	2.2
Government agencies and public utilities	5,880	100.0	4,186	71.2	3,342	56.8	593	10.1	251	4.3	908	15.4	102	1.7	806	13.7	440	7.5	346	5.9
Miscellaneous manufacturing and other industries	11,520	100.0	8,699	75.5	7,137	62.0	809	7.0	753	6.5	1,407	12.2	596	5.2	811	7.0	1,040	9.0	374	3.3

^aSee table A-19, footnote a.

Table A-25.- TOTAL NUMBER OF MONTHS UNEMPLOYED, 1926-35, BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Number of months unemployed	Total persons																																	
	16-29						30-44						45-59						60 and over															
	Total	Employed	Unemployed	Total	Employed	Unemployed	Total	Employed	Unemployed	Total	Employed	Unemployed	Total	Employed	Unemployed	Total	Employed	Unemployed																
Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent															
Total persons ^a	680	100.0	595	100.0	85	100.0	60	100.0	57	100.0	3	100.0	277	100.0	248	100.0	29	100.0	275	100.0	236	100.0	39	100.0	68	100.0	54	100.0	14	100.0				
None	330	48.5	324	54.5	6	7.1	22	36.7	22	38.6	0	-	127	45.8	123	49.6	4	13.8	143	52.0	141	59.7	2	5.1	38	55.9	38	70.4	0	-				
1 or more	350	51.5	271	45.5	79	92.9	38	63.3	35	61.4	3	100.0	150	54.2	125	50.4	25	86.2	132	48.0	95	40.3	37	94.9	30	44.1	16	29.6	14	100.0				
1-12	111	16.3	101	17.0	10	11.8	15	25.0	15	26.3	0	-	55	19.9	52	21.0	3	10.3	38	13.8	31	13.1	7	18.0	3	4.4	3	5.5	0	-				
13-24	86	12.7	71	11.9	15	17.6	15	25.0	14	24.6	1	33.3	36	13.0	29	11.7	7	24.2	30	10.9	24	10.2	6	15.4	5	7.4	4	7.4	1	7.1				
25-36	60	8.8	47	7.9	13	15.3	4	6.7	3	5.3	1	33.3	25	9.0	22	8.9	3	10.3	28	10.2	20	8.5	8	20.5	3	4.4	2	3.7	1	7.1				
37-48	46	6.8	31	5.2	15	17.6	2	3.3	1	1.7	1	33.4	21	7.6	15	6.0	6	20.7	20	7.3	14	5.9	6	15.4	3	4.4	1	1.9	2	14.3				
49-60	27	4.0	17	2.8	10	11.8	2	3.3	2	3.5	0	-	10	3.6	6	2.4	4	13.8	6	2.2	4	1.7	2	5.1	9	13.2	5	9.2	4	28.6				
61 and over	20	2.9	4	0.7	16	18.8	0	-	0	-	0	-	3	1.1	1	0.4	2	6.9	10	3.6	2	0.9	8	20.5	7	10.3	1	1.9	6	42.9				
Median number of months																																		
Total	2.1	0.9		36.1	7.8	6.6	#	3.6	1.3	29.0	0.9	0.8	32.5	0.9	0.7	#																		
Those reporting 1 or more months	22.0	18.9		38.6	16.6	15.6	#	19.8	17.6	36.9	24.4	21.5	34.0	51.0	34.0	#																		

^aExcludes 3 men who did not report number of months unemployed.

#Median not calculated for fewer than 15 cases.

Table A-26.- UNEMPLOYMENT AS A PERCENTAGE OF TIME IN LABOR MARKET, 1926-35, BY AGE

Percent of time in labor market	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	330	48.5	22	36.7	127	45.8	143	52.0	38	55.9
0.5 or more	350	51.5	38	63.3	150	54.2	132	48.0	30	44.1
0.5- 9.9	94	13.8	10	16.6	49	17.7	32	11.6	3	4.4
10.0-19.9	84	12.3	12	20.0	38	13.7	30	10.9	4	5.9
20.0-29.9	65	9.6	6	10.0	28	10.1	28	10.2	3	4.4
30.0-39.9	51	7.5	3	5.0	19	6.9	25	9.1	4	5.9
40.0-49.9	31	4.6	3	5.0	12	4.3	7	2.5	9	13.2
50.0-59.9	10	1.5	0	-	1	0.4	6	2.2	3	4.4
60.0-69.9	5	0.7	1	1.7	1	0.4	3	1.1	0	-
70.0 and over	10	1.5	3	5.0	2	0.7	1	0.4	4	5.9
Median percent										
Total	1.6		8.6		2.8		0.5		0.5	
Those reporting 0.5 percent or more	19.7		17.9		17.0		21.6		41.7	

^aExcludes 3 men who did not report number of months unemployed.

Table A-27.- NUMBER OF MONTHS EMPLOYED PART TIME, 1926-35, BY AGE

Number of months ^a	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^b	678	100.0	59	100.0	277	100.0	274	100.0	68	100.0
None	487	71.8	47	79.6	192	69.3	195	71.2	53	77.9
1- 12	38	5.6	3	5.1	23	8.3	11	4.0	1	1.5
13- 24	41	6.1	3	5.1	23	8.3	13	4.7	2	2.9
25- 36	41	6.1	4	6.8	17	6.1	17	6.2	3	4.4
37- 48	26	3.8	2	3.4	8	2.9	13	4.7	3	4.4
49- 60	19	2.8	0	-	7	2.5	9	3.3	3	4.4
61- 72	8	1.2	0	-	3	1.1	4	1.5	1	1.5
73- 84	7	1.0	0	-	1	0.4	5	1.9	1	1.5
85- 96	5	0.7	0	-	2	0.7	2	0.7	1	1.5
97-108	2	0.3	0	-	0	-	2	0.7	0	-
109-120	4	0.6	0	-	1	0.4	3	1.1	0	-
Median number of months										
Total	0.7		0.6		0.7		0.7		0.7	
Those reporting 1 or more months	30.0		26.5		23.4		36.3		45.0	

^aIncludes employment reported as combined full and part time.

^bExcludes 5 men who did not report number of months employed part time.

Table A-28.- YEAR OF LOSS OF LAST JOB AT USUAL OCCUPATION
BY EMPLOYMENT STATUS IN MAY 1936

Year	Persons not working at usual occupation in May 1936		
	Total	Employed	Unemployed
Total persons	190	105	85
Before 1926	15	12	3
1926-27	10	6	4
1928-29	29	16	13
1930-31	35	24	11
1932-33	42	26	16
1934-35	34	12	22
1936	25	9	16

Table A-29.- AVERAGE NUMBER OF MONTHS OF SPECIFIED TYPES
OF EMPLOYMENT EXPERIENCE, 1926-35, BY AGE

Type of employment experience	Total persons	Age in years			
		16-29	30-44	45-59	60 and over
Total persons	120.0	120.0	120.0	120.0	120.0
Employed	103.1	79.9	106.4	106.1	97.8
Full time	93.0	75.1	97.5	93.6	87.9
Part time	10.1	4.8	8.9	12.5	9.9
Unemployed	13.4	11.3	12.5	13.1	20.6
Not seeking work					
Before entering labor market	2.5	27.9	0	0	0
After entering labor market	1.0	0.9	1.1	0.8	1.6

Table A-30.- AVERAGE LENGTH OF UNEMPLOYMENT PERIODS, 1926-30 AND 1931-35, BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Period and average length of unemployment periods in months	Total persons						Age in years																							
							16-29						30-44						45-59						60 and over					
	Total		Employed		Unemployed		Total		Employed		Unemployed		Total		Employed		Unemployed		Total		Employed		Unemployed							
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent						
1926-35																														
Total persons ^a	680	100.0	595	100.0	85	100.0	60	100.0	57	100.0	3	100.0	277	100.0	248	100.0	29	100.0	275	100.0	256	100.0	39	100.0	68	100.0	54	100.0	14	100.0
None	350	48.5	324	54.5	6	7.1	22	36.7	22	38.6	0	-	127	45.8	123	49.6	4	13.8	143	52.0	141	59.7	2	5.1	38	55.9	38	70.4	0	-
1 or more	350	51.5	271	45.5	79	92.9	38	63.3	35	61.4	3	100.0	150	54.2	125	50.4	25	86.2	132	48.0	95	40.3	37	94.9	30	44.1	16	29.6	14	100.0
1-12	177	26.0	148	24.8	29	34.1	26	47.3	27	47.3	1	33.3	83	30.0	72	29.0	11	36.0	61	22.2	46	19.5	15	38.5	5	7.4	3	5.6	2	14.3
13-24	79	11.6	63	10.6	16	18.8	6	10.7	5	8.8	1	33.3	37	13.3	30	12.1	7	24.1	30	10.9	23	9.8	7	17.9	6	8.8	5	9.2	1	7.1
25-36	38	5.6	29	4.9	9	10.6	2	3.3	2	3.5	0	-	11	4.0	10	4.0	1	3.4	19	6.9	14	5.9	5	12.8	6	8.8	3	5.6	3	21.4
37 and over	56	8.3	31	5.2	25	29.4	2	3.3	1	1.8	1	33.4	19	6.9	15	5.3	6	20.7	22	8.0	12	5.1	10	25.7	13	19.1	3	9.2	8	57.2
Median number of months																														
Total	1.7	0.9		19.0		4.4		4.1		#		2.7		1.5		12.9		0.9		0.8		18.1		0.9		0.7		#		
Those reporting 1 or more months	12.5	12.0		21.3		9.4		9.0		#		11.9		11.5		16.4		15.2		14.0		19.9		34.0		27.0		#		
1926-30																														
Total persons ^a	680	100.0	595	100.0	85	100.0	60	100.0	57	100.0	3	100.0	277	100.0	248	100.0	29	100.0	275	100.0	256	100.0	39	100.0	68	100.0	54	100.0	14	100.0
None	525	76.9	477	80.2	46	54.1	48	80.0	46	80.7	2	66.7	211	76.2	190	76.6	21	72.4	215	78.2	197	83.5	18	46.2	49	72.1	44	81.5	5	35.7
1 or more	157	23.1	118	19.8	39	45.9	12	20.0	11	19.3	1	33.3	66	23.8	58	23.4	8	27.6	60	21.8	39	16.5	21	53.8	19	27.9	10	18.5	9	64.3
1-12	113	16.6	87	14.6	26	30.6	9	15.0	8	14.0	1	33.3	48	17.3	43	18.2	3	10.4	45	16.4	29	12.3	16	41.0	11	16.1	5	9.2	6	42.9
13-24	28	4.1	20	3.4	8	9.4	2	3.3	2	3.5	0	-	14	5.1	10	4.0	4	13.8	10	3.6	6	2.5	4	10.2	2	3.9	2	3.7	0	-
25-36	13	1.9	9	1.5	4	4.7	1	1.7	1	1.8	0	-	2	0.7	2	0.8	0	-	5	1.8	4	1.7	1	2.6	5	7.4	2	3.7	3	21.4
37 and over	3	0.5	2	0.3	1	1.2	0	-	0	-	0	-	2	0.7	1	0.4	1	3.4	0	-	0	-	0	-	1	1.5	1	1.9	0	-
Median number of months																														
Total	0.7	0.6		0.9		0.6		0.6		#		0.7		0.7		0.7		0.6		0.6		2.5		0.7		0.6		#		
Those reporting 1 or more months	9.4	9.2		10.2		#		#		#		9.4		8.9		#		9.1		9.3		9.3		11.9		#		#		
1931-35																														
Total persons ^b	682	100.0	597	100.0	85	100.0	60	100.0	57	100.0	3	100.0	277	100.0	248	100.0	29	100.0	277	100.0	258	100.0	39	100.0	68	100.0	54	100.0	14	100.0
None	362	53.1	353	59.1	9	10.6	24	40.0	24	42.1	0	-	144	52.0	140	56.5	4	13.8	153	55.2	148	62.2	5	12.8	41	60.3	41	75.9	0	-
1 or more	320	46.9	244	40.9	76	89.4	36	60.0	33	57.9	3	100.0	133	48.0	108	43.5	25	86.2	124	44.8	90	37.8	34	87.2	27	39.7	13	24.1	14	100.0
1-12	157	23.0	135	22.3	24	28.2	23	38.3	23	40.3	0	-	74	26.7	62	25.0	12	41.4	55	19.9	45	18.9	10	25.6	3	7.4	3	5.6	2	14.3
13-24	83	12.2	61	10.2	22	25.9	11	18.3	9	15.8	2	66.7	32	11.5	24	9.7	8	27.6	33	11.9	22	9.2	11	28.2	7	10.3	6	11.1	1	7.1
25-36	33	4.8	28	4.7	5	5.9	1	1.7	1	1.8	0	-	11	4.0	11	4.4	0	-	18	6.5	15	6.3	3	7.7	3	4.4	1	1.8	2	14.3
37 and over	47	6.9	22	3.7	25	29.4	1	1.7	0	-	1	33.3	16	5.8	11	4.4	5	17.2	18	6.5	8	3.4	10	25.7	12	17.6	3	5.6	9	64.3
Median number of months																														
Total	0.9	0.8		18.5		4.4		3.6		#		0.9		0.9		12.0		0.9		0.8		18.5		0.8		0.7		#		
Those reporting 1 or more months	13.5	12.1		20.9		10.7		9.9		#		11.9		11.5		14.5		15.7		13.3		21.2		33.0		#		#		

^aExcludes 3 men who did not report length of unemployment periods.
^bExcludes 1 man who did not report length of unemployment periods.
#Median not calculated for fewer than 15 cases.

Period and average length of unemployment periods in months	Total persons		Manufacture of -								Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments		Number	Percent	Number	Percent	Number	Percent
	Number	Percent	Number	Percent	Number	Percent	Number	Percent						
1926-35														
Total persons ^a	680	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0		
None	330	48.5	139	49.1	54	34.2	46	48.9	32	65.3	59	61.5		
1 or more	350	51.5	144	50.9	104	65.8	48	51.1	17	34.7	37	38.5		
1-12	177	26.0	77	27.2	57	36.1	17	18.1	11	22.5	15	15.6		
13-24	79	11.6	30	10.6	21	13.5	15	16.0	1	2.0	12	12.5		
25-36	38	5.6	17	6.0	10	6.3	5	5.3	2	4.1	4	4.2		
37 and over	56	8.3	20	7.1	15	10.1	11	11.7	3	6.1	6	6.2		
Median number of months ^c														
Total	1.7		1.5		6.4		2.1		0.6		0.8			
Those reporting 1 or more months	12.9		12.3		12.1		19.0		10.6		17.0			
1926-30														
Total persons ^a	680	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0		
None	525	76.9	231	81.6	100	65.3	77	81.9	40	81.6	75	78.1		
1 or more	157	23.1	52	18.4	58	36.7	17	18.1	9	18.4	21	21.9		
1-12	113	16.6	38	13.4	45	28.5	9	9.6	6	12.3	15	15.6		
13-24	28	4.1	9	3.2	9	5.7	5	5.3	2	4.1	3	3.1		
25-36	13	1.9	5	1.8	3	1.9	2	2.1	1	2.0	2	2.1		
37 and over	3	0.5	0	-	1	0.6	1	1.1	0	-	1	1.1		
Median number of months ^c														
Total	0.7		0.6		0.8		0.6		0.6		0.6			
Those reporting 1 or more months	6.2		5.4		5.8		12.9		#		8.2			
1931-35														
Total persons ^b	682	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0		
None	362	53.1	152	53.3	60	38.0	50	53.2	35	71.4	65	67.7		
1 or more	320	46.9	133	46.7	98	62.0	44	46.8	14	28.6	31	32.3		
1-12	157	23.0	65	22.8	50	31.6	20	21.3	8	16.3	14	14.6		
13-24	85	12.2	35	12.3	26	16.4	13	13.8	2	4.1	7	7.3		
25-36	33	4.8	15	5.3	8	5.1	3	3.2	2	4.1	5	5.2		
37 and over	47	6.9	18	6.3	14	8.9	8	8.5	2	4.1	5	5.2		
Median number of months ^c														
Total	0.9		0.9		4.8		1.0		0.7		0.7			
Those reporting 1 or more months	13.4		13.5		12.8		15.1		11.6		16.3			

^aExcludes 3 men who did not report length of unemployment periods.

^bExcludes 1 man who did not report length of unemployment periods.

^cComputed from more detailed break-down.

#Median not calculated for fewer than 15 cases.

Table A-32.- LENGTH OF LONGEST PERIOD OF UNEMPLOYMENT, 1926-35, BY AGE AND YEAR OF BEGINNING LONGEST PERIOD OF UNEMPLOYMENT

Age in years and length of longest period of unemployment in months	Total persons	Year of beginning longest period of unemployment									
		1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
Total persons^a	351	13	6	17	25	49	67	63	41	32	18
1-12	150	7	4	3	6	15	25	33	19	20	18
13-24	81	2	1	4	4	7	10	29	12	12	0
25-36	53	3	0	3	6	10	14	7	10	0	0
37-48	37	0	0	2	5	9	7	14	0	0	0
49 and over	30	1	1	5	4	8	11	0	0	0	0
Median number of months	16.9	#	#	33.0	31.0	28.6	23.8	16.7	15.0	10.9	7.3
16-29	38	0	0	2	2	1	7	14	3	5	4
1-12	21	0	0	1	0	1	3	8	1	3	4
13-24	13	0	0	0	1	0	3	5	2	2	0
25-36	0	0	0	0	0	0	0	0	0	0	0
37-48	3	0	0	1	1	0	0	1	0	0	0
49 and over	1	0	0	0	0	0	1	0	0	0	0
Median number of months	12.1	-	-	#	#	#	#	#	#	#	#
30-44	150	10	4	3	11	20	28	34	17	16	7
1-12	75	6	3	0	3	11	8	16	12	9	7
13-24	33	1	1	2	2	2	5	11	2	7	0
25-36	20	2	0	1	3	3	6	2	3	0	0
37-48	14	0	0	0	2	3	4	5	0	0	0
49 and over	8	1	0	0	1	1	5	0	0	0	0
Median number of months	13.2	#	#	#	#	12.5	28.0	14.6	10.0	12.3	#
45-59	133	2	1	6	11	20	27	30	19	11	6
1-12	50	0	1	2	3	3	14	8	5	8	6
13-24	30	1	0	1	0	3	2	12	8	3	0
25-36	28	1	0	1	3	5	8	4	6	0	0
37-48	17	0	0	1	2	5	3	6	0	0	0
49 and over	8	0	0	1	3	4	0	0	0	0	0
Median number of months	19.8	#	#	#	#	35.8	12.9	20.6	20.5	#	#
60 and over	30	1	1	6	1	8	5	5	2	0	1
1-12	4	1	0	0	0	0	0	1	1	0	1
13-24	5	0	0	1	1	2	0	1	0	0	0
25-36	5	0	0	1	0	2	0	1	1	0	0
37-48	3	0	0	0	0	1	0	2	0	0	0
49 and over	13	0	1	4	0	3	5	0	0	0	0
Median number of months	43.0	#	#	#	#	#	#	#	#	#	#

^aExcludes 2 men who did not report year of beginning longest period of unemployment and 330 men who reported no unemployment.

[#]Median not calculated for fewer than 15 cases.

Table A-33.- LENGTH OF LONGEST PERIOD OF UNEMPLOYMENT, 1926-35, BY NUMBER OF PERIODS OF UNEMPLOYMENT

Number of periods of unemployment	Total persons		Length of longest period of unemployment in months									
			1-12		13-24		25-36		37-48		49 and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Total persons^a	351	100.0	150	42.7	81	23.1	53	15.1	37	10.6	30	8.5
1	210	100.0	81	38.6	49	23.5	27	12.9	28	13.3	25	11.9
2	78	100.0	33	42.3	18	23.1	15	19.2	7	9.0	5	6.4
3	34	100.0	15	44.1	10	29.4	7	20.6	2	5.9	0	-
4 and over	29	100.0	21	72.4	4	13.8	4	13.8	0	-	0	-

^aExcludes 2 men who did not report length of longest period of unemployment and 330 men who reported no unemployment.

Table A-34.- LENGTH OF LONGEST PERIOD OF UNEMPLOYMENT, 1926-35, BY EMPLOYMENT STATUS IN MAY 1936 AND YEAR OF BEGINNING LONGEST PERIOD OF UNEMPLOYMENT

Employment status in May 1936 and longest period of unemployment in months	Total persons		1926		1927		1928		1929		1930		1931		1932		1933		1934		1935	
	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent
Total persons ^a	351	100.0	13	100.0	6	100.0	17	100.0	25	100.0	49	100.0	67	100.0	83	100.0	41	100.0	32	100.0	18	100.0
1-12	150	42.7	7	53.8	4	66.6	3	17.6	6	24.0	15	30.6	26	37.3	33	39.8	19	46.3	20	62.5	18	100.0
13-24	81	23.1	2	15.4	1	16.7	4	23.6	4	16.0	7	14.3	10	14.9	29	34.9	12	29.3	12	37.5	0	-
25-36	53	15.1	3	23.1	0	-	3	17.6	6	24.0	10	20.4	14	20.9	7	8.4	10	24.4	0	-	0	-
37-48	37	10.6	0	-	0	-	2	11.8	5	20.0	9	18.4	7	10.5	14	16.9	0	-	0	-	0	-
49 and over	30	8.5	1	7.7	1	16.7	5	29.4	4	16.0	8	16.3	11	16.4	0	-	0	-	0	-	0	-
Employed	272	100.0	12	100.0	5	100.0	12	100.0	18	100.0	38	100.0	55	100.0	64	100.0	31	100.0	26	100.0	11	100.0
1-12	133	48.9	7	58.3	3	60.0	3	25.0	4	22.2	15	39.5	23	41.8	30	46.9	17	54.8	20	76.9	11	100.0
13-24	61	22.4	2	16.7	1	20.0	3	25.0	3	16.7	4	10.5	9	16.4	23	35.9	10	32.3	6	23.1	0	-
25-36	42	15.5	3	25.0	0	-	2	16.7	5	27.8	10	26.3	12	21.8	6	9.4	4	12.9	0	-	0	-
37-48	24	8.8	0	-	0	-	2	16.7	5	27.8	7	18.4	5	9.1	5	7.8	0	-	0	-	0	-
49 and over	12	4.4	0	-	1	20.0	2	16.6	1	5.5	2	5.3	6	10.9	0	-	0	-	0	-	0	-
Unemployed	79	100.0	1	100.0	1	100.0	5	100.0	7	100.0	11	100.0	12	100.0	19	100.0	10	100.0	6	100.0	7	100.0
1-12	17	21.5	0	-	1	100.0	0	-	2	28.6	0	-	2	16.7	3	15.8	2	20.0	0	-	7	100.0
13-24	20	25.3	0	-	0	-	1	20.0	1	14.3	3	27.3	1	8.3	6	31.6	2	20.0	6	100.0	0	-
25-36	11	13.9	0	-	0	-	1	20.0	1	14.3	0	-	2	16.7	1	5.3	6	60.0	0	-	0	-
37-48	13	16.5	0	-	0	-	0	-	0	-	2	18.2	2	16.7	9	47.3	0	-	0	-	0	-
49 and over	18	22.8	1	100.0	0	-	3	60.0	3	42.8	6	54.5	5	41.6	0	-	0	-	0	-	0	-

^aExcludes 2 men who did not report year of beginning longest period of unemployment and 330 men who reported no unemployment.

Table A-35.- NUMBER OF MONTHS SINCE LOSS OF LAST JOB FOR MACHINISTS UNEMPLOYED IN MAY 1936, BY AGE

Duration of unemployment since last job in months	Total persons		Age in years					
			Under 45		45-59		60 and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Total persons	85	100.0	32	100.0	39	100.0	14	100.0
0- 5	30	35.3	15	46.8	14	35.9	1	7.2
6-11	8	9.4	2	6.3	4	10.3	2	14.3
12-35	19	22.4	8	25.0	10	25.6	1	7.1
36-59	15	17.6	5	15.6	5	12.8	5	35.7
60 and over	13	15.3	2	6.3	6	15.4	5	35.7
Median duration ^a	18.7		10.5		20.0 ^b		#	

^aComputed from more detailed breakdown.

^bMedian duration for all machinists 45 years of age and over is 27.4.

#Median not calculated for fewer than 15 cases.

Table A-36.- LENGTH OF SERVICE ON LONGEST JOB FOR MACHINISTS WHO REPORTED NO UNEMPLOYMENT IN THE 10-YEAR PERIOD 1926-35, BY AGE

Length of service in years	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Total persons	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0
Under 1	1	0.3	1	4.5	0	-	0	-	0	-
1- 4	54	16.4	14	63.7	33	26.0	6	4.2	1	2.6
5- 9	55	16.7	6	27.3	28	22.0	21	14.7	0	-
10-14	86	26.0	1	4.5	41	32.3	38	26.5	6	15.8
15-19	66	20.0	0	-	19	15.0	37	25.9	10	26.3
20-24	29	8.8	0	-	5	3.9	19	13.3	5	13.2
25 and over	39	11.8	0	-	1	0.8	22	15.4	16	42.1
Median number of years	13.2		4.0		10.4		15.9		22.5	

Duration of unemployment since last job in months	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments		Number	Percent	Number	Percent
	Number	Percent	Number	Percent	Number	Percent	Number	Percent				
Total persons	85	100.0	34	40.0	32	37.6	6	7.1	1	1.2	12	14.1
0-11	38	100.0	14	36.8	15	39.5	2	5.3	1	2.6	6	15.8
12-47	27	100.0	13	48.2	10	37.0	2	7.4	0	-	2	7.4
48 and over	20	100.0	7	35.0	7	35.0	2	10.0	0	-	4	20.0
Median duration	18.7		21.7		17.4		#		#		#	

#Median not calculated for fewer than 15 cases.

Table A-38.- USUAL INDUSTRIAL GROUP FOR MACHINISTS WHO REPORTED NO UNEMPLOYMENT IN THE 10-YEAR PERIOD 1926-35, BY AGE

Usual industrial group	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0
Manufacture of machinery, machine tools, and electrical goods	139	42.1	9	40.9	54	42.5	65	45.6	11	28.9
Manufacture of transportation equipment	54	16.4	0	-	20	15.7	27	18.9	7	18.4
Manufacture of metal products, including professional instruments	46	13.9	7	31.8	16	12.6	15	10.4	8	21.1
Government agencies and public utilities	32	9.7	1	4.6	12	9.5	15	10.4	4	10.5
Miscellaneous manufacturing and other industries	59	17.9	5	22.7	25	19.7	21	14.7	8	21.1

Table A-39.- NUMBER OF MONTHS EMPLOYED AT OCCUPATIONS OTHER THAN THE USUAL, 1926-30 AND 1931-35, BY AGE

Period and number of months employed at occupations other than the usual	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1926-35										
Total persons ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	398	58.5	8	13.3	156	56.3	181	65.8	53	77.9
1- 12	59	8.7	9	15.0	31	11.2	16	5.8	3	4.4
13- 24	38	5.6	6	10.0	16	5.8	12	4.4	4	5.9
25- 36	42	6.2	6	10.0	20	7.2	16	5.8	0	-
37- 48	25	3.7	4	6.7	14	5.0	6	2.2	1	1.5
49- 60	28	4.1	10	16.7	10	3.6	6	2.2	2	2.9
61- 72	25	3.7	6	10.0	8	2.9	10	3.6	1	1.5
73- 84	22	3.2	5	8.3	6	2.2	10	3.6	1	1.5
85- 96	20	2.9	4	6.7	8	2.9	7	2.6	1	1.5
97-108	9	1.3	2	3.3	5	1.8	2	0.7	0	-
109-120	14	2.1	0	-	3	1.1	9	3.3	2	2.9
Median number of months										
Total	0.9		41.5		0.9		0.8		0.7	
Those reporting 1 or more months	38.2		50.8		33.4		44.0		48.9	
1926-30										
Total persons ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	476	70.0	16	26.6	191	69.0	207	75.3	62	91.1
1- 12	42	6.2	7	11.7	22	7.9	13	4.7	0	-
13- 24	35	5.1	9	15.0	15	5.4	10	3.6	1	1.5
25- 36	36	5.3	6	10.0	15	5.4	14	5.1	1	1.5
37- 48	27	4.0	10	16.7	12	4.4	4	1.5	1	1.5
49- 60	64	9.4	12	20.0	22	7.9	27	9.8	3	4.4
Median number of months										
Total	0.7		23.0		0.7		0.7		0.6	
Those reporting 1 or more months	33.5		37.6		30.2		34.9		#	
1931-35										
Total persons ^b	682	100.0	60	100.0	277	100.0	277	100.0	68	100.0
None	471	69.1	23	38.4	191	68.9	203	73.3	54	79.4
1- 12	56	8.2	11	18.3	29	10.5	13	4.7	3	4.4
13- 24	53	7.8	10	16.7	19	6.9	20	7.2	4	5.9
25- 36	35	5.1	5	8.3	14	5.1	15	5.4	1	1.5
37- 48	25	3.7	5	8.3	12	4.3	7	2.5	1	1.5
49- 60	42	6.1	6	10.0	12	4.3	19	6.9	5	7.3
Median number of months										
Total	0.7		9.2		0.7		0.7		0.6	
Those reporting 1 or more months	24.3		22.6		22.2		28.6		#	

^aExcludes 3 men who did not report number of months at other than the usual occupation.

^bExcludes 1 man who did not report number of months at other than the usual occupation.

#Median not calculated for fewer than 15 cases.

Table A-40.- FREQUENCY OF EMPLOYER SEPARATIONS FROM JOBS AT USUAL AND OTHER OCCUPATIONS, 1926-35, BY AGE

110

MACHINISTS

Number of employer separations	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
From jobs at usual occupation ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	260	38.2	31	51.7	84	30.3	115	41.8	30	44.1
1 or more	420	61.8	29	48.3	193	69.7	160	58.2	38	55.9
Average, 1 or more	2.6		2.4		2.9		2.4		1.9	
From jobs at other occupations ^b	681	100.0	60	100.0	277	100.0	276	100.0	68	100.0
None	476	69.9	18	30.0	187	67.5	207	75.0	64	94.1
1 or more	205	30.1	42	70.0	90	32.5	69	25.0	4	5.9
Average, 1 or more	2.3		2.2		2.5		2.0		1.5	

^aExcludes 3 men who did not report number of employer separations at the usual occupation.^bExcludes 2 men who did not report number of employer separations at other occupations.

Table A-41.- NUMBER OF MONTHS EMPLOYED AT USUAL OCCUPATION,
1926-30 AND 1931-35, BY AGE

Period and number of months employed at usual occupation	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
1926-35										
Total persons ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	20	2.9	5	8.3	4	1.4	10	3.6	1	1.5
1- 12	26	3.8	10	16.6	8	2.9	7	2.5	1	1.5
13- 24	18	2.6	6	10.0	9	3.3	3	1.1	0	-
25- 36	40	5.9	12	20.0	10	3.6	11	4.0	7	10.3
37- 48	36	5.3	7	11.7	12	4.3	15	5.5	2	2.9
49- 60	34	5.0	4	6.7	9	3.3	15	5.5	6	8.8
61- 72	52	7.7	6	10.0	21	7.6	17	6.2	8	11.8
73- 84	59	8.7	4	6.7	24	8.7	26	9.4	5	7.3
85- 96	55	8.1	3	5.0	28	10.1	23	8.4	1	1.5
97-108	60	8.8	0	-	35	12.6	20	7.3	5	7.3
109-120	280	41.2	3	5.0	117	42.2	128	46.6	32	47.1
Median number of months										
Total	97.1		34.5		101.8		103.6		105.4	
Those reporting 1 or more months	99.1		36.9		102.5		106.6		106.6	
1926-30										
Total persons ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	69	10.1	35	58.3	13	4.7	20	7.3	1	1.5
1- 12	31	4.6	5	8.3	14	5.1	10	3.6	2	2.9
13- 24	28	4.1	7	11.7	14	5.1	5	1.8	2	2.9
25- 36	55	8.1	4	6.7	22	7.9	21	7.6	8	11.8
37- 48	55	8.1	3	5.0	26	9.4	23	8.4	3	4.4
49- 60	442	65.0	6	10.0	188	67.8	196	71.3	52	76.5
Median number of months										
Total	51.8		0.9		52.2		52.6		53.3	
Those reporting 1 or more months	52.7		28.0		52.6		53.2		53.4	
1931-35										
Total persons ^b	682	100.0	60	100.0	277	100.0	277	100.0	68	100.0
None	84	12.3	6	10.0	27	9.7	37	13.3	14	20.6
1- 12	52	7.6	13	21.7	18	6.5	14	5.1	7	10.3
13- 24	62	9.1	10	16.6	23	8.3	23	8.3	6	8.8
25- 36	66	9.7	12	20.0	26	9.4	26	9.4	2	2.9
37- 48	79	11.6	6	10.0	34	12.3	35	12.6	4	5.9
49- 60	339	49.7	13	21.7	149	53.8	142	51.3	35	51.5
Median number of months										
Total	48.8		26.5		49.9		49.3		49.5	
Those reporting 1 or more months	50.4		29.5		51.0		50.9		51.9	

^aExcludes 3 men who did not report number of months at usual occupation.^bExcludes 1 man who did not report number of months at usual occupation.

Average length of service in months	Total persons		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons ^a	680	100.0	60	100.0	277	100.0	275	100.0	68	100.0
None	20	2.9	5	8.3	4	1.4	10	3.6	1	1.5
1- 24	179	26.3	33	55.0	86	31.1	51	18.6	9	13.2
25- 48	174	25.6	12	20.0	71	25.6	76	27.6	15	22.0
49- 72	97	14.3	6	10.0	40	14.4	40	14.5	11	16.2
73- 96	23	3.4	3	5.0	6	2.2	9	3.3	5	7.4
97-120	187	27.5	1	1.7	70	25.3	89	32.4	27	39.7
Median average length Total	44.5		19.5		41.6		49.6		69.7	
Those reporting 1 or more months	45.9		21.4		42.2		52.6		70.8	
Persons reporting no unemployment in 1926-35	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0
None	5	1.5	0	-	0	-	5	3.5	0	-
1- 24	38	11.5	12	54.6	16	12.6	9	6.3	1	2.6
25- 48	49	14.9	2	9.1	23	18.1	19	13.5	5	13.2
49- 72	45	13.6	4	18.2	18	14.2	18	12.6	5	13.2
73- 96	8	2.4	3	13.6	2	1.6	3	2.1	0	-
97-120	185	56.1	1	4.5	68	53.5	89	62.2	27	71.0
Median average length ^b Total	110.0		24.0		109.4		111.3		112.5	
Those reporting 1 or more months	110.2		24.0		109.4		111.7		112.5	

^aExcludes 3 men who did not report length of service.

^bComputed from more detailed break-down.

Table A-43.- NUMBER OF MONTHS EMPLOYED AT USUAL OCCUPATION,
BY AGE, 1926-30 AND 1931-35, FOR MACHINISTS WHO REPORTED
NO UNEMPLOYMENT IN THE 10-YEAR PERIOD 1926-35

Period and number of months employed at usual occupation	Total persons	Age in years			
		16-29	30-44	45-59	60 and over
1926-35					
Total persons	330	22	127	143	38
None	5	0	0	5	0
Under 13	9	5	2	2	0
13- 24	5	3	2	0	0
25- 36	10	2	4	3	1
37- 48	11	2	2	5	2
49- 60	7	0	2	5	0
61- 72	10	4	3	2	1
73- 84	10	3	4	3	0
85- 96	9	0	5	4	0
97-108	13	0	8	2	3
109-120	241	3	95	112	31
Median number of months	112.8	46.0	113.0	113.4	113.8
1926-30					
Total persons	330	22	127	143	38
None	23	11	3	9	0
Under 13	10	3	3	3	1
13-24	11	4	4	2	1
25-36	16	0	8	6	2
37-48	9	0	7	2	0
49-60	261	4	102	121	34
Median number of months	53.4	3.0	53.6	54.0	54.5
1931-35					
Total persons	330	22	127	143	38
None	21	0	7	13	1
Under 13	13	7	2	3	1
13-24	8	3	3	2	0
25-36	5	1	1	2	1
37-48	17	2	7	5	3
49-60	266	9	107	118	32
Median number of months	53.6	40.0	53.9	53.8	54.1

MACHINISTS

Table A-44.- NUMBER OF MONTHS EMPLOYED AT OCCUPATIONS OTHER THAN THE USUAL,
BY AGE, 1926-30 AND 1931-35, FOR MACHINISTS WHO REPORTED
NO UNEMPLOYMENT IN THE 10-YEAR PERIOD 1926-35

Period and number of months employed at occupations other than the usual	Total persons	Age in years			
		16-29	30-44	45-59	60 and over
1926-35					
Total persons	330	22	127	143	38
None	230	4	86	106	34
Under 13	21	4	11	6	0
13- 24	12	1	8	2	1
25- 36	11	2	4	5	0
37- 48	8	1	4	3	0
49- 60	11	4	3	3	1
61- 72	9	1	2	6	1
73- 84	9	2	3	4	0
85- 96	8	3	2	2	1
97-108	2	0	2	0	0
109-120	9	0	2	7	0
Median number of months					
Total	0.7	43.0	0.7	0.7	0.6
Those reporting 1 or more months	46.8	53.5	31.0	60.9	67.0
1926-30					
Total persons	330	22	127	143	38
None	250	9	92	114	35
Under 13	20	3	10	7	0
13-24	14	1	9	4	0
25-36	13	1	6	5	1
37-48	10	3	4	2	1
49-60	23	5	6	11	1
Median number of months					
Total	0.7	11.0	0.7	0.6	0.6
Those reporting 1 or more months	31.0	45.0	23.7	34.6	#
1931-35					
Total persons	330	22	127	143	38
None	265	11	104	115	35
Under 13	9	1	5	3	0
13-24	15	3	6	5	1
25-36	7	2	1	3	1
37-48	6	0	4	2	0
49-60	28	5	7	15	1
Median number of months					
Total	0.6	7.0	0.6	0.6	0.6
Those reporting 1 or more months	41.0	36.9	36.9	50.2	#

#Median not calculated for fewer than 15 cases.

Table A-45.- SOCIOECONOMIC CHARACTER OF MAN-MONTHS OF EMPLOYMENT AT OCCUPATIONS OTHER THAN THE USUAL, 1926-35, BY AGE

Socioeconomic group of other occupations	Total months		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total months	12,534	100.0	2,400	100.0	4,693	100.0	4,734	100.0	707	100.0
White-collar	1,786	14.2	263	11.0	591	12.6	932	19.7	0	-
Skilled	4,757	38.0	200	8.3	2,077	44.3	2,354	49.7	126	17.8
Semiskilled	4,621	36.9	1,819	75.8	1,639	34.9	1,034	21.9	129	18.3
Unskilled	1,370	10.9	118	4.9	386	8.2	414	8.7	452	63.9

Table A-46.- SOCIOECONOMIC CHARACTER OF MAN-MONTHS OF EMPLOYMENT AT OCCUPATIONS OTHER THAN THE USUAL, 1926-35, BY AGE, FOR MACHINISTS WHO REPORTED NO UNEMPLOYMENT IN THE 10-YEAR PERIOD 1926-35

Socioeconomic group of other occupations	Total months		Age in years							
			16-29		30-44		45-59		60 and over	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total months	4,838	100.0	817	100.0	1,579	100.0	2,207	100.0	235	100.0
White-collar	866	17.9	162	19.8	219	13.9	485	22.0	0	-
Skilled	2,354	48.7	85	10.4	940	59.5	1,203	54.5	126	53.6
Semiskilled	1,487	30.7	557	68.2	417	26.4	513	23.2	0	-
Unskilled	131	2.7	13	1.6	3	0.2	6	0.3	109	46.4

MACHINISTS

Table A-47.- FREQUENCY OF JOB SEPARATIONS, 1926-30 AND 1931-35, BY AGE AND EMPLOYMENT STATUS IN MAY 1936

Period, age in years, and employment status in May 1936	Total persons		Number of job separations									
			None		1 and 2		3 and 4		5 and 6		7 and over	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1926-35												
Total persons ^a	680	100.0	178	26.2	265	39.0	146	21.5	46	6.7	45	6.6
Employed	595	100.0	176	29.6	226	38.0	117	19.6	38	6.4	38	6.4
Unemployed	85	100.0	2	2.4	39	46.9	29	34.1	8	9.4	7	8.2
16-29	60	100.0	8	13.3	22	36.7	19	31.7	6	10.0	5	8.3
Employed	57	100.0	8	14.0	20	35.1	18	31.6	6	10.5	5	8.8
Unemployed	3	100.0	0	-	2	66.7	1	33.3	0	-	0	-
30-44	277	100.0	57	20.6	93	33.6	72	26.0	27	9.7	28	10.1
Employed	248	100.0	57	23.0	87	35.1	60	24.2	21	8.4	23	9.3
Unemployed	29	100.0	0	-	6	20.7	12	41.4	6	20.7	5	17.2
45-59	275	100.0	87	31.6	114	41.5	50	18.2	13	4.7	11	4.0
Employed	236	100.0	85	36.0	93	39.4	37	15.7	11	4.7	10	4.2
Unemployed	39	100.0	2	5.1	21	53.9	13	33.3	2	5.1	1	2.6
60 and over	68	100.0	26	38.2	36	52.9	5	7.4	0	-	1	1.5
Employed	54	100.0	26	48.2	26	48.1	2	3.7	0	-	0	-
Unemployed	14	100.0	0	-	10	71.4	3	21.4	0	-	1	7.2
1926-30												
Total persons ^a	680	100.0	305	44.8	285	41.9	66	9.7	14	2.1	10	1.5
Employed	595	100.0	279	46.9	238	40.0	57	9.6	12	2.0	9	1.5
Unemployed	85	100.0	26	30.6	47	55.3	9	10.6	2	2.3	1	1.2
16-29	60	100.0	26	41.7	24	40.0	9	15.0	2	3.3	0	-
Employed	57	100.0	23	40.4	23	40.4	9	15.7	2	3.5	0	-
Unemployed	3	100.0	2	66.7	1	33.3	0	-	0	-	0	-
30-44	277	100.0	101	36.4	118	42.6	42	15.2	8	2.9	8	2.9
Employed	248	100.0	93	37.5	103	41.6	38	15.3	7	2.8	7	2.8
Unemployed	29	100.0	8	27.6	15	51.8	4	13.8	1	3.4	1	3.4
45-59	275	100.0	141	51.3	115	41.8	13	4.7	4	1.5	2	0.7
Employed	236	100.0	129	54.7	92	39.0	10	4.2	3	1.3	2	0.8
Unemployed	39	100.0	12	30.7	23	59.0	3	7.7	1	2.6	0	-
60 and over	68	100.0	38	55.9	28	41.2	2	2.9	0	-	0	-
Employed	54	100.0	34	63.0	20	37.0	0	-	0	-	0	-
Unemployed	14	100.0	4	28.6	8	57.1	2	14.3	0	-	0	-
1931-35												
Total persons ^b	682	100.0	317	46.5	259	38.0	76	11.1	24	3.5	6	0.9
Employed	597	100.0	300	50.3	215	36.0	59	9.9	18	3.0	5	0.8
Unemployed	85	100.0	17	20.0	44	51.8	17	20.0	6	7.0	1	1.2
16-29	60	100.0	13	21.6	35	58.3	7	11.7	4	6.7	1	1.7
Employed	57	100.0	13	22.8	33	57.9	6	10.5	4	7.0	1	1.8
Unemployed	3	100.0	0	-	2	66.7	1	33.3	0	-	0	-
30-44	277	100.0	121	43.7	98	35.4	41	14.8	13	4.7	4	1.4
Employed	248	100.0	118	47.6	87	35.1	32	12.9	8	3.2	3	1.2
Unemployed	29	100.0	3	10.4	11	37.9	9	31.0	5	17.3	1	3.4
45-59	277	100.0	139	50.2	103	37.2	28	10.1	6	2.1	1	0.4
Employed	238	100.0	130	54.7	80	33.6	21	8.8	6	2.5	1	0.4
Unemployed	39	100.0	9	23.1	23	59.0	7	17.9	0	-	0	-
60 and over	68	100.0	44	64.7	23	33.8	0	-	1	1.5	0	-
Employed	54	100.0	39	72.2	15	27.8	0	-	0	-	0	-
Unemployed	14	100.0	5	35.7	8	57.2	0	-	1	7.1	0	-

^aExcludes 3 men who did not report number of job separations.^bExcludes 1 man who did not report number of job separations.

Table A-48.- FREQUENCY OF JOB SEPARATIONS, 1926-30 AND 1931-35, BY USUAL INDUSTRIAL GROUP

Period and number of job separations	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1926-35												
Total persons ^a	680	100.0	283	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	178	26.2	78	27.6	31	19.6	20	21.5	16	32.7	33	34.4
1 or more	502	73.8	205	72.4	127	80.4	74	78.7	33	67.3	63	65.6
1 and 2	265	39.0	104	36.8	56	35.4	47	50.0	21	42.8	37	38.6
3 and 4	146	21.5	70	24.7	38	24.1	14	14.9	7	14.3	17	17.7
5 and 6	46	6.7	14	4.9	15	9.5	10	10.6	4	8.2	3	3.1
7 and over	45	6.6	17	6.0	18	11.4	3	3.2	1	2.0	6	6.2
1926-30												
Total persons ^a	680	100.0	283	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	305	44.9	140	49.5	60	38.0	41	43.6	19	38.8	45	46.9
1 or more	375	55.1	143	50.5	98	62.0	53	56.4	30	61.2	51	53.1
1 and 2	285	41.9	103	36.4	77	48.7	44	46.8	24	49.0	37	38.6
3 and 4	66	9.7	28	9.9	13	8.2	8	8.5	5	10.2	12	12.5
5 and 6	14	2.0	6	2.1	5	3.2	1	1.1	1	2.0	1	1.0
7 and over	10	1.5	6	2.1	3	1.9	0	-	0	-	1	1.0
1931-35												
Total persons ^b	682	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	317	46.5	130	45.6	60	38.0	42	44.7	31	63.3	54	56.3
1 or more	365	53.5	155	54.4	98	62.0	52	55.3	18	36.7	42	43.7
1 and 2	259	38.0	113	39.6	54	34.2	43	45.7	15	30.6	34	35.4
3 and 4	76	11.1	34	11.9	30	19.0	5	5.3	3	6.1	4	4.2
5 and 6	24	3.5	5	1.8	12	7.6	4	4.3	0	-	3	3.1
7 and over	6	0.9	3	1.1	2	1.2	0	-	0	-	1	1.0

^aExcludes 3 men who did not report number of job separations.

^bExcludes 1 man who did not report number of job separations.

Table A-49.- FREQUENCY OF JOB SEPARATIONS AND EMPLOYER, INDUSTRIAL, AND OCCUPATIONAL SHIFTS FOR MACHINISTS WHO REPORTED NO UNEMPLOYMENT IN THE 10-YEAR PERIOD 1926-35, BY AGE

Number of separations or shifts	Total persons		Age in years								Total persons		Age in years							
			16-29		30-44		45-59		60 and over				16-29		30-44		45-59		60 and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
	Job separations										Employer shifts									
Total persons	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0
None	174	52.7	4	18.2	57	44.9	87	60.8	26	68.4	204	61.8	7	31.8	71	55.9	95	66.4	31	81.6
1 or more	156	47.3	18	81.8	70	55.1	56	39.2	12	31.6	126	38.2	15	68.2	56	44.1	48	33.6	7	18.4
1 and 2	104	31.5	11	50.0	41	32.3	40	28.0	12	31.6	82	24.9	10	45.5	32	25.2	33	23.1	7	18.4
3 and 4	34	10.3	5	22.7	18	14.2	11	7.7	0	-	27	8.2	4	18.2	13	10.3	10	7.0	0	-
5 and 6	11	3.4	2	9.1	5	3.9	4	2.8	0	-	11	3.3	1	4.5	6	4.7	4	2.8	0	-
7 and over	7	2.1	0	-	6	4.7	1	0.7	0	-	6	1.8	0	-	5	3.9	1	0.7	0	-
	Industrial shifts										Occupational shifts									
Total persons	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0	330	100.0	22	100.0	127	100.0	143	100.0	38	100.0
None	219	66.4	8	36.4	79	62.2	100	69.9	32	84.2	232	70.3	4	18.2	86	67.7	108	75.5	34	89.5
1 or more	111	33.6	14	63.6	48	37.8	43	30.1	6	15.8	98	29.7	18	81.8	41	32.3	35	24.5	4	10.5
1 and 2	81	24.6	11	50.0	29	22.8	35	24.5	6	15.8	83	25.2	15	68.2	32	25.2	32	22.4	4	10.5
3 and 4	16	4.8	3	13.6	9	7.1	4	2.8	0	-	9	2.7	3	13.6	5	3.9	1	0.7	0	-
5 and 6	10	3.0	0	-	6	4.7	4	2.8	0	-	5	1.5	0	-	3	2.4	2	1.4	0	-
7 and over	4	1.2	0	-	4	3.2	0	-	0	-	1	0.3	0	-	1	0.8	0	-	0	-

Table A-50.- FREQUENCY OF EMPLOYER SHIFTS, 1926-30 AND 1931-35, BY USUAL INDUSTRIAL GROUP

Period and number of employer shifts	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1926-30												
Total persons ^a	680	100.0	283	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	280	41.2	109	38.5	63	39.9	36	38.3	22	44.9	50	52.1
1 or more	400	58.8	174	61.5	95	60.1	58	61.7	27	55.1	46	47.9
1 and 2	231	34.0	98	34.6	51	32.3	36	38.3	17	34.7	29	30.2
3 and 4	107	15.7	49	17.3	29	18.3	14	14.9	7	14.3	8	8.5
5 and 6	34	5.0	14	5.0	5	3.2	6	6.4	3	6.1	6	6.5
7 and over	28	4.1	13	4.6	10	6.3	2	2.1	0	-	3	3.1
1926-30												
Total persons ^a	680	100.0	283	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	394	57.9	162	57.2	90	57.0	53	56.4	27	55.1	62	64.6
1 or more	286	42.1	121	42.8	68	43.0	41	43.6	22	44.9	34	35.4
1 and 2	222	32.7	91	32.1	56	35.4	33	35.1	19	38.8	23	23.9
3 and 4	47	6.9	20	7.1	7	4.4	8	8.5	3	6.1	9	9.4
5 and 6	10	1.5	5	1.8	3	1.9	0	-	0	-	2	2.1
7 and over	7	1.0	5	1.8	2	1.3	0	-	0	-	0	-
1931-35												
Total persons ^b	682	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	437	64.1	176	61.8	96	60.8	61	64.9	34	69.4	70	72.9
1 or more	245	35.9	109	38.2	62	39.2	33	35.1	15	30.6	26	27.1
1 and 2	185	27.1	86	30.2	42	26.6	25	26.5	13	26.5	19	19.8
3 and 4	42	6.2	18	6.3	14	8.8	4	4.3	2	4.1	4	4.2
5 and 6	16	2.3	3	1.0	6	3.8	4	4.3	0	-	3	3.1
7 and over	2	0.3	2	0.7	0	-	0	-	0	-	0	-

^aExcludes 3 men who did not report number of employer shifts.^bExcludes 1 man who did not report number of employer shifts.

Table A-51.- FREQUENCY OF INDUSTRIAL SHIFTS, 1926-30 AND 1931-35, BY USUAL INDUSTRIAL GROUP

Period and number of industrial shifts	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1926-35												
Total persons ^a	681	100.0	284	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	308	45.2	128	45.1	67	42.4	41	43.6	21	42.9	51	53.1
1 or more	373	54.8	156	54.9	91	57.6	53	56.4	28	57.1	45	46.9
1 and 2	240	35.3	102	35.9	52	32.9	34	36.2	19	38.8	33	34.4
3 and 4	83	12.2	36	12.7	25	15.8	11	11.7	6	12.2	5	5.2
5 and 6	33	4.8	10	3.5	8	5.1	6	6.4	3	6.1	6	6.3
7 and over	17	2.5	8	2.8	6	3.8	2	2.1	0	-	1	1.0
1926-30												
Total persons ^a	681	100.0	284	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	422	62.0	179	63.0	96	60.8	57	60.6	27	55.1	63	66.6
1 or more	259	38.0	105	37.0	62	39.2	37	39.4	22	44.9	33	34.4
1 and 2	216	31.7	85	29.9	53	33.5	31	33.0	20	40.8	27	28.1
3 and 4	30	4.4	13	4.6	5	3.1	6	6.4	2	4.1	4	4.2
5 and 6	9	1.3	5	1.8	2	1.3	0	-	0	-	2	2.1
7 and over	4	0.6	2	0.7	2	1.3	0	-	0	-	0	-
1931-35												
Total persons ^b	682	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	453	66.4	189	66.3	97	61.4	63	67.0	33	67.3	71	74.0
1 or more	229	33.6	96	33.7	61	38.6	31	33.0	16	32.7	25	26.0
1 and 2	180	26.4	79	27.7	45	27.2	25	24.4	15	30.6	20	20.8
3 and 4	34	5.0	12	4.2	14	8.9	4	4.3	1	2.1	3	3.1
5 and 6	14	2.1	4	1.4	4	2.6	4	4.3	0	-	2	2.1
7 and over	1	0.1	1	0.4	0	-	0	-	0	-	0	-

^aExcludes 2 men who did not report number of industrial shifts.^bExcludes 1 man who did not report number of industrial shifts.

Table A-52.- FREQUENCY OF OCCUPATIONAL SHIFTS, 1926-30 AND 1931-35, BY USUAL INDUSTRIAL GROUP

Period and number of occupational shifts	Total persons		Manufacture of -						Government agencies and public utilities		Miscellaneous manufacturing and other industries	
			Machinery, machine tools, and electrical goods		Transportation equipment		Metal products, including professional instruments					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1926-35												
Total persons ^a	681	100.0	284	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	410	60.2	186	65.5	90	57.0	45	47.9	28	57.1	61	63.5
1 or more	271	39.8	98	34.5	68	43.0	49	52.1	21	42.9	35	36.5
1 and 2	204	29.9	75	26.4	50	31.6	38	40.4	16	32.7	25	26.1
3 and 4	46	6.8	17	6.0	12	7.6	6	6.4	5	10.2	6	6.3
5 and 6	14	2.1	4	1.4	4	2.5	3	3.2	0	-	3	3.1
7 and over	7	1.0	2	0.7	2	1.3	2	2.1	0	-	1	1.0
1926-30												
Total persons ^a	681	100.0	284	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	512	75.2	221	77.8	120	75.9	64	68.1	33	67.3	74	77.1
1 or more	169	24.8	63	22.2	38	24.1	30	31.9	16	32.7	22	22.9
1 and 2	143	21.0	52	18.3	33	20.9	26	27.6	15	30.6	17	17.7
3 and 4	20	2.9	8	2.8	4	2.6	3	3.2	1	2.1	4	4.2
5 and 6	4	0.6	2	0.7	0	-	1	1.1	0	-	1	1.0
7 and over	2	0.3	1	0.4	1	0.6	0	-	0	-	0	-
1931-35												
Total persons ^b	682	100.0	285	100.0	158	100.0	94	100.0	49	100.0	96	100.0
None	519	76.1	234	82.1	114	72.2	62	66.0	38	77.6	71	74.0
1 or more	163	23.9	51	17.9	44	27.8	32	34.0	11	22.4	25	26.0
1 and 2	140	20.5	46	16.1	37	23.4	27	28.7	10	20.4	20	20.8
3 and 4	18	2.6	4	1.4	6	3.8	3	3.2	1	2.0	4	4.2
5 and 6	4	0.6	0	-	1	0.6	2	2.1	0	-	1	1.0
7 and over	1	0.2	1	0.4	0	-	0	-	0	-	0	-

^aExcludes 2 men who did not report number of occupational shifts.

^bExcludes 1 man who did not report number of occupational shifts.

Table A-53.- NUMBER OF JOB SEPARATIONS FOR MACHINISTS 30-44 YEARS OF AGE, BY EMPLOYMENT STATUS IN MAY 1936, USUAL INDUSTRIAL GROUP, AND TYPE OF SHIFT, 1926-35

Employment status in May 1936 and usual industrial group	Total job separations		Type of shift																	
			Return to same job ^b after a period of -				Employer		Occupational		Industrial		Employer and occupational		Employer and industrial		Occupational and industrial		Employer, occupational, and industrial	
	Unemployment		Not seek- ing work																	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Total job separations	773 ^a	100.0	118	15.3	13	1.7	66	8.5	42	5.4	3	0.4	14	1.8	275	35.6	6	0.8	236	30.5
Manufacture of machinery, machine tools, and electrical goods	328	100.0	43	13.1	5	1.5	41	12.5	14	4.3	0	-	5	1.5	129	39.4	3	0.9	88	26.8
Manufacture of transportation equipment	225	100.0	60	26.7	3	1.3	16	7.1	8	3.6	1	0.4	2	0.9	74	32.9	2	0.9	59	26.2
Manufacture of metal products, including professional instruments	100	100.0	9	9.0	0	-	5	5.0	4	4.0	0	-	5	5.0	32	32.0	1	1.0	44	44.0
Government agencies and public utilities	46	100.0	2	4.3	2	4.3	0	-	3	6.6	2	4.3	2	4.3	14	30.5	0	-	21	45.7
Miscellaneous manufacturing and other industries	74	100.0	4	5.4	3	4.1	4	5.4	13	17.6	0	-	0	-	26	35.1	0	-	24	32.4
Employed	649	100.0	79	12.2	8	1.2	57	8.8	38	5.9	3	0.5	13	2.0	241	37.1	6	0.9	204	31.4
Manufacture of machinery, machine tools, and electrical goods	280	100.0	32	11.4	4	1.4	35	12.5	13	4.6	0	-	5	1.8	112	40.0	3	1.1	76	27.2
Manufacture of transportation equipment	178	100.0	36	20.2	0	-	13	7.3	6	3.4	1	0.6	2	1.1	65	36.5	2	1.1	53	29.8
Manufacture of metal products, including professional instruments	83	100.0	7	8.4	0	-	5	6.0	4	4.9	0	-	4	4.8	30	36.2	1	1.2	32	38.6
Government agencies and public utilities	43	100.0	2	4.7	2	4.7	0	-	3	6.9	2	4.7	2	4.7	13	30.2	0	-	19	44.1
Miscellaneous manufacturing and other industries	65	100.0	2	3.1	2	3.1	4	6.1	12	18.5	0	-	0	-	21	32.3	0	-	24	36.9
Unemployed	124	100.0	39	31.5	5	4.0	9	7.3	4	3.2	0	-	1	0.8	34	27.4	0	-	32	25.8
Manufacture of machinery, machine tools, and electrical goods	48	100.0	11	22.9	1	2.1	6	12.5	1	2.1	0	-	0	-	17	35.4	0	-	12	25.0
Manufacture of transportation equipment	47	100.0	24	51.1	3	6.4	3	6.4	2	4.2	0	-	0	-	9	19.1	0	-	6	12.8
Manufacture of metal products, including professional instruments	17	100.0	2	11.8	0	-	0	-	0	-	0	-	1	5.9	2	11.8	0	-	12	70.5
Government agencies and public utilities	3	100.0	0	-	0	-	0	-	0	-	0	-	0	-	1	33.3	0	-	2	66.7
Miscellaneous manufacturing and other industries	9	100.0	2	22.2	1	11.1	0	-	1	11.1	0	-	0	-	5	55.6	0	-	0	-

^aIncludes one job separation each for 3 men who reported an industrial shift but no actual job separation when the plants at which they were employed changed their major product.

^bIncludes 51 separations with no return to any job within the 10-year period.

Table A-54.- NUMBER OF JOB SEPARATIONS FOR MACHINISTS REPORTING NO UNEMPLOYMENT
IN THE 10-YEAR PERIOD 1926-35, BY AGE AND TYPE OF SHIFT

Age in years	Total job separations ^a		Type of shift															
			Returned to same job after a period of not seeking work		Employer		Occu- pational		Indus- trial		Employer and occu- pational		Employer and indus- trial		Occu- pational and indus- trial		Employer, occu- pational, and indus- trial	
			Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Total job separations	388	100.0	2	0.5	45	11.6	53	13.6	3	0.8	10	2.6	135	34.8	3	0.8	137	35.3
16-29	44	100.0	0	-	1	2.3	11	25.0	1	2.3	4	9.1	9	20.4	0	-	18	40.9
30-44	201	100.0	1	0.5	20	10.0	26	12.9	1	0.5	3	1.5	74	36.8	2	1.0	74	36.8
45-59	123	100.0	0	-	22	17.9	12	9.8	1	0.8	3	2.4	41	33.3	1	0.8	43	35.0
60 and over	20	100.0	1	5.0	2	10.0	4	20.0	0	-	0	-	11	55.0	0	-	2	10.0

^aIncludes one job separation for a man who reported an industrial shift but no actual job separation when the plant at which he was employed changed its major product.

APPENDIX B

SCHEDULE AND DEFINITIONS OF TERMS USED

DEFINITIONS OF TERMS USED

Age: The person's age on his last birthday prior to the date of the interview was recorded.

Place of Birth: The country of birth was recorded for foreign-born persons; the State of birth, for native-born persons; and Philadelphia, for persons born in this city. The country of birth was recorded according to the national boundary lines at the time of the person's birth.

Years in City: The number of years in the city was defined as the length in years of the most recent period of continuous residence in Philadelphia, disregarding absences of less than 1 year.

Years in the United States: The number of years in the United States was defined as the number of years of residence in the United States since the date of last entry into the country. (This item was recorded for foreign-born persons only.)

School Grade Completed: The number of grades completed, which led directly to a grammar-school certificate or a high-school or college diploma, were counted as the school grade completed. Returns for foreign-born workers were converted to the terms in use in the present system in Philadelphia.

Age Leaving School: The age on leaving school was defined as the person's age on his last birthday prior to the date of his first leaving school for a consecutive period of more than 1 year.

Age Began Work: The age of beginning work was defined as the person's age on his last birthday prior to the date of his beginning his first full-time job¹ after leaving school.

Date of Entering the Labor Market: No specific question regarding the date of entering the labor market was asked, but when there was sufficient information on the schedule, calculations were made to determine this date. However, when there was a difference in the person's age between the time he had left school and the time he began work and when there was no record of the intervening period, the year in which he had left school was considered to be the date he entered the labor market.

Usual Occupation: The usual occupation was defined as the occupation which the person considered his usual or customary occupation. In cases of doubt, the occupation at which the person had worked longest was considered his usual occupation. Of

¹See below for the definition of first job.

two work experiences of equal length, the more recent was considered the usual.

Usual Industry: The usual industry was defined as the industry in which the person was normally employed. If he had been employed at his usual occupation in two or more industries, the industry at which he had worked longest was considered the usual one.

Years at the Usual Occupation: The number of years employed at the usual occupation was defined as the individual's estimate of the number of years he actually worked at what he considered to be his usual occupation. Years spent as a paid apprentice or helper or as a foreman were included, but years spent as an unpaid apprentice were not included.²

Present Employment Status: As of May 1, 1936 the individual was classified as "employed" or "unemployed."

(a) *Employed persons* were defined as those who had a job³ on May 1, 1936. Employment was considered full-time or part-time, according to the practice of the industry in May 1936.

(b) *Unemployed persons* were defined as those who did not have a job on May 1, 1936 but who were able and willing to work. Persons employed on Government emergency work and persons temporarily out of the labor market were included in this group.

Emergency work was used as an all-inclusive term to cover employment on work relief, Public Works projects, or Works Program projects whether financed by the city, the State, the Federal Emergency Relief Administration, the National Recovery Act of 1933, or the Emergency Relief Appropriation Act of 1935.

Persons who had been sick for less than a year but who were not permanently disabled were classified as temporarily out of the labor market.⁴

Job: A job was defined as continuous paid service at one occupational assignment for one employer for 1 or more months. (Employment on emergency work did not constitute a job, since emergency work employment was classified as unemployment.)

²In this study, time spent as an operator of special machine tools, as a tool maker, die setter or instrument maker, or as a machinist or millwright was included as time at the usual occupation.

³See below for the definition of a job.

⁴Persons on strike on May 1, 1936 were classified as temporarily out of the labor market and, therefore, were included in the study.

When persons were working on their own account for 1 or more months, they were considered to have jobs. Persons who had casual work, such as longshoremen, truck drivers, and day workers, were considered to have jobs if they worked at the occupation for 1 or more months even though the work was for more than one employer. When persons were on sick leave with pay or vacation with pay, they were considered to have jobs.

(a) *First Job*: The first job was defined as the first full-time paid job after leaving school permanently. Summer jobs between school sessions and any jobs held while the individual was out of school for a period of only 1 year or less were not counted as the first job.

(b) *Longest Job*: The longest job was defined as the longest job beginning prior to 1926 for persons who had entered the labor market before that time. For persons who had entered the labor market during or after 1926, it was the longest job they had ever held. Of two jobs of equally long duration, the more recent one was considered the longest job.

(c) *Last Job*: The last job was defined as the last job beginning on or prior to May 1, 1936.

Time Elapsed Between Jobs: Periods of 1 or more months of unemployment or of time not seeking work between January 1926 and the time of interview were recorded on the schedule.

Unemployment periods included any time during which the individual was employed on emergency work, as well as time during which he did not have a job but was able and willing to work.

Time not seeking work included periods during which the individual was out of the labor market because he was sick (and not receiving pay), on strike, attending school, or retired and living on income.

Duration of Unemployment Since Last Job: The duration of unemployment since the last job was defined as the time unemployed (including time employed on emergency work)⁵ between the date of leaving the last job and May 1, 1936. This of course has application only to those who were unemployed on May 1, 1936.

Occupation: In recording occupations, the kind of work done on each job was stated as exactly as possible. The occupations were coded according to an adaptation of Bulletin #3, Occupation Code, Works Progress Administration, National Research Proj-

⁵In this study, time not seeking work was also included.

ect in cooperation with the Industrial Research Department of the University of Pennsylvania (mimeo., April 1936).

Persons who owned an establishment and also worked in it were classified as owners. The term "factory laborer" was used only for persons who fetch and carry materials to and from the production workers or clean up after them. The occupations of production workers or factory hands were classified in accordance with the process or operation on which the workers were engaged.

Industry: In recording industries, the exact type of business or product made was specified, and general terms were avoided as much as possible. Industries were coded according to an adaptation of Bulletin #4, Industry Code, Works Progress Administration, National Research Project in cooperation with the Industrial Research Department of the University of Pennsylvania (mimeo., April 1936).

Reason for Change in Job: In entering the reason for leaving a job, the exact statement of the respondent was recorded as nearly as possible.

Character of Employment: Employment was classified either as full-time or part-time according to the practice of the industry during the time for which the information was obtained. In instances when employment with a firm had been both full-time and part-time but the respondent could not recall the exact dates of change, the character of employment was designated as combined full-time and part-time employment. When persons were working on their own account, the employment was classified as "self-employment."⁶

Both full- and part-time employment were further classified as "regular", "casual", or "intermittent." Casual employment was defined as work for one or more employers contracted for by the hour or by the day, as in the case of "day workers" in domestic service or laborers at odd jobs or by the load handled, as in the case of longshoremen and jobbing truck drivers. The term "intermittent" was used to identify the employment of workers who constitute a labor reserve in industries in which employment is usually not of a casual nature. The work of "spare hands" and "contingent" crews on call for a particular employer or of extra crews hired to complete orders in the "rush" season was classified

⁶The amount of self-employment was very small, so it was distributed proportionately between full-time and part-time employment in determining the average number of months of specified types of employment experience, 1928-35.

as intermittent. Regular employment included all work, except that of a casual or intermittent nature, arising from paid service with one employer.

Time Employed at the Usual Occupation: The time employed at the usual occupation from 1926 to 1935 included only the time the person was employed at occupations which had been assigned the same code number as that of the usual occupation.

Time Employed at Other Than the Usual Occupation: The time employed at occupations other than the usual one included the time the person was employed at all occupations which had been assigned code numbers different from that of the usual occupation.

Time Employed in the Usual Industry: The time employed in the usual industry from 1926 to 1935 included only the time the person was employed in industries which had been assigned the same code number as that of the usual industry.

Time Employed in Other Than the Usual Industry: The time employed in industries other than the usual one included the time the person was employed in all industries which had been assigned code numbers different from that of the usual industry.

Average Length of Service per Job at the Usual Occupation: In computing the average length of service per job at the usual occupation, only employment between January 1926 and December 1935 was included. (Thus, in the case of a job beginning in 1920 and ending in 1936, the average length was taken as 10 years.) Only jobs assigned the same occupational code number as that of the usual occupation were considered to be at the usual occupation.

Average Length of Unemployment Periods: In computing the average length of unemployment periods, only unemployment between January 1926 and December 1935 was included. Employment at emergency work was considered to be unemployment.

Separations From Jobs: Leaving one job to go to another, to become unemployed, or to experience a period of not seeking work was counted as separation from a job. Because of the definition of a job, a change from one occupation to another during continuous employment with one firm was counted as a job separation. On the other hand, a change in character of employment or in industry during continuous employment at one occupational assignment for one employer was not counted as a job separation.

Employer Shifts: An employer shift was defined as a change from one firm name to another, whether or not a period without work intervened. A change in location of the plant alone was not considered to be an employer shift; neither was a shift by the worker from one plant to another plant operated by the same firm. For casual work, "odd jobs" or "various employers" was sometimes recorded instead of an employer's name. These entries were treated as one employer, and the number of employer shifts determined accordingly.

Occupational Shift: An occupational shift was defined as a change from one occupation to another, whether or not a period without work intervened. These shifts were determined on the basis of the occupational code numbers.

Industrial Shift: An industrial shift was defined as a change from one industry to another, whether or not a period without work intervened. These shifts were determined on the basis of the industrial code numbers.

Separations From Employers: A separation from an employer was defined as the act of leaving one employer to go to another, to become unemployed, or to experience a period of not seeking work.