

UNITED STATES DEPARTMENT OF LABOR

W. N. DOAK, Secretary

BUREAU OF LABOR STATISTICS

CHARLES E. BALDWIN, Acting Commissioner

BULLETIN OF THE UNITED STATES
BUREAU OF LABOR STATISTICS) No. 570

WAGES AND HOURS OF LABOR SERIES

**WAGES AND HOURS OF LABOR IN
FOUNDRIES AND MACHINE SHOPS**

1931



DECEMBER, 1932

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1932

For sale by the Superintendent of Documents, Washington, D. C. - - - - Price 10 cents

Contents

	Page
Trend of hours and earnings, 1923 to 1931.....	1
Average and classified earnings per hour, by occupation.....	12
Regular or customary full-time hours of operation.....	18
Changes in hours and in wage rates.....	29
Pay for overtime, 1931.....	38
Bonus systems.....	41
Indexes of employment and of pay rolls.....	51
Importance of foundries and machine shops.....	53
Scope and method.....	55
General tables:	
TABLE A.—Average number of days on which wage earners worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occu- pation, sex, and State.....	58
TABLE B.—Average and classified earnings per hour in 8 specified occu- pations in foundries and 17 in machine shops, 1931, by sex and State.....	83
TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State.....	102
Appendix A.—Foundry terms with definitions, and classification by Bu- reau of Labor Statistics.....	122
Appendix B.—Machine-shop terms with definitions, and classification by Bureau of Labor Statistics.....	132

**BULLETIN OF THE
U. S. BUREAU OF LABOR STATISTICS**

NO. 570

WASHINGTON

DECEMBER, 1932

**WAGES AND HOURS OF LABOR IN FOUNDRIES AND
MACHINE SHOPS IN 1931**

This bulletin presents the results of a study of wages and hours of labor of wage earners in foundries and in machine shops in the United States in the summer of 1931, by occupations.¹

Trend of Hours and Earnings, 1923 to 1931

Table 1 shows summary figures for wage earners in all occupations and in each occupation in foundries and in machine shops in 1931 in comparison with summaries for other years in which studies were made. The data for 1931 cover 28,699 wage earners in 388 foundries and 65,938 wage earners in 512 machine shops. Males were employed in each of these establishments, but females were employed in only 34 of the foundries and in 49 of the machine shops.

Average full-time hours per week in 1931 for all employees in foundries were 50.3 or 0.7 hour less than in 1929, and in machine shops were 49.8 or 0.5 hour less than in 1929. Average earnings per hour in 1931 were 60.0 cents in foundries or 2.4 cents less than in 1929, while in machine shops they were 63.4 cents or 0.4 cent less than in 1929. In foundries average full-time earnings per week in 1931 were \$30.18 or \$1.64 less than in 1929, and in machine shops, \$31.57 or 52 cents less than in 1929.

Index numbers of average full-time hours per week, average earnings per hour, and full-time earnings per week are shown in Table 1 with the 1923 average as the base or 100 per cent. The purpose of these indexes is to make easy the comparison of the averages one year with another over the period from 1923 to 1931. For example, average full-time hours per week of males and females in all occupations in foundries decreased from 52.4 or an index of 100.0 in 1923 to 51.5 or an index of 98.3 in 1925, to 51.1 or an index of 97.5 in 1927, to 51.0 or an index of 97.3 in 1929, and to an average of 50.3 or an index of 96.0 in 1931.

For males average full-time hours per week in foundries were the same as for males and females combined, and ranged by occupations from 49.3 for pattern makers to 50.8 for crane operators, cupola tenders, and laborers. For females full-time hours per week decreased from 49.3 in 1923 to 49.0 in 1925 and 1927, increased to 49.7 in 1929, but dropped to 48.7 in 1931, the range by occupations being from 47.8 for laborers to 50.0 for chippers.

Average earnings per hour in foundries increased from an index of 100.0 in 1923 to 109.3 in 1925 and to 111.8 in 1927 and 1929, and

¹ For former studies, see Bulletins Nos. 362, 422, 471, and 522.

decreased to 107.5 in 1931, while average full-time earnings per week increased from an index of 100.0 in 1923 to 107.5 in 1925 and to 109.1 in 1927, then decreased to 108.8 in 1929 and to 103.2 in 1931. The difference in the trends of index numbers of average earnings per hour and average full-time earnings per week is due to the changes from year to year of average full-time hours per week.

For males in all occupations combined in foundries average earnings per hour increased from 56.0 cents in 1923 to 61.2 cents in 1925, to 62.6 cents in 1927, then decreased to 62.5 cents in 1929 and to 60.1 cents in 1931; and ranged in 1931 from 46.0 cents for laborers to 83.4 cents for pattern makers. For females average earnings per hour rose from 40.4 cents in 1923 to 42.7 cents in 1925 and to 45.9 cents in 1927, but dropped to 45.1 cents in 1929 and to 42.2 cents in 1931, while the range was from 34.5 cents for the group designated as "other employees" to 49.6 cents for chippers.

Average full-time earnings per week in foundries for males in all occupations combined increased from \$29.34 in 1923 to \$31.52 in 1925 and to \$31.99 in 1927 decreasing to \$31.88 in 1929 and to \$30.23 in 1931, and ranged by occupations, in 1931, from \$23.37 for laborers to \$41.12 for pattern makers. For females full-time weekly earnings increased from \$19.92 in 1923 to \$20.92 in 1925 and to \$22.49 in 1927 then dropped to \$22.41 in 1929 and to \$20.55 in 1931, while for both sexes combined or the industry earnings rose from \$29.24 in 1923 to \$31.42 in 1925 and to \$31.89 in 1927 and then dropped to \$31.82 in 1929 and to \$30.18 in 1931.

Data for females in foundries are shown only for chippers and rough grinders, core makers, and laborers, and for a miscellaneous group designated as "other employees."

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex

FOUNDRIES									
[1923=100.0]									
Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
The Industry									
All occupations:	1923								
Males.....	1923	351	31,856	52.4	\$0.560	\$29.34	100.0	100.0	100.0
	1925	413	39,915	51.5	.612	31.52	98.3	109.3	107.4
	1927	417	38,504	51.1	.626	31.99	97.5	111.8	109.0
	1929	399	40,032	51.0	.625	31.88	97.3	111.6	108.7
	1931	388	28,469	50.3	.601	30.23	96.0	107.3	103.0
Females.....	1923	22	310	49.3	.404	19.92	100.0	100.0	100.0
	1925	43	478	49.0	.427	20.92	99.4	105.7	105.0
	1927	42	439	49.0	.459	22.49	99.4	113.6	112.9
	1929	41	359	49.7	.451	22.41	100.8	111.6	112.5
	1931	34	230	48.7	.422	20.55	98.8	104.5	103.2
Males and females.....	1923	351	32,166	52.4	.558	29.24	100.0	100.0	100.0
	1925	413	40,393	51.5	.610	31.42	98.3	109.3	107.5
	1927	417	38,943	51.1	.624	31.89	97.5	111.8	109.1
	1929	399	40,391	51.0	.624	31.82	97.3	111.8	108.8
	1931	388	28,699	50.3	.600	30.18	96.0	107.5	103.2

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex—Continued

FOUNDRIES—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
By Occupation									
Chippers and rough grinders:									
Male.....	1923	319	2,923	52.5	\$0.465	\$24.41	100.0	100.0	100.0
	1925	383	4,110	51.5	.521	26.83	98.1	112.0	109.9
	1927	379	3,857	51.1	.537	27.44	97.3	115.5	112.4
	1929	367	4,233	51.4	.538	27.65	97.9	115.7	113.3
	1931	367	3,048	50.6	.509	25.76	96.4	109.5	105.5
Female.....	1927	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	1931	1	12	50.0	.496	24.80			
Core makers:									
Male.....	1923	345	2,526	51.4	.690	35.47	100.0	100.0	100.0
	1925	368	3,067	50.3	.734	36.92	97.9	106.4	104.1
	1927	401	3,040	50.4	.755	38.05	98.1	109.4	107.3
	1929	387	3,370	49.9	.744	37.13	97.1	107.8	104.7
	1931	374	2,253	50.0	.706	35.30	97.3	102.3	99.5
Female.....	1923	22	240	49.2	.431	21.21	100.0	100.0	100.0
	1925	43	353	48.6	.444	21.58	98.8	103.0	101.7
	1927	41	324	48.4	.491	23.76	98.4	113.9	112.0
	1929	38	280	49.1	.469	23.03	99.8	108.8	108.6
	1931	34	179	48.6	.430	20.90	98.8	99.8	98.5
Crane operators:									
Male.....	1923	197	593	53.5	.522	27.93	100.0	100.0	100.0
	1925	236	772	52.7	.562	29.62	98.5	107.7	106.1
	1927	242	875	52.6	.575	30.25	98.3	110.2	108.3
	1929	237	927	52.2	.582	30.38	97.6	111.5	108.8
	1931	217	768	50.8	.552	28.04	95.0	105.7	100.4
Cupola tenders:									
Male.....	1923	342	556	52.4	.546	28.61	100.0	100.0	100.0
	1925	380	567	51.9	.635	32.96	99.0	116.3	115.2
	1927	393	602	51.8	.620	32.12	98.9	113.6	112.3
	1929	364	500	51.0	.634	32.33	97.3	116.1	113.0
	1931	344	430	50.8	.597	30.33	96.9	109.3	106.0
Laborers:									
Male.....	1923	343	9,265	53.5	.428	22.90	100.0	100.0	100.0
	1925	389	10,931	52.5	.481	25.25	98.1	112.4	110.3
	1927	401	11,017	52.1	.491	25.58	97.4	114.7	111.7
	1929	384	10,980	52.1	.490	25.53	97.4	114.5	111.5
	1931	366	6,907	50.8	.460	23.37	95.0	107.5	102.1
Female.....	1923	8	68	49.4	.316	15.61	100.0	100.0	100.0
	1925	17	125	50.2	.382	19.18	101.6	120.9	122.9
	1929	7	74	51.6	.386	19.92	104.5	122.2	127.6
	1931	5	10	47.8	.377	18.02	96.8	119.3	115.4
Molders, hand, bench:									
Male.....	1923	262	2,379	51.3	.687	35.24	100.0	100.0	100.0
	1925	325	2,363	50.2	.768	38.55	97.9	111.8	109.4
	1927	324	2,063	50.5	.789	39.84	98.4	114.8	113.1
	1929	321	2,098	49.6	.783	38.84	96.7	114.0	110.2
	1931	300	1,593	50.2	.727	36.50	97.9	105.8	103.6
Molders, hand, floor:									
Male.....	1923	346	4,904	51.2	.729	37.32	100.0	100.0	100.0
	1925	401	5,612	50.4	.802	40.42	98.4	110.0	108.3
	1927	402	5,375	49.9	.820	40.92	97.5	112.5	109.6
	1929	385	5,453	50.0	.828	41.40	97.7	113.6	110.9
	1931	376	3,752	50.0	.782	39.10	98.0	107.3	104.8
Molders, machine:									
Male.....	1923	161	1,993	51.9	.678	35.19	100.0	100.0	100.0
	1925	229	3,140	50.1	.733	36.72	96.5	103.1	104.3
	1927	220	3,102	50.4	.763	37.95	97.1	111.1	107.8
	1929	249	3,854	50.4	.734	36.99	97.1	103.3	105.1
	1931	215	2,538	50.0	.661	33.05	96.3	97.5	98.9
Molders' helpers, floor:									
Male.....	1923	234	1,986	52.2	.433	22.60	100.0	100.0	100.0
	1925	285	2,642	51.8	.460	23.83	99.2	106.2	105.4
	1927	247	1,820	51.2	.484	24.78	98.1	111.8	109.6
	1929	251	1,919	51.1	.502	25.65	97.9	115.9	113.5
	1931	231	1,234	50.0	.492	24.60	95.8	113.6	108.8

¹ Included in figures for all occupations in industry.

4 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex—Continued

FOUNDRIES—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
By Occupation—Continued									
Pattern makers:									
Male.....	1923	283	1,314	51.1	\$0.750	\$38.38	100.0	100.0	100.0
	1925	346	1,827	50.4	.804	40.52	93.6	107.2	105.6
	1927	259	1,512	50.3	.830	41.75	98.4	110.7	103.8
	1929	191	1,127	50.1	.833	41.73	98.0	111.1	103.7
	1931	194	1,107	49.3	.834	41.12	96.5	111.2	107.1
Rough carpenters:									
Male.....	1923	261	680	52.0	.534	27.77	100.0	100.0	100.0
	1925	293	634	51.1	.591	30.20	98.3	110.7	103.8
	1927	292	625	50.8	.609	30.94	97.7	114.0	111.4
	1929	270	509	50.7	.622	31.54	97.5	116.5	113.6
	1931	237	424	50.3	.599	30.13	96.7	112.2	108.5
Sand blasters: ¹									
Male.....	1927	175	362	51.7	.591	30.55	-----	-----	-----
	1929	183	337	51.9	.592	30.72	-----	-----	-----
	1931	157	266	50.3	.559	28.12	-----	-----	-----
Other employees:									
Male.....	1923	304	2,737	53.6	.503	26.96	100.0	100.0	100.0
	1925	378	4,250	52.7	.576	30.36	98.3	114.5	112.6
	1927	365	4,254	51.0	.587	29.94	95.1	116.7	111.1
	1929	350	4,725	51.2	.592	30.31	95.5	117.7	112.4
	1931	353	4,149	50.5	.600	30.30	94.2	119.3	112.4
Female ²	1923	2	2	51.0	.205	10.46	100.0	100.0	100.0
	1927	15	107	50.6	.380	19.23	99.2	185.4	183.8
	1929	5	5	50.5	.492	24.85	99.0	240.0	237.6
	1931	6	29	49.6	.345	17.11	97.3	163.3	163.6

MACHINE SHOPS

The Industry

All occupations:									
Males.....	1923	429	58,506	50.8	\$0.560	\$28.45	100.0	100.0	100.0
	1925	511	85,199	50.4	.604	30.44	99.2	107.9	107.0
	1927	526	85,309	50.1	.629	31.51	98.6	112.3	110.8
	1929	503	89,935	50.3	.641	32.24	99.0	114.5	113.3
	1931	512	64,921	49.8	.637	31.72	98.0	113.8	111.5
Females.....	1923	19	408	49.1	.366	17.97	100.0	100.0	100.0
	1925	36	1,075	49.3	.420	20.71	100.4	114.8	115.2
	1927	50	1,470	48.9	.403	19.71	99.6	110.1	109.7
	1929	56	1,556	49.3	.399	19.67	100.4	109.0	109.5
	1931	49	1,017	49.2	.408	20.07	100.2	111.5	111.7
Males and females.....	1923	429	58,914	50.8	.559	28.40	100.0	100.0	100.0
	1925	511	86,274	50.4	.602	30.34	99.2	107.7	106.8
	1927	526	86,779	50.1	.625	31.31	98.6	111.8	110.2
	1929	503	91,491	50.3	.633	32.09	99.0	114.1	113.0
	1931	512	65,938	49.8	.634	31.57	98.0	113.4	111.2

By Occupation

Assemblers:									
Male.....	1923	310	5,681	50.6	\$0.575	\$29.10	100.0	100.0	100.0
	1925	306	7,151	49.6	.634	31.45	98.0	110.3	103.1
	1927	368	8,019	50.1	.653	32.72	99.0	113.6	112.4
	1929	335	7,670	50.1	.657	32.92	99.0	114.3	113.1
	1931	360	5,446	49.9	.656	32.73	98.6	114.1	112.5
Female.....	1923	6	54	50.2	.350	17.57	100.0	100.0	100.0
	1925	9	150	50.7	.444	22.51	101.0	126.9	128.1
	1927	14	120	49.5	.423	20.94	98.6	120.9	119.2
	1929	20	190	49.8	.441	21.96	99.2	126.0	125.0
	1931	19	145	50.7	.426	21.60	101.0	121.7	122.9

¹ Included with "Other employees" in 1923 and 1925.

² Included with "Laborers" in 1925.

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
MACHINE SHOPS—Continued									
By Occupation—Continued									
Blacksmiths:									
Male.....	1923	345	797	50.8	\$0.678	\$34.44	100.0	100.0	100.0
	1925	395	885	50.2	.717	35.99	98.8	105.8	104.5
	1927	406	845	50.2	.726	36.45	98.8	107.1	105.8
	1929	397	857	50.1	.742	37.17	98.6	109.4	107.9
	1931	373	698	50.5	.728	36.76	99.4	107.4	106.7
Blacksmiths' helpers:									
Male.....	1923	282	945	50.8	.489	24.84	100.0	100.0	100.0
	1925	298	857	50.5	.504	25.45	99.4	103.1	102.5
	1927	291	722	50.2	.525	26.36	98.8	107.4	106.1
	1929	285	800	49.9	.534	26.65	98.2	109.2	107.3
	1931	228	481	49.8	.533	26.54	98.0	109.0	106.8
Boring-mill operators:									
Male.....	1923	271	1,455	50.8	.660	33.53	100.0	100.0	100.0
	1925	341	2,135	50.4	.688	34.88	99.2	104.2	103.4
	1927	354	2,208	50.7	.727	36.86	99.8	110.2	109.9
	1929	372	2,333	51.1	.750	38.33	100.6	113.6	114.3
	1931	337	1,722	50.0	.733	36.65	98.4	111.1	109.3
Crane operators:									
Male.....	1923	167	525	51.1	.501	25.60	100.0	100.0	100.0
	1925	214	754	50.7	.524	26.57	99.2	104.6	103.8
	1927	218	865	51.2	.540	27.65	100.2	107.8	108.0
	1929	233	980	50.7	.555	28.14	99.2	110.8	109.9
	1931	221	780	50.4	.537	27.06	98.6	107.2	105.7
Female.....	1927	2	4	51.3	.431	22.11	-----	-----	-----
	1929	2	7	50.7	.425	21.55	-----	-----	-----
	1931	2	2	47.5	.422	20.05	-----	-----	-----
Craters and packers: ⁴									
Male.....	1925	274	1,488	50.5	.520	26.26	-----	-----	-----
	1927	288	1,793	50.1	.537	26.90	-----	-----	-----
	1929	239	1,455	50.0	.547	27.35	-----	-----	-----
	1931	253	1,218	50.1	.540	27.05	-----	-----	-----
Female.....	1925	10	68	49.7	.354	17.69	-----	-----	-----
	1927	7	44	49.5	.389	19.26	-----	-----	-----
	1929	15	50	49.0	.371	18.18	-----	-----	-----
	1931	9	32	49.7	.343	17.05	-----	-----	-----
Drill-press operators:									
Male.....	1923	350	3,634	50.8	.527	26.77	100.0	100.0	100.0
	1925	423	5,012	50.4	.579	29.18	99.2	109.9	109.0
	1927	433	4,759	50.1	.605	30.31	98.6	114.8	113.2
	1929	440	5,291	50.3	.628	31.59	99.0	119.2	118.0
	1931	415	3,139	49.8	.612	30.48	98.0	116.1	113.9
Female.....	1923	5	33	49.5	.410	20.30	100.0	100.0	100.0
	1925	16	93	49.0	.477	23.37	99.0	116.3	115.1
	1927	22	121	49.4	.448	22.13	99.8	109.3	109.0
	1929	17	77	49.2	.410	20.17	99.4	100.0	99.4
	1931	14	47	49.3	.446	21.99	99.6	108.8	108.3
Fitters and bench hands:									
Male.....	1923	271	4,721	49.9	.616	30.74	100.0	100.0	100.0
	1925	388	8,157	49.8	.643	32.02	99.8	104.4	104.2
	1927	332	6,661	49.5	.662	32.77	99.2	107.5	106.6
	1929	367	7,715	49.8	.677	33.71	99.8	109.9	109.7
	1931	341	5,447	49.5	.666	32.97	99.2	108.1	107.3
Female.....	1923	4	60	49.0	.420	20.58	100.0	100.0	100.0
	1925	14	146	49.3	.468	23.07	100.6	111.4	112.1
	1927	20	341	49.0	.411	20.14	100.0	97.9	97.9
	1929	14	175	48.6	.450	21.87	99.2	107.1	106.3
	1931	10	45	50.4	.411	20.71	102.9	97.9	100.6
Grinding-machine operators:									
Male.....	1923	221	1,255	50.5	.586	29.59	100.0	100.0	100.0
	1925	267	2,016	50.3	.637	32.04	99.6	108.7	108.3
	1927	298	2,285	50.1	.668	33.47	99.2	114.0	113.1
	1929	313	2,888	51.0	.701	35.75	101.0	119.6	120.8
	1931	290	2,088	50.2	.669	33.68	99.4	114.2	113.5

⁴ Included with "Laborers" in 1923.

6 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex—Continued

MACHINE SHOPS—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
By Occupation—Continued									
Grinding-machine operators—Con.									
Female ^b	1923	2	2	52.0	\$0.310	\$16.12	100.0	100.0	100.0
	1927	5	15	48.6	.444	21.58	93.5	143.2	133.9
	1929	7	19	50.6	.343	17.36	97.3	110.6	107.7
	1931	2	3	48.0	.443	21.26	92.3	142.9	131.9
Hammersmiths: ^c									
Male.....	1929	52	226	50.3	.888	44.67			
	1931	50	134	49.4	.776	38.33			
Helpers not otherwise specified: ^d									
Male.....	1929	322	3,443	50.2	.514	25.80			
	1931	278	2,262	50.6	.481	24.34			
Laborers:									
Male.....	1923	375	8,355	51.1	.418	21.35	100.0	100.0	100.0
	1925	439	9,833	50.6	.456	23.07	99.0	109.1	108.1
	1927	489	8,342	50.4	.456	22.98	98.6	109.1	107.6
	1929	452	8,506	50.5	.469	23.68	98.8	112.2	110.9
	1931	426	5,173	50.3	.455	22.89	98.4	108.9	107.2
Female ^e	1923	6	30	48.2	.323	15.57	100.0	100.0	100.0
	1929	3	11	50.8	.349	17.73	105.4	108.0	113.9
	1931	1	4	49.5	.391	19.35	102.7	121.1	124.3
Lathe operators, engine:									
Male.....	1923	347	4,421	50.9	.633	32.22	100.0	100.0	100.0
	1925	401	5,856	50.3	.663	33.35	98.8	104.7	103.5
	1927	414	5,964	50.2	.695	34.89	98.6	109.8	108.3
	1929	421	5,640	50.3	.717	36.07	98.8	113.3	111.9
	1931	407	3,551	50.0	.706	35.30	98.2	111.5	109.6
Female.....	1927	2	7	48.4	.355	18.63			
	1931	1	3	50.0	.516	25.80			
Lathe operators, turret:									
Male.....	1923	251	2,147	50.5	.610	30.81	100.0	100.0	100.0
	1925	328	3,393	50.2	.647	32.48	99.4	106.1	105.4
	1927	343	3,167	50.0	.675	33.75	99.0	110.7	109.5
	1929	359	3,855	50.5	.700	35.35	100.0	114.8	114.7
	1931	333	2,467	49.8	.672	33.47	98.6	110.2	108.6
Female.....	1925	3	27	49.9	.488	24.35			
	1927	8	46	50.0	.549	27.45			
	1929	3	13	48.9	.482	21.12			
	1931	2	3	50.0	.527	26.35			
Machinists:									
Male.....	1923	331	2,952	50.0	.683	34.15	100.0	100.0	100.0
	1925	374	3,820	49.9	.702	35.03	99.8	102.8	102.6
	1927	395	3,794	49.5	.728	36.04	99.0	106.6	105.5
	1929	379	3,036	49.8	.739	36.80	99.6	108.2	107.8
	1931	374	2,575	49.0	.733	35.92	98.0	107.3	104.6
Machinists' and toolmakers' helpers:									
Male.....	1923	251	1,616	50.4	.464	23.39	100.0	100.0	100.0
	1925	262	1,641	49.8	.494	24.60	98.8	106.5	105.2
	1927	269	1,671	50.1	.510	25.55	99.4	109.9	109.2
	1929	229	1,006	50.3	.504	25.35	99.8	108.6	108.4
	1931	210	797	49.3	.513	25.29	97.8	110.6	108.1
Milling-machine operators:									
Male.....	1923	268	1,938	50.0	.605	30.25	100.0	100.0	100.0
	1925	339	2,925	49.7	.653	32.45	99.4	107.9	107.3
	1927	343	2,872	49.7	.685	34.04	99.4	113.2	112.5
	1929	358	3,440	50.2	.697	34.99	100.4	115.2	115.7
	1931	331	2,246	49.3	.685	33.77	98.0	113.2	111.3
Female.....	1925	7	32	49.4	.497	24.55			
	1927	3	17	48.8	.489	23.86			
	1929	5	15	47.6	.504	23.99			
	1931	8	18	48.9	.492	24.06			

^a Included with "Other employees" in 1925.

^b Included with "Other skilled employees" in 1923, 1925, and 1927.

^c Included with "Other employees" in 1923, 1925, and 1927.

^d Included with "Other employees" in 1925, and 1927.

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
MACHINE SHOPS—Continued									
By Occupation—Continued									
Pattern makers: ⁹									
Male.....	1927	235	1,228	49.6	\$0.841	\$41.71			
	1929	288	1,652	49.9	.846	42.22			
	1931	282	1,431	50.1	.812	40.68			
Planer operators:									
Male.....	1923	272	1,339	50.6	.663	33.55	100.0	100.0	100.0
	1925	327	1,838	50.2	.705	35.39	99.2	106.3	105.5
	1927	339	1,818	50.5	.742	37.47	99.8	111.9	111.7
	1929	344	1,963	50.7	.754	38.23	100.2	113.7	113.9
	1931	315	1,168	50.1	.738	36.97	99.0	111.3	110.2
Polishers and buffers: ¹⁰									
Male.....	1927	109	580	49.4	.699	34.53			
	1929	115	587	50.1	.674	33.77			
	1931	101	379	49.4	.656	32.41			
Female.....	1927	3	6	49.0	.450	22.05			
	1931	4	6	50.1	.377	18.89			
Screw-machine operators: ¹¹									
Male.....	1923	177	1,047	50.6	.564	28.54	100.0	100.0	100.0
	1925	215	1,482	49.8	.643	32.02	98.4	114.0	112.2
	1927	213	1,520	49.8	.664	33.07	98.4	117.7	115.9
	1927	3	10	48.7	.435	21.18			
Female.....	1927	3	6	49.0	.450	22.05			
	1931	4	6	50.1	.377	18.89			
Screw-machine operators, hand: ¹²									
Male.....	1929	155	966	50.2	.676	33.94			
	1931	128	640	49.9	.654	32.63			
Female.....	1929	2	18	49.5	.426	21.09			
	1931	2	37	49.5	.356	17.62			
Screw-machine operators, semiautomatic: ¹³									
Male.....	1929	41	171	51.5	.644	33.17			
	1931	37	108	48.5	.705	34.19			
Female.....	1931	2	9	49.5	.826	16.14			
Screw-machine operators, automatic: ¹³									
Male.....	1929	144	762	51.4	.758	38.96			
	1931	122	486	49.5	.694	34.35			
Sheet-metal machine operators: ¹⁰									
Male.....	1927	137	867	50.2	.603	30.27			
	1929	149	1,136	49.4	.630	31.12			
	1931	164	1,072	50.2	.619	31.07			
Female.....	1927	12	167	48.7	.420	20.45			
	1929	9	63	48.9	.440	21.52			
	1931	8	35	49.0	.386	18.91			
Toolmakers:									
Male.....	1923	274	1,661	50.4	.693	34.93	100.0	100.0	100.0
	1925	346	2,573	50.0	.727	36.35	99.2	104.9	104.1
	1927	354	2,883	49.7	.756	37.57	98.6	109.1	107.6
	1929	350	2,850	50.0	.780	39.00	99.2	112.6	111.7
	1931	355	2,386	49.4	.758	37.45	98.0	109.4	107.2
Other machine operators: ¹⁴									
Male.....	1923	289	2,670	50.5	.556	28.08	100.0	100.0	100.0
	1925	371	4,066	50.5	.630	31.82	100.0	113.3	113.3
Female.....	1923	6	76	48.2	.422	20.34	100.0	100.0	100.0
	1925	16	201	48.8	.441	21.52	101.2	104.5	105.8
Other precision-machine operators: ¹⁵									
Male.....	1927	316	2,001	50.5	.659	33.28			
	1929	301	1,813	51.0	.655	33.41			
	1931	308	1,490	50.0	.657	32.85			
Female.....	1927	8	122	49.3	.330	16.27			
	1929	11	211	48.8	.428	20.89			
	1931	6	77	48.5	.399	19.35			

⁹ Included with "Other skilled employees" in 1923 and 1925.¹⁰ Included with "Other machine operators" in 1923 and 1925.¹¹ This occupation was divided in 1929 into 3 groups: Hand, semiautomatic, and automatic.¹² Included with "Screw-machine operators" in 1923, 1925, and 1927.¹³ This occupation was divided in 1927 into 2 groups: Sheet-metal machine operators and other precision machine operators.

TABLE 1.—Average hours and earnings, with index numbers, 1923 to 1931, by industry, occupation, and sex—Continued

MACHINE SHOPS—Continued									
Occupation and sex	Year	Number of establishments	Number of employees	Average full-time-hours per week	Average earnings per hour	Average full-time earnings per week	Index numbers of—		
							Full-time hours per week	Earnings per hour	Full-time earnings per week
By Occupation—Continued									
Other skilled employees:									
Male.....	1923	356	5,312	50.9	\$0.618	\$31.46	100.0	100.0	100.0
	1925	458	9,602	50.4	.647	32.61	99.0	104.7	103.7
	1927	468	11,113	50.1	.650	32.57	98.4	105.2	103.5
	1929	470	10,786	50.3	.686	34.51	98.8	111.0	109.7
	1931	478	9,287	49.9	.695	34.68	98.0	112.5	110.2
Female.....	1923	4	36	51.3	.313	16.06	100.0	100.0	100.0
	1925	13	215	48.9	.372	18.19	95.3	118.8	113.3
	1927	27	317	47.7	.401	19.13	93.0	128.1	119.1
	1929	25	409	50.0	.375	18.75	97.5	119.8	116.7
	1931	26	345	49.3	.391	19.28	96.1	124.9	120.0
Other employees:									
Male.....	1923	386	6,035	52.0	.459	23.87	100.0	100.0	100.0
	1925	498	9,715	52.5	.514	26.99	101.0	112.0	113.1
	1927	487	9,352	50.3	.526	26.46	96.7	114.6	110.9
	1929	467	8,108	50.3	.488	24.55	96.7	106.3	102.8
	1931	465	6,250	50.1	.506	25.35	96.3	110.2	106.2
Female.....	1923	8	117	48.7	.325	15.83	100.0	100.0	100.0
	1925	23	143	49.2	.352	17.32	101.0	108.3	109.4
	1927	20	133	49.3	.309	15.23	101.2	95.1	96.2
	1929	18	238	49.0	.345	16.91	100.6	106.2	106.8
	1931	25	206	47.9	.439	21.03	98.4	135.1	132.8

Table 2 presents for each sex and for both sexes combined in each State, in foundries and in machine shops, the number of establishments and wage earners included in the 1929 and the 1931 studies, average full-time hours per week, average earnings per hour, and average full-time earnings per week.

By States average full-time hours per week of males in foundries ranged from 45.9 to 56.4 in 1929 and from 45.4 to 56.0 in 1931, while in machine shops they ranged from 45.9 to 54.1 in 1929 and from 45.1 to 54.0 in 1931. For females in foundries the range in averages was from 45.7 to 53.0 in 1929 and from 44.5 to 51.4 in 1931, and in machine shops from 47.1 to 51.6 in 1929 and from 45.5 to 52.3 in 1931.

Average earnings per hour of males in foundries ranged by States from 39.6 to 74.5 cents in 1929 and from 40.1 to 74.3 cents in 1931, and in machine shops from 43.4 to 77.9 cents in 1929 and from 46.2 to 75.3 cents in 1931. For females the averages ranged from 36.6 to 52.4 cents in 1929 and from 31.8 to 47.2 cents in 1931 in foundries, and from 35.7 to 42.4 cents in 1929 and from 34.7 to 47.3 cents in 1931 in machine shops. Males in foundries in all States covered in the table earned an average of 62.5 cents per hour in 1929 as against 60.1 cents in 1931 and in machine shops 64.1 cents in 1929 as against 63.7 cents in 1931. Females in foundries earned an average of 45.1 cents in 1929 as against 42.2 cents in 1931 and in machine shops 39.9 cents in 1929 as against 40.8 cents in 1931.

In foundries average full-time earnings per week of males ranged by States from \$20.95 to \$35.11 in 1929 and from \$20.51 to \$33.73 in 1931 and in machine shops from \$22.70 to \$35.76 in 1929 and from

\$23.65 to \$34.70 in 1931. Similar figures for females ranged from \$17.75 to \$23.95 in 1929 and from \$15.90 to \$23.46 in 1931 in foundries and from \$17.85 to \$21.31 in 1929 and from \$17.14 to \$23.55 per week in 1931 in machine shops.

It will also be seen from Table 2 that average earnings per hour and average full-time earnings per week of machine-shop employees in Alabama, Georgia, Louisiana, Tennessee, and Texas were higher in 1929 and 1931 than the average of foundry employees in these States, machinists in these States being paid higher wages than in some other States. Many of the shops in them have few or no "machine operators" or specialists, but have first-class machinists capable of operating, setting up, and repairing the various kinds of machines used in machine-shop work and also the fitting and assembling of the various parts of machinery. The tables of this bulletin show that while the total number of machine-shop wage earners covered in the five Southern States are only 2.9 per cent of the total covered in all States, the machinists covered in those States are 10.4 per cent of the total number of machinists covered in all States, and that the average earnings per hour for the machinists in the five Southern States are 73.0 cents as compared with 73.3 cents for all machinists in all States covered.

TABLE 2.—Number of establishments and of wage earners, and average hours and earnings in foundries and machine shops, 1929 and 1931, by industry, sex, and State

FOUNDRIES

Sex and State	Number of establishments		Number of employees		Average full-time hours per week		Average earnings per hour		Average full-time weekly earnings	
	1929	1931	1929	1931	1929	1931	1929	1931	1929	1931
MALES										
Alabama.....	4	4	190	177	53.5	53.8	\$0.456	\$0.423	\$24.40	\$22.76
California.....	18	19	1,185	728	45.9	45.4	.745	.743	34.20	33.73
Colorado.....	3	3	307	177	49.2	48.0	.596	.600	29.32	28.80
Connecticut.....	16	18	1,629	1,154	50.8	50.7	.611	.589	31.04	29.86
Georgia.....	8	9	427	365	52.9	50.9	.396	.403	20.95	20.51
Illinois.....	28	30	3,636	3,097	50.5	49.6	.665	.647	33.58	32.09
Indiana.....	16	17	2,446	1,538	52.6	51.1	.590	.559	31.03	28.56
Iowa.....	9	9	959	561	52.9	53.6	.614	.600	32.48	32.48
Kansas.....	9	10	260	276	55.1	56.0	.480	.455	26.45	25.46
Kentucky.....	7	5	204	120	50.6	51.2	.512	.521	25.91	26.68
Louisiana.....	4	5	246	178	56.4	52.4	.436	.401	24.59	21.01
Maine.....	4	4	248	239	50.7	48.3	.555	.558	28.14	26.95
Maryland.....	7	7	421	397	50.9	49.9	.558	.543	28.40	27.10
Massachusetts.....	28	21	2,408	1,320	48.7	47.2	.681	.693	33.16	32.57
Michigan.....	37	33	4,334	1,916	51.9	52.1	.644	.582	33.42	30.32
Minnesota.....	6	6	457	466	52.0	51.2	.555	.589	28.86	30.16
Missouri.....	15	14	764	460	52.1	51.9	.610	.577	31.78	29.95
New Hampshire.....	6	5	143	127	50.9	50.7	.599	.567	30.49	28.75
New Jersey.....	16	16	2,353	1,668	50.6	48.9	.636	.608	32.18	29.73
New York.....	28	26	3,322	2,828	50.1	49.2	.647	.599	32.41	29.47
Ohio.....	44	44	4,323	3,506	51.8	51.0	.625	.610	32.38	31.11
Oregon.....	5	6	208	163	46.1	47.2	.677	.675	31.21	31.86
Pennsylvania.....	39	39	5,285	3,619	51.6	51.1	.608	.606	31.37	30.97
Rhode Island.....	9	7	1,066	692	51.5	50.4	.612	.597	31.52	30.09
Tennessee.....	7	6	382	253	49.2	49.0	.461	.471	22.68	23.08
Texas.....	6	6	278	151	49.8	49.0	.488	.515	24.30	25.24
Washington.....	7	6	316	235	48.3	47.9	.727	.698	35.11	33.43
Wisconsin.....	13	13	2,165	2,118	51.2	51.5	.644	.584	32.97	30.08
Total.....	399	388	40,032	28,469	51.0	50.3	.625	.601	31.88	30.23

10 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE 2.—Number of establishments and of wage earners, and average hours and earnings in foundries and machine shops, 1929 and 1931, by industry, sex, and State—Continued

FOUNDRIES—Continued

Sex and State	Number of establishments		Number of employees		Average full-time hours per week		Average earnings per hour		Average full-time weekly earnings	
	1929	1931	1929	1931	1929	1931	1929	1931	1929	1931
FEMALES										
Connecticut.....	1	(1)		(1)	(2)	(1)	(2)	(1)	(2)	(1)
Georgia.....	1		(2)		(2)		(2)		(2)	
Illinois.....	5	4	29	16	49.0	50.3	\$0.447	\$0.409	\$21.90	\$20.57
Indiana.....	2	2	39	46	50.0	49.7	.434	.472	21.70	23.46
Kentucky.....	2	(1)	3	(1)	50.0	(1)	.412	(1)	20.60	(1)
Massachusetts.....	1		(2)		(2)		(2)		(2)	
Michigan.....	10	5	105	23	51.5	51.4	.427	.448	21.99	23.03
New Jersey.....	4	5	50	31	49.8	48.2	.466	.380	23.21	18.32
New York.....	5	6	54	54	48.8	46.9	.489	.463	23.86	18.90
Ohio.....	1	1	(2)	12	(2)	44.5	(2)	.438	(2)	19.49
Pennsylvania.....	2	2	19	24	48.5	50.3	.366	.447	17.75	22.48
Rhode Island.....	3	3	11	4	53.0	50.9	.408	.460	21.62	23.41
Tennessee.....	1	1		3		50.0		.318		15.90
Wisconsin.....	5	3	37	16	45.7	48.7	.524	.430	23.95	20.94
Total.....	41	34	359	230	49.7	48.7	.451	.422	22.41	20.56
MALES AND FEMALES										
Alabama.....	4	4	190	177	53.5	53.8	.456	.423	24.40	22.76
California.....	18	19	1,185	728	45.9	45.4	.745	.743	34.20	33.73
Colorado.....	3	3	307	177	49.2	48.0	.596	.600	29.32	28.80
Connecticut.....	16	18	1,629	1,156	50.8	50.6	.611	.589	31.04	29.80
Georgia.....	8	9	429	305	52.9	50.9	.395	.403	20.60	20.51
Illinois.....	28	30	3,665	3,113	50.5	49.6	.663	.646	33.48	32.04
Indiana.....	16	17	2,435	1,594	52.5	51.1	.587	.557	30.82	28.46
Iowa.....	9	9	959	581	52.9	53.6	.614	.600	32.43	32.16
Kansas.....	9	10	260	278	55.1	56.0	.480	.455	26.45	25.48
Kentucky.....	7	5	207	122	50.6	51.1	.510	.519	25.81	26.52
Louisiana.....	4	5	246	178	56.4	52.4	.436	.401	24.59	21.01
Maine.....	4	4	248	239	50.7	48.3	.555	.558	28.14	26.95
Maryland.....	7	7	421	397	50.9	49.9	.558	.545	28.40	27.10
Massachusetts.....	28	21	2,410	1,320	48.7	47.2	.680	.690	33.12	32.57
Michigan.....	37	33	4,439	1,936	51.9	52.1	.640	.581	33.22	30.27
Minnesota.....	6	6	457	466	52.0	51.2	.555	.589	28.86	30.16
Missouri.....	15	14	764	460	52.1	51.9	.610	.577	31.78	29.95
New Hampshire.....	6	5	143	127	50.9	50.7	.599	.567	30.49	28.75
New Jersey.....	16	16	2,403	1,699	50.5	48.9	.633	.604	31.97	29.54
New York.....	28	26	3,446	2,882	50.1	49.2	.644	.594	32.26	29.22
Ohio.....	44	44	4,331	3,518	51.8	50.9	.625	.610	32.38	31.05
Oregon.....	5	6	208	163	46.1	47.2	.677	.675	31.21	31.86
Pennsylvania.....	39	39	5,504	3,643	51.6	51.1	.607	.605	31.32	30.92
Rhode Island.....	9	7	1,077	696	51.5	50.4	.610	.597	31.42	30.09
Tennessee.....	7	6	384	266	49.2	49.0	.461	.469	22.68	22.98
Texas.....	6	6	278	151	49.8	49.0	.488	.515	24.30	25.24
Washington.....	7	6	516	235	48.3	47.9	.727	.698	35.11	33.43
Wisconsin.....	13	13	2,202	2,134	51.1	51.5	.643	.583	32.86	30.02
Total.....	399	388	40,391	28,699	51.0	50.3	.624	.600	31.82	30.18

MACHINE SHOPS

MALES										
Alabama.....	6	7	284	457	50.0	54.0	\$0.556	\$0.596	\$27.55	\$32.18
California.....	23	23	2,133	1,628	45.9	45.1	.779	.753	35.76	33.96
Colorado.....	2	3	654	282	48.1	48.0	.619	.647	29.77	31.06
Connecticut.....	19	20	4,104	2,409	51.0	49.3	.639	.659	32.59	32.49
Georgia.....	8	9	332	396	52.3	51.2	.434	.462	22.70	23.65
Illinois.....	36	36	11,149	7,025	50.0	49.5	.691	.657	34.55	32.52
Indiana.....	16	17	2,965	1,855	51.0	51.1	.564	.543	28.76	27.75
Iowa.....	6	7	1,032	815	54.1	52.2	.552	.569	29.86	29.70
Kansas.....	10	11	436	272	54.1	52.9	.508	.543	27.48	28.72
Kentucky.....	10	7	624	395	50.7	48.9	.526	.551	26.67	26.94
Louisiana.....	5	6	217	199	54.1	51.4	.489	.524	26.45	26.93
Maine.....	4	4	650	492	49.0	48.1	.544	.550	26.66	26.46
Maryland.....	7	8	705	456	50.0	48.4	.656	.658	32.80	31.85
Massachusetts.....	38	38	7,673	6,453	49.3	48.2	.630	.646	31.06	31.14

1 For less than 3 wage earners in this establishment, data included in total.

2 Included in total in 1928.

TABLE 2.—Number of establishments and of wage earners, and average hours and earnings in foundries and machine shops, 1929 and 1931, by industry, sex, and State—Continued

Sex and State	Number of establishments		Number of employees		Average full-time hours per week		Average earnings per hour		Average full-time weekly earnings	
	1929	1931	1929	1931	1929	1931	1929	1931	1929	1931
	MACHINE SHOPS—Continued									
MALES—continued										
Michigan.....	36	35	5,580	3,530	51.9	51.5	\$0.639	\$0.645	\$33.16	\$33.22
Minnesota.....	8	8	856	940	50.4	49.2	.578	.601	29.13	29.57
Missouri.....	19	19	1,153	712	51.4	51.3	.574	.562	29.50	28.83
New Hampshire.....	6	5	535	341	49.0	48.8	.625	.600	30.63	29.28
New Jersey.....	28	25	3,624	2,509	49.5	49.4	.685	.679	33.91	33.54
New York.....	32	34	8,958	7,488	48.7	43.2	.683	.680	33.26	33.46
Ohio.....	85	85	13,965	10,316	50.1	49.9	.646	.628	32.36	31.34
Oregon.....	6	6	596	175	47.2	46.2	.691	.724	32.62	33.45
Pennsylvania.....	48	48	12,537	8,200	51.7	51.2	.615	.616	31.80	31.54
Rhode Island.....	10	11	3,104	1,513	50.8	50.4	.592	.595	30.07	29.99
Tennessee.....	8	9	540	325	50.8	49.0	.550	.568	27.94	27.83
Texas.....	10	10	742	554	47.6	48.0	.583	.603	27.75	28.94
Washington.....	7	7	732	392	47.6	47.6	.732	.729	34.84	34.70
Wisconsin.....	15	14	4,255	4,792	51.6	51.2	.639	.617	32.97	31.89
Total.....	508	512	89,935	64,921	50.3	49.8	.641	.637	32.24	31.72
FEMALES										
Connecticut.....	2	(¹)	7	(¹)	50.0	(¹)	.424	(¹)	21.20	(¹)
Illinois.....	6	7	56	56	50.7	50.9	.377	.373	19.11	18.99
Indiana.....	3	1	49	21	50.0	50.0	.357	.471	17.85	23.55
Kentucky.....	1	(¹)	(¹)	(¹)	(²)	(²)	(²)	(²)	(²)	(²)
Maine.....	1	1	8	8	50.0	50.0	.380	.380	19.00	19.00
Massachusetts.....	10	7	95	87	47.1	47.7	.414	.448	19.50	21.37
Michigan.....	10	7	261	201	51.6	52.3	.411	.398	21.21	20.82
New Hampshire.....	1	1	(²)	18	(²)	48.0	(²)	.431	(²)	20.69
New Jersey.....	2	2	45	22	50.0	50.0	.397	.423	19.85	21.15
New York.....	6	6	411	214	47.8	48.1	.408	.473	19.50	22.75
Ohio.....	7	6	302	212	49.2	49.4	.382	.347	18.79	17.14
Pennsylvania.....	5	4	153	93	48.4	46.4	.423	.397	20.47	18.42
Rhode Island.....	2	4	111	38	51.1	50.8	.417	.453	21.31	23.01
Tennessee.....	1	(¹)	(²)	(¹)	(²)	(¹)	(¹)	(²)	(¹)	(¹)
Wisconsin.....	1	1	45	45	45.5	45.5	.378	.378	17.20	17.20
Total.....	56	49	1,556	1,017	49.3	49.2	.309	.408	19.67	20.07
MALES AND FEMALES										
Alabama.....	6	7	284	457	50.0	54.0	.551	.596	27.55	32.18
California.....	23	23	2,133	1,628	45.9	45.1	.779	.753	35.76	33.96
Colorado.....	2	3	654	282	48.1	48.0	.619	.647	29.77	31.06
Connecticut.....	19	20	4,111	2,410	51.0	49.3	.639	.659	32.59	32.49
Georgia.....	8	9	332	396	52.3	51.2	.434	.462	22.70	23.65
Illinois.....	36	36	11,205	7,081	50.0	49.6	.639	.655	34.45	32.49
Indiana.....	16	17	3,014	1,876	51.0	51.0	.561	.543	28.61	27.69
Iowa.....	6	7	1,032	815	54.1	52.2	.552	.569	29.86	29.70
Kansas.....	10	11	436	272	54.1	52.9	.508	.543	27.48	28.72
Kentucky.....	10	7	652	395	50.9	48.9	.512	.551	26.06	26.94
Louisiana.....	5	6	217	199	54.1	51.4	.489	.524	26.45	26.93
Maine.....	4	4	650	500	49.0	48.1	.544	.548	26.86	26.86
Maryland.....	7	8	705	456	50.0	48.4	.656	.658	32.60	31.85
Massachusetts.....	38	38	7,768	6,540	49.3	48.2	.628	.644	30.96	31.04
Michigan.....	36	35	5,941	3,731	51.8	51.5	.630	.631	32.63	32.50
Minnesota.....	8	8	856	940	50.4	49.2	.578	.601	29.13	29.57
Missouri.....	19	19	1,153	712	51.4	51.3	.574	.562	29.50	28.83
New Hampshire.....	6	5	572	359	49.0	48.7	.610	.594	29.89	28.93
New Jersey.....	28	25	3,669	2,531	49.5	49.4	.682	.677	33.76	33.44
New York.....	32	34	9,369	7,702	48.6	49.2	.672	.674	32.66	33.16
Ohio.....	85	85	14,267	10,528	50.1	49.9	.641	.622	32.11	31.04
Oregon.....	6	6	396	175	47.2	46.2	.691	.724	32.62	33.45
Pennsylvania.....	48	48	12,690	8,293	51.7	51.1	.612	.614	31.64	31.38
Rhode Island.....	10	11	3,215	1,551	50.8	50.4	.596	.591	29.77	29.79
Tennessee.....	8	9	541	326	50.8	49.0	.550	.567	27.94	27.78
Texas.....	10	10	742	554	47.6	48.0	.583	.603	27.75	28.94
Washington.....	7	7	732	392	47.6	47.6	.732	.729	34.84	34.70
Wisconsin.....	15	14	4,255	4,837	51.6	51.1	.639	.615	32.97	31.43
Total.....	508	512	91,491	65,938	50.3	49.8	.638	.634	32.09	31.57

¹ For less than 3 wage earners in this establishment, data included in total.² Included in total in 1929.

Average and Classified Earnings per Hour, by Occupation

Table 3 shows average earnings per hour and the percentage distribution, according to earnings, of the wage earners in 8 representative occupations in foundries and in 17 representative occupations in machine shops in 1923, 1925, 1927, 1929, and 1931. The figures for the wage earners in these occupations fairly represent the percentage distribution, according to average earnings per hour, of the wage earners in all occupations in foundries and in machine shops. Data in the table are for males in all of the 8 occupations in foundries and of the 17 occupations in machine shops and for females for 1 occupation only (core makers) in foundries. For a distribution of the number of employees in 1931 in each occupation and State, by average earnings per hour, see Table B, page 83.

The foundry wage workers in this table represent 85.6 per cent of the total number covered in 1923, 84.3 per cent in 1925, 82.5 per cent in 1927, and in 1929, and 78.8 per cent in 1931; and in machine shops the corresponding percentages are 71.7 in 1923, 67.0 in 1925, 65.9 in 1927, 65.3 in 1929, and 62.0 in 1931.

Reading the figures for chippers and rough grinders in explanation of the data in the table, it is seen that average earnings per hour increased from an average of 46.5 cents in 1923 to 52.1 cents in 1925, to 53.7 cents in 1927, to 53.8 cents in 1929, and decreased to 50.9 cents in 1931; and that the average earnings per hour of 12 per cent of the 3,048 chippers and rough grinders covered in 1931 were less than 40 cents per hour, of 33 per cent were 40 and under 50 cents, of 35 per cent were 50 and under 60 cents, of 15 were 60 and under 70 cents, and of 6 per cent were 70 cents and over per hour.

TABLE 3.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1923 to 1931, by sex and year

FOUNDRIES

Occupation and sex	Year	Number of establishments	Number of employees	Average earnings per hour	Per cent of employees whose earnings per hour were—														
					Under 20 cents	20 and under 25 cents	25 and under 30 cents	30 and under 35 cents	35 and under 40 cents	40 and under 50 cents	50 and under 60 cents	60 and under 70 cents	70 and under 80 cents	80 and under 90 cents	90 cents and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and over	
Chippers and rough grinders:																			
Male.....	1923	319	2,923	\$0.465	1	1	2	6	12	42	25	7	2	1	(1)	(1)	(1)	(1)	(1)
	1925	383	4,110	.521	(1)	1	1	2	6	34	33	13	5	3	1	(1)	(1)	(1)	(1)
	1927	379	3,857	.537	(1)	1	(1)	2	4	31	36	16	7	2	1	1	(1)	(1)	(1)
	1929	367	4,233	.538	(1)	1	1	3	4	29	34	18	6	3	1	(1)	(1)	(1)	(1)
	1931	367	3,048	.509	(1)	1	2	3	6	33	35	15	4	1	(1)	(1)	(1)	(1)	(1)
Core makers:																			
Male.....	1923	345	2,526	.690	(1)	(1)	(1)	1	1	9	19	22	26	17	4	1	7	(1)	(1)
	1925	393	3,067	.734	(1)	(1)	(1)	1	1	6	13	19	20	19	14	(1)	(1)	(1)	(1)
	1927	401	3,040	.755	(1)	(1)	(1)	1	1	4	12	16	20	20	16	9	9	(1)	(1)
	1929	387	3,370	.744	(1)	(1)	(1)	1	1	6	12	18	20	17	15	9	7	(1)	(1)
	1931	374	2,253	.706	(1)	(1)	(1)	1	2	8	14	23	20	16	9	(1)	(1)	(1)	(1)
Female.....	1923	22	240	.431	3	4	10	12	15	25	20	8	2	1	(1)	1	(1)	(1)	(1)
	1925	43	353	.444	1	5	6	10	16	30	20	7	2	1	(1)	1	(1)	(1)	(1)
	1927	41	324	.491	(1)	2	9	9	10	28	22	11	4	3	2	1	(1)	(1)	(1)
	1929	38	250	.469	(1)	2	8	13	11	26	21	11	4	1	1	(1)	(1)	(1)	(1)
	1931	34	179	.430	1	3	7	11	20	32	15	7	4	1	(1)	(1)	(1)	(1)	(1)
Laborers:¹																			
Male.....	1923	343	9,265	.428	(1)	(1)	(1)	2	4	8	47	29	6	2	2	1	(1)	(1)	(1)
	1925	389	10,931	.481	(1)	1	2	4	8	47	29	6	2	2	1	(1)	(1)	(1)	(1)
	1927	401	11,017	.491	(1)	(1)	2	3	5	45	32	7	3	2	(1)	(1)	(1)	(1)	(1)
	1929	384	10,980	.490	(1)	1	1	4	5	43	33	9	3	1	(1)	(1)	(1)	(1)	(1)
	1931	366	6,907	.460	(1)	1	3	5	10	47	26	6	2	1	(1)	(1)	(1)	(1)	(1)
Molders, hand, bench:																			
Male.....	1923	262	2,379	.687	(1)	(1)	(1)	1	1	5	20	27	27	14	4	2	(1)	(1)	(1)
	1925	325	2,363	.768	(1)	(1)	1	(1)	1	3	12	21	19	16	16	8	2	(1)	(1)
	1927	324	2,063	.789	(1)	(1)	(1)	(1)	1	3	10	19	20	16	17	10	2	(1)	(1)
	1929	321	2,098	.783	(1)	(1)	(1)	(1)	1	4	9	19	19	17	18	11	2	(1)	(1)
	1931	300	1,593	.727	(1)	1	1	2	7	14	21	20	14	12	8	(1)	(1)	(1)	(1)
Molders, hand, floor:																			
Male.....	1923	346	4,904	.729	(1)	(1)	(1)	(1)	(1)	2	11	25	31	22	5	3	(1)	(1)	(1)
	1925	401	5,612	.802	(1)	(1)	(1)	(1)	(1)	1	6	18	22	22	19	9	1	(1)	(1)
	1927	402	5,375	.820	(1)	(1)	(1)	(1)	(1)	2	6	14	19	23	22	12	1	(1)	(1)
	1929	385	5,453	.828	(1)	(1)	(1)	(1)	(1)	1	5	14	22	21	22	14	1	(1)	(1)
	1931	376	3,752	.782	(1)	(1)	(1)	(1)	1	3	8	18	22	21	14	10	1	(1)	(1)

¹ Less than 1 per cent.

² Not classified in 1923.

TABLE 3.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1923 to 1931, by sex and year—Continued

FOUNDRIES—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average earnings per hour	Per cent of employees whose earnings per hour were—													
					Under 20 cents	20 and under 25 cents	25 and under 30 cents	30 and under 35 cents	35 and under 40 cents	40 and under 50 cents	50 and under 60 cents	60 and under 70 cents	70 and under 80 cents	80 and under 90 cents	90 cents and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and over
Molders, machine: 1																		
Male.....	1923	161	1,993	\$0.678														
	1925	229	3,140	.733			(1)	(1)	1	5	16	22	22	17	10	6	1	(1)
	1927	220	3,102	.753		(1)	(1)	(1)	1	5	13	20	21	18	14	7	1	(1)
	1929	249	3,554	.734	(1)		(1)	(1)	1	6	15	22	21	16	11	6	1	(1)
	1931	215	2,538	.661		(1)	(1)	1	2	11	20	24	20	12	6	2	(1)	(1)
Molders' helpers, floor: 1																		
Male.....	1923	234	1,906	.433														
	1925	285	2,642	.460	1	4	3	7	8	38	28	8	3	1	(1)			
	1927	247	1,520	.424		2	2	9	7	33	29	12	4	1	(1)			
	1929	251	1,919	.502		(1)	1	2	4	42	35	10	4	1	(1)	(1)		
	1931	231	1,234	.492		(1)	(1)	3	8	40	34	11	3	(1)	(1)			
Pattern makers:																		
Male.....	1923	283	1,314	.750				(1)		2	10	26	25	15	8	(1)		(1)
	1925	346	1,827	.804						1	5	18	22	23	18	12	1	(1)
	1927	289	1,512	.830					(1)	1	4	12	22	27	20	14	1	(1)
	1929	191	1,127	.833						1	5	13	20	24	19	16	1	(1)
	1931	194	1,107	.834					(1)	1	5	11	18	28	22	15	(1)	(1)

MACHINE SHOPS

Assemblers: 1																			
Male.....	1923	310	5,681	\$0.575															
	1925	306	7,151	.634	(1)	(1)	(1)	(1)	1	11	27	31	18	8	2	1	(1)	(1)	
	1927	368	8,019	.653		(1)	(1)	(1)	1	9	24	30	22	9	3	1	(1)	(1)	
	1929	335	7,670	.657	(1)	(1)	(1)	1	1	10	21	27	25	10	3	1	(1)	(1)	
	1931	360	5,446	.656	(1)	(1)	(1)	(1)	1	10	23	30	22	9	3	1	(1)	(1)	
Boring-mill operators: 1																			
Male.....	1923	271	1,455	.660															
	1925	341	2,135	.688	(1)	(1)		(1)	(1)	5	15	31	29	14	4	2	(1)	(1)	
	1927	354	2,208	.727					1	3	11	26	30	21	6	2	(1)	(1)	
	1929	372	2,333	.750				(1)	(1)	2	9	24	30	21	8	4	(1)	(1)	
	1931	337	1,722	.733				(1)	(1)	2	9	29	29	19	7	3	(1)	(1)	
Drill-press operators:																			
Male.....	1923	350	3,634	.527	(1)	(1)	1	4	6	31	30	18	6	2	(1)	(1)		(1)	
	1925	423	5,012	.579	(1)	(1)	1	1	3	19	33	24	13	4	1	(1)	(1)	(1)	
	1927	433	4,759	.606		(1)	(1)	1	3	14	29	28	17	6	1	(1)	(1)	(1)	

131844-32-2

	1929	440	5,291	.628	(1)	(1)	1	2	13	27	28	17	8	2	1	(1)	(1)
	1931	415	3,139	.612	(1)	(1)	1	2	14	28	30	16	6	2	1	(1)	(1)
Fitters and bench hands:																	
Male.....	1923	271	4,721	.616	(1)	(1)	1	2	16	28	25	16	10	1	(1)	(1)	(1)
	1925	388	8,157	.643	(1)	(1)	(1)	2	9	25	29	20	11	2	1	(1)	(1)
	1927	332	6,661	.662	(1)	(1)	(1)	1	6	21	31	25	10	3	1	(1)	(1)
	1929	367	7,715	.677	(1)	(1)	(1)	1	7	21	29	22	13	5	2	(1)	(1)
	1931	341	5,447	.666	(1)	(1)	(1)	1	7	23	32	21	11	5	1	(1)	(1)
Grinding-machine operators:²																	
Male.....	1923	221	1,255	.586	(1)	(1)	(1)	1	11	27	31	16	10	2	(1)	(1)	(1)
	1925	267	2,016	.637	(1)	(1)	(1)	1	8	20	30	22	13	4	1	(1)	(1)
	1927	298	2,285	.668	(1)	(1)	(1)	1	7	19	24	23	16	7	3	(1)	(1)
	1929	313	2,888	.701	(1)	(1)	(1)	(1)	7	23	29	23	16	4	1	(1)	(1)
	1931	290	2,088	.669	(1)	(1)	(1)	(1)	7	23	29	23	12	4	1	(1)	(1)
Laborers:²																	
Male.....	1923	375	8,355	.418	(1)	(1)	1	3	10	58	23	4	2	(1)	(1)	(1)	(1)
	1925	439	9,833	.466	(1)	(1)	1	4	8	56	26	4	1	(1)	(1)	(1)	(1)
	1927	489	8,342	.456	(1)	(1)	1	4	8	48	30	6	1	(1)	(1)	(1)	(1)
	1929	452	8,506	.469	(1)	(1)	1	4	8	48	30	6	1	(1)	(1)	(1)	(1)
	1931	426	5,173	.455	(1)	(1)	1	3	9	54	26	4	1	(1)	(1)	(1)	(1)
Lathe operators, engine:																	
Male.....	1923	347	4,421	.633	(1)	(1)	1	2	11	27	29	20	7	2	1	(1)	(1)
	1925	401	5,856	.663	(1)	(1)	(1)	1	6	22	32	23	12	4	1	(1)	(1)
	1927	414	5,964	.695	(1)	(1)	(1)	(1)	5	16	29	28	16	2	2	(1)	(1)
	1929	421	5,640	.717	(1)	(1)	(1)	(1)	3	14	27	26	19	6	3	(1)	(1)
	1931	407	3,551	.706	(1)	(1)	(1)	1	4	14	29	27	17	5	2	(1)	(1)
Lathe operators, turret:²																	
Male.....	1923	251	2,147	.610	(1)	(1)	(1)	1	10	25	30	20	11	2	1	(1)	(1)
	1925	328	3,393	.647	(1)	(1)	(1)	1	9	19	25	24	15	4	1	(1)	(1)
	1927	343	3,167	.675	(1)	(1)	(1)	1	7	16	26	26	16	5	2	(1)	(1)
	1929	359	3,855	.700	(1)	(1)	(1)	1	7	20	29	26	12	4	1	(1)	(1)
	1931	333	2,467	.672	(1)	(1)	(1)	1	7	20	29	26	12	4	1	(1)	(1)
Machinists:																	
Male.....	1923	331	2,952	.683	(1)	(1)	(1)	3	15	36	28	13	3	1	(1)	(1)	(1)
	1925	374	3,820	.702	(1)	(1)	(1)	3	13	35	29	16	4	2	1	(1)	(1)
	1927	395	3,794	.728	(1)	(1)	(1)	1	9	31	32	18	5	5	1	(1)	(1)
	1929	379	3,036	.739	(1)	(1)	(1)	2	8	28	31	18	6	6	1	(1)	(1)
	1931	374	2,575	.733	(1)	(1)	(1)	2	8	25	34	20	8	3	1	(1)	(1)
Machinists' and tool makers' helpers:²																	
Male.....	1923	251	1,616	.464	(1)	(1)	1	3	8	35	39	11	2	(1)	(1)	(1)	(1)
	1925	262	1,641	.494	(1)	(1)	1	2	4	37	37	15	3	(1)	(1)	(1)	(1)
	1927	269	1,671	.510	(1)	(1)	1	2	5	41	35	12	4	(1)	(1)	(1)	(1)
	1929	229	1,006	.504	(1)	(1)	1	2	5	41	35	12	4	(1)	(1)	(1)	(1)
	1931	210	797	.513	(1)	(1)	2	3	33	45	14	3	1	(1)	(1)	(1)	(1)
Milling-machine operators:																	
Male.....	1923	268	1,938	.605	(1)	(1)	1	2	17	28	27	16	7	1	(1)	(1)	(1)
	1925	339	2,925	.653	(1)	(1)	(1)	1	8	25	31	20	12	2	1	(1)	(1)
	1927	343	2,872	.685	(1)	(1)	(1)	1	6	18	28	27	13	5	1	(1)	(1)
	1929	358	3,440	.697	(1)	(1)	(1)	1	7	17	25	26	15	6	3	(1)	(1)
	1931	331	2,246	.685	(1)	(1)	1	1	6	18	27	25	15	5	1	(1)	(1)

¹ Less than 1 per cent.

² Not classified in 1923.

TABLE 3.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1923 to 1931, by sex and year—Continued

MACHINE SHOPS—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average earnings per hour	Per cent of employees whose earnings per hour were—											\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and over
					Under 20 cents	20 and under 25 cents	25 and under 30 cents	30 and under 35 cents	35 and under 40 cents	40 and under 50 cents	50 and under 60 cents	60 and under 70 cents	70 and under 80 cents	80 and under 90 cents	90 cents and under \$1			
Pattern makers:¹																		
Male.....	1927	235	1,228	\$0.841						(1)	3	10	22	29	20	13	3	
	1929	288	1,652	.846						1	3	11	23	26	17	17	3	(1)
	1931	282	1,431	.812						(1)	3	13	27	30	13	12	(1)	
Planer operators:																		
Male.....	1923	272	1,339	.663		(1)	(1)	(1)	8	23	32	23	10	2	2	2	(1)	
	1925	327	1,838	.705			(1)	(1)	3	16	31	27	15	4	3	4	(1)	
	1927	339	1,818	.742			(1)	(1)	2	11	26	23	19	4	4	4	(1)	(1)
	1929	344	1,963	.754			(1)	(1)	2	10	24	29	20	3	6	6	(1)	(1)
	1931	315	1,168	.738			(1)	(1)	2	11	24	31	17	3	4	4	(1)	
Screw-machine operators:⁴																		
Male.....	1923	177	1,047	.564														
	1925	215	1,482	.643	(1)	(1)	(1)	(1)	9	27	31	21	8	2	1	1	(1)	
	1927	213	1,520	.664		(1)	(1)	1	7	22	29	26	10	3	1	1	(1)	(1)
Screw-machine operators, hand:⁴																		
Male.....	1929	155	966	.676			(1)	2	7	20	30	21	14	3	2	2	(1)	
	1931	128	640	.654		(1)		1	11	19	31	25	9	3	(1)	(1)		
Screw-machine operators, semiautomatic:⁴																		
Male.....	1929	41	171	.644				1	2	15	23	23	21	13	1	2		
	1931	37	108	.705					2	4	18	29	30	14	4	3		
Screw-machine operators, automatic:⁴																		
Male.....	1929	144	762	.758	(1)	(1)	1	1	5	11	20	22	19	10	9	1		
	1931	122	486	.694		(1)	1	1	5	17	30	24	16	5	2	2		
Toolmakers:¹																		
Male.....	1923	274	1,661	.693														
	1925	346	2,573	.727				(1)	(1)	7	31	35	18	6	2	2	(1)	
	1927	354	2,863	.756			(1)	(1)	(1)	4	23	36	22	11	3	3	(1)	(1)
	1929	350	2,850	.780				(1)	(1)	4	19	31	30	12	4	4	(1)	(1)
	1931	355	2,386	.758				(1)	(1)	4	22	34	26	11	3	3	(1)	(1)

¹ Less than 1 per cent.

² Not classified in 1923.

³ Included with "Other skilled employees" in 1923 and 1925.

⁴ Not classified in 1923. This occupation was divided in 1929 into 3 groups: Hand, semiautomatic, and automatic.

⁵ Included with "Screw-machine operators" in 1923, 1925, and 1927.

Table 4 shows for male laborers and for the wage earners of each sex and for both sexes combined in all occupations, the number and the per cent at each classified group of earnings per hour in foundries and in machine shops. The largest number of male laborers in any one group in foundries is 1,188, or 17 per cent, and of males in all occupations, is 3,677, or 13 per cent, at 50 and under 55 cents per hour; of females in all occupations, 32, or 14 per cent, at 40 and under 42½ cents per hour; and of both sexes combined, 3,699, or 13 per cent, at 50 and under 55 cents per hour. The largest number of male laborers in any one group in machine shops is 1,171, or 23 per cent, at 40 and under 42½ cents per hour; of males in all occupations, 8,000, or 12 per cent, at 60 and under 65 cents per hour; of females in all occupations, 187, or 18 per cent, at 35 and under 37½ cents per hour; and of both sexes combined, 8,026, or 12 per cent, at 60 and under 65 cents per hour.

TABLE 4.—Number and per cent of laborers (male) and of wage earners of each sex in all occupations combined, at each classified group of average earnings per hour, 1931, by industry

FOUNDRIES

Classified earnings per hour	Number of—			Per cent of—			
	Laborers, male	Employees in all occupations		Laborers, male	Employees in all occupations		
		Male	Female		Total	Male	Female
12 and under 13 cents.....	1	6	6	(1)	(1)	(1)	(1)
15 and under 16 cents.....	1	3	3	(1)	(1)	(1)	(1)
16 and under 17 cents.....	1	2	2	(1)	(1)	(1)	(1)
17 and under 18 cents.....	5	9	9	(1)	(1)	(1)	(1)
18 and under 19 cents.....	1	5	1	(1)	(1)	(1)	(1)
19 and under 20 cents.....	3	3	3	(1)	(1)	(1)	(1)
20 and under 21 cents.....	14	31	31	(1)	(1)	(1)	(1)
21 and under 22 cents.....	15	16	1	(1)	(1)	(1)	(1)
22 and under 23 cents.....	27	49	2	(1)	(1)	1	(1)
23 and under 24 cents.....	6	11	4	(1)	(1)	2	(1)
24 and under 25 cents.....	5	20	20	(1)	(1)	(1)	(1)
25 and under 27½ cents.....	78	157	7	1	1	3	1
27½ and under 30 cents.....	111	179	13	2	1	6	1
30 and under 32½ cents.....	218	422	19	3	1	8	2
32½ and under 35 cents.....	119	264	14	2	1	6	1
35 and under 37½ cents.....	435	809	22	6	3	10	3
37½ and under 40 cents.....	280	553	22	4	2	10	2
40 and under 42½ cents.....	1,163	1,980	32	17	7	14	7
42½ and under 45 cents.....	508	1,092	12	7	4	5	4
45 and under 47½ cents.....	1,163	2,421	14	17	9	6	8
47½ and under 50 cents.....	383	1,076	10	1,086	4	4	4
50 and under 55 cents.....	1,188	3,677	22	3,699	17	13	10
55 and under 60 cents.....	604	2,739	12	2,751	9	10	5
60 and under 65 cents.....	272	2,561	11	2,572	4	9	5
65 and under 70 cents.....	141	2,130	4	2,134	2	7	2
70 and under 75 cents.....	69	1,646	4	1,650	1	6	2
75 and under 80 cents.....	36	1,623	3	1,626	1	5	1
80 and under 85 cents.....	28	1,457	1	1,457	(1)	6	5
85 and under 90 cents.....	16	957	1	958	(1)	3	(1)
90 and under 95 cents.....	13	972	3	972	(1)	3	3
95 cents and under \$1.....	1	486	4	486	(1)	2	2
\$1 and under \$1.10.....	1	794	3	794	(1)	3	3
\$1.10 and under \$1.20.....	5	176	176	(1)	1	(1)	1
\$1.20 and under \$1.30.....	70	70	70	(1)	(1)	(1)	(1)
\$1.30 and under \$1.40.....	40	40	40	(1)	(1)	(1)	(1)
\$1.40 and under \$1.50.....	14	14	14	(1)	(1)	(1)	(1)
\$1.50 and under \$1.60.....	8	8	8	(1)	(1)	(1)	(1)
\$1.60 and under \$1.70.....	2	2	2	(1)	(1)	(1)	(1)
\$1.70 and under \$1.80.....	4	4	4	(1)	(1)	(1)	(1)
\$1.80 and under \$1.90.....	3	3	3	(1)	(1)	(1)	(1)
\$2.00 and under \$2.25.....	1	1	1	(1)	(1)	(1)	(1)
\$2.25 and under \$2.50.....	1	1	1	(1)	(1)	(1)	(1)
Total.....	6,907	28,469	230	28,699	100	100	100

¹ Less than 1 per cent.

18 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE 4.—Number and per cent of laborers (male) and of wage earners of each sex in all occupations combined, at each classified group of average earnings per hour, 1931, by industry—Continued

MACHINE SHOPS

Classified earnings per hour	Number of—			Per cent of—				
	Laborers, male	Employees in all occupations			Laborers, male	Employees in all occupations		
		Male	Female	Total		Male	Female	Total
10 and under 11 cents		3		3	(1)		(1)	
12 and under 13 cents		8		8	(1)		(1)	
13 and under 14 cents		3		3	(1)		(1)	
14 and under 15 cents		1		1	(1)		(1)	
15 and under 16 cents	1	15		15	(1)		(1)	
16 and under 17 cents		4		4	(1)		(1)	
17 and under 18 cents	2	9		9	(1)		(1)	
18 and under 19 cents	3	28		28	(1)		(1)	
19 and under 20 cents	3	12		12	(1)		(1)	
20 and under 21 cents	32	91	1	92	1	(1)	(1)	
21 and under 22 cents		17	1	18	(1)	(1)	(1)	
22 and under 23 cents	17	73	1	74	(1)	(1)	(1)	
23 and under 24 cents	8	50	1	51	(1)	(1)	(1)	
24 and under 25 cents	3	81	13	94	(1)	(1)	(1)	
25 and under 27½ cents	48	330	79	409	1	1	1	
27½ and under 30 cents	30	242	27	269	(1)	(1)	(1)	
30 and under 32½ cents	106	585	76	661	2	1	1	
32½ and under 35 cents	55	296	75	371	(1)	(1)	(1)	
35 and under 37½ cents	243	997	187	1,184	5	2	18	
37½ and under 40 cents	265	632	51	683	4	1	5	
40 and under 42½ cents	1,171	2,657	112	2,769	23	4	11	
42½ and under 45 cents	852	1,249	57	1,306	7	2	6	
45 and under 47½ cents	1,005	3,382	73	3,455	19	5	7	
47½ and under 50 cents	281	1,916	59	1,975	5	3	6	
50 and under 55 cents	690	7,103	88	7,191	18	11	9	
55 and under 60 cents	590	6,686	67	6,753	8	10	7	
60 and under 65 cents	159	8,000	26	8,026	3	12	3	
65 and under 70 cents	73	7,343	10	7,353	1	11	1	
70 and under 75 cents	29	6,849	7	6,856	1	11	1	
75 and under 80 cents	13	5,518	3	5,521	(1)	8	(1)	
80 and under 85 cents	10	4,376	1	4,377	(1)	7	(1)	
85 and under 90 cents	4	2,530	1	2,531	(1)	4	(1)	
90 and under 95 cents		1,719		1,719		3		
95 cents and under \$1		1,780	1	1,781		1	(1)	
\$1 and under \$1.10		837		837		1		
\$1.10 and under \$1.20		267		267	(1)		(1)	
\$1.20 and under \$1.30		104		104	(1)		(1)	
\$1.30 and under \$1.40		58		58	(1)		(1)	
\$1.40 and under \$1.50		14		14	(1)		(1)	
\$1.50 and under \$1.60		13		13	(1)		(1)	
\$1.60 and under \$1.70		7		7	(1)		(1)	
\$1.70 and under \$1.80		3		3	(1)		(1)	
\$1.80 and under \$1.90		1		1	(1)		(1)	
\$1.90 and under \$2		1		1	(1)		(1)	
\$2 and under \$2.25		1		1	(1)		(1)	
\$2.25 and under \$2.50								
Total	5,173	64,921	1,017	65,938	100	100	100	

1 Less than 1 per cent.

Regular or Customary Full-Time Hours of Operation

Table 5 shows the per cent of employees in each of 8 representative occupations in foundries and of 17 in machine shops at each classified group of full-time hours per week in 1923, 1925, 1927, 1929, and 1931; and also shows for each of these occupations average full-time hours per week in each of these years. For a distribution of the number of employees in 1931 in each occupation and State, by full-time hours per week, see Table C, page 102.

The regular or customary full-time hours per week of an employee or an establishment are the hours of elapsed time under normal working

conditions as established by the regular time of beginning and of quitting work on each day of the week less the regular time off duty for meals, with no overtime, and no loss of time from any cause, and with no regard to more nor less than such hours that may have been actually worked by individual employees or departments during any particular pay-roll period.

There was only one shift in the vast majority of the establishments included in this report. For chippers and rough grinders, it will be noted from the table, full-time hours decreased from an average of 52.5 per week in 1923 to 51.5 in 1925 and to 51.1 in 1927, increased to 51.4 per week in 1929, and decreased to 50.6 in 1931; that of the 3,048 chippers and rough grinders covered in 1931 the full-time hours of 1 per cent were under 44 per week, of 6 per cent 44 per week, of 21 per cent 48 per week; also that 37 per cent of these wage earners had a week of less than 50 hours, 27 per cent 50 per week, and 36 per cent a week of over 50 hours.

TABLE 5.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1923 to 1931, by sex and year

FOUNDRIES

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Per cent of employees whose full-time hours per week were—												
					Under 44	44	Over 44 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60

Chippers and rough grinders:																	
Male.....	1923	319	2,923	52.5		1	(1)	22	9	14	8	26	(1)	8	2	7	3
	1925	383	4,110	51.5	(1)	1	6	20	5	22	7	20	2	7	1	8	(1)
	1927	379	3,857	51.1	(1)	3	8	22	2	22	6	20	1	8	1	6	1
	1929	367	4,233	51.4	1	2	8	20	3	22	8	20	2	7	2	5	1
	1931	367	3,048	50.6	1	6	6	21	3	27	12	13		7	1	3	(1)
Core makers:																	
Male.....	1923	345	2,526	51.4		3	1	33	6	13	9	21		7	2	5	2
	1925	393	3,067	50.3	2	2	5	31	5	20	5	19	(1)	6	(1)	3	(1)
	1927	401	3,040	50.4	2	4	6	30	1	20	6	18	1	6	1	4	(1)
	1929	387	3,370	49.9	2	4	10	30	3	18	7	18	1	4	2	2	
	1931	374	2,253	50.0	1	6		9	4	24	10	13		7	1	2	
Female.....	1923	22	240	49.2		13	5	24	20	20	3	14		1			
	1925	43	353	48.6	4	8	6	27	15	29	3	5		2			
	1927	41	324	48.4	6	9	5	31	6	33	4	8					
	1929	38	280	49.1		5	16	21	13	29	2	12		1			
	1931	34	179	48.6		8	23	11	14	31	3	5		4			
Laborers:																	
Male.....	1923	343	9,265	53.5	(1)	(1)	(1)	22	4	12	6	26	(1)	9	1	11	6
	1925	389	10,931	52.5	(1)	1	4	18	6	21	6	22	1	6	1	10	4
	1927	401	11,017	52.1	1	2	5	20	2	23	6	21	(1)	7	2	10	3
	1929	384	10,980	52.1	1	2	6	16	3	24	5	21	1	7	3	8	3
	1931	366	6,907	50.8	1	4	10	18	3	26	8	15	(1)	7	1	5	2
Molders, hand, bench:																	
Male.....	1923	262	2,379	51.3		2	1	27	15	13	8	23		6	2	2	3
	1925	325	2,363	50.2	3	3	5	22	11	24	9	17	2	1	(1)	3	
	1927	324	2,063	50.5	2	3	13	22	2	17	4	23		5	2	5	
	1929	321	2,098	49.6	3	4	15	24	3	22	8	13	(1)	5	2	2	
	1931	300	1,593	50.2	1	4	6	28	4	27	6	16		4	1	3	
Molders, hand, floor:																	
Male.....	1923	346	4,904	51.2	(1)	3	2	37	3	13	7	20		6	1	6	2
	1925	401	5,612	50.4	2	2	5	33	4	17	6	20	(1)	5	1	4	
	1927	402	5,375	49.9	3	6	8	30	3	17	6	18	1	5	1	4	
	1929	385	5,453	50.0	2	5	10	32	4	16	6	19	1	4	2	2	(1)
	1931	376	3,752	50.0	1	8	8	26	4	20	7	17		6	1	2	

Molders, machine: Male	1923	161	1,993	51.9	(1)	(1)	23	6	16	10	27	11	1	6
	1925	229	3,140	50.1	5	(1)	5	6	28	9	17	3	(1)	3
	1927	220	3,102	50.4	4	(1)	8	1	32	5	21	4	2	2
	1929	249	3,854	50.4	2	(1)	9	4	30	6	19	6	3	1
	1931	215	2,538	50.0	2	2	9	3	33	8	13	1	5	3
Molders' helpers, floor: Male	1923	234	1,986	52.2		3	(1)	25	2	15	7	28	8	2
	1925	285	2,642	51.8	1	3	6	19	3	18	6	26	(1)	4
	1927	247	1,820	51.2	1	6	5	22	3	16	7	25	2	1
	1929	251	1,919	51.1	(1)	4	6	26	4	17	6	22	2	3
	1931	231	1,234	50.0	1	10	5	26	3	21	11	15	2	8
Pattern makers: Male	1923	283	1,314	51.1		6	2	24	8	19	8	16	9	2
	1925	346	1,827	50.4	(1)	3	8	22	9	27	6	12	1	8
	1927	259	1,512	50.3	(1)	4	6	23	4	33	11	7	1	7
	1929	191	1,127	50.1	(1)	7	4	22	6	31	5	17		6
	1931	194	1,107	49.3	(1)	8	10	33	5	22	4	9		8

MACHINE SHOPS

Assemblers: Male	1923	310	5,681	50.6	(1)	3	4	26	4	26	8	6	16	5
	1925	306	7,151	49.6		1	5	31	5	35	7	4	8	2
	1927	368	8,019	50.1		2	8	26	6	31	13	3	8	2
	1929	335	7,670	50.1		3	2	26	7	39	11	3	5	3
	1931	360	5,446	49.9	(1)	9	4	19	5	34	14	4	1	6
Boring-mill operators: Male	1923	271	1,455	50.8	(1)	5	4	24	4	25	9	7	15	4
	1925	341	2,135	50.4		2	7	25	7	26	9	8	1	12
	1927	354	2,208	50.7		5	6	21	7	28	11	5	1	10
	1929	372	2,333	51.1		4	7	20	7	27	12	5		7
	1931	337	1,722	50.0		6	7	20	6	29	13	7		8
Drill-press operators: Male	1923	350	3,634	50.8	(1)	4	2	27	4	28	9	7	12	5
	1925	423	5,012	50.4	(1)	3	5	27	5	30	10	6	(1)	10
	1927	483	4,759	50.1		7	4	22	5	37	9	3	(1)	8
	1929	440	5,291	50.3	(1)	7	5	20	6	35	10	5		6
	1931	415	3,139	49.8		9	7	19	5	33	11	6		7
Fitters and bench hands: Male	1923	271	4,721	49.9		14	3	26	3	23	9	4	12	3
	1925	388	8,157	49.8	(1)	5	11	29	4	25	10	4	(1)	8
	1927	332	6,661	49.5		6	4	31	5	31	9	4	(1)	6
	1929	367	7,715	49.8	(1)	5	8	29	6	29	10	4	(1)	7
	1931	341	5,447	49.5		8	11	28	4	28	8	5		6

1 Less than 1 per cent.

TABLE 5.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1923 to 1931, by sex and year—Continued

MACHINE SHOPS—Continued

Occupation and sex	Year	Number of establishments	Number of employees	Average full-time hours per week	Per cent of employees whose full-time hours per week were—												
					Under 44	44	Over 44 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
Grinding-machine operators:																	
Male	1923	221	1,255	50.5	(1)	7	3	23	2	30	10	5	(1)	13	5	1	-----
	1925	267	2,016	50.3	-----	2	5	28	4	32	10	6	(1)	10	2	1	(1)
	1927	298	2,285	50.1	-----	4	4	23	9	36	11	3	1	8	1	1	(1)
	1929	313	2,888	51.0	(1)	4	3	19	11	31	9	7	1	7	2	3	3
	1931	290	2,088	50.2	-----	8	6	18	9	27	12	8	(1)	6	2	3	-----
Laborers:																	
Male	1923	375	8,355	51.1	-----	4	2	26	3	27	8	8	-----	15	5	2	1
	1925	439	9,833	50.6	(1)	3	5	26	4	31	9	6	(1)	11	3	1	1
	1927	459	8,342	50.4	-----	3	4	23	6	36	8	6	(1)	9	2	2	(1)
	1929	452	8,506	50.5	(1)	5	4	21	6	35	11	6	(1)	7	3	1	1
	1931	426	5,173	50.3	(1)	6	6	20	7	32	12	7	-----	8	3	1	1
Lathe operators, engine:																	
Male	1923	347	4,421	50.9	(1)	7	3	25	4	25	9	9	-----	13	3	1	1
	1925	401	5,856	50.3	-----	4	7	24	6	29	8	8	1	10	2	1	(1)
	1927	414	5,964	50.2	-----	7	5	21	6	32	10	6	(1)	8	1	1	1
	1929	421	5,640	50.3	(1)	7	9	19	6	30	11	5	(1)	8	2	2	1
	1931	407	3,551	50.0	(1)	7	7	21	6	33	11	7	(1)	8	1	1	(1)
Lathe operators, turret:																	
Male	1923	251	2,147	50.5	(1)	4	2	35	3	25	8	4	-----	12	6	1	1
	1925	328	3,393	50.2	-----	3	4	32	6	29	8	5	(1)	11	1	1	(1)
	1927	343	3,167	50.0	-----	5	4	29	4	33	9	3	(1)	8	1	3	(1)
	1929	359	3,855	50.5	(1)	4	5	24	5	36	8	3	-----	7	2	3	2
	1931	333	2,467	49.8	-----	7	7	22	6	35	10	4	-----	7	2	(1)	-----
Machinists:																	
Male	1923	331	2,952	50.0	-----	12	5	29	3	21	5	13	-----	7	5	1	-----
	1925	374	3,820	49.9	(1)	8	4	29	7	25	8	9	(1)	6	3	1	(1)
	1927	395	3,794	49.5	-----	14	4	24	4	32	9	6	(1)	4	1	2	(1)
	1929	379	3,036	49.8	(1)	9	3	18	8	35	-----	5	1	5	3	1	1
	1931	374	2,575	49.0	(1)	16	9	18	8	27	9	6	(1)	5	1	1	(1)
Machinists' and toolmakers' helpers:																	
Male	1923	251	1,616	50.4	-----	9	1	35	3	18	5	12	-----	12	3	1	(1)
	1925	262	1,641	49.8	(1)	10	8	23	3	29	7	5	1	7	6	1	(1)
	1927	269	1,671	50.1	-----	12	3	20	3	32	12	6	(1)	10	(1)	1	1

	1929	229	1,006	50.3	(1)	7	4	22	5	35	10	6	(1)	8	2	1	2
	1931	210	797	49.3	(1)	13	6	23	3	33	6	8		5	1	1	-----
Milling-machine operators:																	
Male.....	1923	268	1,938	50.0		7	4	34	3	24	9	4			3	1	1
	1925	339	2,925	49.7		3	10	32	6	27	9	3	(1)	7	2	1	(1)
	1927	343	2,872	49.7		8	6	27	7	28	11	3	(1)	7	1	1	(1)
	1929	358	3,440	50.2	(1)	4	6	27	11	25	11	3	(1)	6	2	3	2
	1931	331	2,246	49.3	(1)	9	10	27	7	26	9	4	(1)	5	2	(1)	(1)
Pattern makers: 1																	
Male.....	1927	235	1,228	49.6		6	6	27	4	27	13	4	(1)	9	3	(1)	-----
	1929	288	1,652	49.9		8	6	21	4	33	14	3	1	9	2	(1)	-----
	1931	262	1,431	50.1		6	7	19	3	34	16	4		9	2	(1)	-----
Planer operators:																	
Male.....	1923	272	1,339	50.6	(1)	7	3	24	2	28	9	8		12	4	2	1
	1925	327	1,838	50.2	(1)	5	7	25	4	26	9	8	1	10	3	1	(1)
	1927	339	1,818	50.5		5	6	24	5	31	9	7	1	7	2	3	1
	1929	344	1,963	50.7	(1)	4	7	21	4	35	9	6		6	1	4	3
	1931	315	1,168	50.1		7	10	21	4	31	10	8		7	2	1	1
Screw-machine operators: 2																	
Male.....	1923	177	1,047	50.6		4	2	30	4	27	9	4		13	5	1	1
	1925	215	1,482	49.8		3	8	30	7	29	11	2	(1)	8	2		
	1927	213	1,520	49.8		3	6	27	18	26	11	1		5	1	2	(1)
Screw-machine operators, hand: 4																	
Male.....	1929	155	966	50.2		2	5	22	20	32	7	3		2	2	4	2
	1931	128	640	49.9		5	10	17	15	29	12	3		5	3		-----
Screw-machine operators, semiautomatic: 4																	
Male.....	1929	41	171	51.5		2	5	19	5	30	23	2		6	4		5
	1931	37	108	48.5		11	7	32	12	33	1	1			2		-----
Screw-machine operators, automatic: 4																	
Male.....	1929	144	762	51.4		4	3	17	17	30	6	5		6	1	6	5
	1931	122	486	49.5		7	6	14	29	23	8	5		4	(1)	2	-----
Toolmakers:																	
Male.....	1923	274	1,661	50.4		6	2	30	3	27	11	5		11	4	(1)	(1)
	1925	346	2,573	50.0		2	6	32	4	30	11	4	(1)	8	2	(1)	(1)
	1927	354	2,863	49.7		3	5	32	7	32	11	2	(1)	5	2	1	(1)
	1929	350	2,850	50.0	(1)	5	3	26	8	35	10	4	(1)	5	1	1	1
	1931	355	2,386	49.4		9	9	24	7	29	11	4		5	2	(1)	-----

1 Less than 1 per cent.
 2 Included with "Other skilled employees" in 1923 and 1925.
 3 This occupation was divided in 1929 into 3 groups: Hand, semiautomatic, and automatic.
 4 Included with "Screw-machine operators," in 1923, 1925, and 1927.

Table 6 shows the regular or customary full-time hours Monday to Thursday, Friday, Saturday, and per week of the wage earners in each of 388 foundries and 512 machine shops in 28 States in 1931. In some establishments the full-time hours of a few wage earners or occupations vary from the full-time hours per day or per week of the majority of the wage earners in such establishments, but only the prevailing hours of the greater number of wage earners are presented in this table as the hours of the establishment as a whole.

The full-time hours in foundries covered in this study range from 8 per day Monday to Friday or 40 per week in 3 establishments to 10 per day or 60 per week in 12 establishments; in 5 other establishments only a part of the employees worked 60 hours. The hours in 65 establishments, and in 6 others for part of the employees, were less than 48 per week; in 79, and in 11 others for part of the employees, 48 per week; in 10, 49½ per week; in 86, 50 per week; in 20, 52 to 53½ per week; in 59, and in 8 others for part of the employees, 54 per week; in 25, and in 3 others for part of the employees, 55 per week; and in 6, between 55 and 60 hours.

In machine shops full-time hours ranged from 8 per day Monday to Friday or 40 hours per week in 1 establishment to 10 per day or 60 hours per week in 2 establishments. The hours in 79 establishments were less than 48, with 2 others having less than 48 hours for part of the employees; in 95, and in 1 for part of the employees, the hours were 48 per week; in 37, between 48 and 50 per week; in 160, 50 per week; in 88, and in 1 for part of the employees, between 50 and 55 per week; in 41, 55 per week; and in 8, between 55 and 60 per week.

The 5-day week with no work on Saturday was in operation in 30 foundries and in 16 machine shops; 3 foundries operated alternate Saturdays; and 2 foundries and 1 machine shop operated on Saturday, but only part of the wage earners were employed.

TABLE 6.—Number of establishments in each State in which the full-time hours per week and per day of the wage earners were as specified, 1931

FOUNDRIES

Full-time hours per week	Full-time hours per day				Alabama	California	Colorado	Connecticut	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Missouri	New Hampshire	New Jersey	New York	Ohio	Oregon	Pennsylvania	Rhode Island	Tennessee	Texas	Washington	Wisconsin	Total establishments
	Monday to Thursday	Friday	Saturday	Sunday																													
40	8	8	0																														3
42½	8½	8½	0											1										1								23	
44	8	8	4		12											1																11	
44½	8	8	18							1																						4	
45	8	8	4½							1																						7	
46	8	8	5							1																						16	
47	8	8	2							2																						1	
47½	8	8	6																													2	
	8	8	7																													5	
	8½	8½	4½																													57	
	9½	9½	0																													1	
	8	8	1		1	3	1			2	2	1		1	2		12	2		4	2	2	2	5	4	1	1	1	2	5	1	1	
	8½	8	5																													1	
	8½	8	1																													1	
	8½	8½	5																													1	
	8½	8½	4¾		1																											4	
48	8½	8½	4¾		2		1																									4	
	8½	8½	4½		1																											5	
	8½	8	5							1																						1	
	8¾	8¾	4¾																													6	
	8¾	8¾	4																													1	
	8¾	8¾	3																													1	
	8¾	8¾	0																													1	
	8¾	8¾	4																													1	
	8¾	8¾	3																													1	
	8¾	8¾	0																													1	
48½	8¾	8¾	4¾		1																											1	
49	9	9	4																													1	
49½	9	9	4½							1																						5	
49½	9	9	4																													9	
49½	9	9	10																													11	
49½	9	9	4																													1	
49½	9	9	5																													1	
49½	9	9	6																													1	
49½	9	9	8																													1	
49½	9	9	8																													1	
49½	9	9	8																													1	
49½	9	9	8																													1	
49½	9	9	5		1	1		4	5	7	6	3		1		3	1	1	9	1	1	1	6	7	6		1	5	1	1	3	83	
50	10	10	0																													3	

1 Do not work every other Saturday.
 2 Vary according to occupations or departments.

TABLE 6.—Number of establishments in each State in which the full-time hours per week and per day of the wage earners were as specified, 1931—
Continued

FOUNDRIES—Continued

Full-time hours per week	Full-time hours per day				Alabama	California	Colorado	Connecticut	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Missouri	New Hampshire	New Jersey	New York	Ohio	Oregon	Pennsylvania	Rhode Island	Tennessee	Texas	Washington	Wisconsin	Total establishments	
	Monday to Thursday	Friday	Saturday	Sunday																														
50½	9	9	5½					1																									1	
51	8½	8½	8½																														1	
51	9	9	6									1																					1	
48½	8½	8½	5½																														1	
52½	9½	9½	5½																														1	
52	9½	9½	4½																1														1	
52½	10½	10½	0																														1	
52½	9	9	7¾																														1	
52½	9½	9½	5					1	1														2	1			1				6		12	
53	9½	9½	5½																								1						2	
53½	9	9	8½						1			1																					1	
53½	9½	9½	7																				1										1	
44½	8	8	4						1																								1	
54½	9	9	9																														1	
48½	8	8	8																														1	
50½	9	9	5						1																								1	
54½	9	9	9																														1	
48½	8	8	8								1								1					1									1	
54½	9	9	9																														1	
48½	8	8	8																															1
54½	8¾	8¾	4¾																					1										1
54½	9	9	9																														1	
54½	9	9	9					2		8	3	1	7		1		1	1	6	1	4	2		3	11		1					51		
54½	9	9	9																			1											2	
54½	9½	9½	7¾																			1											3	
54	9¾	9¾	5¾							1														1									3	
54	9¾	9¾	5¾																				1										3	
54	9¾	9¾	5¾																				1										1	
54	9¾	9¾	5¾																				1										1	
10	9	9	5																														1	
44½	8	8	18																														1	
55½	10	10	5							1																							1	
45	8	8	5																														1	
55	10	10	5																														1	
45½	9	9	0																														1	
55½	10	10	5																														1	
55	10	10	5		2		1	2			1	1							3				1	3		7					3		24	

TABLE 6.—Number of establishments in each State in which the full-time hours per week and per day of the wage earners were as specified, 1931—
Continued

MACHINE SHOPS—Continued

Full-time hours per week	Full-time hours per day				Alabama	California	Colorado	Connecticut	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Missouri	New Hampshire	New Jersey	New York	Ohio	Oregon	Pennsylvania	Rhode Island	Tennessee	Texas	Washington	Wisconsin	Total establishments
	Monday to Thursday	Friday	Saturday	Sunday																													
50.....	9 9 1/2	9 9 1/2	5 4 1/2	5 4 1/2	2	1	---	11	5	13	13	3	---	3	---	3	2	15	15	1	2	2	14	8	16	---	15	9	---	1	---	4	158
50 1/2.....	10	10	0	0	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	1
50 3/4.....	9	9	5 1/2	5 1/2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
50 9/10.....	9 2/10	9 2/10	4 1/2	4 1/2	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
51.....	9 1/2	9 1/2	5	5	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	1	---	---	---	---	---	---	1
51 1/2.....	9 1/4	9 1/4	4 3/4	4 3/4	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	1	---	---	---	---	---	---	1
52.....	9 1/4	9 1/4	5 1/4	5 1/4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
52 1/2.....	9 1/2	9 1/2	4 1/2	4 1/2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
52 3/4.....	9	9	7 3/4	7 3/4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
52 1/2.....	9 1/4	9 1/4	6	6	---	---	---	1	4	2	---	---	---	---	---	---	1	1	---	---	---	---	1	4	---	1	---	---	---	---	---	7	
52 3/4.....	9	9	8 1/2	8 1/2	---	---	---	---	---	---	---	1	1	---	---	---	---	---	---	---	---	1	1	4	---	---	---	---	---	---	---	1	
53.....	9 3/4	9 3/4	5	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
53 1/2.....	9	9	6	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54.....	9	9	6	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54 1/2.....	9 1/2	9 1/2	5	5	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54 3/4.....	9 3/4	9 3/4	5 1/4	5 1/4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54.....	9	9	9	9	1	---	---	---	---	2	---	1	5	---	---	---	---	---	1	---	---	3	1	---	2	---	---	---	---	---	---	19	
54.....	9 1/4	9 1/4	7 3/4	7 3/4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54.....	10	10	4 1/2	4 1/2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54.....	9 3/4	9 3/4	5 1/4	5 1/4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
54.....	9 3/4	9 3/4	5 1/4	5 1/4	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	5	---	---	---	3	---	---	---	---	---	---	10
54.....	9 1/2	9 1/2	5	5	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	7	
54.....	9 3/10	9 3/10	4 9/10	4 9/10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
55.....	10	10	5	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
55 1/2.....	10	10	5 1/2	5 1/2	2	---	---	3	2	2	1	---	---	---	---	1	1	4	---	---	---	---	2	11	2	10	---	---	---	---	---	2	41
56.....	10 1/4	10 1/4	5 1/4	5 1/4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
56 1/2.....	10 3/4	10 3/4	5 3/4	5 3/4	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
58.....	10	10	8	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1
59.....	10	10	9	9	---	---	---	---	---	---	1	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3
60.....	10	10	10	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2
Total.....					7	23	3	20	9	36	17	7	11	7	6	4	8	38	35	8	19	5	25	34	85	6	48	11	9	10	7	14	512

* Vary according to occupations or departments

† Night.

‡ Day.

Changes in Hours and in Wage Rates

During the 1931 study data were obtained as to changes in full-time hours and in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study.

Table 7 shows that 22 of the 388 foundries made changes in full-time hours per week; 20 made decreases, 18 of which affected all employees, while in 2 only part of the employees were affected. The decreases ranged from one-half hour to 11 hours per week; 11 adopted the 5-day week. The dates of the decreases reported ranged from July 30, 1929, to August 31, 1931. Two foundries increased hours for part of the employees.

Of the 512 machine shops, 24 made changes, 22 being decreases, of which 19 affected all employees and 4 affected only part of the employees. The decreases ranged from one-half hour to 23½ hours per week, the latter being for a night shift; 7 adopted the 5-day week. Dates of the decreases reported ranged from August 1, 1929, to July 1, 1931. One machine shop increased hours for all its employees, and one for part of its employees.

TABLE 7.—Changes in full-time hours between July 1, 1929, and the period of the 1931 study

FOUNDRIES

Number of establishments	Employees whose full-time hours were changed	Date of change	Changes in hours per week	
			From—	To—
1	All employees.....	Mar. 4, 1931	60	1 54
1	do.....	May 24, 1930	58	48
1	do.....	June 1, 1931	55	44
1	do.....	Jan. 1, 1931	54	48
1	do.....	Dec. 1, 1929	54	1 45
1	do.....	Nov. 1, 1929	53	1 50
1	do.....	Feb. 15, 1930	53	1 48
1	do.....	(¹)	50	48
1	do.....	June 1, 1931	50	1 45
1	do.....	Dec. 1, 1930	50	44
1	do.....	Aug. 1, 1930	49½	45
1	do.....	Jan. 15, 1931	49½	44
1	do.....	Jan. 1, 1931	48	1 47½
1	do.....	Aug. 1, 1931	48	1 45
1	do.....	July —, 1930 ²	48	1 40
1	do.....	Sept. 1, 1930	47½	44
1	do.....	July 1, 1931	46	1 45
1	do.....	July 30, 1929	55	1 45
1	Males.....	do.....	50	1 45
1	Female.....	do.....	50	1 45
1	88 per cent.....	Aug. 31, 1931	54	48
1	Molders.....	Nov. 1, 1929	51	1 48
1	Chippers and rough grinders.....	do.....	54	1 45
1	59 per cent of laborers.....	Apr. 1, 1930	54	1 45
1	Pattern makers.....	do.....	51	1 42½
1	81 per cent of other employees.....	do.....	51	1 42½
1	28 per cent of laborers.....	do.....	51	1 42½
1	13 per cent of other employees.....	do.....	51	1 42½
1	Core makers.....	do.....	51	1 42½
1	Molders.....	do.....	48	1 40
1	3 per cent of laborers.....	do.....	48	1 40
1	6 per cent of other employees.....	do.....	48	1 40
1	Day workers in every occupation.....	Mar. 1, 1931	54	60
1	Structural shop only.....	May 1, 1931	44½	50

¹ Saturday work eliminated.

² Not reported.

³ Day not reported.

TABLE 7.—Changes in full-time hours between July 1, 1929, and the period of the 1931 study—Continued

Number of establishments	Employees whose full-time hours were changed	Date of change	Changes in hours per week	
			From—	To—
1	All employees.....	May 24, 1930	58	48
1	do.....	June 1, 1931	55	44
1	do.....	(²)	54	50
1	do.....	Dec. 1, 1929	54	1 45
1	do.....	Aug. 1, 1929	53	50
1	do.....	Jan. 1, 1931	51½	50
1	do.....	June 1, 1931	50	1 45
1	do.....	Sept. 1, 1929	50	1 45
1	do.....	Dec. 1, 1930	50	44
1	do.....	Sept. 1, 1930	50	44
1	do.....	Aug. 1, 1930	49½	45
1	do.....	Jan. 15, 1931	49½	44
1	do.....	Jan. 1, 1931	48	1 47½
1	do.....	Jan. 2, 1931	48	47½
1	do.....	Jan. 1, 1931	48	44
1	do.....	May 1, 1931	48	1 44
1	do.....	May 15, 1930	47½	52
1	do.....	Sept. 1, 1930	46½	44
1	do.....	July 1, 1931	46	1 45
1	All except clean-ups.....	Aug. 1, 1930	49	1 45
1	About 50 per cent.....	Nov. 1, 1930	54	52½
1	Night shift.....	Jan. 1, 1931	68½	45
1	Females only.....	Aug. 4, 1930	47½	45½
1	Structural-steel workers.....	May 1, 1931	44½	50

¹ Saturday work eliminated.² Not reported.

Table 8 shows in detail the wage changes reported since July 1, 1929, up to the approximate time of completing the taking of data in 1931.

Of the 388 foundries 160 reduced wage rates. Some made two reductions for all employees and others one for all and a second for part of the employees. Reductions ranged from an indefinite amount caused by the elimination of a bonus or of extra pay for overtime to 35 per cent in one establishment. The greatest number of reductions were of 10 per cent, and most establishments which made two reductions made 10 per cent each time. The earliest reduction of which record was found was in November, 1929. Most of them occurred in 1931.

Only three foundries increased wage rates. One did so by allowing extra pay for overtime to all employees in lieu of single pay and also increasing the pay of molders 5 cents per hour, and the other two increased part of the employees 5 cents per hour.

Of the 512 machine shops, 187 made wage changes; 183 decreased wages, 3 increased wages for part of the employees, and 1 increased some employees and decreased others. Decreases ranged from change in rate for overtime for all employees to 30 cents per hour to some employees. Most of the reductions were 10 per cent. Some establishments made two 10 per cent reductions, 24 eliminated extra pay for overtime, 2 reduced the overtime advantage, 10 eliminated the bonus, and 1 raised the bonus requirements. There was one change from time payment to piecework with a bonus.

The earliest change recorded was on September 3, 1929, but most of them occurred in 1931, April of that year with 26, and May with 27 showing more changes than any other months.

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study

FOUNDRIES

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
1	All employees.....		20 per cent.....	Mar. 1, 1930
1	do.....		10 per cent.....	Aug. 1, 1931
1	do.....		do.....	May 1, 1930
1	do.....		do.....	June 1, 1930
1	do.....		do.....	Nov. 1, 1930
1	do.....		Extra pay for overtime eliminated.	June 1, 1930
1	do.....		12½ per cent.....	Jan. 1, 1931
1	do.....		10 per cent.....	July 1, 1930
1	do.....		do.....	Apr. 28, 1930
1	do.....		do.....	Aug. 1, 1930
2	do.....		do.....	Do.
1	do.....		Extra pay for overtime eliminated.	Apr. 1, 1931
1	do.....		do.....	Sept. 1, 1930
1	do.....		do.....	Sept. 29, 1930
1	do.....		Average, 16 per cent.	Oct. 1, 1930
1	do.....		Extra pay for overtime eliminated.	Do.
1	do.....		Bonus eliminated.....	Dec. 1, 1930
1	do.....		10 per cent.....	Oct. 1, 1930
1	do.....		do.....	May 10, 1931
1	do.....		do.....	Oct. 16, 1930
1	do.....		do.....	Oct. 29, 1930
1	do.....		do.....	June 10, 1931
1	do.....		do.....	Nov.—, 1930 ¹
1	do.....		Extra pay for overtime eliminated.	Do. ¹
1	do.....		10 per cent.....	Mar. 11, 1931
2	do.....		do.....	Nov. 1, 1930
1	do.....		5 per cent.....	Nov. 10, 1930
1	do.....		Average, 9 per cent.....	Nov. 14, 1930
1	do.....		5 per cent.....	June 5, 1931
1	do.....		Extra pay for overtime eliminated.	Nov. 15, 1930
1	do.....		10 per cent.....	May 1, 1931
1	do.....		do.....	Dec. 1, 1930.
1	do.....		5 per cent.....	Do.
1	do.....		10 per cent.....	Nov. 15, 1929
1	do.....		Extra pay for overtime eliminated.	Jan. 1, 1930
1	do.....		10 per cent.....	Oct. 1, 1930
1	do.....		15 per cent.....	Jan.—, 1931 ¹
8	do.....		10 per cent.....	Jan. 1, 1931
1	do.....		2 to 8 cents per hour.....	Do.
2	do.....		Extra pay for overtime eliminated.	Do.
1	do.....		5 per cent.....	Do.
1	do.....		10 per cent.....	Jan. 26, 1931
1	do.....		Extra pay for overtime eliminated.	Jan. 1, 1931
1	do.....		10 per cent.....	Feb. 1, 1931
1	do.....		20 per cent.....	Jan. 1, 1931
1	do.....		10 per cent.....	Do.
1	do.....		do.....	June 1, 1931
1	do.....		do.....	Jan. 15, 1931
1	do.....		do.....	Feb.—, 1931 ¹
4	do.....		do.....	Feb. 1, 1931
1	do.....		do.....	Feb. 15, 1931
1	do.....		do.....	Feb. 16, 1931
1	do.....		do.....	Feb. 5, 1931
1	do.....		do.....	Sept. 18, 1931
1	do.....		15 per cent.....	July 17, 1931
1	do.....		10 per cent.....	Mar.—, 1931 ¹
5	do.....		do.....	Mar. 1, 1931
1	do.....		15 per cent.....	Do.
1	do.....		10 per cent.....	Mar. 13, 1931
1	do.....		do.....	Mar. 5, 1931
1	do.....		do.....	Mar. 13, 1931
1	do.....		do.....	May 14, 1931
2	do.....		do.....	Mar. 15, 1931

¹Day of the month not reported.

32 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study—Continued

FOUNDRIES—Continued

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
1	All employees.....		10 per cent.....	Apr. —, 1931 ¹
1	do.....		5 per cent.....	Do. ¹
1	do.....		12½ per cent.....	Apr. 1, 1931
1	do.....		8 per cent.....	Do.
2	do.....		10 per cent.....	Do.
1	do.....		do.....	Apr. 6, 1931
1	do.....		do.....	Apr. 13, 1931
1	do.....		do.....	Apr. 15, 1931
1	do.....		do.....	May —, 1931 ¹
6	do.....		do.....	May 1, 1931
1	do.....		15 per cent.....	Do.
1	do.....		10 per cent.....	May 10, 1931
4	do.....		do.....	May 11, 1931
1	do.....		10 per cent.....	May 30, 1931
1	do.....		do.....	May 14, 1931
3	do.....		do.....	June 1, 1931
1	do.....		7½ per cent.....	Do.
1	do.....		25 per cent.....	Do.
1	do.....		10 per cent.....	June 5, 1931
1	do.....		do.....	June 6, 1931
1	do.....		20 per cent.....	June 19, 1931
1	do.....		10 per cent.....	June 23, 1931
1	do.....		do.....	July 1, 1931
1	do.....		Average, 8 per cent.....	Do.
1	do.....		16 per cent.....	July 15, 1931
1	do.....		10 per cent, average.....	July 7, 1931
1	do.....		do.....	Aug. 15, 1931
1	do.....		do.....	Do.
1	do.....		{ Extra pay for overtime eliminated.	Do.
1	do.....		do.....	Not reported
1	33 per cent of all employees.....		11 per cent.....	Mar. 16, 1931
1	50 per cent of all employees.....		1 to 8 cents per hour.....	(²)
1	{ Employees receiving \$150 to \$200 per month.		10 per cent.....	June 15, 1931
1	{ Employees receiving \$100 to \$150 per month.		7½ per cent.....	Do.
1	{ Employees receiving less than \$100 per month.		5 per cent.....	Do.
1	{ Employees receiving over 35 cents per hour.		10 per cent.....	Mar. —, 1931 ¹
1	do.....		do.....	May 1, 1931
1	All employees.....		do.....	Aug. 1, 1930
1	Half of employees (those at the higher rates).		Average, 10 per cent.....	June 1, 1931
1	{ All employees.....		10 per cent.....	June 1, 1930
1	{ Employees receiving \$40 week and over.		do.....	July 1, 1931
1	{ Employees between \$22 and \$40.		5 per cent.....	Do.
1	{ Employees receiving \$150 to \$199.99 per month.		do.....	Dec. 1, 1930
1	{ Employees receiving \$200 or over per month.		10 per cent.....	Do.
1	{ Time workers.....		do.....	Apr. 1, 1931
1	{ All employees.....		{ Extra pay for overtime eliminated.	Mar. 1, 1931
1	{ do.....		10 per cent.....	Nov. 1, 1930
1	{ Time workers.....		{ Extra pay for overtime eliminated.	Aug. 1, 1931
1	{ All employees.....		Average, 7 per cent.....	May 1, 1931
1	{ Time workers.....		{ Extra pay for overtime eliminated.	Do.
1	{ All employees.....		Overtime changed from daily basis to 48 hours per week; bonus eliminated.	Jan. 1, 1931
1	{ Productive employees.....		do.....	Do.
1	{ All employees.....		Overtime eliminated.....	Not reported
1	{ Productive employees.....		Bonus eliminated.....	Do.
1	{ All employees.....		9 per cent.....	Oct. 20, 1930
1	{ Boiler and forge shop employees.		10 per cent.....	May 3, 1931
1	{ All employees.....		5 per cent.....	Oct. 1, 1929
1	do.....		10 per cent.....	Apr. 1, 1930

¹ Day of the month not reported.

² From Jan. 1 to Apr. 30, 1931.

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study—Continued

FOUNDRIES—Continued

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
1	All employees.....		5 cents per hour and bonus eliminated.	Nov. 1, 1930
1	All employees.....		Extra for overtime eliminated.	Mar. 1, 1931
1	Employees on monthly basis.		20 per cent.....	June 1, 1931
1	All employees.....	For overtime 1½ rate week days, and double rate Sunday and holidays in lieu of single rate.		May 24, 1930
1	Molders.....	5 cents per hour.....		Do.
1	All employees.....		20 per cent.....	Aug. 1, 1931
1	Core makers and molders.....		Extra pay for overtime eliminated	Jan. 1, 1931
1	Day-shift workers.....		10 per cent.....	Mar. 1, 1931
1	Common laborers.....		25 per cent.....	Aug. 10, 1931
1	Productive employees.....		35 per cent.....	Jan. 1, 1930
1	Indirect laborers.....		Bonus eliminated.	Jan. 1, 1931
1	Production employees.....		Efficiency of 70 per cent instead of 50 per cent necessary to receive bonus	Sept. 1, 1930
1	Laborers.....		10 per cent.....	Nov. 1, 1930
1	Hourly rate workers.....		do.....	Apr. 1, 1930
1	Occupation not reported.....		Bonus eliminated.....	May 1, 1931
1	Salaried employees.....		25 per cent.....	Apr. 1, 1931
1	do.....		10 per cent.....	Do
1	Time workers.....		15 per cent.....	Aug. 1, 1930
1	Skilled employees.....		5 per cent.....	Apr. 1, 1931
1	Unskilled employees.....		8 per cent.....	Do
1	Salaried employees.....		5 per cent.....	June 1, 1931
1	Time rate workers, except molders.....		10 per cent.....	May 3, 1931
1	Salaried foremen.....		15 per cent.....	Jan. 1, 1931
1	All except foremen.....		Bonus eliminated.....	June 1, 1931
1	Foremen.....		10 per cent.....	Do.
1	do.....		do.....	Sept. 1, 1930
1	Time workers.....		5 cents per hour.....	June 1, 1930
1	All except molders, lofts-men, pattern makers, and flask maker.....		5 cents per hour.....	June 1, 1931
1	All except working foreman.....		10 per cent.....	Jan. 1, 1931
1	Molders and core makers.....		Bonus eliminated.....	Sept. 1, 1930
1	All except foremen.....		12 per cent.....	Nov.—, 1930 ¹
1	Foremen.....		10 per cent.....	July 1, 1930
1	All except molders and core makers.....		do.....	Jan. 1, 1931
1	do.....		do.....	Aug. 19, 1931
1	All except union molders.....		do.....	July 3, 1930
1	All except molders and core makers.....		Extra pay for overtime eliminated.	Feb. 1, 1931
1	Core makers, pattern makers and molders.....		50 cents per day.....	Sept. 1, 1930
1	Core maker.....		(12½ cents per hour.....	Feb. 16, 1931
1	Carpenter, cupola tender, laborers.....		(6¼ cents per hour.....	June 22, 1931
1	Molders.....		10 cents per hour.....	Mar. 11, 1931
1	Shake out.....		6¼ cents per hour.....	Do.
1	Working foreman.....		From \$6 to \$5 per night.....	Do.
1	Core makers, chippers, grinders, and molders.....		From \$40 to \$30 per week.....	Feb. 14, 1931
1	Core makers and molders.....		10 per cent.....	Mar. 2, 1931
1	Core makers, molders, hand bench, molders, hand floor.....		10 cents per hour.....	May 15, 1931
1	Core makers and molders.....		10 per cent.....	July 1, 1931
1	do.....		10 cents per hour.....	May—, 1931 ¹
1	do.....		do.....	Apr.—, 1931 ¹

¹ Day of the month not reported.

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study—Continued

FOUNDRIES—Continued

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
1	Core makers at time rates.		10 and 15 cents per hour.	(9)
	Cupola labor.		10 cents per hour.	
	Cupola tender.		7 cents per hour.	
1	Molders, hand bench.		20 and 30 cents per hour.	(9)
	Molders, hand floor.		5 and 10 cents per hour.	
1	Molders, machine.		20 cents per hour.	Apr. 1, 1931
	Core makers and molders.		From \$7.50 to \$7 per day.	
1	All others.		10 per cent.	Do.
	Core makers and molders.		do.	Apr. 3, 1931
1	All others.		5 cents per hour.	Do.
	Molders on piece work.		10 per cent.	(9)
1	All others.		15 per cent.	Sept. 3, 1929
	Mechanics.	93 to 98 cents per hour.		
1	Molders.		10 per cent.	May 15, 1931
	Molders.	\$6 to \$6.40 per day.		Nov. 16, 1930
1	Piece workers.		16 per cent.	Sept. 1, 1931
	Time workers.		10 per cent.	Feb. 1, 1931
1	Time workers.		2 cents to 10 cents per hour.	Do.
	77 per cent of time workers.		2½ cents to 10 cents per hour.	Sept. 1, 1931
1	Piece workers.		10 per cent.	Sept. 1, 1930
	Pieceworkers, except pattern makers and machinists.		Extra pay for overtime and Sundays and holidays eliminated.	July 28, 1931
1	Piece workers.		20 per cent.	Aug. 1, 1930
1	Time workers.		10 per cent.	Do.
1	Piece workers.		19 per cent average.	Apr. 1, 1931
1	Piece workers.		15 per cent average.	(9)

MACHINE SHOPS

1	All employees.		3½ per cent.	Aug. 1, 1931
1	do.		5 per cent.	July 1, 1930
1	do.		do.	Nov. 10, 1930
1	do.		do.	Apr. —, 1931 ¹
1	do.		do.	June 22, 1931
1	do.		do.	Dec. 1, 1931
1	do.		5 to 10 per cent.	Jan. 15, 1931
1	do.		Average, 6 per cent.	Apr. 1, 1931
1	do.		Average, 7 per cent.	May 4, 1931
1	do.		7 per cent.	June 22, 1931
1	do.		7½ per cent.	June 1, 1931
1	do.		8 per cent.	Do.
1	do.		9 per cent.	Oct. 20, 1930
1	Boiler and forge shop.		10 per cent.	May 3, 1931
1	All employees.		do.	May 1, 1930
1	do.		do.	Aug. 1, 1930
1	do.		do.	Aug. 15, 1930
1	do.		do.	Sept. —, 1930 ¹
1	do.		do.	Oct. 1, 1930
1	do.		do.	Oct. 16, 1930
1	do.		do.	Nov. 1, 1930
1	do.		do.	Nov. 7, 1930
1	do.		do.	Dec. 1, 1930
8	do.		do.	Jan. 1, 1931
1	do.		do.	Jan. 13, 1931
1	do.		do.	Jan. 26, 1931
3	do.		do.	Feb. 1, 1931
1	do.		do.	Feb. 15, 1931
1	do.		do.	Feb. 16, 1931
1	do.		do.	Feb. —, 1931 ¹
5	do.		do.	Mar. 1, 1931
1	do.		do.	Mar. 15, 1931
1	do.		do.	Mar. —, 1931 ¹
4	do.		do.	Apr. 1, 1931
1	do.		do.	Apr. 6, 1931
2	do.		do.	Apr. 13, 1931
1	do.		do.	Apr. 17, 1931
1	do.		do.	Apr. —, 1931 ¹
6	do.		do.	May 1, 1931
1	do.		do.	May 10, 1931
2	do.		do.	May 11, 1931
1	do.		do.	May 18, 1931
1	do.		do.	May 30, 1931

¹ Day of the month not reported.

² From Feb. 1, 1931, to July 11, 1931.

⁴ From Dec. (day not given), 1930, to June 1, 1931.

⁵ From Jan. 1, 1930, to Apr. 1, 1931.

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study—Continued

MACHINE SHOPS—Continued

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
2	All employees		10 per cent.	June 1, 1931
1	do.		do.	June 3, 1931
1	do.		do.	June 5, 1931
1	do.		do.	June 6, 1931
1	do.		do.	June 9, 1931
2	do.		do.	June 15, 1931
1	do.		do.	June 16, 1931
1	do.		do.	July 6, 1931
3	do.		do.	Aug. 1, 1931
1	do.		do.	Aug. 5, 1931
1	do.		do.	Aug. 17, 1931
1	do.		do.	Aug. 19, 1931
1	do.		do.	Aug. 24, 1931
1	do.		do.	Mar. 11, 1931
1	do.		Extra pay for overtime eliminated.	Nov.—, 1930 ¹
1	do.		10 per cent. Extra pay for overtime eliminated.	May 11, 1931
1	do.		10 per cent. Extra pay for overtime eliminated.	Aug. 15, 1931
1	do.		10 per cent. Extra pay for overtime eliminated.	Sept. 1, 1931
1	do.		10 per cent. Extra pay for overtime eliminated.	June 15, 1930
1	do.		10 per cent. Extra pay for overtime eliminated.	Sept. 15, 1931
1	do.		12½ per cent.	Feb. 6, 1931
1	do.		do.	Apr. 1, 1931
1	do.		Average 13 per cent.	Oct. 1, 1930
1	do.		5 per cent.	Oct. 1, 1929
1	do.		10 per cent.	Apr. 1, 1930
1	do.		do.	May 15, 1930
1	do.		5 per cent.	
	Foremen		Change from supervisors on weekly salary to workers at an hourly rate.	Dec. 1, 1930
1	All employees		15 per cent.	July —, 1930 ¹
1	do.		do.	Jan. —, 1931 ¹
2	do.		do.	May 1, 1931
1	do.		do.	Aug. 15, 1931
1	do.		16 per cent.	July 15, 1931
1	do.		10 per cent.	June 1, 1930
1	do.		do.	Nov. 1, 1930
1	do.		do.	July 1, 1930
1	do.		do.	Apr. 28, 1931
1	do.		do.	Aug. 1, 1930
1	do.		do.	Apr. 1, 1931
1	do.		do.	Oct. 1, 1930
1	do.		do.	May 10, 1931
1	do.		do.	Jan. 1, 1931
1	do.		do.	June 1, 1931
1	do.		do.	Mar. 13, 1931
1	do.		do.	May 14, 1931
1	do.		do.	July 1, 1931
1	do.		do.	Feb. 1, 1931
1	All day workers and piece workers.		do.	Feb. 1, 1931
1	All employees		Extra pay for overtime eliminated.	Jan. 1, 1931
1	do.		20 per cent.	Do.
1	do.		do.	May 1, 1931
1	do.		do.	June 19, 1931
1	do.		do.	
1	do.		Extra pay for overtime eliminated.	May 27, 1931
1	do.		20 per cent.	June 1, 1931
1	do.		Extra pay for work on Sundays and holidays reduced from double to 1½ pay.	June 1, 1930
1	do.		25 per cent.	
1	do.		do.	
1	Foremen		Change from supervisors on weekly salary to workers at an hourly rate.	June 1, 1931

¹Day of the month not reported.

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study—Continued

MACHINE SHOPS—Continued

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
1	All employees.....		Extra pay for overtime eliminated.	Oct. 1, 1929
2	do.....		do.....	Jan. 1, 1930
1	do.....		do.....	Sept. 29, 1930
1	do.....		do.....	Nov. 1, 1930
1	do.....		do.....	Dec. 1, 1930
1	do.....		do.....	Jan. 1, 1931
1	do.....		do.....	Jan. 5, 1931
1	do.....		do.....	May 2, 1931
1	do.....		do.....	Jan. 1, 1931
1	60 per cent.		5 per cent.	July 15, 1931
1	All employees.....		Extra pay for overtime eliminated.	Mar. 1, 1931
1	Hourly rate.....		10 per cent.	Apr. 1, 1931
1	All employees.....		Bonus eliminated	Sept. 1, 1930
1	do.....		do.....	Jan. 1, 1931
1	do.....		do.....	Feb. 1, 1931
1	do.....		do.....	May 1, 1931
1	do.....		do.....	Dec. 1, 1930
1	do.....		Extra pay for overtime eliminated.	Oct. 1, 1930
1	do.....		Bonus eliminated.....	
1	do.....		Extra pay for overtime eliminated.	Not reported
1	do.....		Bonus eliminated.....	
1	do.....		Changed from daily basis for extra for overtime to a 48-hour basis before extra for overtime is paid.	Jan. 1, 1931
1	do.....		2 to 8 cents per hour.....	Do.
1	do.....		5 cents per hour.....	Nov. 1, 1930
1	do.....		5 to 12½ cents per hour.....	May 1, 1931
1	do.....		5 to 30 cents per hour.....	Feb. 1, 1931
1	do.....		Extra pay for overtime eliminated.	Jan. 1, 1931
1	All hourly rate.....		10 cents per hour.....	Apr. 16, 1931
1	do.....		10 per cent.....	Apr. 1, 1931
1	do.....		do.....	May 15, 1931
1	do.....		5 per cent.....	Mar. 11, 1931
1	All salaried.....		10 per cent.....	
1	All hourly rate.....		1 to 10 cents per hour.....	Mar. 1, 1931
1	All salaried.....		10 per cent.....	
1	All.....		Bonus eliminated.....	June 5, 1930
1	All hourly rate and piece workers.....		10 per cent.....	Feb. 15, 1931
1	All hourly rate.....		do.....	
1	All piece workers.....		12 per cent.....	May 4, 1931
1	All hourly rate.....		5 cents per hour.....	June 1, 1930
1	Foremen.....		10 per cent.....	Sept. 1, 1930
1	do.....		do.....	
1	All productive, except salaried foremen, pattern makers, chief mechanic, and chief electrician.....		5 per cent by elimination of bonus.	June 1, 1931
1	All piece workers.....		10 per cent.....	Apr. 1, 1931
1	do.....		Average, 15 per cent.....	(*)
1	All piece workers.....		10 per cent.....	Feb. 1, 1931
1	do.....		16 per cent.....	Sept. 1, 1931
1	All time workers.....		2½ to 8 cents per hour.....	Feb. 1, 1931
1	85 per cent of time workers.....		2 to 10 cents per hour.....	Sept. 1, 1931
1	Piece workers.....		20 per cent.....	Aug. 1, 1930
1	Time workers.....		10 per cent.....	
1	do.....		5 to 10 per cent.....	Apr. 1, 1931
1	Piece workers in machine shop proper, and shipping department.....		20 per cent.....	
1	Piece workers, assemblers.....		20 to 25 per cent.....	Apr. 24, 1931
1	Time workers in shipping department.....		10 per cent.....	
1	Productive.....		do.....	Mar. 1, 1931

* Jan. 1, 1930, to Apr. 1, 1931.

TABLE 8.—Changes in wage rates in foundries and in machine shops between July 1, 1929, and the period of the 1931 study—Continued

MACHINE SHOPS—Continued

Number of establishments	Employees whose rates were changed	Amount of change		Date of change
		Increase	Decrease	
1	Productive.....		Efficiency rate changed from 50 to 70 per cent.	Sept. 1, 1930
1	Nonproductive.....		Bonus eliminated.	Jan. 1, 1930
1	do.....		10 per cent.	June 1, 1931
1	do.....		11 per cent.	Mar. 16, 1931
1	All salaried.....		5 per cent.	June 1, 1931
2	do.....		10 per cent.	Feb. 1, 1931
1	do.....		do	Apr. 1, 1931
1	do.....		do	June 1, 1931
1	do.....		do	July 1, 1931
1	do.....		do	Aug. 1, 1931
1	do.....		do	May 1, 1931
1	do.....		20 per cent.	June 16, 1931
1	do.....		do	June 1, 1931
1	All employees.....		Extra pay for overtime eliminated.	Mar. 1, 1931
1	All earning \$150 to \$199.99 per month.....		5 per cent.	Dec. 1, 1930
1	All earning \$200 or over per month.....		10 per cent.	
1	All salaried up to \$5,000 per year.....		do	Apr. 1, 1931
1	All nonproductive labor receiving 62½ cents per hour or over.....		do	Aug. 1, 1931
1	40 per cent.....		do	Jan. 1, 1931
1	50 per cent.....		6 per cent.	Aug. 24, 1931
1	All employees.....		Extra pay for overtime eliminated.	Jan. 1, 1931
1	50 per cent.....		Average, 10 per cent.	June 1, 1931
1	do.....		10 per cent.	June 16, 1931
1	About 50 per cent.....		1 to 3 cents per hour.....	(7)
1	52 per cent.....		2½ per cent.	Oct. 16, 1930
1	90 per cent.....		10 per cent.	Jan. 1, 1931
1	All receiving 35 cents per hour or over.....		Do.....	Aug. 1, 1930
1	All except apprentices.....		6 cents per hour.....	May 1, 1931
1	All except 1 apprentice, 1 engine lathe operator, 1 packer.....		2½ to 10 cents per hour.....	June 5, 1931
1	25 per cent.....	5 cents per hour.....		Apr. 14, 1931
1	All except foremen.....		12 per cent.....	Nov. 1, 1930 ¹
1	Foremen only.....		10 per cent.....	July 1, 1930
1	All productive except foremen and superintendent.....		Change from time basis to bonus and piecework. ⁸	Sept. 1, 1929
1	All except machinists, blacksmiths, and laborers.....		2 to 10 cents per hour.....	Feb. 1, 1931
1	All except shipping room.....		9 per cent.....	Nov. 14, 1930
1	Shipping room.....		5 per cent.....	
1	All.....		do	June 5, 1931
1	Skilled.....		do	Apr. 1, 1931
1	Unskilled.....		8 per cent.....	
1	Laborers.....		5 per cent.....	Apr. 1, 1930
1	Machinists.....		5 cents per hour.....	Apr. 20, 1931
1	do.....	5 cents per hour.....		Sept. 3, 1929
1	Machinists and machine tool operators.....		do	May 24, 1930
1	All productive.....	1½ time for overtime and double time for Sundays and holidays in lieu of single time.		
1	Pattern makers.....		10 per cent.....	Apr. 1, 1931
1	All shop.....		do	Nov. 1, 1930
1	do.....		5 per cent.....	June 1, 1931
1	Sweepers.....		10 cents per hour.....	Jan. 12, 1931
1	Others (not all).....		5 cents per hour.....	
1	All skilled.....		10 per cent.....	Mar. 1, 1931
1	All day rate.....	12½ per cent.		Aug. 25, 1930
1	do.....		Extra pay for overtime eliminated.	1930 ¹⁰

⁷ Various, from Jan. 1, to Apr. 30, 1931.

⁸ At various times in 1929.

⁹ Amount of change not reported.

¹⁰ Day and month not reported.

Pay for Overtime, 1931

Overtime as generally understood is any time worked before the regular prescribed time of beginning or after the regular prescribed time of quitting work on any day regardless of whether or not an extra rate or extra time is allowed for such time. Time worked on Sunday or on a holiday is overtime if the employee is not expected to work regularly on those days.

During the pay periods covered by this study there was overtime worked on week days at extra rates (or at boosted hours) in 113 foundries, at single rate in 146; there was work on Sunday or holidays at extra rate in 18 and at single rate in 26. There was no overtime work on week days in 129 and in 344 no work on Sunday or holidays.

Overtime at extra rate on week days was worked in 238 machine shops, at single rate in 130; at extra rate on Sunday or holidays in 46 and at single rate in 27. In 144 there was no overtime work on week days and in 439 no work on Sunday or holidays.

Table 9 shows that 178 of the 388 foundries and 337 of the 512 machine shops pay extra rate or time for overtime on week days to all or part of their employees, a large majority of these paying at the rate of time and one-half. Nearly all of them pay at an extra rate for all work on Sunday and holidays. In a few cases the first few hours of overtime on any day are paid for at a lower rate than are the hours worked later in the day. A very few pay a different rate for Sunday work than for holiday work.

TABLE 9.—Pay for overtime and for Sunday and holiday work, employees entitled, and rate, 1931

FOUNDRIES

Number of establishments	Employees entitled	Times regular rate for—	
		Overtime on week days	Work on Sunday and holidays
53	All employees.....	1½	1½
38	do.....	1½	2
6	do.....	1	1½
2	do.....	1½	1½
1	do.....	1½ ¹	1½
9	do.....	1½ until midnight; then 2.....	2
2	do.....	1½	1½
2	do.....	2	2
1	do.....	1½	1
1	do.....	1½	1½
1	do.....	1½ until midnight; then 1½.....	2
1	do.....	1½ for first 8 hours per day; then 2.....	2
1	do.....	1½ until midnight, thereafter and on Saturday 2.....	2
1	do.....	1 for first hour per day; then 1½.....	1½
1	do.....	1 for first 3 hours per day; then 1½.....	2
1	do.....	1½ for first 3 hours per day; then 2.....	2
1	do.....	1½	1½
1	do.....	1 ³	1
5	Core makers and molders.....	1½	1½
4	do.....	1½	2
1	do.....	1½ until 10 p. m.; then 2.....	2
1	do.....	1½	2

¹ After 48 hours have been worked in the week.

² For Sunday; holidays 1.

³ 1½ if customer agrees to pay it.

⁴ For Sunday; holidays 1½.

TABLE 9.—Pay for overtime and for Sunday and holiday work, employees entitled, and rate, 1931—Continued

FOUNDRIES—Continued

Number of establishments	Employees entitled	Times regular rate for—	
		Overtime on week days	Work on Sunday and holidays
1	Core makers, molders, and pattern makers.	1½	1½
1	do.	1½	2
1	do.	2	2
1	All others.	1½	2
1	Core makers, molders, their apprentices and crane operators.	1½	2
1	Skilled employees.	1½	1½
1	Core makers and molders.	1½	2
1	All others.	1	1½
1	Core makers and molders.	2	2
1	All others.	1½	2
1	Core makers, machinists, molders and pattern makers.	2	2
1	All others.	1½	2
1	Core makers, apprentices, chippers, molders and pattern makers.	2	2
1	All others.	1½	2
1	Core makers and molders.	1½	2
1	Chippers and laborers.	1½	1½
1	Core makers and molders.	1½	(9)
1	Crane operators and laborers.	1½	(9)
1	Employees lining cupolas.	1	1½
1	Journeymen.	1½	1½
1	do.	1½	2
1	do.	1½	2
2	Molders.	1½	1½
1	do.	1½	2
1	do.	1½	2
1	Molders and skilled repairmen on time work.	1½	1½
1	Molders, mechanics, and individual cases.	1½	2
1	Molders.	2	2
1	All others.	1½	2
1	Union molders.	1½	1½
1	Patternmakers.	1	2
1	Patternmakers and their helpers.	1½ until midnight; then 2.	2
1	Productive employees.	1½	1½
1	do.	1½	2
1	Productive, except piece workers.	1½ until midnight; then 2.	2
1	Productive employees.	1½	1½
1	Maintenance employees.	1½	1½
1	Productive employees.	1½ for first 4 hours per day; then 2.	2
1	Nonproductive employees.	1½	1½
8	Time workers.	1½	1½
6	do.	1½	2
1	do.	1½	1½
1	do.	1½	1
2	do.	1½	1½
1	All except night workers.	1½	1½
1	All except clean-up laborers.	1½	1½
1	All except cupola tenders and laborers.	1½	2
1	All except machine molders.	1½ until midnight; then 2.	2
1	All except laborers and piece workers.	1½	2

MACHINE SHOPS

12	All employees	2	2
68	do.	1½	2
93	do.	1½	1½
1	do.	1½	1
1	do.	1½	1½
3	do.	1½	1½
9	do.	1½	1½
3	do.	1	1½
3	All, after 48 hours work in the week	1½	1½
2	All, after 54 hours work in the week	1½	1½
1	All, after 55 hours work in the week and after 6 p. m.	1½	2

‡ For Sunday; holidays 1 for first 9 hours; then 2.
 * Not reported.

TABLE 9.—Pay for overtime and for Sunday and holiday work, employees entitled, and rate, 1931—Continued

MACHINE SHOPS—Continued

Number of establishments	Employees entitled	Times regular rate for—	
		Overtime on week days	Work on Sunday and holidays
1	All.....	1 ⁶	⁸ 1
1	do.....	1½; on repair work 2.....	2
1	do.....	1½.....	⁷ 2
1	{Those receiving 50 cents or over per hour.....	1½.....	2
1	{Those receiving under 50 cents.....	1½.....	2
2	All.....	1½.....	⁹ 2
1	do.....	1½.....	⁹ 1½
1	do.....	1½.....	¹⁰ 1½
1	do.....	1½; Saturday afternoon 1¼.....	1½
1	do.....	do.....	2
1	do.....	1¼ after the first hour.....	1½
1	do.....	1½ for first 3 hours; 2 thereafter.....	2
1	do.....	1½ for first 4 hours; 2 thereafter.....	2
1	do.....	1½ for first 8 hours; 2 thereafter.....	2
1	do.....	1½ until 7 p. m.; 2 thereafter.....	2
1	do.....	1½ until 9 p. m.; 2 thereafter.....	2
2	do.....	1½ until 10 p. m.; 1½ thereafter.....	1½
1	do.....	do.....	¹¹ 1½
18	do.....	1½ until midnight; 2 thereafter.....	2
1	All, after 52 hours work in the week.....	do.....	2
1	All.....	do.....	¹² 1½
1	do.....	1½; Saturday 2.....	2
3	do.....	1½ until 10 p. m.; 2 thereafter and on Saturday afternoon.....	2
1	do.....	1½ until midnight; 2 thereafter and on Saturday afternoon.....	2
1	All except apprentices, craters and packers, laborers, shipping clerks, and stock clerks.....	1½.....	2
1	All except apprentices, laborers, and piece workers.....	1½.....	1½
1	All except assistant foremen, laborers and salaried.....	1½.....	2
1	All except carpenters and laborers.....	1¼.....	1¼
1	All except clean-ups and millwrights.....	1½.....	2
1	All except contractors and special cases.....	1½.....	1½
1	All except craters and packers, laborers, and shipping clerks.....	1½.....	¹³ 1½
1	All except electricians, millwrights, and their helpers.....	1; for Saturday after 12 o'clock noon 1½.....	2
1	All except 1 night worker.....	1½.....	1½
1	All except laborers.....	1½.....	1½
1	do.....	1½ for first 4 hours; 2 thereafter.....	2
1	All except laborers, 1 machinist, furnace tender, and electrician.....	1½.....	2
1	All except loaders, packers, porters, truck drivers, and truckers.....	1½.....	2
1	All except maintenance and millwrights.....	1½.....	1½
1	All except millwright and oiler.....	1½.....	1½
1	All except packer and shipping clerk.....	1½ until midnight; 2 thereafter.....	2
1	All except salaried.....	1.....	1½
1	do.....	1½.....	2
4	do.....	1½.....	1½
1	All except monthly salaried.....	2.....	2
1	All except yard laborers.....	1½.....	2
1	{Boilermakers and boilermakers' helpers.....	2.....	2
1	{All others.....	1½.....	2
1	All in heat-treat department after 72 hours worked in the week.....	1.....	1½
1	{Helpers and laborers.....	1½.....	1½
1	{All others.....	1½ for first 4 hours; 2 thereafter and on Saturday.....	2

⁶ Plus 15 cents per hour.⁷ Unskilled labor 1½.⁸ For Sunday; holidays 1½.⁹ For Sunday; holidays 1.¹⁰ Painters 1; pipe fitters 2.¹¹ For Sunday; holidays, no provision made.¹² Until midnight; 2 thereafter.¹³ For Sunday; holidays, 1 for first 9 hours, 1½ thereafter.

TABLE 9.—Pay for overtime and for Sunday and holiday work, employees entitled, and rate, 1931—Continued

MACHINE SHOPS—Continued

Number of establishments	Employees entitled	Times regular rate for—	
		Overtime on week days	Work on Sunday and holidays
1	Journeymen.....	1½	1½
1	do.....	1½	2
1	do.....	1½ until midnight; 2 thereafter.....	2
1	(Laborers.....)	1½	1½
1	(All others.....)	1½ for first 3 hours; 2 thereafter.....	2
3	Machinists.....	1½	1½
1	do.....	1½	2
1	Machinists on equipment emergency repairs.....	1½	1½
1	Machine operators.....	1½	2
3	Productive.....	1½	1½
5	do.....	1½	2
1	Productive machinemen and assemblers.....	1½	1½
2	Productive time workers.....	1½	1½
1	do.....	1½ until midnight; 2 thereafter.....	2
1	Productive except machinists and their helpers.....	1½	1½
1	(Productive.....)	1½	1½
1	(Nonproductive.....)	1½	1½
1	(Productive after 52½ hours work in the week.....)	1½	1½
1	(Nonproductive after 52½ hours work in the week.....)	1½	1½
1	(Productive.....)	1½	2
1	(Nonproductive.....)	1½	1½
1	(Productive.....)	1½ until 10 p. m.; 2 thereafter.....	2
1	(Nonproductive.....)	1½	1½
4	Time workers.....	1½	1½
1	do.....	1½	1½
1	do.....	1½	14 1½
23	do.....	1½	1½
9	do.....	1½	2
1	Time workers on repair work.....	1½	1½
1	Time workers.....	1½ ¹³	11 1½
1	do.....	1 for first 4 hours; 1½ thereafter.....	2
1	do.....	1½ until midnight; 1½ thereafter.....	2
1	do.....	1½ until midnight and on Saturday afternoon; 2 thereafter.....	2
1	Time workers after 52 hours work in the week.....	1½	1½
1	Time workers except clean-ups.....	1½	1½
1	Time workers except laborers.....	1½	1½
1	Time workers except laborers and sweepers.....	1½	1½
1	Time workers except electric truckers, stockmen, sweepers, and night heat treaters.....	1½	1½

¹³ Until midnight; 2 thereafter.

¹⁴ For Sunday; holidays 1½.

Bonus Systems

A bonus system is an arrangement by which the earnings of a certain part or all of the employees in an establishment at piece or time rates can be increased if employees fulfill certain conditions. Earnings at piece or time rates were increased by the addition of a bonus of a stated amount or of a specified per cent of earnings, for production, efficiency, attendance, length of service, or by the payment at basic rates for all or part of the time saved by doing a job or piece of work in less than the standard time allowed or established for it by a time study previously made.

Bonus systems were in effect in 33 of the 388 foundries and in 125 of the 512 machine shops covered at the time of the 1931 study.

The number of establishments, the employees entitled to receive the bonus, the kind and the amount of the bonus, and the conditions to be met in order to receive the bonus are given in Table 10. Bonus systems were in operation in plants covered in 1931 in California, Colorado, Connecticut, Illinois, Indiana, Kansas, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Tennessee, and Wisconsin. Bonus systems are more numerous in foundries and machine shops than in any other industry covered in wage reports by the bureau.

In 14 foundries and 97 machine shops a time-saving bonus was paid to part or to all of the employees for doing work of a set standard in less than the stated period of time allowed for it. In 6 of the 97 a second bonus was also paid for either efficiency or attendance, or for length of service. Some establishments paid employees for all of the time saved, while others paid for only a portion of the time saved at regular hourly rates. Example: A standard of 50 hours was set for the completion of a certain job or piece of work. An employee completed the work in 40 hours, thereby saving 10 hours. He was paid for the 40 hours that he actually worked plus a bonus of one-half of the 10 hours saved. In another plant he would have been paid for the 40 hours worked and also for all of the 10 hours saved.

In 5 foundries and 3 machine shops a production bonus was paid to part or to all of the employees and 1 each of these also paid a bonus on attendance. The production bonuses were earned on all or on various percentages of production above a certain standard quantity previously set for each hour consumed on that particular job. The bonus in some plants was based on individual production and in others on the production by a group of employees. In the latter the bonus for the group was divided among the employees according to the basic rate and the hours worked by each individual in the group during the pay period.

In 10 foundries and 17 machine shops efficiency bonuses only were reported. The requirements to participate in these bonuses vary. In some instances the employees must attain a certain per cent of a set standard, or they must do work in excess of the standard; and in others they must do work at less than the estimated labor cost; in one the value of salvaged material must exceed the wages of the gang; and in another the employees must earn a certain amount per week at piece work before the bonus begins.

Two foundries and four machine shops reported an "attendance" bonus only, affecting part or all of the employees for regular attendance during a specified period of time or for working a set number of hours per day or night. One of these machine shops also had a service bonus.

Two foundries and one machine shop reported a "service" bonus only, for all employees in the service a specified period of time, granting the employee a per cent of his earnings during the year or a vacation with pay.

Two machine shops gave bonuses to all or to part of the employees on the pay roll at Christmas time. One machine shop gave a bonus for punctuality.

Two machine shops penalized the employees on time-saving bonus if they failed to complete the job in standard time, 3 penalized for

spoiled work, and 1 penalized for failure to complete work at estimated cost.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931*

FOUNDRIES

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Time saving	Core makers, molders and their helpers, and all on piece work.	All of time saved at regular rate.	Complete job in less than standard time.
1	do	Core makers, molders and molders' helpers.	do	Do.
2	do	Molders	do	Do.
1	do	All productive workers	75 per cent of time saved at regular rate.	Do.
1	do	All employees	50 per cent of time saved at regular rate.	Do.
3	do	All productive workers	do	Do.
1	do	Core makers, chippers and rough grinders, crane operators, cupola tenders, molders, pattern makers, rough carpenters, sand blasters, flashmen and sand men.	do	Do.
1	do	Core makers and molders	do	Do.
1	do	Pattern makers	do	Do.
1	do	Piece workers	35 per cent of time saved at regular rate.	Do.
1	do	Core makers, cupola tenders, crane operators, laborers, molders and helpers, foremen and assistants.	50 per cent of time saved at regular rate.	Do.
1	Appraised labor cost.	do	½ of saving in actual labor cost over appraised labor cost.	Produce work at less than appraised labor cost.
1	Production, individual.	All productive workers	86 cents per 100 premium units. Premium units are all production units in excess of 60 per hour.	Production in excess of set standard per hour, based on day's work.
1	Production, group.	All nonproductive workers except pattern makers and maintenance workers.	Premium units of production based on both departmental and group efficiency, worked out for each type of nonproductive labor in a department, and paid at varying rates depending on occupations.	Production in excess of set standard, based on week's work.
1	Production	Melters and their helpers.	1 hour at regular rate for each heat in excess of set standard.	Production in excess of set standard.
1	do	Molders on piece work	¼ cent per mold above set standard of production.	Do.
1	do	Molders	5 per cent of earnings for 1 to 10 per cent excess production; 7½ per cent of earnings for 10 to 20 per cent excess production; 10 per cent of earnings for 20 per cent and over excess production.	Do.
1	Production and attendance.	do	10 per cent of earnings at piece rates.	Must earn at piece rates 72½ cents per hour or more and work full operating time of plant.
1	Efficiency	All productive workers	The hourly rate increased by the per cent that the fixed standard of time is in excess of the hours taken to complete job.	Efficiency in excess of set standard.
1	do	Cupola tenders, chippers, and shake-out men.	The hourly rate increased by the per cent that the standard cost is in excess of the actual cost.	Do.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931—Continued*

FOUNDRIES—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Group efficiency.	Core makers; molders and helpers; foundry labor, including crane operators; cleaning department, including chippers and grinders, sand blasters, casting cleaners, straighteners, and torch cutters.	0.8 per cent of earnings for 72 per cent efficiency increased by 1.4 per cent for each per cent of efficiency from 72 per cent to 150 per cent which pays 110 per cent of earnings.	Efficiency of at least 72 per cent of set standard.
1	Efficiency	Molders and their helpers, chippers, and rough grinders, and sand blasters.	0.7 per cent of basic earnings for efficiency of 68 per cent increased by a sliding scale to 25 per cent for efficiency of 100 per cent, and 1 per cent additional for each 1 per cent of efficiency above 100 per cent.	Efficiency of at least 68 per cent of set standard.
1	do	All productive workers.	1 per cent of weekly basic earnings for each 2 per cent of efficiency above 70 per cent and under 90 per cent of set standard, increased to 1 per cent for each 1 per cent of efficiency above 90 per cent of set standard.	Efficiency in excess of 70 per cent of set standard.
1	do	do	Bonus for 100 per cent efficiency fixed, independent of wage rate, for each of the bonus classes into which employees are divided according to skill, etc. One-tenth of the bonus for 100 per cent efficiency paid for 70 per cent efficiency and increased by $\frac{1}{100}$ of the 100 per cent bonus for each 1 per cent of efficiency above 70 per cent.	Do.
1	do	Floor molders and their helpers on specified work.	Bonus increased by 10 cents for each 1 per cent of efficiency or fraction thereof, from 20 cents for efficiency over 92 per cent and under 93 per cent to \$1.00 for 100 per cent efficiency.	Efficiency above 92 per cent of set standard.
1	do	Furnace firemen	2 per cent of earnings for each wall brick saved above standard and 5 per cent of earnings for each roof brick saved above standard per ton of poured iron.	Average number of bricks per ton of poured iron used must be less than set standard.
1	Departmental efficiency.	Salaried foremen	1 per cent of salary for each per cent of efficiency above 90 per cent, not to exceed 10 per cent.	Departmental efficiency of more than 90 per cent.
1	Group efficiency.	Rough grinders	1 per cent of earnings for each per cent of efficiency in excess of 75 per cent up to and including 110 per cent, decreased to 0.5 per cent for each per cent of efficiency above 110 per cent.	Efficiency in excess of 75 per cent of standard.
		Individual efficiency.	Molders	10 per cent of basic earnings. 15 per cent of basic earnings. 20 per cent of basic earnings.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931—Continued*

FOUNDRIES—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Attendance.....	All employees.....	60 cents per week.....	Perfect attendance for the week.
1	do.....	All time workers except foremen, handy men, and pattern-shop workers.	1 hour daily at regular rate.	Full-time attendance of 9 hours per day.
2	Service.....	All employees.....	1 week's vacation with pay. 2 weeks' vacation with pay.	2 years' service. 5 years' service.

MACHINE SHOPS

9	Time saving...	All productive employees.	All of time saved at regular rate.	Complete job in less than standard time.
3	do.....	All on work for which time studies have been made.	do.....	Do.
2	do.....	Assemblers and machine operators.	do.....	Do.
1	do.....	Productive-machine operators.	do.....	Do.
1	do.....	Machine-tool operators...	do.....	Do.
1	do.....	Machine operators in one department.	do.....	Do.
1	do.....	Lathe and boring-mill departments, and all workers on turning operations.	All of net time saved in week, not to exceed 30 per cent of standard time, at regular rate.	Do.
1	do.....	{Machine operators, fitters and bench hands, assemblers and helpers.	{All of time saved at regular rate. Penalty—deduction of all time above standard, at regular rate.	{Do. Failure to complete job in standard time.
1	do.....	All productive labor.....	{A—All of time saved at regular rate. B—One-half of time saved at regular rate.	{Complete job in less than standard time—class A work. Complete job in less than standard time—class B work.
1	do.....	Brake-shaft department..	Penalty—deduction of all time above standard, at regular rate.	Failure to complete job in standard time, when on class A work.
1	do.....	All except foremen and laborers.	All of time saved paid at a fixed bonus rate, prorated in proportion to hours worked.	Complete job in less than standard time.
1	do.....	Machine operators.....	All of time saved at 25 cents per hour.	Do.
2	do.....	All productive workers...	All of time saved at 12 cents per hour.	Do.
2	do.....	All productive workers...	All of time saved at 1 cent per minute.	Do.
1	do.....	Workers in machine shop, paint shop, and assembly department for which time studies have been established.	All of time saved at 0.64 cent per minute.	Do.
1	do.....	All except tool makers, laborers, shipping men, truckers, elevator men, storeroom men, and riggers.	All of time saved at from 0.36 to 0.6 cent per minute, depending on the job.	Do.
1	Individual time saving.	All productive workers ..	{All of time saved at 35 cents per hour for planer operators, and 30 cents per hour for all other productive workers.	{Do.
1	Group time saving.	Toolmakers.....	One-half of time saved at average rate for the department.	Do.
1	ime saving...	All productive workers...	All of time saved at 1 cent per minute.	Do.
1		Foremen on production..	Amount equal to 8 per cent of his department's bonus earnings.	Exceed standard in entire department.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931*—Continued

MACHINE SHOPS—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Time saving	All productive workers	All of time saved at three-fourths of hourly rate.	Complete job in less than standard time.
		Foremen on production	All of time saved by each worker in department, at one-fourth of worker's hourly rate.	Exceed standard in department.
1	do	All productive workers	All of time saved at three-fourths of hourly rate. Penalty—time required to replace spoiled parts deducted from accumulated bonus earnings.	Complete job in less than standard time. Spoil work.
1	do	do	All of time saved at three-fourths of hourly rate.	Complete job in less than standard time.
1	do	Machinists, toolmakers, and machine-tool operators in tool room.	All of time saved at one-half of hourly rate.	Do.
1	do	All machinists and machine operators.	do	Do.
	do	All productive labor	All of time saved at 85 per cent of hourly rate. Penalty—time required to replace spoiled parts, charged at same rate as bonus time, deducted from future or accrued premium.	Do. Spoil work.
1	Departmental efficiency.	Foremen in each department.	25 cents for each 1 per cent of departmental efficiency up to \$25 for 100 per cent efficiency, on weekly basis.	Hold departmental labor cost to less than standard.
	Individual efficiency.	Checkers	\$2.50 per week for perfect weekly record, less 25 cents for each error not to exceed 10.	Efficiency higher than 10 errors per week.
	Time saving	Machine operators, blacksmiths and helpers, assemblers, fitters, and bench hands.	All of time saved at regular rate.	Complete job in less than standard time.
1	Department efficiency.	Foremen and lead men	Wages per week increased by the percentage that the departmental labor cost saved is of the standard cost. Penalty—Bonus for the next week reduced in like manner.	Hold departmental labor cost to less than standard. Allow departmental labor cost to exceed standard.
1	Time saving	Machine operators on production.	All of time saved at one-half of hourly rate.	Complete job in less than standard time.
	Attendance	All employees	60 cents per week	Perfect attendance.
1	Time saving	Die shop	All of time saved at regular rate.	Complete job in less than standard time.
	Service	All employees	1 week's vacation with pay. 2 weeks' vacation with pay.	2 years' service. 5 years' service.
1	Time saving	All productive workers	80 per cent of bonus earned by net time saved at regular rates.	Complete job in less than standard time.
		Nonproductive workers	20 per cent of bonus earned by productive workers, prorated according to hours worked and rating of each worker.	Share in bonus earnings of productive workers.
1	do	All productive workers	85 per cent of time saved at regular rate.	Complete job in less than standard time.
1	do	All hourly rate workers except tool room, stock room, pattern shop, polishers, experimental workers, and part of the assembly and erecting workers.	Three-fourths of time saved at 1 cent per minute.	Do.
1	do	Machine hands and their helpers and apprentices, and fitters and bench hands.	Two-thirds of time saved at regular rate.	Do.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931—Continued*

MACHINE SHOPS—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
2	Time saving	All employees	One-half of time saved at regular rate	Complete job in less than standard time.
19	do	All productive labor	do	Do,
4	do	All productive labor for which time studies have been established	do	Do,
1	do	All productive employees on hourly rate	do	Do,
1	do	All productive workers except working foremen	do	Do,
1	do	All productive workers except assemblers	do	Do,
1	do	All productive workers, pattern makers, and toolmakers	One-half of time saved at regular rate	Do.
1	do	Productive workers, stockmen, packers, stampers, and job setters on hourly rates	do	Do,
1	do	All on piecework	do	Do,
1	do	All except laborers	do	Do,
1	do	All except foremen, pattern makers, toolmakers, and laborers	do	Do,
2	do	Machine operators, assemblers, fitters, and bench hands on productive work	do	Do,
1	do	Machine operators, fitters, and bench hands, and inspectors on productive work	do	Do,
1	do	Machine operators, assemblers, fitters, and bench hands, and painters	do	Do,
1	do	Machine operators, assemblers, fitters, and bench hands, and all helpers	do	Do,
2	do	Machine operators	do	Do.
1	do	Milling machine and boring machine operators	do	Do.
1	do	Assemblers and carpenters	do	Do.
1	do	Automatic screw machine and punch-cutting machine operators	One-half of net time saved during each pay period, at regular rates. One-half of time saved at regular rate.	Do. Do.
1	do	{All productive workers on jobs for which time studies have been established.	Penalty—Deductions equivalent to standard time cost are made for spoiled work.	Spoil work.
1	Individual time saving.	All productive employees, patternmakers, toolmakers, and crane operators.	One-half time saved at regular rates.	Complete job in less than standard time.
1	Group time saving.	Assemblers, fitters, and bench hands, laborers, packers and craters, working foremen, maintenance men, and any other to whose work the plan can be adapted.	20 to 50 per cent of time saved, depending on the job, prorated in proportion to hours worked and paid at regular rates.	Do.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931—Continued*

MACHINE SHOPS—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Individual time savings.	Machine operators and their helpers, blacksmiths and their helpers, painters, pattern makers, toolmakers, packers and craters, assemblers and fitters.	One-half of time saved at regular rate.	Complete job in less than standard time.
	Group time saving.	Assemblers on group work, and casting cleaners.	20 to 25 per cent of time saved, depending on job, prorated in proportion to time worked and paid at regular rates.	Do.
1	Time saving	Productive labor in machine and assembly departments.	One-half of time saved at regular rates.	Do.
		Productive foremen in above departments.	16 per cent of all bonus earnings by all workers in these departments, divided equally among these foremen.	Exceed standard in machine and assembly departments.
1	Time saving	All other foremen in the plant.	4 per cent of all bonus earnings in these departments, divided equally among these foremen.	Do.
		All machine hands	One-half of time saved at regular rates.	Do.
1	Group appraised cost.	All assembly workers	One-half of saving in estimated cost of job, prorated among workers.	Hold labor cost below standard.
		Assemblers, machine operators, crane operators, fitters and bench hands, helpers, foremen, welders, and apprentices.	One-half of time saved at regular rate.	Complete job in less than standard time.
1	Appraised cost	do	One-half of saving on estimated cost of job.	Hold labor cost below standard.
		Assemblers, machine operators and sheet-metal workers.	One-half of time saved at regular rate.	Complete job in less than standard time.
1	Efficiency	do	Time studied piece rate paid for job if completed in standard time or less. If more time than standard is taken, the regular hourly wage is paid for all time worked on the job.	Complete job in standard time, or less.
		All productive workers	One-half of time saved at regular rate.	Complete job in less than standard time.
1	Service	All employees	3 days' vacation with pay at regular hourly rate. (Pieceworkers' pay based on previous month's earnings.)	Not more than 6 days lost on account of absence or tardiness during preceding year and have been in service 2 and less than 4 years.
			6 days' vacation with pay as noted above.	As above with service of 4 years and less than 6.
			9 days' vacation with pay as noted above.	As above, with service of 6 years and less than 8.
1	Time saving	All productive labor	12 days' vacation with pay as noted above.	As above, with service of 8 years and over.
			One-half of time saved at 40 cents per hour for those whose rates are 45 cents and under, 45 cents per hour for over 45 and under 50 cents, and 50 cents per hour for 50 cents and over.	Complete job in less than standard time.
1	do	Machine operators	40 per cent of time saved at regular rates.	Do.
1	do	Pieceworkers	35 per cent of time saved at regular rate.	Do.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931*—Continued

MACHINE SHOPS—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Time saving	Machine operators, tool-makers, blacksmiths, assemblers, fitters and bench hands, and helpers in these departments.	All bonus hours at regular hourly rates. Bonus hours are the per cent of time saved that the actual are of the standard hours.	Complete job in less than standard time.
1	Production	Productive workers in machine and assembly departments.	Hourly rate increased by graduated scale (not reported) for each unit of production in excess of the standard of 60 units per hour.	Average production in excess of standard, based on week's work.
1	do	All productive workers	Hourly rate is increased as worker's sustained efficiency increases. If he does not sustain the higher efficiency, he drops back to a lower rate. Degree of efficiency and time it must be sustained not reported.	Sustained production above the standard set. Standard is the studied time at the minimum rate.
1	do	All productive workers	86 cents per 100 units of production in excess of 60 units per minute.	Production in excess of set standard.
		Nonproductive workers	Premium units of production are based on both departmental and group efficiency and are worked out for each type of non-productive labor in a department and paid at varying rates depending on the occupation.	Do.
1	Attendance	All on hourly rates	10 per cent of gross earnings, including bonus. Penalty— 50 per cent of bonus 25 per cent of bonus 15 per cent of bonus 10 per cent of bonus	Must work full time during the week. When tardy 1 hour or more. When tardy less than 1 hour. Failure to punch incoming time clock. Failure to punch outgoing time clock.
1	Efficiency	Assemblers, babbitters, spray painters, tappers, key seaters, pulley, engine, and turret lathe operators, milling-machine operators, grinding and boring machine operators, drill press operators, machinists, packers, and craters.	The per cent of the earnings that the time saved is of the standard time.	Efficiency in excess of set standard.
1	do	All productive workers	The per cent of the earnings that the fixed standard of time is in excess of actual time.	Do.
1	do	Machine operators and their set-up men.	The per cent of the earnings of each worker that the production for the group exceeds the set standard.	Do.
1	do	Assemblers, grinders, washers, polishers, screw-machine operators, sheet-metal and plate-punch operators, and operators of other productive machines.	The per cent of the earnings that the standard cost is in excess of the actual cost, based on group efficiency.	Do.
1	do	Assemblers	The per cent of earnings that the standard cost is in excess of the actual cost, based on group efficiency.	Do.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931*—Continued

MACHINE SHOPS—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Efficiency.....	All productive workers...	1 per cent of earnings for each per cent of efficiency in excess of 75 per cent of standard.	Efficiency in excess of 75 per cent of set standard.
1	do.....	Assemblers.....	1 per cent of earnings for each per cent of efficiency in excess of 75 per cent of standard up to and including 110 per cent and $\frac{1}{2}$ per cent for each 1 per cent of efficiency above 110 per cent.	Do
1	do.....	All productive workers and shop cleaners.	1 per cent of earnings for 75 per cent of efficiency, increased by a sliding scale to 30 per cent for 100 per cent efficiency. For each per cent of efficiency above 100 per cent, 1.2 per cent of earnings at basic rate in addition to the 20 per cent for efficiency of 100 per cent.	Efficiency of 75 per cent or more of set standard.
1	do.....	All productive workers...	1 per cent of weekly earnings for each 2 per cent of efficiency above 70 per cent up to 90 inclusive; then 1 per cent for each 1 per cent of efficiency above 90 per cent of set standard.	Efficiency in excess of 70 per cent of set standard.
1	do.....	Pattern makers.....	One-half of the above described bonus.	Do.
1	do.....	Productive employees....	The bonus for 100 per cent of efficiency fixed, independent of wage rates, for each of the bonus classes into which employees are divided according to skill, etc. One-tenth of the bonus for 100 per cent efficiency paid for 70 per cent efficiency and increased by $\frac{1}{100}$ of the 100 per cent bonus for each additional per cent of efficiency.	Efficiency of 70 per cent or more of set standard.
1	do.....	Pattern makers, chief mechanic, chief electrician, and salaried foremen.	1 per cent of salary for each per cent of departmental efficiency above 90, not to exceed 10 per cent.	Departmental efficiency in excess of 90 per cent of set standard.
	Refuse salvage..	Clean-up labor.....	The excess tonnage earnings are prorated on a basis of hours worked.	Total value of scrap salvage at piece rates per ton must exceed combined earnings of all clean-up laborers at their regular rates.
1	Efficiency.....	All on work for which standard has been established.	Employees averaging 68 per cent efficiency or more paid a percentage of their earnings according to a sliding scale ranging from 0.7 per cent for 68 per cent efficiency to 25 per cent for 100 per cent efficiency. For each per cent of efficiency above 100 per cent, 1 per cent added to 25 per cent premium.	Efficiency of 68 per cent or more of set standard.

TABLE 10.—*Bonus systems in foundries and in machine shops, 1931—Continued*

MACHINE SHOPS—Continued

Number of establishments	Kind of bonus	Wage earners entitled	Amount of bonus	Conditions
1	Efficiency.....	Test men on piecework..	\$1 bonus for \$20 per week earnings, \$2 bonus for \$25 per week earnings, \$3 bonus for \$30 per week earnings, \$5 bonus for \$35 per week earnings, and \$1 additional for each \$5 additional earnings, not to exceed \$10 bonus for \$60 earnings and up.	Earn at piecework stated amounts of \$20 and over per week.
1	Efficiency; appraised labor cost.	Lathe operators.....	All of the saving in labor cost.	Labor cost less than appraised cost.
1	do.....	All productive labor.....	All of the saving in labor cost, prorated according to basic rates of workers.	Do.
1	do.....	Productive labor on special jobs designated by superintendent.	All of the saving in labor cost, prorated in proportion to earnings on special job.	Do.
1	do.....	Toolmakers.....	One-half of the saving in labor cost.	Do.
1	Punctuality.....	All employees.....	One-fourth hour per day at regular rate.	Must be on time.
1	Attendance.....	do.....	2 hours each week at regular rates.	Work full time each week.
1	do.....	do.....	5 hours each month at regular rates.	Work the full time the company operates during month.
1	do.....	do.....	1 week's vacation at hourly rate.	Perfect attendance except for sickness or injury.
1	do.....	Female packers.....	Earnings increased by 12 per cent.	Work as many hours as is required of occupation as a whole.
1	Service.....	All employees.....	6 per cent of annual earnings for 1 year's service, increased by 1 per cent for each additional year of service not to exceed 10 per cent for 5 years' service or more.	Continuous service. Lay-offs by company do not constitute a break in continuous employment.
1	do.....	do.....	3 per cent of annual earnings.	Employed 1 year on Dec. 31.
1	Christmas.....	do.....	1 per cent of annual earnings.	On pay roll at Christmas.
1	do.....	Not reported.....	Not reported.....	Not reported.

Indexes of Employment and of Pay Rolls

Indexes of employment and of pay rolls for foundries and machine shops and for machine tools and steam fittings, etc. (machine shops engaged in making tools used in machine shops and steam fittings, etc., that require machining), are presented separately in Table 11 for each month and year from January, 1923, to December, 1931. The data as presented in all other tables of this report for foundries and machine shops with the exception of Table 12 include machine tools and steam fittings, etc. Since the data as published by the bureau in monthly reports on "Trend of employment" are collected and compiled separately for machine tools and steam fittings, etc., they are shown separately in this table. These indexes were computed from the amount or volume of employment and the amount of the pay rolls for each of the months and years as shown in this table, with the 1926 average taken as the base, or 100 per cent.

During the period January, 1923, to December, 1931, the monthly volume of employment index in foundries and machine shops was highest (120.5) in July, 1923, and lowest (57.1) in November, 1931, and pay rolls were highest (118.8) in June, 1923, and lowest (37.7) in November, 1931. By years, indexes of employment dropped from 115.3 in 1923 to 93.1 in 1925, rose to 100.0 in 1926, dropped to 92.3 in 1928 and rose to 104.3 in 1929, but fell again to 65.0 in 1931. Pay rolls followed a similar course, the index having alternately fallen and risen from a high of 110.7 in 1923 to a low of 49.1 in 1931.

TABLE 11.—Indexes of employment and of pay-roll totals, January, 1923, to December, 1931, by month and year

[Average for 1926=100.0]

FOUNDRIES AND MACHINE SHOPS

Month	Employment								
	1923	1924	1925	1926	1927	1928	1929	1930	1931
January.....	107.7	102.4	90.4	96.9	97.1	86.3	97.6	97.3	71.9
February.....	112.0	100.7	92.5	99.7	99.4	88.4	101.3	97.8	72.3
March.....	115.8	100.5	93.4	101.2	99.5	89.9	104.4	97.0	72.3
April.....	118.0	99.4	93.8	101.2	98.0	90.7	106.8	96.4	70.9
May.....	118.7	95.3	93.4	100.6	96.0	92.4	108.3	94.0	69.5
June.....	119.8	92.7	93.8	102.4	94.9	92.8	108.6	91.3	66.6
July.....	120.5	88.5	92.6	101.4	93.7	92.7	108.4	87.2	63.3
August.....	120.0	87.0	92.0	101.2	93.2	93.2	105.3	82.7	60.9
September.....	118.0	85.9	92.4	100.6	91.1	94.2	105.7	81.3	60.1
October.....	114.3	86.2	93.3	99.7	89.3	94.9	104.7	78.2	58.1
November.....	111.5	87.2	94.1	97.0	86.6	95.6	101.2	75.6	57.1
December.....	107.7	90.0	95.4	98.4	86.4	96.3	99.3	74.8	57.4
Average.....	115.3	93.0	93.1	100.0	93.8	92.3	104.3	87.8	65.0

Month	Pay-roll totals								
	1923	1924	1925	1926	1927	1928	1929	1930	1931
January.....	94.8	95.9	86.6	95.7	95.2	82.4	97.7	94.5	56.9
February.....	160.7	93.0	91.0	100.9	101.4	88.2	106.7	97.8	59.1
March.....	107.1	96.6	92.6	103.4	101.7	90.8	111.0	97.5	59.9
April.....	112.8	96.1	90.6	102.3	98.2	91.1	114.1	96.8	58.2
May.....	116.8	91.7	91.9	102.0	96.6	93.6	115.4	92.1	56.4
June.....	118.8	87.0	91.0	103.7	94.6	94.8	113.5	87.5	51.6
July.....	116.8	78.2	88.2	98.2	90.1	91.8	109.7	77.5	46.5
August.....	115.0	78.2	87.9	100.0	91.0	93.6	109.0	73.0	43.5
September.....	114.4	77.5	85.5	97.8	86.9	93.7	108.1	70.5	40.7
October.....	113.8	80.4	91.7	100.2	85.9	97.9	109.5	67.3	39.9
November.....	109.3	81.7	93.4	96.3	82.7	96.8	102.5	60.9	37.7
December.....	108.6	87.6	96.5	99.6	84.9	99.0	100.2	62.2	38.9
Average.....	110.7	87.2	90.6	100.0	92.4	92.8	108.1	81.5	49.1

MACHINE TOOLS

Month	Employment								
	1923	1924	1925	1926	1927	1928	1929	1930	1931
January.....		90.8	80.7	100.2	100.9	88.3	120.1	119.6	74.4
February.....		92.2	81.9	100.6	100.1	90.7	124.3	116.5	73.0
March.....		92.3	81.4	102.0	98.8	92.6	129.0	114.3	72.9
April.....		89.8	81.6	101.5	97.0	95.1	129.7	110.4	70.8
May.....	107.9	86.3	82.1	100.2	94.4	97.7	130.3	107.2	68.7
June.....	107.0	83.7	83.5	99.6	93.3	99.4	132.3	104.1	65.3
July.....	104.2	77.3	84.9	99.4	90.6	100.9	133.2	95.6	61.1
August.....	80.2	66.9	79.0	90.7	81.1	95.4	131.2	82.6	54.3
September.....	98.9	75.4	88.3	100.4	90.4	106.8	134.9	88.8	55.8
October.....	98.4	75.3	92.0	101.8	90.2	110.2	135.8	86.0	54.4
November.....	94.2	76.3	95.7	102.3	88.6	114.2	132.0	81.2	50.2
December.....	94.2	78.3	98.8	101.9	88.5	118.2	124.6	78.3	50.1
Average.....	98.1	82.0	85.8	100.0	92.8	100.8	129.8	98.7	62.6

TABLE 11.—Indexes of employment and of pay-roll totals, January, 1923, to December, 1931, by month and year—Continued

MACHINE TOOLS—Continued

Month	Pay-roll totals								
	1923	1924	1925	1926	1927	1928	1929	1930	1931
January.....		83.6	76.2	100.4	100.1	88.4	129.1	118.2	56.6
February.....		85.8	78.3	101.0	99.6	94.1	138.0	114.9	57.6
March.....		86.1	77.5	102.1	99.1	98.2	142.3	113.9	58.3
April.....		84.4	78.0	101.9	95.3	101.5	144.0	107.6	56.1
May.....	95.5	80.9	79.6	99.4	94.7	104.0	143.1	102.8	54.5
June.....	97.3	77.5	81.1	99.1	93.3	106.3	144.1	98.2	50.6
July.....	91.5	96.9	82.4	96.8	87.1	103.5	140.4	84.0	49.1
August.....	73.5	57.8	77.9	90.1	80.6	100.8	137.6	69.8	44.1
September.....	88.8	65.3	81.3	98.2	89.6	113.4	143.9	74.9	39.8
October.....	88.6	67.2	91.9	102.8	89.3	120.9	146.5	71.9	40.2
November.....	85.0	69.1	95.8	103.6	88.2	125.6	137.4	63.7	36.6
December.....	87.4	74.4	101.1	104.5	90.0	132.8	131.1	62.3	37.2
Average.....	88.5	74.9	83.4	100.0	92.2	107.5	139.8	90.2	48.4

STEAM FITTINGS, ETC.

Month	Employment								
	1923	1924	1925	1926	1927	1928	1929	1930	1931
January.....		97.8	96.5	103.0	90.8	80.8	81.2	69.6	60.9
February.....		99.6	98.6	105.0	94.9	83.1	84.3	71.6	60.0
March.....		102.6	98.6	103.4	93.9	84.3	82.6	70.1	60.1
April.....		104.5	97.5	102.6	94.0	84.3	81.4	68.8	57.7
May.....	106.2	102.1	97.0	100.8	92.9	84.4	78.2	67.7	55.8
June.....	106.0	100.1	96.9	101.3	93.6	84.1	76.6	62.7	54.6
July.....	105.3	96.6	97.2	97.9	94.1	80.7	72.8	60.4	53.2
August.....	105.6	97.5	99.7	100.2	94.5	86.8	76.6	62.0	51.4
September.....	104.8	97.9	101.9	100.4	96.1	83.0	77.2	62.4	51.0
October.....	103.4	98.1	105.8	99.0	93.7	83.0	79.1	62.9	53.4
November.....	99.3	96.0	105.8	95.5	88.3	79.4	78.5	63.0	51.4
December.....	96.0	90.1	105.2	90.5	83.4	72.8	74.0	61.7	48.0
Average.....	103.3	98.6	100.1	100.0	92.5	82.2	78.5	65.2	54.8

Month	Pay-roll totals								
	1923	1924	1925	1926	1927	1928	1929	1930	1931
January.....		92.7	94.3	102.4	89.1	75.5	78.4	63.9	49.8
February.....		100.5	101.1	104.9	97.4	84.9	88.0	68.3	49.9
March.....		105.0	100.7	105.0	96.2	84.9	85.7	66.0	47.4
April.....		104.8	92.3	102.5	94.3	82.2	82.8	65.0	44.7
May.....	102.7	102.2	95.1	100.7	94.1	86.1	79.6	61.7	41.9
June.....	102.4	97.8	91.4	103.7	94.5	85.5	76.4	56.4	40.0
July.....	98.7	90.9	92.0	96.3	90.9	80.4	70.8	53.0	38.5
August.....	93.8	91.6	97.0	99.8	95.7	87.8	76.2	54.0	37.4
September.....	97.8	94.4	93.2	100.8	94.8	82.4	78.2	53.8	34.3
October.....	99.9	97.4	106.2	101.1	93.5	82.8	82.8	56.2	38.3
November.....	94.6	83.0	102.0	93.1	82.0	78.1	76.5	53.7	34.3
December.....	94.4	84.2	103.0	89.6	80.2	72.2	69.6	52.7	31.5
Average.....	98.0	95.4	97.4	100.0	91.9	81.9	78.8	58.7	40.7

Importance of Foundries and Machine Shops

The importance of this industry may be judged from the fact that nearly all, if not all, other industries depend upon the products of foundries and machine shops for tools and machinery to carry on their business.

The figures shown in Table 12 were taken from the United States census reports for years 1914, 1919, 1921, 1923, 1925, 1927, and 1929. These figures are shown under six different headings: Foundries and machine shops; engines, steam, gas, and water; machine tools; pumps (hand and power) and pumping equipment; steam fittings, etc.; and textile machinery. While these articles are practically all produced in foundries and machine shops, the different groups have grown to such importance as to be treated separately by the census. Under these six headings are shown for each of the seven years the number of establishments, the cost of material, the value of products, the average number of wage earners, amounts paid to wage earners, and the average per capita yearly earnings as computed by the Bureau of Labor Statistics.

A comparison of the total figures for the seven census years shows that the number of wage earners for 1919 is greater than for either of the other years, while the 1929 average per capita yearly earnings are greater than for any other year. The conditions for the year 1919 were abnormal. The demands upon the industry caused by the World War were still in effect and were largely responsible for the unusual numbers of wage earners, the large number of establishments, the high value of the products, and the large sum paid to wage earners. While the figures for 1919 are abnormally high, those for 1921 are abnormally low. A period of great depression in the industry followed the census for 1919, and extended into the census for 1921. The figures for 1923 show that the industry had by that time recovered from the slump of 1921, and had entered upon a period of development more nearly approximating natural or normal growth than is shown by the figures for either 1919 or 1921. The figures for 1925 and 1927, compared with those for 1923, show decreases in number of establishments and of wage earners and in amount paid to wage earners, and increases in the average per capita yearly earnings. The conditions for 1931 are also abnormally low due to another depression, the worst in years, and still continue at the time of compiling these data.

TABLE 12.—*Establishments, cost of material, value of products, wage earners, and earnings of wage earners, in specified years, 1914 to 1929*

[From United States Census of Manufactures, 1925 and 1929]

Industry	Number of establishments	Cost of material	Value of products	Average number of wage earners	Amount paid to wage earners	Average per capita yearly earnings of wage earners
Foundries and machine shops:		<i>Millions</i>	<i>Millions</i>		<i>Millions</i>	
1914.....	10, 640	\$358	\$867	362, 471	\$244	\$673. 56
1919.....	10, 934	948	2, 239	482, 767	623	1, 239. 59
1921.....	9, 013	653	1, 566	321, 363	412	1, 283. 16
1923.....	8, 531	936	2, 337	448, 777	642	1, 431. 52
1925.....	8, 154	884	2, 233	397, 838	591	1, 485. 03
1927.....	8, 318	873	2, 260	397, 814	591	1, 485. 78
1929.....	8, 524	1, 027	2, 762	457, 768	686	1, 497. 86
Engines, steam, gas, and water:						
1914.....	446	31	72	29, 657	21	722. 28
1919.....	370	218	465	77, 617	105	1, 358. 41
1921.....	296	112	199	35, 567	52	1, 462. 17
1923.....	249	125	267	48, 495	71	1, 461. 55
1925.....	220	146	314	51, 099	74	1, 440. 05
1927.....	215	165	368	54, 341	85	1, 560. 35
1929.....	199	203	457	61, 148	99	1, 620. 00

TABLE 12.—Establishments, cost of material, value of products, wage earners, and earnings of wage earners, in specified years, 1914 to 1929—Continued

Industry	Number of establishments	Cost of material	Value of products	Average number of wage earners	Amount paid to wage earners	Average per capita yearly earnings of wage earners
	(1)	Millions (1)	Millions (1)	(1)	Millions (1)	(1)
Machine tools:						
1914.....	403	\$59	\$212	53,111	\$66	\$1,246.05
1919.....	348	24	68	21,307	25	1,185.14
1921.....	350	41	137	33,373	47	1,418.42
1923.....	329	44	144	30,531	47	1,515.03
1925.....	355	46	160	35,269	52	1,434.75
1927.....	272	64	240	46,924	76	1,611.65
1929.....						
Pumps, steam and other power:						
1914.....	183	9	24	8,322	6	667.53
1919.....	239	36	85	16,072	20	1,227.70
1921.....	221	27	70	12,186	14	1,146.36
1923.....	229	34	93	14,550	20	1,373.92
1925.....	253	50	120	17,935	25	1,409.43
1927.....	278	53	131	18,671	27	1,452.46
1929.....	321	68	166	23,555	36	1,521.86
Steam fittings, etc.:						
1914.....	295	27	64	26,388	17	634.30
1919.....	261	72	160	36,686	46	1,246.87
1921.....	274	50	127	30,805	40	1,285.25
1923.....	236	63	222	44,141	65	1,468.17
1925.....	225	77	229	43,200	64	1,478.95
1927.....	232	77	225	42,692	65	1,511.93
1929.....	243	75	234	40,555	60	1,489.90
Textile machinery:						
1914.....	(1)	(1)	(1)	(1)	(1)	(1)
1919.....	432	46	122	31,823	37	1,147.87
1921.....	421	45	129	31,025	39	1,251.59
1923.....	428	50	141	35,672	46	1,290.16
1925.....	379	39	122	27,869	37	1,344.28
1927.....	367	36	117	26,154	36	1,394.86
1929.....	372	36	118	26,229	37	1,397.81
Total:						
1914.....	11,564	425	1,027	426,838	288	674.40
1919.....	12,639	1,379	3,333	696,076	897	1,263.89
1921.....	10,573	911	2,159	452,256	582	1,266.91
1923.....	10,023	1,269	3,197	625,008	891	1,426.33
1925.....	9,560	1,240	3,162	568,832	838	1,472.88
1927.....	9,765	1,250	3,261	575,142	856	1,469.50
1929.....	9,935	1,474	3,971	656,169	993	1,513.73

¹ Included in foundries and machine shops prior to 1919.

Scope and Method

It was not practicable for the bureau to make a complete census of all plants, but data were obtained from a sufficient number in each State in which the industry is of material importance to represent fairly the conditions in those States and in the country as a whole. Care was taken not to obtain too many plants from the large industrial centers, and in cases of extremely large plants only a percentage of the employees were used, so as not to give undue weight to such plants. A very large proportion of the establishments covered in 1931 was also included in 1923, 1925, 1927, and 1929. For any establishment included in previous years which is permanently out of business a similar establishment in the same general locality was, if available, substituted, thus continuing the comparability of the data from year to year. The 1931 study covered 388 foundries and 512 machine shops in 28 States. The States included in the study were determined by the number of wage earners in the industry reported by the Census of Manufactures of the United States, each having a sufficient number of wage earners in the industry to warrant inclusion. Only 5.6 per

cent of the total number of wage earners were employed in the States not included in the report.

The figures presented in this bulletin are limited to wage earners and cover all workers of this class, beginning with those who receive the raw materials and supplies, including all who perform the various operations of manufacture, and ending with those who pack or otherwise prepare the product for shipment. Executive employees, clerks, employees engaged in construction or repair of buildings, employees in forge and boiler shops, and those whose duties were mainly supervisory are excluded.

On account of the very large variety of products manufactured in machine shops, the study was limited to those establishments in which the machinery used was fairly comparable. The machine shops included in the study are engaged in the machining and assembling of parts for and the construction of engines; of textile, glass-blowing, flour-milling, mining, laundry, woodworking, excavating, road-building, hoisting, steel-mill, and rolling-mill machinery; of ice, brick, rubber, shoe, and sugar-making machinery; of cotton gins, elevators, conveyors, pumps, pipe-line equipment, printing presses, valves and other machined fittings for heating, steam and water systems; and also machine tools (machines used in machine shops), etc. A number of machine shops which are engaged in repair work were also included. While the machines used in the establishments included in the study vary in type and size with the product manufactured, the operations are essentially the same. No machine shops were included whose principal product was agricultural implements; automobiles or automobile parts; dynamos, motors, magnets, or other electrical units; locomotive railroad cars or car wheels; cash registers, calculating machines, typewriters, sewing machines, hardware, stoves, or stove equipment.

The foundries included are mainly engaged in casting parts for the same class of products as those made in the machine shops covered in the study. In a large number of cases data were obtained from one company or plant for both a foundry and a machine shop. No forge or boiler shop was included if it was operated as a separate unit.

The actual number of plants and of wage earners covered in both foundries and machine shops in each State in 1931 is shown in Table 13. For comparison the figures as reported by the United States Census of Manufactures for 1929, the latest year for which figures are available, are also shown. The table shows that 94.4 per cent of the wage earners employed in foundries and machine shops are located in the 28 States covered by the bureau and that data for 15.4 per cent of them are shown in this report.

The data included in the 1931 study were taken by agents of the bureau for practically all establishments directly from the pay rolls, time-clock cards, and other records of the establishments for a representative pay period. A few establishments prepared data for the bureau from their records.

A very large percentage of the establishments included in the report pay employees every week, compared with a small percentage that pay every two weeks or twice each month. Data for those that pay every two weeks or half month were so taken as to make it possible to present figures for one week for wage earners in all establishments. Approximately 76 per cent of the 1931 data are for pay-roll periods in

June, July, or August. The averages, therefore, are fairly representative of wage conditions in those months.

The average earnings per hour for employees in each occupation were computed by dividing the total weekly earnings of all employees in the occupation during the pay-roll period by the total hours worked in one week by such employees.

The average full-time hours per week were computed by dividing the total full-time hours per week of all employees in the occupation by the number of employees in the occupation during the pay period covered. The full-time hours of each employee were used in arriving at this average, even though some employees worked more or less than full time on account of entering or leaving the service during the pay period, overtime, sickness, disability, or some other cause.

Average full-time earnings per week for employees of each occupation were computed by multiplying the average earnings per hour of all employees in the occupation by the average full-time hours per week. It is assumed that the earnings for full time would have been at the same average rate per hour as during the time that was actually worked in the pay period covered.

TABLE 13.—Number of wage earners in 1929, as reported by the United States Census of Manufactures, and the number of establishments and wage earners for which data are shown for 1931, by States

State	Wage earners in foundries and machine shops reported by United States Census in 1929	Number of establishments and of wage earners for which data are shown by the Bureau of Labor Statistics for 1931					
		Foundries		Machine shops		Foundries and machine shops combined	
		Estab-lishments	Wage earners	Estab-lishments	Wage earners	Estab-lishments	Wage earners
Alabama.....	2, 783	4	177	7	457	11	634
California.....	21, 660	19	728	23	1, 628	42	2, 356
Colorado.....	1, 760	3	177	3	282	6	459
Connecticut.....	30, 387	18	1, 150	20	2, 410	38	3, 566
Georgia.....	3, 267	9	305	9	396	18	701
Illinois.....	74, 96	30	3, 113	36	7, 051	66	10, 194
Indiana.....	32, 152	17	1, 584	17	1, 878	34	3, 460
Iowa.....	5, 440	9	561	7	815	16	1, 376
Kansas.....	2, 585	10	276	11	272	21	548
Kentucky.....	2, 776	5	122	7	395	12	517
Louisiana.....	1, 016	5	178	6	199	11	377
Maine.....	1, 145	4	239	4	500	8	739
Maryland.....	4, 748	7	397	8	458	15	853
Massachusetts.....	40, 859	21	1, 320	38	6, 540	59	7, 860
Michigan.....	57, 046	33	1, 936	35	3, 731	68	5, 667
Minnesota.....	6, 488	6	466	8	940	14	1, 406
Missouri.....	9, 431	14	460	19	712	33	1, 172
New Hampshire.....	3, 081	5	127	5	359	10	486
New Jersey.....	28, 249	16	1, 699	25	2, 531	41	4, 220
New York.....	58, 693	26	2, 882	34	7, 702	60	10, 584
Ohio.....	85, 809	44	3, 518	85	10, 528	129	14, 046
Oregon.....	1, 981	6	163	6	175	12	328
Pennsylvania.....	78, 926	39	3, 643	48	8, 203	87	11, 936
Rhode Island.....	6, 204	7	696	11	1, 551	18	2, 247
Tennessee.....	3, 437	6	256	9	326	15	582
Texas.....	8, 422	6	161	10	554	16	705
Washington.....	3, 290	6	235	7	392	13	627
Wisconsin.....	39, 965	13	2, 134	14	4, 837	27	6, 971
All other States.....	36, 820						
Total.....	652, 726	388	28, 699	512	65, 938	900	94, 637

General Tables

In addition to the text tables already shown, three general tables, which show the data in considerable detail, are presented as follows:

TABLE A.—Average number of days on which wage earners worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State.

This table shows for each occupation and each State all of the various averages which have been computed from the data collected in 1931. The presentation in this table in parallel columns of "average full-time hours per week" and "average hours actually worked in one week" is for the purpose of easy comparison of the average hours worked in one week with the hours that would have been worked in one week had all employees in the occupation worked no more nor less than full time. One shows the average full-time hours per week under normal conditions, while the other shows the average hours actually worked in one week by all employees in the occupation.

TABLE B.—Average earnings per hour and the number of wage earners whose earnings were certain classified rates per hour are shown in this table by a 5-cent spread from under 20 cents to under \$1 and by a 25-cent spread from \$1 to under \$2 for 8 specified occupations in foundries and 17 in machine shops, by occupation, sex, and State.

TABLE C.—Average and classified full-time hours per week, by sex and State, are shown in this table for the same occupations as Table B.

It is a matter of considerable interest that in foundries in 1931, the average full-time hours per week of all employees were 98.6 per cent, the average hours actually worked in one week were 68.8 per cent, the average earnings per hour were 96.2 per cent, and the average actual earnings per week were 66 per cent of those for 1929. In machine shops, the average full-time hours of all employees were 99 per cent, the average hours actually worked were 75.9 per cent, the average earnings per hour were 99.4 per cent, and the average actual earnings per week were 75.5 per cent of those for 1929. Thus the decrease in actual earnings follows quite closely the decrease in hours actually worked. (See Table 1, and Bulletin No. 522.)

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State

FOUNDRIES

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Chippers and rough grinders, male:									
Alabama.....	3	21	4.7	53.8	43.7	81.2	\$0.311	\$16.73	\$13.59
California.....	19	62	4.9	45.5	35.5	78.0	.630	28.67	22.36
Colorado.....	3	25	5.7	48.0	48.5	101.0	.491	23.57	23.83
Connecticut.....	17	83	3.9	48.8	31.3	64.1	.504	24.60	15.74
Georgia.....	8	35	5.0	50.9	40.9	80.4	.230	11.71	9.42
Illinois.....	30	393	3.7	49.7	28.9	58.1	.541	26.89	15.63
Indiana.....	17	135	3.6	50.9	25.9	50.9	.465	23.67	12.03

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Chippers and rough grinders, male—Continued.									
Iowa.....	9	63	4.3	53.3	32.6	61.2	\$0.505	\$26.92	\$16.45
Kansas.....	8	38	3.1	56.2	28.1	50.0	.349	19.61	9.82
Kentucky.....	5	9	3.7	52.3	31.5	60.2	.384	20.08	12.09
Louisiana.....	4	36	4.4	51.4	32.9	64.0	.332	17.06	10.92
Maine.....	3	42	4.0	49.6	35.0	70.6	.462	22.92	16.19
Maryland.....	7	29	4.9	51.5	42.2	81.9	.462	23.79	19.47
Massachusetts.....	20	150	4.4	47.4	35.5	74.9	.579	27.44	20.55
Michigan.....	31	169	4.1	52.4	31.9	60.9	.513	26.88	16.35
Minnesota.....	62	42	4.4	51.4	36.0	70.0	.522	26.83	18.77
Missouri.....	14	41	4.6	51.7	34.1	66.9	.470	24.30	16.04
New Hampshire.....	4	18	4.8	51.0	40.5	79.4	.467	23.82	18.92
New Jersey.....	14	167	4.3	47.8	35.7	74.7	.532	25.43	18.96
New York.....	22	264	3.8	49.7	30.3	61.0	.531	26.39	16.10
Ohio.....	42	363	4.3	51.4	37.1	72.2	.476	24.47	17.67
Oregon.....	5	18	4.6	47.6	33.4	70.2	.583	27.75	19.48
Pennsylvania.....	38	386	3.8	52.5	31.6	60.2	.534	28.04	16.89
Rhode Island.....	7	78	3.8	50.4	31.1	61.7	.541	27.27	16.82
Tennessee.....	6	41	4.8	48.5	34.5	71.1	.309	14.99	10.68
Texas.....	6	17	4.9	50.2	37.8	75.3	.381	19.13	14.37
Washington.....	6	29	5.2	47.9	41.2	86.0	.609	29.17	25.10
Wisconsin.....	13	294	4.6	51.7	34.6	66.9	.540	27.92	18.70
Total.....	367	3,048	4.1	50.6	33.1	65.4	.509	25.76	16.86
Chippers and rough grinders, female:									
Indiana.....	1	12	3.2	50.0	21.5	43.0	.496	24.80	10.65
Core makers, male:									
Alabama.....	3	16	4.4	54.7	42.9	78.4	.382	20.90	16.37
California.....	18	72	4.6	45.3	34.4	75.9	.916	41.49	31.51
Colorado.....	3	18	4.3	48.0	33.9	70.6	.695	33.36	23.57
Connecticut.....	17	100	3.1	49.4	25.1	50.8	.693	34.23	17.41
Georgia.....	9	20	4.0	51.0	32.3	63.3	.514	26.21	16.63
Illinois.....	29	245	3.6	49.3	28.8	58.4	.683	33.67	19.67
Indiana.....	17	99	4.1	51.3	32.1	62.6	.602	30.88	19.33
Iowa.....	9	58	4.1	52.5	35.0	66.7	.677	35.54	23.69
Kansas.....	10	25	3.7	56.0	34.9	62.3	.483	27.05	16.85
Kentucky.....	5	8	3.1	48.6	22.2	45.7	.706	34.31	15.67
Louisiana.....	4	9	4.6	54.3	35.8	65.9	.594	32.25	21.25
Maine.....	4	11	5.2	47.3	44.2	93.4	.581	27.48	25.70
Maryland.....	7	34	4.7	48.6	41.2	84.8	.595	28.92	24.49
Massachusetts.....	21	84	4.2	47.1	33.3	70.7	.835	39.33	27.80
Michigan.....	32	152	4.0	51.4	30.5	59.3	.619	31.82	18.90
Minnesota.....	6	52	3.5	51.1	28.6	56.0	.659	33.67	18.82
Missouri.....	14	31	4.2	51.5	35.4	68.7	.693	35.69	24.53
New Hampshire.....	4	7	5.0	50.9	42.6	83.7	.645	32.83	27.46
New Jersey.....	14	106	4.1	50.0	33.6	67.2	.770	38.50	25.87
New York.....	26	223	3.6	49.1	29.9	60.9	.707	34.71	21.13
Ohio.....	42	262	3.9	50.0	31.8	63.6	.759	37.95	24.11
Oregon.....	5	9	5.0	47.6	37.9	79.6	.744	35.41	28.23
Pennsylvania.....	38	330	3.8	50.1	31.5	62.9	.745	37.32	23.45
Rhode Island.....	7	39	3.7	50.5	30.9	61.2	.666	33.63	20.60
Tennessee.....	5	18	5.0	49.0	36.3	74.1	.765	37.49	27.79
Texas.....	6	13	4.9	47.0	37.5	79.8	.561	26.37	21.06
Washington.....	6	20	4.0	47.9	30.6	63.9	.751	35.97	22.99
Wisconsin.....	13	192	3.8	51.1	28.0	54.8	.695	35.51	19.49
Total.....	374	2,253	3.9	50.0	31.2	62.4	.706	35.30	22.05
Core makers, female:									
Connecticut.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Illinois.....	4	15	3.4	50.3	25.1	49.9	.412	20.72	10.85
Indiana.....	2	16	3.8	49.1	22.5	45.8	.591	29.02	13.27
Kentucky.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Michigan.....	5	12	3.2	52.0	20.5	39.4	.460	23.92	9.41
New Jersey.....	5	26	3.3	47.8	25.9	54.2	.394	18.83	10.19
New York.....	6	51	4.8	47.0	39.0	83.0	.407	19.13	15.89

¹For less than 3 employees in 1 establishment, data included in total.

60 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Core makers, female—Continued.									
Ohio.....	1	8	4.0	44.5	32.0	71.9	\$0.496	\$22.07	\$15.89
Pennsylvania.....	2	24	4.0	50.3	29.3	58.3	.447	22.48	13.08
Rhode Island.....	3	4	3.5	50.9	32.4	63.7	.460	23.41	14.85
Tennessee.....	1	3	5.7	50.0	48.3	96.6	.318	15.90	15.38
Wisconsin.....	3	16	4.4	48.7	32.3	66.3	.430	20.94	13.88
Total.....	34	179	4.0	48.6	31.2	64.2	.430	20.90	13.42
Crane operators, male:									
Alabama.....	2	4	5.8	53.8	51.3	95.4	.587	31.58	30.12
California.....	12	12	5.1	46.2	41.2	89.2	.647	29.89	26.62
Colorado.....	2	7	5.0	48.0	46.8	97.5	.506	24.29	23.69
Connecticut.....	9	31	3.7	51.5	33.4	64.9	.522	26.88	17.43
Georgia.....	2	2	5.5	55.3	46.4	83.9	.385	21.29	17.87
Illinois.....	16	74	4.0	49.8	33.7	67.7	.606	30.18	20.39
Indiana.....	10	23	3.7	51.3	30.7	59.8	.494	25.34	15.20
Iowa.....	7	14	3.9	52.4	28.3	54.0	.584	30.60	16.51
Kansas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky.....	2	2	4.5	47.5	33.8	71.2	.440	20.90	14.86
Louisiana.....	1	4	4.5	48.0	36.8	76.7	.650	31.20	23.89
Maine.....	3	3	6.0	48.0	55.3	115.2	.627	30.10	34.67
Maryland.....	4	5	5.0	50.8	46.1	90.7	.430	21.84	19.85
Massachusetts.....	9	14	4.4	47.6	36.5	76.7	.543	25.85	19.86
Michigan.....	16	52	4.3	54.9	41.4	75.4	.537	29.48	22.21
Minnesota.....	4	17	3.4	53.6	30.4	56.7	.533	28.57	16.18
Missouri.....	7	10	5.5	50.4	47.7	94.6	.539	27.17	25.75
New Jersey.....	11	60	4.6	48.4	39.0	80.6	.539	26.09	21.04
New York.....	13	52	4.0	49.4	33.9	68.6	.606	29.94	20.55
Ohio.....	27	108	4.4	50.7	38.5	75.9	.508	28.85	21.91
Oregon.....	3	4	5.3	47.0	39.1	83.2	.647	30.41	25.28
Pennsylvania.....	31	142	4.0	51.8	36.3	70.1	.532	27.56	19.30
Rhode Island.....	5	6	3.7	48.8	30.9	63.3	.559	27.28	17.30
Tennessee.....	2	5	4.2	49.6	34.0	68.5	.389	19.29	13.22
Texas.....	2	2	6.0	54.0	49.6	92.0	.414	22.36	20.50
Washington.....	4	7	5.0	48.0	39.6	82.5	.620	29.76	24.52
Wisconsin.....	12	107	4.7	51.1	41.7	81.6	.542	27.70	22.61
Total.....	217	768	4.3	50.8	37.6	74.0	.552	28.04	20.74
Cupola tenders, male:									
Alabama.....	4	4	5.0	52.0	44.0	84.6	.372	19.34	16.36
California.....	16	17	4.7	45.8	35.2	76.9	.778	35.63	27.34
Connecticut.....	16	19	3.6	49.3	31.5	63.9	.623	30.71	19.62
Georgia.....	9	9	4.7	51.4	41.4	80.5	.378	19.43	15.64
Illinois.....	27	34	3.2	52.0	28.1	54.0	.613	31.88	17.21
Indiana.....	15	17	3.6	51.5	31.4	61.0	.565	29.10	17.74
Iowa.....	9	12	4.4	52.8	37.4	70.8	.614	32.42	22.07
Kansas.....	10	11	3.9	55.4	37.3	67.3	.427	23.66	15.91
Kentucky.....	5	5	3.2	50.6	27.5	54.3	.513	25.96	14.14
Louisiana.....	5	6	4.7	54.7	39.0	71.3	.346	18.93	13.49
Maine.....	4	6	5.3	48.0	47.6	99.2	.608	29.18	28.91
Maryland.....	7	7	4.4	52.2	43.6	83.5	.543	28.34	23.67
Massachusetts.....	20	25	4.0	47.7	33.2	69.6	.709	33.82	23.50
Michigan.....	27	29	3.8	51.9	33.1	63.8	.594	30.83	19.66
Minnesota.....	6	7	3.7	51.8	32.0	61.8	.603	31.24	19.28
Missouri.....	13	15	3.8	52.1	33.7	64.7	.591	30.79	19.91
New Hampshire.....	5	5	4.6	50.8	38.3	75.4	.540	27.43	20.67
New Jersey.....	14	23	4.8	50.0	40.3	80.6	.598	29.90	24.07
New York.....	22	29	4.0	49.9	34.5	69.1	.633	31.59	21.85
Ohio.....	40	55	3.7	51.1	32.5	63.6	.620	31.68	20.16
Oregon.....	5	5	5.4	46.4	39.0	84.1	.651	30.21	25.35
Pennsylvania.....	36	56	3.8	51.7	34.8	67.3	.610	31.54	21.22
Rhode Island.....	8	6	4.3	50.5	38.8	76.8	.668	33.73	25.92
Tennessee.....	6	8	4.6	48.8	35.7	73.2	.412	20.11	14.72
Texas.....	6	6	4.7	49.6	36.9	74.4	.435	21.58	16.04
Washington.....	4	4	4.5	47.8	37.1	77.6	.734	35.09	27.25
Wisconsin.....	7	10	4.0	50.7	33.5	66.1	.593	30.07	19.89
Total.....	344	430	4.0	50.8	34.5	67.9	.597	30.33	20.59

1 For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued									
Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Laborers, male:									
Alabama.....	4	66	4.7	53.6	44.5	83.0	\$0.297	\$15.92	\$13.21
California.....	18	143	3.7	46.3	29.1	62.9	.553	25.60	16.08
Colorado.....	3	34	5.3	48.0	45.4	94.6	.469	22.51	21.29
Connecticut.....	16	265	3.4	51.7	29.0	56.1	.461	23.83	13.38
Georgia.....	9	116	4.5	51.2	35.5	69.3	.244	12.49	9.65
Illinois.....	30	723	3.8	49.9	29.9	59.9	.495	24.70	14.79
Indiana.....	17	458	3.6	51.7	27.4	53.0	.436	22.54	11.98
Iowa.....	9	148	4.2	56.3	34.8	61.8	.522	29.39	18.17
Kansas.....	8	47	4.0	57.2	37.0	64.7	.352	20.13	13.03
Kentucky.....	5	25	3.7	53.8	31.5	58.6	.385	20.71	12.13
Louisiana.....	5	58	4.9	52.3	38.4	73.4	.284	14.85	10.90
Maine.....	2	33	5.2	49.8	41.7	83.7	.460	22.91	19.17
Maryland.....	7	114	4.8	51.4	43.4	84.4	.391	20.10	16.94
Massachusetts.....	20	242	4.3	47.9	35.7	74.5	.487	23.33	17.41
Michigan.....	32	481	3.7	52.9	33.3	62.9	.470	24.86	15.67
Minnesota.....	5	93	3.8	51.7	32.2	62.3	.463	23.94	14.92
Missouri.....	13	92	4.0	53.8	34.6	64.3	.407	21.90	14.10
New Hampshire.....	3	16	4.3	50.4	34.7	68.8	.409	20.61	14.20
New Jersey.....	15	418	4.0	49.3	34.1	69.2	.447	22.04	15.26
New York.....	25	829	4.1	49.3	35.6	72.2	.485	23.91	17.28
Ohio.....	43	923	4.2	51.8	36.4	70.3	.460	23.83	16.74
Oregon.....	3	26	4.7	49.1	35.8	74.4	.513	24.68	18.36
Pennsylvania.....	38	809	3.7	50.3	31.7	63.0	.483	24.29	15.31
Rhode Island.....	7	172	3.8	50.2	30.3	60.4	.479	24.05	14.53
Tennessee.....	6	67	4.3	49.1	34.0	69.2	.310	15.22	10.51
Texas.....	5	39	3.8	49.3	33.7	68.4	.341	16.81	11.51
Washington.....	5	44	5.3	48.0	42.2	87.9	.521	25.01	22.02
Wisconsin.....	13	426	4.2	51.4	34.9	67.9	.460	23.64	16.06
Total.....	366	6,907	4.0	50.8	33.6	66.1	.460	23.37	15.43
Laborers, female:									
Indiana.....	1	3	3.3	50.0	19.9	39.9	.564	28.20	11.23
Michigan.....	2	2	3.5	52.0	25.5	49.0	.345	17.94	8.80
New York.....	1	3	2.7	45.0	21.8	48.4	.265	11.93	5.79
Ohio.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	5	10	2.9	47.8	20.8	43.5	.377	18.02	7.83
Molders, hand, bench, male:									
Alabama.....	2	4	5.0	52.5	40.5	77.1	.656	34.44	26.55
California.....	12	28	4.4	46.1	33.2	72.0	.858	39.55	28.50
Colorado.....	2	4	5.3	48.0	46.5	96.9	.732	35.14	34.05
Connecticut.....	17	94	2.7	51.3	22.5	43.9	.711	36.47	15.99
Georgia.....	5	22	4.7	49.8	33.3	66.9	.620	30.88	20.63
Illinois.....	21	142	3.2	50.3	26.5	52.7	.697	35.06	18.48
Indiana.....	17	98	3.8	51.4	28.5	55.4	.636	32.69	18.12
Iowa.....	8	39	3.9	53.4	34.6	64.8	.658	35.14	22.75
Kansas.....	6	16	3.4	55.5	32.9	59.3	.493	27.36	16.21
Kentucky.....	4	10	3.3	53.2	28.3	53.2	.648	34.47	18.33
Louisiana.....	2	4	5.8	57.0	43.5	85.1	.529	30.15	25.61
Maine.....	4	17	4.5	48.9	39.4	80.6	.643	31.44	25.34
Maryland.....	6	33	3.7	51.4	31.8	61.9	.712	36.60	22.63
Massachusetts.....	19	149	3.8	47.2	30.5	64.6	.887	41.87	27.10
Michigan.....	26	108	3.5	50.0	28.1	56.2	.728	36.40	20.48
Minnesota.....	5	21	3.7	50.2	31.8	63.3	.715	35.89	22.78
Missouri.....	11	32	3.3	52.3	28.1	53.7	.712	37.24	19.99
New Hampshire.....	5	21	3.9	49.6	30.9	62.3	.715	35.46	22.11
New Jersey.....	11	88	4.6	48.6	38.1	78.4	.800	38.88	30.47
New York.....	24	195	3.4	50.3	28.7	57.1	.717	36.07	20.61
Ohio.....	31	148	3.9	49.8	31.8	63.9	.829	41.28	26.32
Oregon.....	5	12	4.4	47.0	32.9	69.8	.723	33.98	23.72
Pennsylvania.....	29	143	3.6	51.6	31.6	61.2	.629	32.46	19.89
Rhode Island.....	7	45	3.8	50.4	31.1	61.7	.781	39.36	24.30
Tennessee.....	3	23	2.3	49.7	19.3	38.8	.534	26.54	10.29
Texas.....	3	10	3.5	47.9	30.9	64.5	.559	26.78	17.29
Washington.....	4	18	4.8	48.0	37.2	77.5	.728	34.94	27.06
Wisconsin.....	11	69	3.7	51.3	31.5	61.4	.660	33.86	20.93
Total.....	300	1,593	3.7	50.2	30.2	60.2	.727	36.50	21.96

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours worked per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Molders, hand, floor, male:									
Alabama	4	28	4.8	53.5	42.9	80.2	\$0.703	\$37.61	\$30.12
California	19	129	4.3	44.9	32.5	72.4	.978	43.91	31.84
Colorado	3	29	5.5	48.0	50.0	104.2	.728	34.94	36.42
Connecticut	17	190	3.1	49.8	26.3	52.6	.764	33.05	20.08
Georgia	9	50	4.1	50.1	31.6	63.1	.694	34.77	21.93
Illinois	29	304	3.1	49.1	25.2	51.3	.895	39.43	20.25
Indiana	17	175	3.3	51.0	28.3	52.5	.684	34.88	18.83
Iowa	9	76	3.9	50.7	30.4	60.0	.757	38.38	23.04
Kansas	9	57	3.5	55.1	31.5	57.2	.559	30.80	17.60
Kentucky	5	31	3.3	50.7	27.7	54.6	.612	31.03	16.98
Louisiana	5	23	4.3	53.6	34.9	65.1	.651	34.89	22.70
Maine	4	52	5.2	46.3	44.5	96.1	.631	29.22	28.08
Maryland	7	71	4.5	47.7	37.5	78.6	.764	36.44	28.68
Massachusetts	20	212	3.7	47.3	29.3	61.9	.935	45.31	23.12
Michigan	31	287	3.9	51.8	32.4	62.5	.694	35.95	22.47
Minnesota	6	58	2.9	51.3	24.3	47.4	.742	38.06	18.03
Missouri	13	91	3.5	52.2	29.7	56.9	.720	37.58	21.60
New Hampshire	5	20	4.5	49.4	37.9	74.2	.674	34.44	25.60
New Jersey	15	194	3.8	49.4	30.8	62.3	.849	41.94	26.10
New York	25	299	3.3	50.2	27.5	54.8	.772	33.75	21.24
Ohio	42	512	3.3	50.5	26.7	52.9	.825	41.66	22.02
Oregon	5	24	4.5	46.8	34.7	74.1	.850	40.20	29.82
Pennsylvania	39	454	3.4	50.3	29.0	57.7	.790	39.74	22.82
Rhode Island	7	74	3.8	50.6	32.0	63.2	.751	38.00	24.04
Tennessee	6	38	4.3	48.8	33.7	69.1	.678	33.09	22.85
Texas	6	25	4.0	47.9	33.7	70.4	.630	30.61	21.62
Washington	6	38	4.5	47.8	35.2	73.6	.884	42.26	31.10
Wisconsin	13	221	3.9	50.8	30.3	59.6	.800	40.64	24.28
Total	376	3,752	3.6	50.0	29.6	59.2	.782	39.10	23.14
Molders, machine, male:									
Alabama	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
California	6	13	4.8	45.0	35.9	79.8	.773	34.79	27.77
Colorado	1	6	5.8	48.0	45.8	95.4	.624	29.95	28.56
Connecticut	7	103	2.8	52.2	23.7	45.4	.605	31.58	14.32
Georgia	2	10	4.5	50.4	33.3	66.1	.613	30.90	20.40
Illinois	18	377	3.3	50.2	25.8	51.4	.680	34.14	17.53
Indiana	14	224	4.1	49.8	29.9	60.0	.583	29.03	17.43
Iowa	5	43	5.0	51.8	41.8	80.7	.624	32.32	26.06
Kansas	4	10	5.1	58.2	49.3	84.7	.459	26.71	22.62
Kentucky	3	5	3.8	51.2	30.9	60.4	.675	34.56	20.84
Louisiana	2	8	4.0	52.5	31.6	60.2	.385	20.21	12.16
Maine	1	24	3.3	50.0	35.6	71.2	.667	33.35	23.76
Maryland	5	34	4.7	49.7	39.7	79.9	.600	29.82	23.86
Massachusetts	17	109	3.9	43.8	32.0	74.6	.704	30.20	22.52
Michigan	21	179	3.3	50.8	27.8	54.7	.543	27.58	15.06
Minnesota	5	25	3.3	51.4	28.6	55.6	.703	36.13	20.10
Missouri	3	20	4.1	52.8	31.3	59.3	.652	34.43	20.39
New Hampshire	2	12	4.5	52.0	38.6	74.2	.565	29.33	19.79
New Jersey	9	121	3.3	48.8	26.9	55.1	.724	35.33	21.48
New York	18	292	3.8	47.9	32.1	67.0	.655	31.37	21.02
Ohio	26	360	4.2	50.0	34.9	69.8	.733	36.65	25.57
Pennsylvania	24	311	3.5	51.7	28.3	54.7	.683	35.31	19.32
Rhode Island	7	104	3.2	50.3	26.6	52.9	.656	33.00	17.44
Tennessee	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Texas	2	4	3.0	48.5	23.0	47.4	.767	37.20	17.65
Washington	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin	10	140	4.4	51.9	35.4	68.2	.654	33.94	23.16
Total	215	2,538	3.7	50.0	30.4	60.8	.661	33.05	20.06
Molders' helpers, floor, male:									
Alabama	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
California	16	87	5.2	44.7	39.6	88.6	.583	26.06	23.10
Colorado	1	5	4.8	45.0	46.1	96.0	.471	22.61	21.74
Connecticut	14	70	3.8	49.9	32.6	65.3	.491	24.50	16.03

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Molders' helpers, floor, male—Con.									
Georgia.....	1	4	3.5	50.0	29.0	58.0	\$0.278	\$13.90	\$8.04
Illinois.....	10	51	3.1	50.6	26.7	52.8	.532	26.92	14.20
Indiana.....	7	19	3.1	52.4	25.9	49.4	.472	24.73	12.20
Iowa.....	4	17	4.1	51.4	36.9	71.8	.446	22.92	16.47
Kansas.....	7	24	4.3	56.0	40.5	72.3	.347	19.43	14.05
Kentucky.....	4	9	3.6	45.3	28.1	62.0	.385	17.44	10.85
Louisiana.....	1	4	4.5	48.0	37.9	79.0	.300	14.40	11.36
Maine.....	3	16	5.2	47.4	44.2	93.2	.428	20.29	18.99
Maryland.....	5	15	4.5	47.7	38.8	81.3	.476	22.71	18.46
Massachusetts.....	18	74	3.7	47.6	30.2	63.4	.530	25.23	16.02
Michigan.....	14	52	3.8	52.0	34.5	66.3	.455	23.66	15.68
Minnesota.....	6	31	3.6	51.4	32.0	62.3	.473	24.31	15.13
Missouri.....	9	50	4.4	50.4	41.1	81.5	.458	23.08	18.81
New Hampshire.....	2	4	4.5	51.0	38.9	76.3	.429	21.88	16.67
New Jersey.....	13	128	4.1	49.7	35.2	70.8	.498	24.75	17.53
New York.....	19	123	3.5	49.3	29.9	60.6	.555	27.36	16.61
Ohio.....	21	122	3.7	51.3	31.2	60.8	.468	24.01	14.59
Oregon.....	5	19	4.6	46.7	35.2	75.4	.537	25.08	18.37
Pennsylvania.....	29	162	3.6	52.1	32.2	61.8	.474	24.70	15.24
Rhode Island.....	6	24	4.2	50.4	34.9	69.2	.484	24.39	16.88
Tennessee.....	2	4	3.0	47.0	22.5	47.9	.314	14.76	7.08
Texas.....	1	6	5.2	60.0	49.4	82.3	.361	21.66	17.33
Washington.....	4	17	4.2	47.7	32.5	68.1	.525	25.04	17.09
Wisconsin.....	8	96	4.1	50.9	34.1	67.0	.484	24.64	16.52
Total.....	231	1,234	3.9	50.0	33.6	67.2	.492	24.60	16.50
Pattern makers, male:									
Alabama.....	2	10	4.5	55.0	38.6	70.2	.802	44.11	30.94
California.....	7	14	5.4	44.3	42.1	95.0	1.101	48.77	46.34
Colorado.....	2	16	3.6	48.0	30.6	63.8	.870	41.76	26.61
Connecticut.....	8	15	3.5	52.1	30.2	58.0	.700	36.47	21.14
Georgia.....	2	3	4.7	51.7	39.3	76.0	.666	34.43	26.14
Illinois.....	22	323	5.5	48.8	42.6	87.3	.862	42.07	36.77
Indiana.....	11	59	4.5	48.6	36.1	74.3	.903	43.99	32.65
Iowa.....	7	20	5.1	52.2	41.6	79.7	.718	37.43	29.89
Kansas.....	3	4	6.0	54.0	54.4	100.7	.918	49.67	49.90
Louisiana.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maine.....	3	9	5.7	45.3	45.9	101.3	.663	30.03	30.40
Maryland.....	5	11	5.3	47.5	46.1	97.1	.702	33.35	32.40
Massachusetts.....	14	60	4.9	47.9	39.9	83.3	.813	38.94	32.43
Michigan.....	11	33	4.0	49.1	33.9	68.4	.843	41.39	28.32
Minnesota.....	5	26	5.5	49.6	43.9	88.5	.760	37.70	33.33
Missouri.....	10	27	5.0	50.2	39.6	78.9	.866	43.47	34.26
New Hampshire.....	1	4	5.0	50.0	40.0	80.0	.518	25.90	20.70
New Jersey.....	7	82	5.1	48.4	40.8	84.3	.882	42.69	35.97
New York.....	8	62	4.6	48.1	38.7	80.5	.825	39.68	31.90
Ohio.....	16	75	4.4	50.5	37.5	74.3	.833	42.07	31.22
Oregon.....	4	15	5.7	47.5	44.8	94.3	.865	41.09	38.74
Pennsylvania.....	23	162	4.1	51.2	35.1	68.6	.755	38.66	26.60
Rhode Island.....	2	12	4.3	49.0	37.0	75.5	.726	35.57	26.88
Tennessee.....	5	9	5.2	48.1	40.1	83.4	.861	41.41	34.51
Texas.....	5	13	5.9	47.6	46.5	97.7	.882	41.98	40.98
Washington.....	4	20	5.0	47.8	41.0	85.8	.991	47.37	40.63
Wisconsin.....	6	21	5.2	51.1	47.3	92.6	.785	40.11	37.12
Total.....	194	1,107	4.9	49.3	39.8	80.7	.834	41.12	33.19
Rough carpenters, male:									
Alabama.....	2	2	5.0	52.5	41.8	79.6	.650	34.13	27.17
California.....	15	18	4.8	45.7	37.5	82.1	.656	29.98	24.63
Colorado.....	2	3	6.3	48.0	63.0	131.3	.500	24.00	31.63
Connecticut.....	15	25	3.7	49.6	31.0	63.1	.542	26.88	16.97
Georgia.....	2	2	4.0	52.5	34.8	66.3	.622	32.66	21.60
Illinois.....	18	33	4.2	50.6	32.6	64.4	.587	29.70	19.13
Indiana.....	11	26	5.0	50.8	37.5	73.8	.563	28.60	21.08

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Rough carpenters, male—Contd.									
Iowa.....	2	2	3.5	51.8	29.0	56.0	\$0.494	\$25.59	\$14.33
Kansas.....	6	6	4.8	55.5	43.4	78.2	.468	25.97	20.34
Kentucky.....	3	3	3.7	54.3	31.5	58.0	.537	29.16	16.93
Louisiana.....	3	4	4.3	53.8	32.5	60.4	.408	21.95	13.26
Maine.....	3	7	5.4	46.6	43.8	94.0	.574	26.75	25.11
Maryland.....	5	12	4.2	49.4	36.4	73.7	.500	24.70	18.21
Massachusetts.....	13	38	4.6	47.9	38.0	79.3	.627	30.03	23.80
Michigan.....	21	28	4.4	50.7	38.6	76.1	.576	29.20	22.21
Minnesota.....	6	13	4.9	50.8	39.8	78.3	.590	29.97	23.51
Missouri.....	5	5	5.2	51.6	42.4	82.2	.577	29.77	24.46
New Hampshire.....	3	3	4.7	50.7	35.7	70.4	.559	28.34	19.93
New Jersey.....	5	11	5.4	48.4	50.5	104.3	.596	28.85	30.13
New York.....	17	38	4.7	50.0	39.9	79.8	.633	31.65	25.25
Ohio.....	27	43	4.5	52.3	38.7	74.0	.702	36.71	27.13
Oregon.....	5	6	4.5	46.0	33.2	72.2	.642	29.53	21.33
Pennsylvania.....	26	47	4.1	51.7	34.4	66.5	.575	29.73	19.76
Rhode Island.....	6	13	4.4	50.3	38.4	76.3	.621	31.24	23.84
Tennessee.....	2	4	3.5	49.5	31.0	62.6	.555	27.47	17.21
Texas.....	3	3	5.0	46.7	39.0	83.5	.576	26.90	22.45
Wisconsin.....	11	29	4.4	51.2	36.4	71.1	.600	30.72	21.86
Total.....	237	424	4.5	50.3	37.4	74.4	.599	30.13	22.40
Sand blasters, male:									
California.....	5	5	5.0	47.4	37.1	78.3	.598	28.35	22.21
Colorado.....	2	2	5.5	48.0	49.0	102.1	.518	24.86	25.39
Connecticut.....	9	12	3.9	49.8	32.9	66.1	.551	27.44	18.11
Illinois.....	14	22	4.2	49.0	33.5	68.4	.602	29.50	20.13
Indiana.....	12	15	3.5	50.6	26.6	52.6	.496	25.10	13.19
Iowa.....	7	11	4.7	53.6	37.8	70.5	.505	27.07	19.12
Kansas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Louisiana.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maine.....	2	3	6.0	50.0	56.4	110.8	.627	31.35	34.76
Maryland.....	3	6	4.5	49.7	40.3	81.1	.394	19.58	15.89
Massachusetts.....	8	22	4.2	47.2	33.5	71.0	.599	28.27	20.07
Michigan.....	16	24	4.2	53.4	35.1	65.7	.581	29.96	19.70
Minnesota.....	3	6	4.0	50.3	34.0	67.6	.522	26.26	17.74
Missouri.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Hampshire.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Jersey.....	9	14	4.6	49.3	40.7	82.6	.515	25.39	20.99
New York.....	11	31	4.5	48.3	37.2	77.0	.557	28.90	20.73
Ohio.....	16	22	3.7	52.0	31.4	60.4	.486	25.27	15.25
Oregon.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	18	30	3.6	50.7	29.3	57.8	.538	29.81	17.21
Rhode Island.....	4	8	4.5	50.8	37.8	74.4	.478	24.28	18.05
Tennessee.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Texas.....	2	2	5.0	48.8	39.5	80.9	.448	21.76	17.63
Wisconsin.....	9	24	4.7	52.3	36.2	69.2	.709	37.08	25.67
Total.....	157	266	4.2	50.3	34.7	69.0	.559	28.12	19.41
Other employees, male:									
Alabama.....	3	19	4.5	54.5	40.1	73.6	.347	18.91	13.90
California.....	18	128	4.9	45.3	38.0	83.9	.734	33.25	27.89
Colorado.....	3	28	5.6	48.0	51.8	107.9	.610	29.28	31.59
Connecticut.....	16	157	3.9	50.7	35.2	65.5	.609	30.88	20.22
Georgia.....	9	32	5.1	51.1	45.3	84.7	.459	24.99	21.16
Illinois.....	29	376	4.6	48.6	37.3	76.7	.642	31.20	23.94
Indiana.....	16	190	4.5	51.8	37.3	72.0	.578	29.94	21.57
Iowa.....	9	58	4.5	54.9	37.0	67.4	.569	31.24	21.02
Kansas.....	10	36	5.2	55.8	48.1	88.0	.501	27.96	24.87
Kentucky.....	5	12	4.9	51.6	42.1	81.6	.546	28.17	23.00
Louisiana.....	4	19	3.9	50.9	31.6	62.1	.460	23.41	14.52
Maine.....	3	16	4.9	48.5	42.1	86.8	.483	23.43	20.35
Maryland.....	5	26	5.3	48.6	46.0	94.7	.519	25.22	23.87
Massachusetts.....	19	141	4.7	47.8	38.2	79.9	.619	29.59	23.66

1 For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours worked per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Other employees, male—Contd.									
Michigan.....	29	322	4.5	52.8	38.9	73.7	\$0.640	\$33.79	\$24.88
Minnesota.....	6	75	4.7	50.7	39.5	77.9	.571	28.95	22.56
Missouri.....	13	45	5.3	50.7	43.6	86.0	.557	28.24	24.30
New Hampshire.....	3	16	5.1	50.9	43.1	84.7	.562	28.61	24.24
New Jersey.....	15	256	4.6	48.3	38.7	80.1	.556	26.85	21.63
New York.....	24	391	4.5	48.5	38.3	79.0	.606	29.39	23.18
Ohio.....	40	513	4.6	51.0	40.0	78.4	.610	31.42	24.63
Oregon.....	5	24	5.0	47.2	38.1	80.7	.674	30.54	25.66
Pennsylvania.....	38	587	4.3	51.6	38.0	73.6	.593	31.81	22.56
Rhode Island.....	7	111	4.2	51.1	36.5	71.4	.583	29.79	21.25
Tennessee.....	6	34	4.7	49.7	37.3	75.1	.483	24.01	17.99
Texas.....	4	11	5.0	47.6	40.5	85.1	.523	24.89	21.14
Washington.....	6	37	5.0	47.9	37.4	78.1	.700	33.53	26.17
Wisconsin.....	13	489	4.7	52.0	39.0	75.0	.579	30.11	22.58
Total.....	358	4,149	4.6	50.5	38.6	76.4	.600	30.30	23.16
Other employees, female:									
Illinois.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Indiana.....	1	15	3.9	50.0	24.4	48.8	.324	16.20	7.91
Michigan.....	2	6	2.3	50.0	20.3	40.6	.469	23.45	9.54
New Jersey.....	1	5	2.8	50.0	25.0	50.0	.313	15.65	7.82
Ohio.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	6	29	3.5	49.6	24.4	49.2	.345	17.11	8.44
All employees, male:									
Alabama.....	4	177	4.7	53.8	43.2	80.3	.423	22.76	18.28
Arizona.....	10	728	4.6	45.4	34.7	76.4	.743	33.73	25.81
California.....	3	177	5.2	48.0	45.6	95.0	.600	28.80	27.33
Colorado.....	18	1,154	3.4	50.7	28.5	56.2	.589	29.86	16.77
Connecticut.....	9	305	4.5	50.9	36.0	70.7	.403	20.51	14.52
Georgia.....	30	3,097	3.9	49.6	30.9	62.3	.647	32.09	19.96
Illinois.....	17	1,538	3.8	51.1	29.7	58.1	.569	28.56	16.62
Indiana.....	9	561	4.3	53.6	35.0	65.3	.600	32.16	20.86
Iowa.....	10	276	4.0	56.0	37.1	66.3	.455	25.48	16.86
Kansas.....	5	120	3.6	51.2	30.3	59.2	.521	26.68	16.76
Kentucky.....	5	178	4.5	52.4	35.8	68.3	.401	21.01	14.35
Louisiana.....	4	239	4.8	48.3	41.4	85.7	.558	26.95	23.08
Maryland.....	7	397	4.6	49.9	40.6	81.4	.543	27.10	22.06
Massachusetts.....	21	1,320	4.2	47.2	33.8	71.6	.690	32.57	23.31
Michigan.....	33	1,918	3.9	52.1	33.3	63.9	.582	30.32	19.37
Minnesota.....	6	466	3.9	51.2	32.9	64.3	.589	30.16	19.38
Missouri.....	14	460	4.2	51.9	35.3	68.0	.577	29.95	20.36
New Hampshire.....	5	127	4.5	50.7	37.8	74.6	.567	28.75	21.43
New Jersey.....	16	1,668	4.2	48.9	35.1	71.8	.608	29.73	21.30
New York.....	26	2,828	3.9	49.2	33.2	67.5	.599	29.47	19.87
Ohio.....	44	3,506	4.1	51.0	34.7	68.0	.610	31.11	21.19
Oregon.....	6	163	4.8	47.2	36.5	77.3	.675	31.86	24.63
Pennsylvania.....	39	3,619	3.8	51.1	32.5	63.6	.606	30.97	19.70
Rhode Island.....	7	692	3.8	50.4	31.7	62.9	.597	30.09	18.93
Tennessee.....	6	253	4.3	49.0	33.4	68.2	.471	23.08	15.74
Texas.....	6	151	4.5	49.0	36.7	74.9	.515	25.24	18.94
Washington.....	6	235	4.8	47.9	37.8	78.9	.698	33.43	26.43
Wisconsin.....	13	2,118	4.3	51.5	35.1	68.2	.584	30.08	20.49
Total.....	388	28,469	4.0	50.3	33.5	66.6	.601	30.23	20.13
All employees, female:									
Connecticut.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Illinois.....	4	16	3.4	50.3	24.7	49.1	.409	20.57	10.09
Indiana.....	2	46	3.5	49.7	22.7	45.7	.472	23.46	10.70
Kentucky.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Michigan.....	5	20	3.0	51.4	20.9	40.7	.448	23.03	9.39
New Jersey.....	5	31	3.2	48.2	25.7	53.3	.380	18.32	9.81
New York.....	6	54	4.6	46.9	38.0	81.0	.403	18.90	15.33
Ohio.....	1	12	3.8	44.5	30.5	68.5	.438	19.49	13.34

¹For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
All employees, female—Contd.									
Pennsylvania.....	2	24	4.0	50.3	29.3	58.3	\$0.447	\$22.48	\$13.08
Rhode Island.....	3	4	3.5	50.9	32.3	63.5	.460	23.41	14.85
Tennessee.....	1	3	5.7	50.0	48.3	96.6	.318	15.90	15.38
Wisconsin.....	3	16	4.4	48.7	32.3	66.3	.430	20.94	13.88
Total.....	34	230	3.9	48.7	29.4	60.4	.422	20.55	12.40
All employees, male and female:									
Alabama.....	4	177	4.7	53.8	43.2	80.3	.423	22.76	18.28
California.....	19	728	4.6	45.4	34.7	76.4	.743	33.73	25.81
Colorado.....	3	177	5.2	48.0	45.6	95.0	.600	28.80	27.33
Connecticut.....	18	1,156	3.4	50.6	28.5	56.3	.589	29.80	16.78
Georgia.....	9	305	4.5	50.9	36.0	70.7	.403	20.51	14.52
Illinois.....	30	3,113	3.9	49.6	30.8	62.1	.646	32.04	19.91
Indiana.....	17	1,584	3.8	51.1	29.5	57.7	.557	28.46	16.45
Iowa.....	9	561	4.3	53.6	35.0	65.3	.600	32.16	20.86
Kansas.....	10	276	4.0	56.0	37.1	66.3	.455	25.48	16.86
Kentucky.....	5	122	3.6	51.1	30.4	59.5	.519	26.52	15.76
Louisiana.....	5	178	4.5	52.4	35.8	68.3	.401	21.01	14.35
Maine.....	4	239	4.8	48.3	41.4	85.7	.558	26.95	23.08
Maryland.....	7	397	4.6	49.9	40.6	81.4	.543	27.10	22.06
Massachusetts.....	21	1,320	4.2	47.2	33.8	71.6	.690	32.57	23.31
Michigan.....	33	1,936	3.9	52.1	33.2	63.7	.581	30.27	19.27
Minnesota.....	6	466	3.9	51.2	32.9	64.3	.589	30.16	19.38
Missouri.....	14	460	4.2	51.9	35.3	68.0	.577	29.95	20.36
New Hampshire.....	5	127	4.5	50.7	37.8	74.6	.567	28.75	21.43
New Jersey.....	16	1,699	4.2	48.9	34.9	71.4	.604	29.54	21.09
New York.....	26	2,882	3.9	49.2	33.3	67.7	.594	29.22	19.78
Ohio.....	44	3,518	4.1	50.9	34.7	68.2	.610	31.05	21.16
Oregon.....	6	163	4.8	47.2	36.5	77.3	.675	31.86	24.63
Pennsylvania.....	39	3,643	3.8	51.1	32.5	63.6	.605	30.92	19.65
Rhode Island.....	7	696	3.8	50.4	31.7	62.9	.597	30.19	18.91
Tennessee.....	6	256	4.3	49.0	33.6	68.6	.469	22.98	15.74
Texas.....	6	151	4.5	49.0	36.7	74.9	.515	25.24	18.94
Washington.....	6	235	4.8	47.9	37.8	78.9	.698	33.43	26.43
Wisconsin.....	13	2,134	4.3	51.5	35.1	68.2	.583	30.02	20.44
Total.....	388	28,699	4.0	50.3	33.5	66.6	.600	30.18	20.06

MACHINE SHOPS

Assemblers, male:	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Alabama.....	1	169	5.5	45.0	41.1	91.3	.798	35.91	32.78
California.....	21	14	5.0	48.0	42.3	88.1	.711	34.13	30.08
Colorado.....	3	193	4.7	49.1	42.6	85.5	.728	35.74	30.67
Connecticut.....	18	12	5.7	50.1	47.5	94.8	.371	18.59	17.60
Georgia.....	3	739	4.9	48.8	38.7	79.3	.657	32.06	25.45
Illinois.....	32	268	4.0	51.4	31.2	60.7	.511	26.27	15.98
Indiana.....	11	61	3.8	52.0	31.3	60.2	.621	32.29	19.47
Iowa.....	7	14	5.9	52.0	49.4	95.0	.473	24.60	23.37
Kansas.....	5	26	5.0	50.0	36.5	73.0	.432	21.60	15.75
Kentucky.....	2	7	6.0	55.4	50.4	91.0	.522	28.92	26.83
Louisiana.....	2	26	4.6	48.4	40.1	82.9	.558	27.01	22.39
Maine.....	3	33	4.4	48.6	37.4	77.0	.620	30.13	23.19
Maryland.....	5	607	5.1	49.0	43.2	88.2	.703	34.45	30.40
Massachusetts.....	31	413	4.8	51.0	41.6	81.6	.646	32.95	26.86
Michigan.....	29	6	5.2	49.2	40.8	82.9	.638	31.39	26.03
Minnesota.....	6	65	4.8	51.7	40.3	77.9	.582	30.09	23.48
Missouri.....	13	31	5.0	48.8	42.7	87.5	.547	26.69	23.36
New Hampshire.....	4	205	5.1	49.2	41.6	84.6	.704	34.64	29.29
New Jersey.....	17	562	4.8	49.7	39.3	79.1	.669	33.25	26.31
New York.....	24	600	4.4	50.0	36.3	72.6	.619	30.95	22.46
Ohio.....	60	29	5.1	45.8	38.8	84.7	.770	35.27	29.86
Oregon.....	5								

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Assemblers, male—Continued.									
Pennsylvania.....	37	745	3.8	51.4	32.5	63.2	\$0.655	\$33.67	\$21.31
Rhode Island.....	5	112	3.9	50.2	31.9	63.5	.572	28.71	18.27
Tennessee.....	3	17	3.5	48.3	26.4	54.7	.466	22.51	12.29
Texas.....	4	11	4.6	49.9	34.5	69.1	.575	28.69	19.80
Washington.....	6	48	5.0	47.5	42.6	89.7	.781	37.10	33.24
Wisconsin.....	13	379	4.4	51.1	34.1	66.7	.636	32.50	21.67
Total.....	360	5,446	4.6	49.9	37.9	76.0	.656	32.73	24.84
Assemblers, female:									
Illinois.....	3	23	4.3	51.1	33.4	65.4	.363	18.55	12.13
Indiana.....	1	8	4.3	50.0	24.7	49.4	.529	26.45	13.06
Massachusetts.....	4	20	4.4	48.6	37.1	76.3	.409	19.88	15.17
Michigan.....	3	61	4.8	52.4	42.3	80.7	.427	22.37	18.09
New Jersey.....	2	4	5.3	50.0	40.0	80.0	.377	18.85	15.09
New York.....	3	23	5.0	48.1	34.0	70.7	.484	23.28	16.45
Ohio.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Rhode Island.....	2	5	4.0	50.8	33.1	65.2	.466	23.67	15.42
Total.....	19	145	4.7	50.7	37.6	74.2	.426	21.60	16.01
Blacksmiths, male:									
Alabama.....	5	6	4.8	53.0	40.8	77.0	.782	41.45	31.93
California.....	16	23	5.1	46.0	37.3	81.1	.873	40.16	32.53
Colorado.....	3	9	4.8	48.0	41.5	86.5	.737	35.38	30.61
Connecticut.....	16	30	4.4	50.1	37.6	75.0	.708	35.47	26.62
Georgia.....	5	6	5.5	51.3	45.6	88.9	.689	35.35	31.42
Illinois.....	27	66	4.3	50.3	35.0	69.6	.742	37.32	25.93
Indiana.....	13	19	5.0	51.3	39.8	77.6	.727	37.30	28.92
Iowa.....	5	5	5.2	51.5	42.6	82.7	.651	33.53	27.74
Kansas.....	9	10	5.4	53.0	43.9	82.8	.616	32.65	27.03
Kentucky.....	3	3	3.3	50.2	25.6	51.0	.571	28.66	14.63
Louisiana.....	4	4	4.5	49.0	33.8	69.0	.804	39.40	27.14
Maine.....	2	2	4.5	47.0	35.5	75.5	.664	31.21	23.58
Maryland.....	2	4	4.0	48.8	37.9	77.7	.703	34.31	26.61
Massachusetts.....	30	72	5.0	48.1	42.1	87.5	.737	35.45	31.06
Michigan.....	29	38	4.0	50.2	31.7	63.1	.686	34.44	21.77
Minnesota.....	8	27	4.6	49.1	35.9	73.1	.638	31.33	22.93
Missouri.....	9	10	5.0	51.4	38.2	74.3	.560	28.78	21.39
New Hampshire.....	4	4	5.8	50.0	47.6	95.2	.608	30.40	28.90
New Jersey.....	15	25	5.1	49.6	42.6	85.9	.729	36.16	31.03
New York.....	25	64	4.3	49.4	36.3	73.5	.743	36.70	27.01
Ohio.....	62	105	4.3	50.2	34.6	68.9	.705	35.39	24.37
Oregon.....	5	6	4.7	46.7	33.0	70.7	.835	38.99	27.54
Pennsylvania.....	41	80	4.3	56.7	35.8	63.1	.766	43.43	27.39
Rhode Island.....	7	22	3.5	50.2	27.8	55.4	.652	32.73	18.14
Tennessee.....	6	7	3.6	47.2	26.0	55.1	.845	39.88	21.96
Texas.....	4	7	4.7	47.6	33.1	69.5	.751	35.75	24.82
Washington.....	4	7	5.4	47.9	41.7	87.1	.861	41.24	35.93
Wisconsin.....	14	37	4.4	50.8	34.2	67.3	.754	38.30	25.81
Total.....	373	698	4.5	50.5	36.5	72.3	.728	36.76	26.57
Blacksmiths' helpers, male:									
Alabama.....	4	6	4.7	53.8	41.4	77.0	.362	19.48	14.99
California.....	14	25	4.7	45.5	35.8	78.7	.639	29.07	22.87
Colorado.....	2	4	4.5	48.0	40.4	84.2	.530	25.44	21.41
Connecticut.....	9	18	3.5	49.3	29.7	60.2	.487	24.01	14.46
Georgia.....	3	5	5.6	52.0	48.5	93.3	.277	14.40	13.42
Illinois.....	15	27	4.3	49.5	33.6	67.9	.546	27.03	18.36
Indiana.....	9	18	5.2	51.8	42.2	81.5	.505	26.16	21.30
Iowa.....	3	3	5.3	52.5	42.2	80.4	.478	25.10	20.15
Kansas.....	3	5	5.6	49.9	45.1	90.4	.474	23.65	21.38
Kentucky.....	2	2	3.5	47.0	25.5	54.3	.510	23.97	13.00
Louisiana.....	4	6	5.3	47.3	43.4	91.8	.541	25.59	23.50
Maine.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Maryland.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)

¹For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Blacksmiths' helpers, male—Con.									
Massachusetts.....	17	50	5.1	48.6	42.3	87.0	\$0.547	\$26.58	\$23.17
Michigan.....	10	15	3.7	50.6	29.5	58.3	.521	26.36	15.39
Minnesota.....	7	15	5.1	49.6	38.4	77.4	.477	23.66	18.30
Missouri.....	3	4	4.3	47.5	30.8	64.8	.581	27.60	17.91
New Jersey.....	14	19	5.4	49.4	44.5	90.1	.535	26.43	23.84
New York.....	17	46	4.4	49.4	36.8	74.5	.547	27.02	20.16
Ohio.....	30	57	4.0	50.9	33.9	66.6	.532	27.08	18.02
Oregon.....	4	5	3.8	45.6	27.3	59.9	.568	25.90	15.49
Pennsylvania.....	32	80	4.3	51.3	35.9	70.0	.548	28.11	19.66
Rhode Island.....	4	7	4.1	50.6	35.3	69.8	.546	27.63	19.25
Tennessee.....	3	6	3.8	47.3	29.0	61.3	.415	19.63	12.03
Texas.....	3	12	4.8	47.1	32.0	67.9	.520	24.49	16.62
Washington.....	3	6	5.0	48.0	40.4	84.2	.598	28.70	24.16
Wisconsin.....	11	38	4.5	51.0	34.4	67.5	.533	27.18	18.32
Total.....	228	481	4.5	49.8	36.5	73.3	.533	26.54	19.47
Boring-mill operators, male:									
Alabama.....	5	22	4.9	55.9	47.4	84.8	.739	41.31	34.99
California.....	21	57	5.6	45.0	42.5	94.4	.856	38.52	36.38
Colorado.....	2	9	3.6	48.0	30.7	64.0	.627	30.10	19.24
Connecticut.....	16	33	4.3	44.8	36.8	82.1	.702	31.45	25.83
Georgia.....	2	5	4.8	51.3	36.1	70.4	.517	26.52	18.66
Illinois.....	24	190	4.6	50.1	36.9	73.7	.753	37.73	27.79
Indiana.....	10	35	4.3	51.8	35.7	68.9	.650	33.67	23.18
Iowa.....	5	13	3.5	45.2	29.5	65.3	.604	27.30	17.80
Kansas.....	3	5	5.6	51.6	42.7	82.8	.519	26.78	22.13
Kentucky.....	2	4	4.0	45.5	27.3	60.0	.703	31.99	19.16
Louisiana.....	3	6	4.7	48.0	35.6	74.2	.711	34.13	25.27
Maine.....	3	12	5.3	45.0	42.2	93.8	.574	25.83	24.19
Maryland.....	5	13	4.7	47.9	42.8	89.4	.748	35.83	32.02
Massachusetts.....	29	154	4.8	49.2	39.9	81.1	.730	35.92	29.14
Michigan.....	14	33	4.3	52.9	34.9	66.0	.717	37.93	25.02
Minnesota.....	6	20	4.4	49.6	34.5	69.6	.681	33.78	23.49
Missouri.....	5	21	5.0	51.5	38.0	73.8	.627	32.29	23.84
New Hampshire.....	2	3	3.0	50.0	26.9	53.8	.600	30.00	16.15
New Jersey.....	17	71	4.8	49.5	38.6	78.0	.794	39.30	30.62
New York.....	24	133	4.5	50.4	37.6	74.6	.707	35.63	26.61
Ohio.....	68	333	4.5	50.4	37.0	73.4	.726	36.59	26.84
Oregon.....	3	9	5.9	48.2	52.7	114.1	.775	35.81	40.81
Pennsylvania.....	39	247	4.2	51.3	37.0	72.1	.758	38.89	28.02
Rhode Island.....	6	18	4.3	50.0	35.6	71.2	.645	32.25	22.99
Tennessee.....	3	3	5.3	51.3	38.5	75.0	.757	38.83	29.16
Texas.....	2	2	6.0	47.5	46.4	97.7	.673	31.97	31.24
Washington.....	6	23	5.8	47.4	45.8	96.6	.832	39.44	38.09
Wisconsin.....	12	148	4.0	50.9	33.4	65.6	.724	36.85	24.21
Total.....	337	1,722	4.5	50.0	37.4	74.8	.733	36.65	27.39
Crane operators, male:									
Alabama.....	3	6	5.7	55.5	53.3	96.0	.580	32.19	30.88
California.....	14	23	5.1	45.6	37.7	82.7	.653	29.78	24.64
Colorado.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Connecticut.....	9	42	4.5	49.8	40.6	81.5	.481	23.95	19.54
Georgia.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Illinois.....	19	59	4.5	50.7	36.0	71.0	.547	27.73	19.68
Indiana.....	5	16	5.1	51.7	42.2	81.6	.497	25.69	20.97
Iowa.....	5	6	5.0	50.9	40.7	80.0	.609	31.00	24.79
Kentucky.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Louisiana.....	2	2	4.5	46.0	31.5	68.5	.540	24.84	17.03
Massachusetts.....	16	40	4.8	49.2	41.1	83.5	.559	27.50	22.94
Michigan.....	10	27	4.8	51.4	39.3	76.5	.473	24.31	18.56
Minnesota.....	5	19	5.1	49.6	40.3	81.3	.524	25.99	21.13
Missouri.....	2	6	4.2	50.0	33.4	66.8	.674	33.70	22.54
New Jersey.....	12	41	5.1	49.6	41.8	84.3	.544	26.98	22.73
New York.....	19	87	4.8	49.4	38.9	78.7	.565	27.91	21.97
Ohio.....	43	125	5.0	51.0	42.7	83.7	.544	27.74	23.19

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Crane operators, male—Contd.									
Oregon.....	3	3	4.3	45.3	42.5	93.8	\$0.668	\$30.26	\$28.35
Pennsylvania.....	29	134	4.6	51.7	40.5	78.3	.520	26.88	21.07
Rhode Island.....	3	4	4.3	50.0	37.4	74.8	.484	23.20	17.36
Tennessee.....	2	3	5.0	51.5	33.7	65.4	.360	19.00	12.41
Washington.....	4	6	6	47.7	44.7	93.7	.632	30.15	28.24
Wisconsin.....	13	126	4.4	50.6	36.9	72.9	.523	26.46	19.33
Total.....	221	780	4.7	50.4	39.7	78.8	.537	27.06	21.35
Crane operators, female:									
Connecticut.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	2	2	5.5	47.5	46.0	96.8	.422	20.05	19.38
Craters and packers, male:									
Alabama.....	2	3	4.0	55.0	35.5	64.5	.530	29.15	18.82
California.....	11	30	5.6	45.2	41.9	92.7	.681	30.78	28.53
Colorado.....	2	8	5.0	48.0	39.4	82.1	.549	26.35	21.62
Connecticut.....	14	47	4.1	50.6	33.5	66.2	.532	26.92	17.83
Georgia.....	3	6	5.2	51.1	43.3	84.7	.324	16.56	14.03
Illinois.....	19	121	4.9	49.2	38.5	78.3	.551	27.11	21.24
Indiana.....	11	71	4.4	50.7	34.9	68.8	.463	23.47	16.14
Iowa.....	3	9	5.1	51.1	45.6	89.2	.527	26.93	24.01
Kansas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Louisiana.....	2	3	6.0	56.0	53.2	95.0	.342	19.15	18.18
Maine.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maryland.....	2	6	5.0	49.6	41.3	83.3	.508	25.20	20.95
Massachusetts.....	21	163	4.6	49.1	38.5	78.4	.607	29.80	23.35
Michigan.....	20	76	4.6	51.9	37.5	72.3	.510	26.47	19.14
Minnesota.....	5	13	4.3	49.2	39.9	81.1	.514	25.29	20.50
Missouri.....	7	10	4.5	53.7	40.5	75.4	.500	26.85	20.23
New Hampshire.....	1	3	6.0	48.0	46.5	96.9	.699	33.55	32.53
New Jersey.....	7	51	5.5	49.7	45.2	90.9	.549	27.29	24.83
New York.....	22	208	4.6	50.2	40.0	79.7	.540	27.11	21.57
Ohio.....	45	151	4.3	49.9	39.3	78.8	.532	26.55	20.88
Pennsylvania.....	26	113	4.5	50.7	37.7	74.4	.530	26.87	20.00
Rhode Island.....	8	34	4.6	51.1	38.9	76.1	.506	25.86	19.67
Tennessee.....	2	5	5.6	48.6	40.3	82.9	.324	15.75	13.04
Texas.....	3	6	5.8	50.3	52.0	103.4	.470	23.64	24.43
Washington.....	2	4	5.3	47.3	45.0	95.1	.579	27.39	26.07
Wisconsin.....	12	73	4.9	51.3	41.4	80.7	.510	26.16	21.09
Total.....	253	1,218	4.7	50.1	39.1	78.0	.540	27.05	21.10
Craters and packers, female:									
Illinois.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Michigan.....	3	17	4.1	50.7	32.1	63.3	.339	17.19	10.88
New York.....	2	3	3.3	48.5	25.4	52.4	.311	15.08	7.92
Ohio.....	2	8	5.8	49.5	42.1	85.1	.327	16.19	13.77
Total.....	9	32	4.4	49.7	34.1	68.6	.343	17.05	11.71
Drill-press operators, male:									
Alabama.....	4	15	4.5	51.8	38.3	73.9	.486	25.17	18.59
California.....	21	102	4.9	44.9	36.2	80.6	.685	30.76	24.78
Colorado.....	3	18	4.3	48.0	31.7	66.0	.638	30.62	20.24
Connecticut.....	18	90	4.4	49.0	38.3	78.2	.636	31.16	24.39
Georgia.....	4	8	4.4	51.7	34.6	66.9	.407	21.04	14.06
Illinois.....	28	372	4.6	49.5	36.5	73.7	.658	32.57	24.03
Indiana.....	17	123	4.3	50.8	33.9	66.7	.500	25.40	16.92
Iowa.....	5	88	3.6	52.8	31.6	59.8	.537	28.35	16.96
Kansas.....	5	10	6.0	53.4	51.4	96.3	.394	21.04	20.27
Kentucky.....	5	19	4.9	49.1	36.3	73.9	.513	25.19	18.62
Louisiana.....	3	4	5.8	53.0	46.1	87.0	.496	26.29	22.86

1 For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Drill-press operators, male—Con.									
Maine.....	3	24	4.7	48.0	39.3	81.9	\$0.543	\$26.06	\$21.37
Maryland.....	4	18	4.9	47.8	44.3	92.7	.643	30.74	28.48
Massachusetts.....	36	342	5.1	48.4	42.3	87.4	.650	31.46	27.48
Michigan.....	25	145	4.2	51.3	34.0	66.3	.535	27.45	18.20
Minnesota.....	8	50	4.2	49.5	33.8	68.3	.683	28.86	19.71
Missouri.....	12	43	4.7	50.9	37.1	72.9	.517	26.32	19.15
New Hampshire.....	4	13	3.7	48.6	31.4	64.6	.647	31.44	20.30
New Jersey.....	19	130	4.6	49.5	37.1	74.9	.691	34.20	25.64
New York.....	30	338	4.5	49.3	36.7	74.4	.665	32.78	24.41
Ohio.....	72	490	4.3	50.0	34.9	69.8	.586	29.30	20.47
Oregon.....	6	10	6.0	46.8	45.6	97.4	.635	29.72	28.97
Pennsylvania.....	46	400	3.9	51.1	33.2	65.0	.582	29.74	19.33
Rhode Island.....	11	45	4.0	50.2	32.6	64.9	.539	27.06	17.59
Tennessee.....	2	6	5.3	52.0	38.2	73.5	.567	29.48	21.63
Texas.....	4	25	5.4	47.3	39.4	83.3	.535	25.31	21.07
Washington.....	6	25	5.6	47.6	43.4	91.2	.684	32.56	29.67
Wisconsin.....	14	186	4.0	51.3	31.7	61.8	.616	31.60	19.55
Total.....	415	3,139	4.4	49.8	36.0	72.3	.612	30.48	22.06
Drill-press operators, female:									
Indiana.....	1	3	5.0	50.0	30.0	60.0	.526	26.30	15.78
Massachusetts.....	1	3	5.3	50.0	45.3	90.6	.431	21.55	19.52
Michigan.....	2	4	1.8	50.0	15.0	30.0	.611	30.55	9.17
New Hampshire.....	1	6	3.0	48.0	26.2	54.6	.498	23.90	13.08
New Jersey.....	1	8	4.9	50.0	35.7	71.4	.541	27.05	19.34
New York.....	3	6	4.5	48.8	37.0	75.8	.431	21.03	15.96
Ohio.....	2	14	5.5	49.5	45.2	91.3	.373	18.46	16.87
Pennsylvania.....	2	2	4.5	46.0	39.5	85.9	.400	18.40	15.82
Rhode Island.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	14	47	4.5	49.3	36.1	73.2	.446	21.99	16.09
Fitters and bench hands, male:									
Alabama.....	3	44	4.6	55.4	42.1	76.0	.675	37.40	28.41
California.....	12	71	5.3	44.9	40.4	90.0	.851	38.21	34.40
Colorado.....	1	8	4.0	48.0	31.7	66.0	.587	28.18	18.59
Connecticut.....	20	223	3.8	49.7	32.2	64.8	.638	31.71	20.53
Georgia.....	2	13	4.4	52.2	32.5	62.3	.514	26.83	16.73
Illinois.....	22	307	4.6	49.9	37.6	75.4	.659	32.88	24.81
Indiana.....	13	118	4.6	51.0	39.1	76.7	.575	29.33	22.51
Iowa.....	4	42	3.6	52.5	31.0	59.0	.613	32.13	18.98
Kansas.....	3	15	5.7	50.0	46.3	92.6	.678	33.90	31.40
Kentucky.....	4	47	5.1	47.0	39.4	83.8	.662	31.11	26.13
Louisiana.....	2	2	5.0	52.0	42.0	80.8	.353	18.36	14.81
Maine.....	2	20	4.7	49.1	41.0	83.5	.567	27.84	23.24
Maryland.....	4	16	3.9	47.8	33.4	69.9	.719	34.37	24.01
Massachusetts.....	27	582	4.9	48.2	40.5	84.0	.672	32.39	27.20
Michigan.....	20	164	4.4	51.1	36.8	72.0	.620	31.68	22.79
Minnesota.....	7	27	4.4	49.6	34.3	69.2	.657	32.59	22.52
Missouri.....	7	43	4.8	52.6	39.0	74.1	.523	27.51	20.43
New Hampshire.....	1	35	4.6	48.0	39.0	81.3	.604	28.99	23.57
New Jersey.....	14	297	5.0	49.1	41.4	84.3	.717	35.20	29.71
New York.....	28	951	4.7	48.8	41.5	85.0	.733	35.77	30.46
Ohio.....	73	1,417	4.5	49.0	36.8	75.1	.644	31.56	23.68
Oregon.....	2	4	4.8	46.0	35.3	76.7	.647	29.76	22.82
Pennsylvania.....	38	472	4.0	51.4	34.0	66.3	.621	31.92	21.12
Rhode Island.....	9	175	3.8	50.3	31.4	62.4	.586	29.48	18.43
Tennessee.....	1	7	4.4	52.0	33.4	64.2	.666	34.63	22.22
Texas.....	4	37	5.6	47.8	41.4	86.6	.690	32.98	28.61
Washington.....	4	23	5.3	47.7	42.8	89.7	.704	33.58	30.14
Wisconsin.....	14	287	4.6	51.3	37.9	73.9	.643	32.99	24.38
Total.....	341	5,447	4.6	49.5	38.0	76.8	.666	32.97	25.28

¹For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Fitters and bench hands, female:									
Illinois.....	1	7	5.4	52.5	43.1	82.1	\$0.363	\$19.06	\$15.65
Massachusetts.....	2	5	5.4	46.4	43.8	94.4	.536	24.87	23.47
New Hampshire.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Jersey.....	1	5	6.2	50.0	46.0	92.0	.319	16.95	14.66
New York.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Ohio.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	1	17	3.6	50.8	30.8	60.6	.384	19.51	11.83
Rhode Island.....	2	6	4.5	51.3	40.5	78.9	.504	25.86	20.40
Total.....	10	45	4.3	50.4	37.1	73.6	.411	20.71	15.23
Grinding-machine operators, male:									
California.....	12	49	4.6	45.7	35.4	77.5	.792	36.19	28.04
Colorado.....	3	14	4.7	48.0	37.4	77.9	.667	32.02	24.95
Connecticut.....	16	117	4.1	49.5	34.8	70.3	.660	32.67	23.01
Illinois.....	25	290	4.8	49.7	38.8	78.1	.692	34.89	26.85
Indiana.....	8	35	3.9	50.6	29.8	57.9	.556	28.13	16.81
Iowa.....	4	49	3.8	53.7	32.6	60.7	.567	30.45	19.08
Kansas.....	3	3	6.3	51.8	52.0	100.4	.484	25.07	25.18
Kentucky.....	1	9	4.8	50.0	34.0	68.0	.481	24.05	16.87
Louisiana.....	1	3	6.0	60.0	52.0	86.7	.219	13.14	11.40
Maine.....	3	24	4.5	48.3	37.7	78.1	.569	27.48	21.45
Maryland.....	3	17	4.7	49.9	45.7	91.6	.760	37.93	34.70
Massachusetts.....	31	144	4.8	49.2	40.5	82.3	.671	33.01	27.20
Michigan.....	19	286	4.6	53.4	40.5	75.8	.683	36.47	27.71
Minnesota.....	5	26	3.9	49.6	33.1	66.7	.620	30.76	20.48
Missouri.....	6	12	4.8	52.7	37.7	71.5	.555	29.25	20.93
New Hampshire.....	2	11	4.1	48.4	35.2	72.7	.595	28.80	20.87
New Jersey.....	14	77	4.9	47.3	38.9	82.2	.673	31.83	26.17
New York.....	19	153	5.0	48.9	41.0	83.8	.731	35.75	30.00
Ohio.....	56	321	4.2	49.8	34.3	68.9	.639	31.82	21.95
Oregon.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	30	212	3.9	50.0	35.7	67.4	.670	33.50	22.57
Rhode Island.....	8	90	3.8	50.4	31.2	61.9	.637	32.10	19.85
Tennessee.....	2	4	5.3	51.4	39.3	76.5	.682	35.05	26.77
Texas.....	1	13	5.8	47.0	39.6	84.3	.487	22.89	19.28
Washington.....	3	13	5.3	47.4	48.0	90.7	.769	36.45	33.04
Wisconsin.....	14	106	4.0	51.7	32.9	63.6	.669	34.59	22.01
Total.....	290	2,088	4.4	50.2	36.9	73.5	.669	33.58	24.69
Grinding-machine operators, female:									
Michigan.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	2	3	4.7	48.0	39.3	81.9	.443	21.26	17.43
Hammersmiths, male:									
California.....	2	4	3.8	47.0	33.1	70.4	.808	37.98	26.78
Colorado.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Illinois.....	6	29	2.8	50.5	28.6	46.7	.833	42.07	19.67
Indiana.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Iowa.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maine.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts.....	5	11	4.7	46.0	38.0	82.6	.812	37.35	30.85
Michigan.....	3	4	2.8	49.0	20.3	41.4	.644	31.56	13.04
Minnesota.....	3	3	4.7	49.7	41.0	82.5	.670	33.30	27.46
New Jersey.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New York.....	4	13	4.5	46.2	34.2	74.0	.735	33.96	25.15
Ohio.....	6	32	3.1	49.9	26.1	52.3	.782	39.02	20.40
Pennsylvania.....	9	20	4.1	50.5	34.5	68.3	.738	37.27	25.44
Rhode Island.....	2	2	3.5	50.0	29.5	59.0	.733	36.65	21.63
Washington.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin.....	4	9	3.8	52.0	25.2	48.5	1.010	52.52	25.44
Total.....	50	134	3.6	49.4	29.6	59.9	.776	38.33	22.94

For less than 3 employees in 1 establishment, data included in total.

72 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Helpers, not otherwise specified, male:									
Alabama.....	3	23	4.4	57.5	43.2	75.1	\$0.309	\$17.77	\$13.32
California.....	13	57	5.0	45.1	37.2	82.5	.588	26.52	21.89
Colorado.....	3	13	5.6	48.0	45.9	95.6	.579	27.79	26.59
Connecticut.....	11	102	3.7	49.9	31.0	62.1	.481	24.00	14.89
Georgia.....	7	39	5.3	50.9	44.2	86.8	.250	12.73	11.07
Illinois.....	22	219	4.6	51.5	35.7	69.3	.502	25.85	17.93
Indiana.....	9	25	5.2	51.4	42.5	82.7	.457	23.49	19.42
Iowa.....	5	19	4.0	51.5	35.2	68.3	.437	22.51	15.39
Kansas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky.....	3	12	5.0	49.1	40.9	83.3	.409	20.08	16.71
Louisiana.....	2	16	5.4	51.0	44.8	87.8	.375	19.13	16.80
Maine.....	2	2	4.5	47.0	37.5	79.8	.498	23.17	18.50
Maryland.....	2	10	4.7	48.8	40.8	83.6	.463	22.59	18.88
Massachusetts.....	22	296	5.0	49.6	41.3	83.3	.492	24.40	20.30
Michigan.....	19	116	4.5	50.3	37.5	74.6	.502	25.25	18.32
Minnesota.....	6	60	4.5	48.7	33.5	68.8	.466	22.69	15.62
Missouri.....	2	5	6.0	49.2	46.6	94.7	.447	21.99	20.83
New Jersey.....	14	44	4.8	48.9	39.4	80.6	.530	25.92	20.88
New York.....	15	124	4.3	48.8	35.9	73.6	.505	24.64	18.12
Ohio.....	49	251	4.7	50.3	39.0	77.5	.482	24.24	18.79
Oregon.....	3	11	6.0	44.4	45.4	102.3	.576	25.57	26.16
Pennsylvania.....	32	467	3.9	52.2	33.9	64.9	.476	24.85	16.10
Rhode Island.....	8	41	4.8	50.3	40.4	80.3	.477	23.99	19.27
Tennessee.....	3	11	4.8	52.2	34.3	65.7	.396	20.67	13.60
Texas.....	6	19	5.3	49.2	39.5	80.3	.435	21.40	17.18
Washington.....	2	9	4.9	48.0	39.4	82.1	.590	28.32	23.23
Wisconsin.....	14	265	4.4	51.5	36.1	70.1	.483	24.87	17.42
Total.....	278	2,262	4.5	50.6	37.1	73.3	.481	24.34	17.84
Laborers, male:									
Alabama.....	6	41	4.5	53.3	39.6	74.3	.320	17.06	12.66
California.....	18	123	5.1	44.9	38.8	86.4	.513	23.03	19.89
Colorado.....	2	12	4.9	48.0	38.5	80.2	.448	21.50	17.25
Connecticut.....	18	111	4.2	49.5	35.1	70.9	.468	22.67	16.08
Georgia.....	8	72	5.1	51.4	42.1	81.9	.231	11.87	9.70
Illinois.....	31	607	4.4	50.0	35.1	70.2	.474	23.70	16.65
Indiana.....	16	198	4.7	51.0	37.4	73.3	.413	21.06	15.47
Iowa.....	7	84	3.9	51.9	34.7	66.9	.459	23.82	15.94
Kansas.....	5	6	6.0	52.3	50.6	96.7	.307	16.06	15.54
Kentucky.....	5	25	4.6	46.2	34.6	74.9	.398	18.39	13.78
Louisiana.....	4	23	5.0	56.5	45.7	80.9	.240	13.56	10.96
Maine.....	3	29	4.6	46.5	37.5	80.6	.419	19.43	15.69
Maryland.....	6	23	4.5	49.5	41.1	83.0	.422	20.89	17.33
Massachusetts.....	29	399	5.1	49.4	43.7	88.5	.471	23.27	20.59
Michigan.....	28	224	4.8	53.8	42.2	78.4	.475	25.56	20.08
Minnesota.....	7	111	4.6	49.2	36.7	74.6	.434	21.35	15.93
Missouri.....	8	49	4.6	53.4	35.5	66.5	.407	21.73	14.44
New Hampshire.....	3	13	5.3	48.6	45.5	93.6	.487	23.67	22.16
New Jersey.....	20	210	4.8	51.0	39.9	78.2	.482	24.58	19.26
New York.....	31	705	4.9	49.4	41.3	83.6	.501	24.75	20.70
Ohio.....	76	843	4.6	49.9	38.3	76.8	.449	22.41	17.16
Oregon.....	4	9	4.7	45.8	33.8	73.8	.511	23.40	17.28
Pennsylvania.....	46	632	4.2	51.4	35.8	69.6	.446	22.92	15.97
Rhode Island.....	11	106	4.8	51.0	41.3	81.0	.435	22.19	17.98
Tennessee.....	8	42	4.8	48.9	36.7	75.1	.315	15.40	11.58
Texas.....	9	63	5.5	48.8	42.5	87.1	.388	18.93	16.48
Washington.....	3	16	5.3	47.7	42.6	89.3	.550	26.24	23.46
Wisconsin.....	14	397	4.6	51.3	36.7	71.5	.444	22.78	16.31
Total.....	426	5,173	4.6	50.3	38.6	76.7	.455	22.89	17.56
Laborers, female:									
Ohio.....	1	4	6.0	49.5	56.3	113.7	.391	19.35	22.00

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average hours full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Lathe operators, engine, male:									
Alabama	5	43	4.6	55.7	42.1	75.6	\$0.718	\$39.99	\$30.20
California	19	120	5.4	44.7	40.6	90.8	.880	39.34	35.70
Colorado	3	11	4.8	48.0	38.1	79.4	.731	35.09	27.85
Connecticut	17	147	3.9	50.2	32.0	63.7	.668	33.53	21.35
Georgia	3	15	5.0	50.8	40.0	78.7	.488	24.79	19.50
Illinois	26	392	4.5	50.0	35.7	71.4	.724	36.20	25.83
Indiana	12	98	4.6	51.7	38.1	73.7	.597	30.86	22.76
Iowa	7	26	4.5	51.4	38.6	75.1	.666	34.23	25.67
Kansas	6	33	5.4	50.5	44.0	87.1	.633	31.97	27.89
Kentucky	5	15	4.9	47.3	36.9	78.0	.633	29.94	23.38
Louisiana	3	12	5.2	50.0	40.9	81.8	.633	31.65	25.88
Maine	3	48	4.9	46.9	41.5	88.5	.560	26.55	23.49
Maryland	5	15	4.6	48.9	40.4	82.6	.661	32.32	26.66
Massachusetts	34	307	5.0	49.2	42.0	85.4	.708	34.83	29.74
Michigan	24	181	4.6	51.6	36.5	70.7	.670	34.57	24.41
Minnesota	8	44	4.6	49.5	36.6	73.9	.667	33.02	24.42
Missouri	13	64	4.7	51.1	36.3	71.0	.584	29.84	21.19
New Hampshire	4	16	4.4	48.4	37.7	77.9	.636	30.78	24.01
New Jersey	20	156	4.9	49.4	41.2	83.4	.742	36.65	30.62
New York	29	348	4.4	49.3	36.5	74.0	.748	36.88	27.31
Ohio	78	602	4.3	50.2	35.1	69.9	.698	35.04	24.52
Oregon	6	26	5.6	46.3	42.1	90.9	.838	38.80	35.28
Pennsylvania	42	451	4.0	50.7	34.3	67.7	.708	35.90	24.24
Rhode Island	10	52	4.5	50.1	37.5	74.9	.699	30.01	22.46
Tennessee	1	3	6.0	49.5	41.5	83.8	.856	42.37	35.51
Texas	3	30	5.2	47.1	34.8	73.9	.709	33.39	24.65
Washington	7	60	5.3	47.7	42.2	88.5	.788	37.59	33.28
Wisconsin	14	236	4.2	51.4	34.6	67.3	.703	36.13	24.34
Total	407	3,551	4.5	50.0	36.8	73.6	.706	35.30	25.97
Lathe operators, engine, female:									
Rhode Island	1	3	2.0	50.0	13.0	26.0	.516	25.80	6.71
Lathe operators, turret, male:									
Alabama	2	14	3.4	51.4	27.3	53.1	.647	33.26	17.64
California	17	74	5.0	45.2	36.2	80.1	.803	36.30	29.10
Colorado	2	20	5.0	48.0	39.9	83.1	.655	31.44	26.12
Connecticut	16	98	4.0	49.8	34.3	68.9	.637	31.72	21.83
Georgia	3	4	4.0	51.4	30.8	59.9	.568	29.20	17.48
Illinois	25	302	4.6	48.8	36.2	74.2	.732	35.72	26.45
Indiana	12	70	4.2	50.7	34.0	67.1	.644	32.65	21.87
Iowa	5	62	3.8	53.6	33.8	63.1	.578	30.98	19.51
Kansas	3	4	6.0	57.0	59.3	104.0	.526	29.98	31.23
Kentucky	3	38	4.3	49.8	30.6	61.4	.523	26.05	16.03
Louisiana	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maine	2	23	4.4	48.7	37.0	76.0	.567	27.61	20.98
Maryland	3	15	4.5	47.8	41.6	87.0	.739	35.32	30.75
Massachusetts	30	259	4.7	48.8	39.1	80.1	.674	32.89	26.36
Michigan	20	140	3.9	52.0	31.3	60.2	.588	30.58	18.40
Minnesota	8	38	4.2	49.5	34.3	69.3	.644	31.88	22.07
Missouri	10	33	5.1	51.5	40.0	77.7	.532	27.40	21.32
New Hampshire	4	25	4.0	50.0	33.7	67.4	.629	31.45	21.17
New Jersey	15	96	5.0	49.3	41.6	84.4	.809	39.88	33.64
New York	22	245	4.2	50.1	35.0	69.9	.682	34.17	23.86
Ohio	57	304	4.6	49.9	38.2	76.6	.650	32.44	24.82
Oregon	3	5	5.4	48.0	36.7	76.5	.702	33.70	25.75
Pennsylvania	38	322	3.7	50.5	31.6	62.6	.663	32.98	20.67
Rhode Island	8	28	3.8	50.4	31.7	62.9	.641	32.31	20.34
Tennessee	3	5	4.2	49.2	32.3	65.7	.646	31.78	20.86
Texas	2	52	5.5	47.2	33.6	71.2	.708	33.42	23.74
Washington	5	29	5.3	47.4	42.2	89.0	.726	34.41	30.67
Wisconsin	14	161	4.3	51.2	34.5	67.4	.680	34.82	23.47
Total	333	2,467	4.4	49.8	35.6	71.5	.672	33.47	23.92

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average hours full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Lathe operators, turret, female:									
Michigan.....	2	3	2.3	50.0	16.2	32.4	\$0.527	\$26.35	\$8.52
Machinists, male:									
Alabama.....	6	30	4.2	52.6	36.6	69.6	.718	37.77	26.26
California.....	15	35	5.5	44.9	40.4	90.0	.915	41.08	37.00
Colorado.....	3	26	4.4	48.0	34.3	71.5	.732	35.14	25.07
Connecticut.....	16	45	5.0	47.6	40.8	85.7	.762	36.27	31.13
Georgia.....	9	64	5.3	51.0	44.0	86.3	.652	33.25	28.73
Illinois.....	31	428	5.0	48.0	40.0	83.3	.801	38.45	32.04
Indiana.....	10	37	4.9	51.0	40.3	78.0	.693	35.34	27.85
Iowa.....	3	9	4.0	53.2	39.2	73.7	.637	33.89	24.98
Kansas.....	11	60	5.1	53.3	43.9	82.4	.626	33.37	27.47
Kentucky.....	4	38	5.1	51.0	41.5	81.4	.533	29.89	24.41
Louisiana.....	5	29	4.8	49.2	39.7	82.4	.892	42.09	35.43
Maine.....	4	34	4.9	49.5	39.5	79.8	.646	31.93	25.47
Maryland.....	6	52	4.1	46.1	36.6	79.4	.734	33.84	26.89
Massachusetts.....	35	377	4.9	47.0	42.4	90.2	.701	32.95	29.76
Michigan.....	29	142	4.4	50.1	39.0	75.8	.773	35.16	29.67
Minnesota.....	7	40	5.2	48.7	41.1	84.4	.722	35.16	29.67
Missouri.....	14	52	5.2	47.7	40.7	85.3	.751	35.82	30.55
New Hampshire.....	5	41	4.8	49.5	41.1	83.0	.634	31.33	26.07
New Jersey.....	16	81	4.9	49.0	41.9	85.5	.757	37.09	31.72
New York.....	20	180	5.3	48.6	42.7	89.9	.779	37.86	34.07
Ohio.....	42	254	4.9	49.7	42.6	85.7	.705	35.04	30.03
Oregon.....	2	2	6.0	48.0	45.2	94.2	.850	40.80	38.37
Pennsylvania.....	42	267	4.3	51.1	37.6	73.6	.701	35.82	26.37
Rhode Island.....	8	48	4.4	50.5	38.1	75.4	.697	35.20	26.56
Tennessee.....	9	87	4.5	48.0	33.3	68.1	.712	34.82	23.74
Texas.....	10	58	5.0	49.3	37.4	75.9	.776	38.26	29.07
Washington.....	3	4	6.0	48.0	47.0	97.9	.949	45.55	44.62
Wisconsin.....	9	55	4.8	51.7	40.3	77.9	.706	36.50	28.41
Total.....	374	2,575	4.8	49.0	40.4	82.4	.733	35.92	29.62
Machinists' and toolmakers' helpers, male:									
California.....	15	55	5.4	45.0	40.3	89.6	.601	27.05	24.24
Colorado.....	2	9	4.0	48.0	34.0	70.8	.515	24.72	17.53
Connecticut.....	13	28	4.4	50.6	39.9	78.9	.511	25.86	20.39
Illinois.....	10	66	4.9	49.8	35.7	71.7	.574	28.59	20.49
Indiana.....	3	3	5.3	50.8	44.7	88.0	.480	24.38	21.46
Iowa.....	2	4	3.5	53.3	31.5	59.1	.574	30.59	18.09
Kansas.....	8	16	5.4	54.9	50.0	91.1	.368	20.20	18.38
Louisiana.....	3	10	4.9	46.2	39.0	84.4	.522	24.12	20.36
Maine.....	3	7	5.4	47.4	42.9	90.5	.479	22.70	20.58
Maryland.....	3	10	4.4	46.4	37.5	80.8	.504	23.39	18.90
Massachusetts.....	29	213	4.7	48.9	38.4	78.5	.490	23.96	18.78
Michigan.....	8	10	4.3	49.3	34.2	69.4	.501	24.70	17.14
Minnesota.....	5	12	3.6	49.2	30.4	61.8	.477	23.47	14.48
Missouri.....	5	9	4.3	52.0	35.8	68.8	.404	21.01	14.45
New Hampshire.....	3	9	4.0	48.7	33.8	69.4	.492	23.96	16.64
New Jersey.....	17	66	4.7	48.8	38.1	78.1	.529	25.82	20.16
New York.....	14	85	5.3	47.9	42.8	89.4	.546	26.15	23.35
Ohio.....	15	28	5.1	51.5	42.4	82.3	.502	25.85	21.28
Oregon.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	27	105	4.3	52.0	37.4	71.9	.498	25.90	18.67
Rhode Island.....	3	12	4.4	51.0	38.5	75.5	.551	28.10	21.23
Tennessee.....	3	7	5.1	46.4	36.3	78.2	.482	22.36	17.50
Texas.....	8	18	5.3	48.6	42.3	87.0	.426	20.70	18.03
Washington.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin.....	9	12	5.2	52.1	41.0	78.7	.494	25.74	20.25
Total.....	210	797	4.8	49.3	38.9	78.9	.513	25.29	19.98
Milling machine operators, male:									
Alabama.....	2	4	4.5	54.5	38.1	69.9	.678	36.95	25.79
California.....	15	51	5.0	44.3	38.2	86.2	.831	36.81	31.73
Colorado.....	2	8	4.9	48.0	39.6	82.5	.673	32.30	26.65

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours worked per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Milling machine operators, male—Continued.									
Connecticut.....	16	85	4.2	49.6	37.0	74.6	\$0.678	\$33.63	\$25.07
Illinois.....	27	231	4.9	49.4	42.0	85.0	.666	32.90	27.96
Indiana.....	12	31	4.7	51.0	37.5	73.5	.559	28.51	20.92
Iowa.....	2	29	3.3	53.7	29.5	54.9	.542	29.11	16.01
Kansas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky.....	4	11	4.8	45.5	35.6	73.4	.563	27.31	20.05
Louisiana.....	2	3	5.7	56.0	45.2	80.7	.436	24.42	19.70
Maine.....	1	12	4.1	50.0	36.8	73.6	.570	28.50	20.96
Maryland.....	2	25	4.9	47.7	48.1	100.8	.770	36.73	37.04
Massachusetts.....	32	294	5.0	47.9	41.8	87.3	.707	33.87	29.54
Michigan.....	24	99	4.5	50.6	37.0	73.1	.662	33.50	24.63
Minnesota.....	5	23	4.1	49.6	32.8	66.1	.639	31.69	20.93
Missouri.....	7	26	5.4	52.9	43.6	82.4	.547	28.94	23.82
New Hampshire.....	3	13	3.9	48.6	33.4	68.7	.641	31.15	21.45
New Jersey.....	13	77	5.0	49.0	41.5	84.7	.806	39.49	33.45
New York.....	27	386	4.9	48.5	40.4	83.3	.722	35.02	29.21
Ohio.....	67	382	4.4	49.6	34.6	69.8	.657	32.59	22.74
Oregon.....	2	3	6.0	48.0	42.2	90.0	.891	42.77	38.47
Pennsylvania.....	37	236	3.6	50.0	31.0	62.0	.665	33.25	20.69
Rhode Island.....	8	50	3.9	50.1	31.4	62.7	.609	30.51	19.14
Texas.....	1	21	5.4	47.0	37.7	80.2	.536	25.19	20.20
Washington.....	6	26	5.3	47.3	43.0	90.9	.766	36.23	32.95
Wisconsin.....	13	119	4.2	51.5	34.2	66.4	.664	34.20	22.72
Total.....	331	2,246	4.6	49.3	37.8	76.6	.685	33.77	25.85
Milling machine operators, female:									
Maine.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New York.....	3	9	4.8	48.2	39.0	80.9	.505	24.34	19.73
Pennsylvania.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Rhode Island.....	2	5	4.6	50.8	39.1	77.0	.467	23.72	18.24
Total.....	8	18	4.4	48.9	38.1	77.9	.492	24.06	18.74
Pattern makers, male:									
Alabama.....	4	28	4.5	51.2	36.5	71.3	.783	40.09	28.55
California.....	15	42	5.1	44.7	37.4	83.7	1.044	46.67	39.00
Colorado.....	2	3	4.7	48.0	36.3	75.6	.907	43.54	32.93
Connecticut.....	12	67	4.5	49.1	38.5	78.4	.808	39.67	31.11
Georgia.....	5	14	5.5	50.6	43.9	86.8	.715	36.18	31.39
Illinois.....	16	107	4.5	49.8	38.4	77.1	.827	41.18	31.76
Indiana.....	5	12	5.1	50.8	40.4	79.5	.691	35.10	27.96
Iowa.....	3	4	4.8	51.0	40.6	79.6	.875	44.63	35.56
Kansas.....	6	8	6.0	54.0	53.9	99.8	.596	32.18	32.12
Kentucky.....	2	2	5.0	46.0	38.0	82.6	.724	33.30	27.51
Louisiana.....	4	5	5.0	48.6	41.2	84.8	.960	46.66	39.55
Maine.....	2	9	4.6	50.0	38.4	76.8	.665	33.25	25.56
Maryland.....	3	10	4.9	47.6	44.1	92.6	.810	38.56	35.70
Massachusetts.....	30	176	5.1	49.1	43.6	88.8	.787	38.64	34.30
Michigan.....	16	47	5.1	53.6	41.2	76.9	.718	38.48	29.58
Minnesota.....	3	9	4.3	48.9	36.9	75.5	.747	36.53	27.57
Missouri.....	5	7	4.6	50.1	37.1	74.1	.937	46.94	34.79
New Hampshire.....	5	6	5.0	49.7	44.7	89.9	.716	35.59	31.96
New Jersey.....	14	54	5.0	49.6	41.4	83.5	.861	42.71	35.62
New York.....	25	175	5.0	49.6	42.7	86.1	.883	41.32	35.52
Ohio.....	51	218	4.7	49.8	39.4	79.1	.834	41.53	32.81
Oregon.....	2	3	5.3	45.3	40.0	88.3	.971	43.99	38.79
Pennsylvania.....	24	154	4.8	51.5	42.5	82.5	.822	42.33	34.93
Rhode Island.....	9	42	4.9	50.2	41.9	83.5	.729	36.60	30.56
Tennessee.....	4	6	5.3	48.2	42.1	87.3	.897	43.24	37.73
Texas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Washington.....	2	2	4.5	48.0	33.4	69.6	.945	45.36	31.58
Wisconsin.....	12	220	5.1	51.3	40.2	78.4	.792	40.63	31.83
Total.....	282	1,431	4.9	50.1	40.9	81.6	.812	40.68	33.22

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Planer operators, male:									
Alabama	5	12	5.2	56.3	50.4	89.5	\$0.743	\$41.83	\$37.42
California	16	36	5.5	45.0	40.2	89.3	.810	36.45	32.54
Colorado	2	2	5.0	48.0	34.0	70.8	.700	33.60	23.79
Connecticut	14	83	4.2	49.9	36.4	72.9	.743	37.08	27.05
Georgia	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Illinois	20	85	4.5	49.7	36.9	74.2	.784	38.96	28.95
Indiana	9	21	4.7	51.7	41.3	79.9	.643	33.24	26.55
Iowa	3	5	5.2	48.8	40.7	83.4	.667	32.55	27.11
Kansas	5	7	5.6	52.0	49.0	94.2	.524	37.25	25.68
Kentucky	4	6	4.0	47.0	38.2	80.1	.739	35.25	28.19
Louisiana	1	3	5.0	44.0	40.0	90.9	.800	35.20	32.00
Maine	2	12	4.6	47.0	37.8	80.4	.610	28.67	23.06
Maryland	3	9	4.3	48.6	40.3	82.9	.699	33.97	28.19
Massachusetts	33	138	4.9	48.7	41.1	84.4	.747	36.38	30.70
Michigan	13	32	4.5	51.8	37.3	72.0	.659	34.14	24.57
Minnesota	6	10	5.1	49.6	37.4	83.5	.654	32.44	27.07
Missouri	5	14	4.0	50.7	29.4	58.0	.704	35.69	20.70
New Hampshire	2	4	4.0	52.0	36.0	69.2	.610	32.19	22.28
New Jersey	16	32	5.3	49.2	43.7	88.8	.810	40.20	35.84
New York	22	123	4.3	49.6	36.7	74.0	.689	34.17	25.28
Ohio	64	289	4.2	50.0	35.0	70.0	.733	36.65	25.68
Oregon	4	7	5.0	45.7	54.4	119.0	.908	41.50	49.43
Pennsylvania	34	116	4.3	53.3	37.2	69.8	.792	42.21	29.44
Rhode Island	8	16	4.1	50.2	34.0	67.7	.645	32.38	21.90
Tennessee	2	2	4.0	50.0	30.8	61.6	.760	38.00	23.37
Texas	2	2	6.0	47.0	41.4	88.1	.737	34.64	30.53
Washington	6	12	5.3	47.8	46.3	96.9	.786	37.57	36.39
Wisconsin	13	89	3.9	51.7	32.5	62.9	.725	37.48	23.57
Total	315	1,168	4.5	50.1	37.3	74.5	.738	36.97	27.53
Polishers and buffers, male:									
Alabama	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
California	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Colorado	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Connecticut	3	4	4.5	47.8	37.5	78.5	.644	30.78	24.15
Illinois	6	17	5.1	49.6	41.0	82.7	.649	32.19	26.61
Indiana	2	4	3.8	50.0	33.8	67.6	.657	32.85	22.24
Iowa	2	2	4.5	51.0	38.0	74.5	.550	28.05	20.89
Maine	2	17	4.8	46.8	37.6	80.3	.570	26.68	21.41
Maryland	1	3	3.3	47.5	26.7	56.2	.716	34.01	19.09
Massachusetts	13	55	4.7	48.7	39.4	80.9	.665	32.39	26.22
Michigan	9	27	3.9	50.3	33.3	66.2	.821	41.30	27.33
Minnesota	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Missouri	2	4	5.5	54.0	45.5	84.3	.492	26.57	22.37
New Hampshire	1	4	3.3	48.0	28.5	59.4	.662	31.78	18.82
New Jersey	5	12	4.5	49.3	34.8	70.6	.715	35.25	24.88
New York	10	45	4.6	49.1	38.0	77.4	.724	35.55	27.54
Ohio	20	125	3.5	49.0	28.7	58.6	.623	30.53	17.92
Pennsylvania	11	27	3.3	52.2	27.4	52.5	.606	31.63	16.62
Rhode Island	4	18	4.0	50.7	34.2	67.5	.599	30.37	20.47
Washington	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin	5	9	3.8	51.0	29.3	57.5	.637	32.49	18.68
Total	101	379	4.1	49.4	33.5	67.8	.656	32.41	21.96
Polishers and buffers, female:									
Illinois	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maine	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts	1	3	4.3	50.0	35.2	70.4	.385	19.25	13.52
New Hampshire	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total	4	6	4.2	50.1	34.7	69.3	.377	18.89	13.08

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Screw machine operators, hand, male:									
California.....	3	8	4.6	47.5	37.4	78.7	\$0.510	\$24.23	\$19.09
Connecticut.....	5	10	3.6	50.0	31.7	63.4	.665	33.25	21.12
Illinois.....	11	51	4.2	49.0	33.8	69.0	.636	31.16	21.51
Indiana.....	7	16	3.9	51.7	31.5	60.9	.549	28.38	17.29
Kansas.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Kentucky.....	1	22	5.0	50.0	34.8	69.6	.511	25.55	17.78
Maryland.....	1	8	4.4	47.5	39.2	82.5	.744	35.84	29.14
Massachusetts.....	16	80	5.0	49.3	42.1	85.4	.692	34.12	29.11
Michigan.....	9	80	4.2	51.0	33.7	66.1	.731	37.28	24.61
Minnesota.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Missouri.....	2	5	5.4	54.0	47.8	88.5	.447	24.14	21.39
New Hampshire.....	2	5	5.4	48.8	42.3	86.7	.637	31.09	26.92
New Jersey.....	3	5	3.8	50.0	32.8	65.6	.574	28.70	18.83
New York.....	12	91	4.8	48.8	40.0	82.0	.731	35.67	29.25
Ohio.....	39	162	4.6	50.2	38.1	75.9	.608	30.52	23.14
Pennsylvania.....	5	41	3.4	49.1	29.3	59.7	.679	33.34	19.90
Rhode Island.....	4	25	3.4	50.5	28.8	57.0	.581	29.34	16.76
Wisconsin.....	6	28	3.8	51.1	30.1	58.9	.629	32.14	18.91
Total.....	128	640	4.4	49.9	36.4	72.9	.654	32.63	23.79
Screw machine operators, hand, female:									
Ohio.....	2	37	5.0	49.5	40.9	82.6	.356	17.62	14.57
Screw machine operators, semi-automatic, male:									
Connecticut.....	2	6	4.0	45.5	35.2	77.4	.752	34.22	26.43
Illinois.....	4	15	5.6	45.9	41.9	91.3	.744	34.15	31.21
Massachusetts.....	8	38	5.4	48.8	44.7	91.6	.676	32.99	30.23
Michigan.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Minnesota.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Missouri.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Jersey.....	6	13	4.7	48.9	39.3	80.4	.819	40.05	32.16
New York.....	3	6	5.5	48.3	38.4	79.5	.719	34.73	27.60
Ohio.....	4	10	4.1	48.8	34.2	70.1	.592	28.89	20.23
Pennsylvania.....	5	14	3.6	50.3	30.3	60.2	.752	37.83	22.76
Rhode Island.....	2	2	6.0	50.0	45.5	91.0	.538	26.90	24.48
Total.....	37	108	4.9	48.5	39.5	81.4	.705	34.19	27.87
Screw machine operators, semi-automatic, female:									
Ohio.....	2	9	5.3	49.5	43.2	87.3	.326	16.14	14.10
Screw machine operators, automatic, male:									
Alabama.....	2	2	4.5	54.5	37.5	68.8	.556	30.30	20.85
California.....	1	11	3.9	48.8	31.8	65.2	.617	30.11	19.62
Colorado.....	1	4	4.5	48.0	37.3	77.7	.621	29.81	23.19
Connecticut.....	8	13	4.8	49.1	43.8	89.2	.721	35.40	31.62
Illinois.....	11	38	4.6	48.9	34.3	70.1	.686	33.55	23.51
Indiana.....	4	5	3.8	50.5	32.4	64.2	.632	31.92	20.44
Iowa.....	2	10	3.2	44.2	29.0	65.6	.608	26.87	17.61
Kentucky.....	1	9	5.0	50.0	36.0	72.0	.574	28.70	20.68
Maine.....	1	4	4.8	50.0	41.8	83.6	.518	25.90	21.64
Maryland.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts.....	7	33	4.3	47.6	35.0	73.5	.710	33.80	24.84
Michigan.....	10	43	3.9	53.4	33.5	62.7	.790	42.19	26.50
Minnesota.....	3	7	3.7	49.6	32.1	64.7	.749	37.15	24.01
Missouri.....	4	7	5.1	49.3	43.6	88.4	.589	29.04	25.66
New Hampshire.....	3	4	4.8	49.0	41.1	83.9	.535	26.22	22.00
New Jersey.....	4	11	3.7	49.8	29.0	58.2	.777	38.69	22.51
New York.....	14	39	5.1	48.7	43.3	88.9	.761	37.06	32.98
Ohio.....	22	155	4.6	49.4	40.2	81.4	.676	33.39	27.16
Pennsylvania.....	11	51	3.7	49.6	32.1	64.7	.689	34.17	22.13
Rhode Island.....	4	10	3.1	50.2	23.5	46.8	.623	31.27	14.60
Texas.....	1	6	6.0	47.0	44.4	94.5	.622	30.23	27.58

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Screw machine operators, automatic, male—Continued.									
Washington.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin.....	6	22	4.8	51.2	40.6	79.3	\$0.742	\$37.99	\$30.14
Total.....	122	486	4.4	49.5	37.1	74.9	.694	34.35	25.76
Sheet metal machine operators, male:									
Connecticut.....	2	3	3.7	51.7	27.7	53.6	.638	32.98	17.71
Georgia.....	3	22	4.8	51.8	37.1	71.6	.543	28.13	20.16
Illinois.....	20	193	4.4	49.9	33.4	66.9	.651	32.48	21.76
Indiana.....	8	71	4.5	50.7	32.6	64.3	.542	27.48	17.66
Iowa.....	5	30	4.3	49.7	37.4	75.3	.560	27.83	20.93
Louisiana.....	1	11	5.9	60.0	52.2	87.0	.401	24.06	20.92
Maine.....	1	5	3.8	50.0	34.2	68.4	.516	25.80	17.66
Maryland.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts.....	14	118	5.3	48.7	45.9	94.3	.645	31.41	29.56
Michigan.....	14	98	4.4	50.4	36.8	73.0	.631	31.80	23.23
Minnesota.....	5	42	5.1	48.6	42.1	86.6	.574	27.90	24.18
Missouri.....	5	7	5.4	50.9	40.7	80.0	.538	27.38	21.89
New Hampshire.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Jersey.....	7	39	4.4	48.6	33.9	69.8	.705	34.26	23.89
New York.....	12	83	5.0	49.6	39.7	80.0	.651	32.29	25.88
Ohio.....	27	128	4.5	50.5	37.2	73.7	.598	30.20	22.24
Pennsylvania.....	24	126	3.9	52.0	33.2	63.8	.653	33.96	21.72
Rhode Island.....	1	5	3.4	50.0	26.6	53.2	.542	27.10	14.41
Tennessee.....	2	9	5.2	46.6	42.4	91.0	.480	22.37	20.34
Texas.....	2	5	4.4	48.8	31.6	64.8	.543	26.50	17.15
Wisconsin.....	9	73	4.4	50.0	34.4	68.8	.608	20.40	20.93
Total.....	164	1,072	4.6	50.2	36.8	73.3	.619	31.07	22.79
Sheet metal machine operators, female:									
Illinois.....	2	6	4.2	50.8	33.3	65.6	.322	16.36	10.72
Massachusetts.....	2	11	5.0	48.4	43.2	89.3	.404	19.55	17.44
New Hampshire.....	1	3	4.0	48.0	35.0	72.9	.365	17.52	12.79
New York.....	1	4	3.8	48.0	33.0	68.8	.457	21.94	15.07
Ohio.....	1	6	4.0	49.5	33.0	66.7	.270	13.37	8.91
Pennsylvania.....	1	5	4.4	49.0	39.0	79.6	.458	23.91	19.05
Total.....	8	35	4.4	49.0	37.3	76.1	.386	18.91	14.39
Toolmakers, male:									
Alabama.....	3	17	3.9	51.4	31.1	60.5	.700	35.98	21.81
California.....	17	52	5.3	45.4	40.8	89.9	.909	41.27	37.09
Colorado.....	1	11	4.0	48.0	31.2	65.0	.536	25.73	16.71
Connecticut.....	17	135	5.2	49.7	49.0	98.6	.768	38.17	37.62
Georgia.....	4	5	5.6	50.2	46.9	93.4	.658	33.03	30.84
Illinois.....	25	308	5.3	49.8	42.5	85.3	.797	39.69	33.88
Indiana.....	12	77	4.7	50.9	36.8	72.3	.673	34.26	24.78
Iowa.....	4	30	4.3	52.7	38.0	72.1	.672	35.41	25.52
Kansas.....	3	5	5.8	50.4	44.5	88.3	.614	30.95	27.29
Kentucky.....	5	15	4.9	49.3	35.9	72.8	.699	34.46	25.13
Maine.....	4	11	4.6	49.5	39.2	79.2	.666	32.97	26.13
Maryland.....	3	29	5.0	47.7	47.1	98.7	.784	37.40	36.98
Massachusetts.....	32	266	4.8	47.8	45.5	95.2	.640	30.59	29.15
Michigan.....	22	103	4.9	52.2	41.1	78.7	.821	42.86	33.69
Minnesota.....	8	27	4.4	49.2	35.6	72.4	.738	36.31	26.28
Missouri.....	11	23	4.9	50.7	40.4	79.7	.684	34.68	27.62
New Hampshire.....	2	12	4.3	48.2	37.9	78.6	.775	37.36	29.36
New Jersey.....	15	79	5.0	49.4	42.9	86.8	.785	38.78	33.70
New York.....	28	390	5.1	48.6	43.5	89.5	.802	38.98	34.91
Ohio.....	65	432	4.9	49.5	40.1	81.0	.759	37.57	30.46
Oregon.....	2	3	4.7	46.7	35.4	76.8	.789	36.85	27.92
Pennsylvania.....	38	156	4.7	50.6	41.0	81.0	.750	37.95	30.73
Rhode Island.....	7	74	4.7	50.5	39.6	78.4	.768	38.78	30.39

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Toolmakers, male—Continued.									
Tennessee.....	4	4	5.3	47.6	35.9	75.4	\$0.810	\$38.66	\$29.12
Texas.....	5	11	5.6	47.7	41.2	86.4	.729	34.77	30.07
Washington.....	4	8	5.3	47.5	42.8	90.1	.831	39.47	35.54
Wisconsin.....	14	103	4.6	51.0	37.1	72.7	.761	38.81	28.22
Total.....	355	2,386	5.0	49.4	41.9	84.8	.758	37.45	31.78
Other precision machine operators, male:									
Alabama.....	3	6	5.0	52.8	43.0	81.4	.696	36.75	29.94
California.....	14	32	5.1	44.8	37.8	84.4	.760	34.05	28.73
Colorado.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Connecticut.....	14	48	4.1	49.0	34.7	70.8	.693	33.96	24.07
Georgia.....	3	11	4.5	50.3	36.3	72.2	.389	19.67	14.14
Illinois.....	24	230	4.7	49.9	38.0	76.2	.689	34.48	26.17
Indiana.....	12	46	4.1	51.6	34.4	66.7	.535	27.61	18.41
Iowa.....	2	28	3.0	52.2	26.8	51.3	.575	30.02	15.39
Kentucky.....	1	3	5.0	50.0	34.8	69.6	.556	27.80	19.36
Louisiana.....	2	3	6.0	56.0	47.7	85.2	.472	26.43	22.62
Maine.....	2	5	5.0	46.4	40.6	87.5	.648	30.07	26.31
Maryland.....	2	6	4.2	53.8	41.1	76.4	.726	39.06	29.85
Massachusetts.....	24	162	4.5	49.6	36.7	74.0	.663	32.88	24.32
Michigan.....	15	37	4.4	51.1	37.2	72.8	.643	32.96	23.94
Minnesota.....	5	20	4.7	49.3	34.0	69.0	.598	29.48	20.32
Missouri.....	5	16	5.2	53.0	40.7	76.8	.568	30.10	23.10
New Hampshire.....	1	14	3.7	48.0	31.5	65.6	.631	30.29	19.89
New Jersey.....	14	58	4.3	49.2	37.6	76.4	.666	32.77	25.04
New York.....	29	159	4.5	49.2	38.4	78.0	.690	33.95	26.49
Ohio.....	65	266	4.2	49.9	34.2	68.5	.631	31.49	21.60
Oregon.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pennsylvania.....	37	172	4.0	51.0	34.8	68.2	.656	33.46	22.81
Rhode Island.....	8	42	3.2	50.1	25.0	49.9	.605	30.31	15.11
Tennessee.....	4	8	4.9	49.6	35.1	70.8	.613	30.40	21.61
Texas.....	3	11	5.4	47.6	37.7	79.2	.645	30.84	24.41
Washington.....	4	10	5.2	47.4	42.3	89.2	.781	37.02	32.99
Wisconsin.....	13	94	4.0	51.3	34.0	66.3	.655	33.60	22.23
Total.....	308	1,490	4.3	50.0	35.7	71.4	.657	32.85	23.46
Other precision machine operators, female:									
Massachusetts.....	1	11	4.1	44.0	32.7	74.3	.578	25.43	18.92
Michigan.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New York.....	2	13	4.9	48.0	36.7	74.4	.543	26.06	19.38
Ohio.....	2	52	5.0	49.6	40.4	81.5	.331	16.42	13.35
Total.....	6	77	4.8	48.5	38.6	79.6	.399	19.35	15.37
Other skilled employees, male:									
Alabama.....	7	82	4.7	53.6	39.9	74.4	.649	34.79	25.91
California.....	19	188	5.2	46.4	39.3	86.6	.870	39.50	34.16
Colorado.....	3	58	4.4	48.0	35.2	73.3	.703	33.98	24.94
Connecticut.....	20	363	4.8	48.8	40.0	82.0	.745	36.36	29.76
Georgia.....	8	63	5.3	51.3	44.5	86.7	.598	30.68	26.60
Illinois.....	33	911	4.6	49.7	37.1	74.6	.686	34.09	25.44
Indiana.....	17	290	4.5	51.0	36.4	71.4	.583	29.73	21.21
Iowa.....	7	127	4.0	53.2	35.7	67.1	.621	33.04	22.19
Kansas.....	7	32	5.6	55.3	49.2	89.0	.453	26.71	23.77
Kentucky.....	6	51	5.0	49.6	40.9	82.5	.611	30.31	25.01
Louisiana.....	6	18	5.8	53.3	48.7	91.4	.623	33.21	30.36
Maine.....	4	112	4.6	48.2	38.6	80.1	.599	28.87	23.15
Maryland.....	8	75	4.9	48.7	42.9	88.1	.725	35.31	31.12
Massachusetts.....	37	535	5.0	48.6	42.6	87.7	.733	36.62	31.20
Michigan.....	35	522	4.7	50.8	40.2	79.1	.667	33.88	26.83
Minnesota.....	8	144	5.2	49.2	41.5	84.3	.698	34.34	28.94
Missouri.....	16	99	4.9	51.4	40.2	78.2	.545	28.01	21.87

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Other skilled employees, male—Continued.									
New Hampshire.....	4	59	5.8	48.5	50.9	104.9	\$0.598	\$29.00	\$30.43
New Jersey.....	22	372	5.1	49.6	42.0	84.7	.702	34.82	29.47
New York.....	33	1,164	5.0	49.3	41.7	84.6	.728	35.79	30.28
Ohio.....	82	1,379	4.8	50.1	40.0	79.8	.686	34.37	27.42
Oregon.....	6	19	5.3	46.5	39.3	84.5	.752	34.97	29.51
Pennsylvania.....	45	1,322	4.5	50.7	38.6	76.1	.695	35.24	26.80
Rhode Island.....	11	209	4.4	50.4	36.8	73.0	.646	32.56	23.73
Tennessee.....	7	43	5.3	49.5	40.5	81.8	.646	31.98	26.15
Texas.....	9	81	5.5	48.1	42.1	87.5	.685	32.95	28.80
Washington.....	4	32	5.1	47.9	40.1	83.7	.788	37.75	31.64
Wisconsin.....	14	852	4.8	50.7	39.2	77.3	.727	36.86	28.50
Total.....	478	9,287	4.8	49.9	39.8	79.8	.695	34.68	27.63
Other skilled employees, female:									
Illinois.....	1	3	4.7	52.5	37.3	71.0	.269	14.12	10.03
Indiana.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Massachusetts.....	3	30	4.6	48.2	39.2	81.3	.440	21.21	17.26
Michigan.....	6	110	5.2	52.8	44.7	84.7	.383	20.22	17.08
New Hampshire.....	1	5	5.2	48.0	35.0	72.9	.386	18.53	18.52
New Jersey.....	2	5	5.0	50.0	36.4	72.8	.409	20.45	14.88
New York.....	2	37	4.7	48.0	38.9	81.0	.439	21.07	17.06
Ohio.....	4	66	5.0	49.1	41.0	83.5	.367	18.02	15.06
Pennsylvania.....	2	36	3.9	44.7	33.7	75.4	.411	18.37	13.85
Rhode Island.....	3	14	4.4	50.9	37.1	72.9	.426	21.68	15.80
Wisconsin.....	1	37	4.9	45.5	39.8	87.5	.360	16.38	14.30
Total.....	26	345	4.8	49.3	40.5	82.2	.391	19.28	15.84
Other employees, male:									
Alabama.....	7	45	4.5	53.5	39.4	73.6	.403	21.56	15.88
California.....	20	190	5.4	45.0	40.2	89.3	.565	25.43	22.69
Colorado.....	2	20	4.6	48.0	35.1	73.1	.567	26.74	19.56
Connecticut.....	19	228	4.1	49.6	35.8	68.1	.485	24.06	16.37
Georgia.....	9	30	5.6	51.1	46.9	91.8	.415	21.21	19.48
Illinois.....	31	616	5.0	49.4	39.7	80.4	.499	24.65	19.33
Indiana.....	14	147	4.7	51.0	36.5	72.4	.489	24.94	18.03
Iowa.....	7	69	4.3	50.9	37.5	73.7	.485	24.69	18.21
Kansas.....	11	34	5.9	53.4	52.7	98.7	.529	28.25	27.87
Kentucky.....	6	35	4.6	48.2	34.6	71.8	.405	17.81	14.27
Louisiana.....	4	50	5.0	48.4	38.8	80.2	.368	17.39	15.41
Maine.....	4	50	5.1	48.7	43.1	88.5	.357	20.91	17.51
Maryland.....	6	35	4.7	49.9	41.8	83.8	.419	20.91	17.51
Massachusetts.....	35	542	5.0	49.4	42.3	85.6	.514	25.39	21.70
Michigan.....	32	377	4.8	50.8	40.0	78.7	.666	33.83	26.61
Minnesota.....	7	90	5.0	49.5	39.5	79.8	.539	26.68	21.27
Missouri.....	18	77	5.2	50.5	43.9	86.9	.512	25.66	22.45
New Hampshire.....	4	14	5.4	48.6	46.0	94.7	.412	20.02	18.94
New Jersey.....	22	186	5.0	49.4	40.5	82.0	.524	25.89	21.25
New York.....	27	585	5.1	49.2	41.5	84.3	.579	28.49	24.04
Ohio.....	81	857	4.7	50.2	38.0	76.7	.496	24.90	18.85
Oregon.....	5	18	5.5	46.4	41.5	89.4	.497	23.06	20.64
Pennsylvania.....	46	1,038	4.5	51.3	38.9	75.8	.473	24.26	18.39
Rhode Island.....	11	124	4.1	50.5	33.7	66.7	.472	23.84	15.94
Tennessee.....	8	40	4.7	48.7	34.8	71.5	.418	20.36	14.52
Texas.....	8	33	5.7	48.0	43.6	90.8	.450	21.60	19.63
Washington.....	5	54	5.3	47.6	42.9	90.1	.613	29.18	26.29
Wisconsin.....	14	668	4.5	51.5	36.2	70.3	.433	22.30	15.67
Total.....	465	6,250	4.8	50.1	39.2	78.2	.506	25.35	19.82
Other employees, female:									
Illinois.....	5	14	4.4	49.6	33.7	67.9	.435	21.58	14.67
Indiana.....	1	8	4.3	50.0	27.9	55.8	.430	21.50	11.97
Maine.....	1	5	3.0	50.0	25.2	50.4	.351	17.55	8.84
Massachusetts.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
Other employees, female—Con.									
Michigan.....	2	4	5.3	49.5	44.1	89.1	\$0.410	\$20.30	\$18.05
New Hampshire.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New York.....	5	117	5.2	45.0	40.5	84.4	.478	22.94	19.34
Ohio.....	2	14	4.9	49.2	40.9	83.1	.309	15.20	12.63
Pennsylvania.....	3	29	4.7	45.3	39.9	88.1	.364	18.49	14.63
Rhode Island.....	2	4	5.3	51.0	45.1	88.4	.411	20.96	18.55
Tennessee.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin.....	1	8	4.4	45.5	34.5	75.8	.474	21.57	16.34
Total.....	25	206	4.9	47.9	39.0	81.4	.439	21.03	17.13
All employees, male:									
Alabama.....	7	457	4.5	54.0	40.1	74.3	.596	32.18	23.88
California.....	23	1,628	5.2	45.1	39.2	86.9	.753	33.96	29.47
Colorado.....	3	282	4.6	48.0	36.5	76.0	.647	31.06	23.63
Connecticut.....	20	2,409	4.3	49.3	37.0	75.1	.659	32.49	24.34
Georgia.....	9	396	5.2	51.2	42.6	83.4	.462	23.65	19.66
Illinois.....	36	7,025	4.7	49.5	37.6	76.0	.657	32.52	24.72
Indiana.....	17	1,865	4.5	51.1	35.8	70.1	.543	27.75	19.44
Iowa.....	7	815	3.9	52.2	34.3	65.7	.569	29.70	19.60
Kansas.....	11	272	5.5	52.9	47.6	90.0	.543	28.72	25.81
Kentucky.....	7	395	4.8	48.9	36.7	75.1	.551	26.94	20.23
Louisiana.....	6	199	5.2	51.4	43.2	84.0	.524	26.93	22.66
Maine.....	4	492	4.7	48.1	39.4	81.9	.550	26.46	21.69
Maryland.....	8	456	4.6	48.4	41.3	85.3	.658	31.85	27.17
Massachusetts.....	38	6,463	4.9	48.2	41.8	86.7	.646	31.14	27.01
Michigan.....	35	3,530	4.6	51.5	38.5	74.8	.645	33.22	24.84
Minnesota.....	8	940	4.7	49.2	37.6	76.4	.601	29.57	22.87
Missouri.....	19	712	4.9	51.3	39.4	76.8	.562	28.83	22.17
New Hampshire.....	5	341	4.7	48.8	40.7	83.4	.600	29.28	24.37
New Jersey.....	25	2,509	4.9	49.4	40.7	82.4	.679	33.54	27.65
New York.....	34	7,488	4.8	49.2	40.3	81.9	.680	33.46	27.37
Ohio.....	85	10,316	4.6	49.9	37.4	74.9	.628	31.34	23.50
Oregon.....	6	175	5.3	46.2	41.2	89.2	.724	33.45	29.82
Pennsylvania.....	48	8,200	4.2	51.2	35.9	70.1	.616	31.54	22.08
Rhode Island.....	11	1,513	4.2	50.4	34.9	69.2	.595	29.99	20.74
Tennessee.....	9	325	4.7	49.0	35.2	71.8	.568	27.83	20.00
Texas.....	10	554	5.4	48.0	39.1	81.5	.603	28.94	23.59
Washington.....	7	392	5.3	47.6	42.8	89.9	.729	34.70	31.16
Wisconsin.....	14	4,792	4.5	51.2	36.3	70.9	.617	31.59	22.43
Total.....	512	64,921	4.6	49.8	38.2	76.7	.637	31.72	24.36
All employees, female:									
Connecticut.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Illinois.....	7	56	4.4	50.9	34.7	68.2	.373	18.99	12.95
Indiana.....	1	21	4.4	50.0	27.2	54.4	.471	23.55	12.80
Maine.....	1	8	2.9	50.0	27.0	54.0	.380	19.00	10.26
Massachusetts.....	7	87	4.6	47.7	38.7	81.1	.443	21.37	17.35
Michigan.....	7	201	4.9	52.3	41.9	80.1	.398	20.82	16.66
New Hampshire.....	1	18	3.9	48.0	31.6	65.8	.431	20.69	12.63
New Jersey.....	2	22	5.0	50.0	39.0	78.0	.423	21.15	16.49
New York.....	6	214	4.9	48.1	38.6	80.2	.473	22.75	18.23
Ohio.....	6	212	5.1	49.4	41.4	83.8	.347	17.14	14.38
Pennsylvania.....	4	93	4.1	46.4	35.6	76.7	.397	18.42	14.13
Rhode Island.....	4	38	4.3	50.8	36.2	71.3	.453	23.01	16.40
Tennessee.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wisconsin.....	1	45	4.8	45.5	38.8	85.3	.378	17.20	14.66
Total.....	49	1,017	4.7	49.2	38.8	78.9	.408	20.07	15.85
All employees, male and female:									
Alabama.....	7	457	4.5	54.0	40.1	74.3	.596	32.18	23.88
California.....	23	1,628	5.2	45.1	39.2	86.9	.753	33.96	29.47
Colorado.....	3	282	4.6	48.0	36.5	76.0	.647	31.06	23.63
Connecticut.....	20	2,410	4.3	49.3	37.0	75.1	.659	32.49	24.34
Georgia.....	9	396	5.2	51.2	42.6	83.2	.462	23.65	19.66
Illinois.....	36	7,081	4.7	49.6	37.6	75.8	.655	32.49	24.63

¹ For less than 3 employees in 1 establishment, data included in total.

TABLE A.—Average number of days on which wage earners worked, average full time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1931, by occupation, sex, and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of wage earners	Average days on which wage earners worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full-time hours actually worked	Average earnings per hour	Average full-time earnings per week	Average earnings actually made in 1 week
All employees, male and female—Continued									
Indiana.....	17	1,876	4.5	51.0	35.7	70.0	\$.543	\$27.69	\$19.37
Iowa.....	7	815	3.9	52.2	34.3	65.7	.569	29.70	19.50
Kansas.....	11	272	5.5	52.9	47.6	90.0	.543	28.72	25.81
Kentucky.....	7	395	4.8	48.9	36.7	75.1	.551	26.94	20.23
Louisiana.....	6	199	5.2	51.4	43.2	84.0	.524	26.93	22.66
Maine.....	4	500	4.7	49.1	39.2	81.5	.548	26.36	21.51
Maryland.....	8	456	4.6	48.4	41.3	85.3	.658	31.85	27.17
Massachusetts.....	38	6,540	4.9	48.2	41.8	86.7	.644	31.04	26.88
Michigan.....	35	3,731	4.6	51.5	38.7	75.1	.631	32.50	24.40
Minnesota.....	8	940	4.7	49.2	37.6	76.4	.601	29.57	22.57
Missouri.....	19	712	4.9	51.3	39.4	76.8	.562	28.83	22.17
New Hampshire.....	5	359	4.7	48.7	40.2	82.5	.594	28.93	23.83
New Jersey.....	25	2,531	5.0	49.4	40.7	82.4	.677	33.44	27.55
New York.....	34	7,702	4.8	49.2	40.3	81.9	.674	33.16	27.13
Ohio.....	85	10,528	4.6	49.9	37.5	75.2	.622	31.04	23.32
Oregon.....	6	175	5.3	46.2	41.2	89.2	.724	33.45	29.82
Pennsylvania.....	48	8,293	4.2	51.1	35.9	70.3	.614	31.38	22.00
Rhode Island.....	11	1,551	4.2	50.4	34.9	69.2	.591	29.79	20.63
Tennessee.....	9	326	4.7	49.0	35.3	72.0	.567	27.78	19.99
Texas.....	10	554	5.4	48.0	39.1	81.5	.603	28.94	23.59
Washington.....	7	392	5.3	47.6	42.8	89.9	.729	34.70	31.16
Wisconsin.....	14	4,837	4.5	51.1	36.4	71.2	.615	31.43	22.36
Total.....	512	65,938	4.6	49.8	38.2	76.7	.634	31.57	24.22

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State

FOUNDRIES

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																					
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00	
Chippers and rough grinders, male:																									
Alabama.....	3	21	\$.311			5	12	4																	
California.....	19	62	.630						3	1	7	14	10	8	15	3	1								
Colorado.....	3	25	.491						9	4	6	1	2	3											
Connecticut.....	17	83	.504					1	16	24	19	12	8		2	1									
Georgia.....	8	35	.230	3	22	7		2	1																
Illinois.....	30	393	.541				26	25	30	37	69	75	63	42	7	6	7	2						4	
Indiana.....	17	135	.465		1	6	16	23	41	12	9	6	7	5	3	4	4								
Iowa.....	9	63	.505			5	6	14	6	11	6														
Kansas.....	8	38	.349			10	9	8	9	2															
Kentucky.....	5	9	.384				2	4	1	1	1														
Louisiana.....	4	36	.332		3	5	7	11	9	1															
Maine.....	3	42	.462					3	25	7	3		3		1										
Maryland.....	7	29	.462				2	4	9	5	2	5	1		1										
Massachusetts.....	20	150	.579					4	29	46	24	18	12	4	7	4		1					1		
Michigan.....	31	169	.513			1	2	20	26	23	32	23	18	3	7	3	7					1	2	1	
Minnesota.....	6	42	.522						10	6	6	14	6												
Missouri.....	14	41	.470			3		1	12	16	4	1	2	1	1										
New Hampshire.....	4	18	.467					3	4	4	6	1													
New Jersey.....	14	167	.532					3	14	32	40	49	19	6	2										
New York.....	22	264	.531			3	2	8	14	47	65	59	44	16	2	1	1					1	1		
Ohio.....	42	363	.476	2	1	1		24	101	117	49	42	17	3	4	1	1								
Oregon.....	5	18	.583						1	2	9	4	1												
Pennsylvania.....	38	386	.534				2	14	54	100	85	30	36	28	12	16	4	5							
Rhode Island.....	7	78	.541					10	5	14	20	9	10	4	3										
Tennessee.....	6	41	.309			11	19	3	8																
Texas.....	6	17	.381				6	5	2	4															
Washington.....	6	29	.609						5	2	5	9	2	1	3	2									
Wisconsin.....	13	294	.540					2	9	58	102	78	28	5	7	4						1			
Total.....	367	3,048	.509	5	26	47	100	177	417	585	589	466	311	145	72	52	33	9	2	4	4	4	4	4	4

Core makers, female:

Connecticut.....	1	(²)	(²)				(²)		(²)												
Illinois.....	4	15	.412	1	3	3	1	2	1	3	1										
Indiana.....	2	16	.591				1	1	2	1	5	1	3	2							
Kentucky.....	1	(²)					(²)	(²)													
Michigan.....	5	12	.460	1	1	1	2	2	1			2									
New Jersey.....	5	25	.394	2	2	7	6	6	1	3	2	1		1	1						
New York.....	6	51	.407	2	3	3	16	18	3	3	2	1	2	1		2	1				
Ohio.....	1	8	.496				1	1	3	1		2									
Pennsylvania.....	2	24	.447	1	2		3	8	3	4		2		1							
Rhode Island.....	3	4	.460			1	1	1	1	1	1										
Tennessee.....	1	3	.318		1		1														
Wisconsin.....	3	16	.430			2	4	3	5	2											
Total.....	34	179	.430	1	6	12	19	36	37	20	19	8	9	4	4	3			1		
Laborers, male:																					
Alabama.....	4	66	.297	1	28	35	2														
California.....	18	143	.553				2	11	11	59	32	18	3	1							
Colorado.....	3	34	.469					15	7	4	3	2	2				4	1		1	
Connecticut.....	16	265	.461				2	21	93	87	36	13	6	2	2				3		
Georgia.....	9	116	.244	5	32	70	8	1													
Illinois.....	30	723	.495	5	9	30	54	92	169	117	118	73	27	13	7	7	6	1	2		
Indiana.....	17	458	.436	1	3	19	79	143	93	65	19	15	4	10	3	3	6	1	1	2	
Iowa.....	9	148	.522				7	1	27	31	32	19	19	7	1	1	3				
Kansas.....	3	47	.352		3	20	16	6	1	1											
Kentucky.....	5	25	.385		4	3	6	3	2	1	2	2	1								
Louisiana.....	5	58	.284	17	5	24	5	5	1	1											
Maine.....	2	53	.460					16	10	3	3										
Maryland.....	7	114	.391		1	8	77	11	11	9	6		1	1							
Massachusetts.....	20	242	.487				3	13	63	54	56	32	14	1	3	3					
Michigan.....	32	481	.470	1		9	27	35	120	87	91	70	21	13	5		2				
Minnesota.....	5	93	.463					33	35	21	3	1	1								
Missouri.....	13	92	.407	1	10	13	21	17	19	6	4	4									
New Hampshire.....	3	16	.409					6	5												
New Jersey.....	15	418	.447		6	25	38	139	112	74	20	6	2			1					
New York.....	25	829	.485	3	4	15	68	124	172	294	129	30	26	9	9	11	3	1			
Ohio.....	43	923	.460	1	11	19	127	319	216	117	60	21	14	3	3	3	3	4	1	4	
Oregon.....	3	26	.513				1	1													
Pennsylvania.....	38	809	.483	5	8	28	73	276	166	113	39	26	33	20	6	7	6	9			
Rhode Island.....	7	172	.479	1			33	21	57	39	10	6	4	1							
Tennessee.....	6	67	.310		18	33	10	3	1												
Texas.....	5	39	.341		4	17	15	2	1	1											
Washington.....	5	44	.521			1	1	1		25	13	3									
Wisconsin.....	13	428	.460				15	126	194	70	14	7									
Total.....	366	6,907	.460	3	67	189	337	715	1,671	1,546	1,188	604	272	141	69	36	28	16	13	1	6

¹ \$2 and over per hour.

² For less than \$ wage earners in 1 establishment, data included in total.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																									
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00					
Molders, hand, bench, male:																													
Alabama.....	2	4	\$0.656								1						3												
California.....	12	28	.858									1		3		1		3		5									
Colorado.....	2	4	.732														1		3										
Connecticut.....	17	94	.711														15	6	9								2		
Georgia.....	5	22	.620				1										6	5	3										
Illinois.....	21	142	.697				1	4	3	10	11	13	20	18	8	17	4	5	4	7							17		
Indiana.....	17	98	.636						5	6	19	14	12	10	12	6	3	7	3										
Iowa.....	8	39	.658					1	2	4	4	1	5	5	2	9													
Kansas.....	6	16	.493					3	1	1	2	4	1	3															
Kentucky.....	4	10	.648						2	1	1	1	1																
Louisiana.....	2	4	.529				1				2																		
Maine.....	4	17	.643								2																		
Maryland.....	6	33	.712																										
Massachusetts.....	19	149	.887								1		3	6	8	9	12	24	9	43	8					22	3	1	
Michigan.....	26	108	.728											15	9	9	12	8	8	4									
Minnesota.....	5	21	.715				2	1	1	4	7		6	3	5	3	3												
Missouri.....	11	32	.712						1	2	1	2	1	3	6	6													
New Hampshire.....	5	21	.715								2	3	3	2	4														
New Jersey.....	11	88	.800							1	3	2	5	4	8	17	10	11	18	7							2		
New York.....	24	195	.717		1	4	4	7	8	9	8	11	11	25	21	14	20										1		
Ohio.....	31	148	.829							2	6		6	9	5	13	6	10	12	13	15	26	10			21			
Oregon.....	5	12	.723													1	3			6									
Pennsylvania.....	29	143	.629			4	3	7	2	15	11	14	16	10	20	9				8	8	8	8						
Rhode Island.....	7	45	.781							1	1	4	5	5	4	7	6	3	5							3	1		
Tennessee.....	3	23	.534			1	2	1	4	3	3	2	2							1	3	1							
Texas.....	3	10	.559							3	1	2	1	1															
Washington.....	4	18	.728								2	2	2	3			3	4				1							
Wisconsin.....	11	69	.660						3	3		11	5	12	16	7	4			2	2					3	1		
Total.....	300	1,593	.727	1	9	14	29	39	71	105	113	157	184	159	154	133	96	133	55	134	6	1							

Molders, hand, floor, male:																											
Alabama	4	28	.703							1		4	1	1	1	1	17	1	1	12	3	76					
California	19	129	.978										1	1	8	3	10	15	18	12	3						
Colorado	3	29	.728										4	5	13	26	15	33	33	17	17	3	1	5	2		
Connecticut	17	180	.784		2	4	2	1				4	7	11	6	20	6	20	2			3	1	2			
Georgia	9	50	.694			1	1	1	3			7	3	30	3	11	6	37	25	18	16	26	1	70	2		
Illinois	29	304	.803						9			20	30	26	26	17	37	25	18	16	26	1	70				
Indiana	17	175	.684			1	1	1	3			13	21	28	21	18	23	16	14	15							
Iowa	9	76	.767						1			3	4	6	5	4	5	12	7	37							
Kansas	9	57	.559		6	1	3	6				3	13	4	7	8	3										
Kentucky	5	31	.612				4					6	1	2	10	4	2										
Louisiana	5	23	.651			1	1	5				3	8	24	9	2	2		7		2	1					
Maine	4	52	.631					1				2									2	1					
Maryland	7	71	.764									3	10	2	8	7	11	17	3		7	3	1				
Massachusetts	20	212	.958									3	5	13	8	4	27	19	59	10	38	14	7	5			
Michigan	31	287	.894		3	3	6	8	4	6		20	20	29	31	19	57	24	17	25	5	8	2				
Minnesota	6	68	.742									3	4	18	11	6	9	3	2	2							
Missouri	13	91	.720			2	2	10				8	7	14	4	4	5	7	27			1					
New Hampshire	5	20	.674									2	5	7	1	2	3										
New Jersey	15	194	.849		1		1	2	5	4		4	4	17	22	15	17	15	7	14	22	46	2				
New York	25	299	.772				2	5	4	9	5	16	26	37	65	45	21	26	5	30	3						
Ohio	42	412	.825			1		3	10	12		21	23	34	55	46	68	40	100	24	63	11	1				
Oregon	5	24	.859														3	5	13	2		1					
Pennsylvania	39	454	.790		1		1	2	4	16	18	40	44	72	53	70	32	36	45	17	2			11			
Rhode Island	7	74	.751					1	3	5	5	20	10	6	4	11	2			2	5	2					
Tennessee	6	38	.678		1	2	2	2		1	2	6	1	3	6	10	2										
Texas	6	25	.639					3	1	5	2	5	1	1	1	6	1										
Washington	6	38	.884												2	1	11	12	8		4						
Wisconsin	13	221	.800						1	2	9	12	20	30	38	35	24	23	13		13	1					
Total	376	3,752	.782		4	5	17	25	37	70	127	187	296	376	349	489	496	309	366	166	380	39	8	16			
Molders, machine, male:																											
Alabama	1	(²)	(²)								(²)	(²)			1		6	3	2								
California	6	13	.773												2		2										
Colorado	1	6	.624												2		1										
Connecticut	7	103	.605		1	4	7	9	14	14	5	9	16	9	6	2					4	1					
Georgia	2	10	.613						2	2	1	2									1	1					
Illinois	18	377	.680		2	3	6	7	17	31	43	51	54	51	41	31	20		7	1	10	2					
Indiana	14	224	.683			3	5	25	23	34	32	34	21	13	6	13	8		3	3	1						
Iowa	5	43	.624					1	3	9	7	6	6	3	4	2					1						
Kansas	4	10	.459				4	1		1	2	1			1												
Kentucky	3	5	.675							1					1												
Louisiana	2	8	.385			2	4	1	1																		
Maine	1	24	.667									1	6	5	3	3	1					1					
Maryland	5	34	.600					1	4		6	4	3	6	5	2	1		1			1					
Massachusetts	17	109	.704						6		14	13	9	5	17	13	12	11		6	1	2					
Michigan	21	179	.543		3	6	8	10	29	16	19	15	24	20	5	5	4	5	5	1	4						
Minnesota	5	25	.703								6	1		4	5	3	2	4									

1 \$2 and over per hour.
 2 For less than 3 wage earners in 1 establishment, data included in total.
 3 Includes one at \$2 and over per hour.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1981, by sex and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																				
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00
Molders, machine, male—Contd.																								
Missouri	3	20	\$0.652				1	1	1	2	1		8	2			4							
New Hampshire	2	12	.565					1	3	4	2	4												
New Jersey	9	121	.724						8	9	6	14	20	11	12	11	9	4	6	7				
New York	18	292	.655		3	9	15	18	9	17	15	21	31	26	46	26	25	14	9	8				
Ohio	26	360	.733			4	2	8	18	24	29	36	34	44	42	28	35	35	9	10	2			
Pennsylvania	24	311	.683	1			2	12	17	29	39	53	44	37	27	10	13	16	1	3				
Rhode Island	7	104	.656				2	3	10	16	12	14		15	7		4							
Tennessee	1	(¹)	(¹)																					
Texas	2	4	.707																1	1	1			
Washington	1	(¹)	(¹)																					
Wisconsin	10	140	.654				1	2	11	13	15	25	19	20	19	7	(¹) 6	1		1				
Total	215	2,538	.661	6	9	34	59	123	164	257	246	312	306	269	242	158	151	90	50	57	4			1
Molders' helpers, floor, male:																								
Alabama	1	(¹)	(¹)		(¹)																			
California	16	87	.583				1		5	16	34	19	7		2		1	1						
Colorado	1	5	.471					1	2															
Connecticut	14	70	.491					23	18	17	10	2												
Georgia	1	4	.278		2	2																		
Illinois	10	51	.532					2	18	11	10	5	1	2	2									
Indiana	7	19	.472				2	2	5		3	1		3										
Iowa	4	17	.446				4	7	1	4	1													
Kansas	7	24	.347				12	4	7	1														
Kentucky	4	9	.385				1	5	2	1														
Louisiana	1	4	.300				4																	
Maine	3	16	.428				1	9	4	2														
Maryland	5	15	.478					3	4	4			2	1										
Massachusetts	18	74	.530			1	2	11	11	22	9	8	3	3	2	2								
Michigan	14	52	.455		1	6	2	18	6	13	1	3	2	3										
Minnesota	6	31	.473				2	12	8	4		3	2											
Missouri	9	50	.458			1	11	16	8	9	3	1	1											

New Hampshire	2	4	429				1	1	1	1											
New Jersey	13	128	498			2	15	16	22	38	21	11	1	2							
New York	19	123	555				6	9	16	24	27	9	21	9	2						
Ohio	21	122	468		1	2	15	38	18	22	7	6	7	2	1			2	1		
Oregon	5	19	537						4	9	4	2		4	1	2					
Pennsylvania	29	162	474	1		2	16	55	37	25	14	4	4	1	2		1				
Rhode Island	6	24	484				1	8	8	3	1	2		1							
Tennessee	2	4	314			4															
Texas	1	6	361				5	1													
Washington	4	17	525		1	1			3	1	5	4	1								
Wisconsin	8	96	484					15	38	39	1	3									
Total	231	1,234	492		2	5	38	96	259	239	263	151	85	53	23	12	2	2	3	1	
Pattern makers, male:																					
Alabama	2	10	802													1	8	1			
California	7	14	1,101													1	1		1	9	2
Colorado	2	16	870										1	1			3	8		1	
Connecticut	8	15	700							2			5	1	2	1	1		1		
Georgia	2	3	666									2									
Illinois	22	323	862							4	4	5	17	11	16	83	34	54	46	49	
Indiana	11	59	903								1	5	2	8	1	15	2	5	5	19	1
Iowa	7	20	718						1		1	4	3	1	4	2	3	1			
Kansas	3	4	918																1	1	
Louisiana	1	(¹)	(¹)						(¹)	(¹)	(¹)										
Maine	3	9	663								1	1	6	1							
Maryland	5	11	702							2	2	1	1	1					1	2	
Massachusetts	14	60	813								1	1	4	6	16	10	2	10	8	1	
Michigan	11	33	843							1	1	3		3	4	2	2	5	1	10	1
Minnesota	5	26	760							2				3	12	2	2				
Missouri	10	27	866					1					4	1	1	2	2	1		13	
New Hampshire	1	4	513									1	1								
New Jersey	7	82	832							2	2	1									
New York	8	62	825				1			2	2	2	8	3	9	1	3	15	6	28	1
Ohio	16	75	833									1	1		6	12	14	15	10	2	
Oregon	4	15	865								1	2	3	11	6	17	11	16	5	3	
Pennsylvania	23	162	755											2	2	2	2	6	2	1	
Rhode Island	2	12	726							15	10	22	12	21	10	37	12	12	3	10	
Tennessee	5	9	861									1	3	2	1	1	1	1		2	
Texas	5	13	882									1		1	1	1		3		7	
Washington	4	20	991												5					1	
Wisconsin	6	21	785								1	1	1	4	5	5	2	1	8	9	
Total	194	1,107	834				1	1	8	27	28	64	63	86	109	206	103	152	87	167	5

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

		MACHINE SHOPS																								
Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																						
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00		
Assemblers, male:																										
Alabama.....	1	(?)	(?)																							
California.....	21	169	\$0.798								1	1	16	5	19	27	52	29	9	4	6					
Colorado.....	3	14	.711									2	2	1	3	5	1									
Connecticut.....	18	193	.728								1	5	44	35	38	28	29				1					
Georgia.....	3	12	.371		1		3	4	1	2	1							7	3	2	1					
Illinois.....	32	739	.657	1	1	4	8	6	16	24	54	88	108	141	139	90	37	14	4	2	1	1				
Indiana.....	11	268	.611					3	40	106	56	26	20	11	2	4										
Iowa.....	7	61	.621					2	2	3	5	5	17	11	5	2		1						7		
Kansas.....	5	14	.473				2	4	2	1	1	1		2									1			
Kentucky.....	2	26	.432					3	10	12	1															
Louisiana.....	2	7	.522							1	3						1									
Maine.....	3	26	.658						4	2	6	12	6		1											
Maryland.....	5	33	.620					4	4	4	3			2	2	6	3	1	1			2				
Massachusetts.....	31	607	.703			1		5	6	11	27	71	92	103	101	68	43	21	28	13	17					
Michigan.....	29	413	.646				3	9	19	35	48	48	61	51	52	33	14	11	11	9	8	1				
Minnesota.....	6	58	.638						2	6	5	3	10	5	17	4	5	3	3							
Missouri.....	13	65	.582					3	6	5	19	8	5	5	2	1	4				1					
New Hampshire.....	4	31	.547						3	4	9	6	6													
New Jersey.....	17	205	.704						3	4	6	11	36	43	45	30	17	7	3		4					
New York.....	24	562	.669			5	2	7	15	11	49	61	104	80	80	53	50	16	17	5	7					
Ohio.....	50	600	.619					2	9	48	112	103	99	75	69	39	23	10	7		3	1				
Oregon.....	5	29	.770														4	8	5		1					
Pennsylvania.....	37	745	.655			4		19	25	51	77	100	122	74	85	62	60	20	15	19	18		2	2		
Rhode Island.....	5	112	.572				1	2	3	11	15	26	37	12	3	1										
Tennessee.....	3	17	.466				3		3	6				2	2											
Texas.....	4	11	.575					1	2		3	1	2		2						1					
Washington.....	6	48	.781								1	2		3	6	14	13	9	7		1					
Wisconsin.....	13	379	.636							6	50	92	84	61	45	30	9									
Total.....	360	5,446	.656	1	2	14	22	74	169	355	549	679	865	742	712	509	355	153	104	57	70	12	2			

Boring-mill operators, male:

Alabama	5	22	739								1																				
California	21	57	856								1																				
Colorado	2	9	627																												
Connecticut	16	83	702								4	6	18	13	20	9															
Georgia	2	5	517								1	1																			
Illinois	24	190	753								3	2	7	4	14	33	27	30	26	27	7	6	3	1							
Indiana	10	35	650								1	2	1	5	9	6	3	7	1												
Iowa	5	13	604								1				3	1															
Kansas	3	6	519								2				2																
Kentucky	2	4	703											1	1	1	1														
Louisiana	3	6	711															5													
Maine	3	12	574											3	4																
Maryland	5	13	745											1	2		3				1										
Massachusetts	29	154	730											3	8	24	25	29	26	18		8	4	4	5	2	1				
Michigan	14	83	717											8	8	11	8	3	7	3	5	1	2	12	2		1				
Minnesota	6	20	681											1	3	11	2	2													
Missouri	5	21	627																6	2											
New Hampshire	2	3	600											1	1																
New Jersey	17	71	794											1	7	9	10	11	10	6		13	7	2	2		2				
New York	24	133	707								3	7		8	3	18	26	17	11	8	9		6	6	10						
Ohio	68	333	725												2	9	20	28	81	65	53	28	23	14	6		4				
Oregon	3	9	775																1	5			3								
Pennsylvania	39	247	758											2	3	4	12	22	46	42	33	43	15	11	5	7	2				
Rhode Island	6	18	645												3	6			1	3			1								
Tennessee	3	3	757																1	1				1							
Texas	2	2	673																	1											
Washington	6	23	832															1	1	4	7	4	7	5	5	1					
Wisconsin	12	148	724												2	9	22	29	19	29	19	22	7	5	4						
Total	337	1,722	733												2	5	19	20	67	91	195	308	267	238	212	121	75	46	50	5	1

Drill-press operators, male:

Alabama	4	15	486								2	2	4	4	2	1															
California	21	102	685											1	4	26	29	20	8	10		3									
Colorado	3	18	638												3	6	1	2	2												
Connecticut	18	90	636												7	18	11	9	7		4	5	1								
Georgia	4	8	407																												
Illinois	28	372	658																												
Indiana	17	123	500																												
Iowa	5	88	537																												
Kansas	5	10	394																												
Kentucky	5	19	513																												
Louisiana	3	4	496																												
Maine	3	24	543																												
Maryland	4	18	643																												
Massachusetts	36	342	650																												
Michigan	25	145	535																												
Minnesota	8	50	583																												
Missouri	12	43	517																												
New Hampshire	4	13	647																												

* For less than 3 wage earners in 1 establishment, data included in total.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																					
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00	
Drill-press operators, male—Con.																									
New Jersey.....	19	130	\$0.691				2	2	3	9	12		22	25	15	18	10	5	3	2	2				
New York.....	30	338	.665		3	4		10	20	31	39	46	49	52	31	32	11	4	3	3					
Ohio.....	72	490	.586		1	5	6	18	59	85	88	101	75	17	11	11	3	2	4	2	1	1			
Oregon.....	6	10	.635							2	3	1	1	2											
Pennsylvania.....	46	400	.582		2	4	5	29	52	82	48	57	42	31	30	12	1	2	1	1	1				
Rhode Island.....	11	45	.539				2	7	6	8	10	6	1	3	2										
Tennessee.....	2	6	.567					1	2	1			1			1									
Texas.....	4	25	.535			3	2		1	4	6	6	2	1											
Washington.....	6	25	.684					2					4	4	12										
Wisconsin.....	14	186	.616						11	35	39	40	30	20	8	2	1								
Total.....	415	3,139	.612		13	35	65	188	293	439	445	504	440	321	190	118	48	30	20	16	3	1			
Fitters and bench hands, male:																									
Alabama.....	3	44	.675				1			1	5	11	10	5	7	4									
California.....	12	71	.851							1		2	4	5	17	11	9	13	3	5	1				
Colorado.....	1	8	.587							1	1	1	2												
Connecticut.....	20	223	.638						5	35	38	46	29	46	15	8	1								
Georgia.....	2	13	.514					2		6	6	2	3												
Illinois.....	22	307	.659			1	5	4	12	38	25	58	38	36	30	28	11	7	7	3	1				
Indiana.....	13	118	.575			1	5	8	34	29	17	7	12	4	1										
Iowa.....	4	42	.613			1	1	3	6	6	10	6	8												
Kansas.....	3	15	.678					1		5	3										1				
Kentucky.....	4	47	.662						1	2	4	10	15	9	3	3					6				
Louisiana.....	2	2	.353			1			1																
Maine.....	2	20	.567					2	4	4	2	4	1	3	5										
Maryland.....	4	16	.719					1	1	1		1	1	4											
Massachusetts.....	27	582	.672						14	63	84	108	111	69	57	15	18	16	11	13	2				
Michigan.....	20	164	.620				2		30	22	26	20	12	15	19	6	4	5	2	1					
Minnesota.....	7	27	.657					1				6	11	6	2	1									
Missouri.....	7	43	.523			1	5	8	9	4	4	3	1	1	2	2	3								
New Hampshire.....	1	35	.604					2	1	11	3	3	2	10	2	1									

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																					
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00	
				Laborers, male—Continued.																					
Illinois.....	31	607	\$.474			2	21	37	148	165	123	76	20	7	3	3	2								
Indiana.....	16	198	.413		1		5	49	86	43	5	5	2												
Iowa.....	7	84	.459		4		1	12	10	25	13	14	4	1											
Kansas.....	5	6	.307		1		1	1	2																
Kentucky.....	5	25	.398					10	13	1	1														
Louisiana.....	4	23	.240		2	11	7	2	1																
Maine.....	3	29	.419						22	6															
Maryland.....	6	23	.422					4	10	8		1													
Massachusetts.....	29	399	.471				2	19	149	85	76	37	18	8	3	1									
Michigan.....	28	224	.475			1	8	28	36	43	61	30	13	4											
Minnesota.....	7	111	.434					4	52	39	15	1													
Missouri.....	8	49	.407		1		2		11	21	8	3	3												
New Hampshire.....	3	13	.487						5	2	3	1	2												
New Jersey.....	20	210	.482				6	4	34	57	73	26	9		1										
New York.....	31	705	.501			6	11	15	169	143	158	86	62	35	15	3	2								
Ohio.....	76	843	.449			2	10	80	298	258	142	38	12	3											
Oregon.....	4	9	.511						2	4	3														
Pennsylvania.....	46	632	.446		1	4	24	84	214	151	101	20	7	7	5	5	6	3							
Rhode Island.....	11	106	.435					2	11	51	25	12	4	1											
Tennessee.....	8	42	.315			4	31	7																	
Texas.....	9	63	.388		1	1	12	7	9	20	7	1	4												
Washington.....	3	16	.550						1	3	2	5	1	4											
Wisconsin.....	14	397	.444				2	44	126	168	53	12	1			1									
Total.....	426	5,173	.455	9	60	78	161	448	1,523	1,286	930	390	159	73	29	13	10	4							
Lathe operators, engine, male:																									
Alabama.....	5	43	.718								1	3	9	9	15	6									
California.....	19	120	.880									1	7	8	32	3	17	8	12						
Colorado.....	3	11	.731							2	1		2	2	3	1									
Connecticut.....	17	147	.668							12	10	20	23	28	22	2				1					
Georgia.....	3	15	.488				3	2	1	3			2	4											

Illinois	26	392	.724			2	3	5	11	23	26	40	50	73	47	53	23	13	10	10	2	1		
Indiana	12	98	.597			1	1	2	1	15	20	29	16	8	4	2								
Iowa	7	26	.666				1	1		1	3	3	9	7		1								
Kansas	6	33	.633			5	1		2	6	3	1	2	2		1					12			
Kentucky	5	15	.633						1	5	1		5	2	1									
Louisiana	3	12	.633				2	2					1	1		7								
Maine	3	48	.566			1	1	7	8	13	8	10	4	3	2									
Maryland	5	15	.661						2	4		4	3	2										
Massachusetts	34	307	.708					2	5	16	27	53	51	54	35	25	14	5	4	14	2			
Michigan	24	181	.670	1	1	1	4	7	13	23	20	21	19	10	15	12	13	13	3	5				
Minnesota	8	44	.667					1	4	1	7	12	7	12										
Missouri	13	64	.584			1	2	9	7	10	9	6	4	2	1	7	5				1			
New Hampshire	4	16	.636					1	1	2	4	7	1											
New Jersey	20	156	.742					2	4	6	12	26	29	33	17	6	16	4	1					
New York	29	348	.748					2	5	11	13	29	48	52	47	88	38	4	5	6				
Ohio	78	602	.698					7	13	35	53	116	96	104	78	43	21	16	8	12				
Oregon	6	26	.838										4	3	4	5	5	1	2	2				
Pennsylvania	42	451	.708			1	4	5	7	28	45	71	54	59	67	62	23	13	2	10				
Rhode Island	10	52	.599				2	4	5	8	7	7	12	2	2						1			
Tennessee	1	3	.856													1	2							
Texas	3	60	.709						1		6	5	11	4	17	16								
Washington	7	30	.788										2	7	5	10	3	3						
Wisconsin	14	236	.703							3	15	49	60	47	24	19	6	10	3					
Total	407	3,551	.706			1	3	11	22	49	96	211	300	490	542	517	441	411	196	119	50	86	5	1
Lathe operators, turret, male:																								
Alabama	2	14	.647								5	4	3	1			1							
California	17	74	.803							2	3	2	2	7	25	12	9	8		3				
Colorado	2	20	.655				3				2	4	4	3	2	1								
Connecticut	16	98	.637						5	8	17	26	20	10	4	5	3							
Georgia	3	4	.568						1	1			1	1										
Illinois	25	302	.732				2	3	7	11	23	44	30	31	43	51	32	13	7	5				
Indiana	12	70	.644					2	2	13	16	10	7	5	13	2								
Iowa	5	62	.578			1	1	5	6	9	12	11	13	4										
Kansas	3	4	.526				2			1							1							
Kentucky	3	38	.623				1	4	11	7	6	4	3	2										
Louisiana	1	(¹)	(²)					(³)																
Maine	2	23	.567					2	2	6	5	5	1	1	1									
Maryland	3	15	.739					1			1	1		4	5	2			1					
Massachusetts	30	259	.674					2	4	17	52	37	29	41	36	18	12		5	1				
Michigan	20	140	.588				5	8	24	19	15	14	16	11	11	5	6	5	1					
Minnesota	8	38	.644					1	1	2	2	9	14	5	4									
Missouri	10	33	.532			1	3	3	8	4	3	2	3	1		5								
New Hampshire	4	25	.629					1	1	2	1	12	3	3		2								
New Jersey	15	96	.809						9	3	2	10	16	13	15	9	19	5	4					
New York	22	245	.682			1	1	5	3	9	26	15	41	29	51	18	20	15	9	3				
Ohio	57	304	.650			1	1	2	8	15	32	32	58	62	23	11	8	1						
Oregon	3	5	.702										1	1		3								
Pennsylvania	28	322	.653					3	5	15	28	47	37	37	3									
Rhode Island	8	28	.641						2	3	3	11	3	1	3	1	1							

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																				
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00
Lathe operators, turret, male—Con.																								
Tennessee.....	3	5	\$0.646								1	2			2									
Texas.....	2	52	.708					1		4	4	2	2	4	23	10		2						
Washington.....	5	29	.726								1	2	3	7	10									
Wisconsin.....	14	161	.680							1	9	23	29	28	37	19	5	4	5	1				
Total.....	333	2,467	.672			3	2	24	53	115	204	292	391	331	354	283	195	109	73	24	14			
Machinists, male:																								
Alabama.....	6	30	.718							3	1	4			3	13		3						
California.....	15	35	.915																10	9		9		
Colorado.....	3	28	.732									1		3	6	4		4	1			4		
Connecticut.....	16	45	.762											7	13	8		5	2	7		1		
Georgia.....	9	64	.652											14	20	9		1	2					
Illinois.....	31	428	.801						1	2	4	9	14	20	2	9		1	2					
Indiana.....	10	37	.693									1	4	9	5	10		4	1			20	23	1
Iowa.....	3	9	.637									2	2	5	1									
Kansas.....	11	60	.626					2	1	7	6	6	3	8	19	6						2		
Kentucky.....	4	38	.588						2	7	7	2	4	5	10									
Louisiana.....	5	29	.892									1	1	3	3			5	2	1		5	7	
Maine.....	4	34	.646									6	8	12	4	4								
Maryland.....	6	52	.734										7	6	19	9		4	4		3			
Massachusetts.....	35	377	.701								4	11	33	52	94	106		36	17	11	7	6		
Michigan.....	29	142	.773				1	2	3	7	5	8	14	13	17	20	19	21	7	3		2		
Minnesota.....	7	40	.722										4	12	9	6		4	2	2	1			
Missouri.....	14	52	.751				1		3	2	6	8	5	1	2	2		5	3			13	1	
New Hampshire.....	5	41	.634							4	4	15	8	7	1	1		1	1					
New Jersey.....	16	81	.757							1	2	3	7	11	7	20	14	7	1	2		6		
New York.....	20	180	.779								4	1	10	18	28	36		31	7	5	4			
Ohio.....	42	254	.705							6	3	13	42	36	71	37		28	11	4	2	1		
Oregon.....	2	2	.850															1	1					
Pennsylvania.....	42	267	.701							3	14	36	41	41	49	28		25	12	8	2	6	2	
Rhode Island.....	8	48	.697							1		5	22	5	5	3		2	2		3			
Tennessee.....	9	87	.712								1	7	9	15	21	20		13						

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																					
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00	
				Milling machine operators, male—Continued.																					
Minnesota.....	5	23	\$0.639					1	3	1	5	4	2	4	3										
Missouri.....	7	26	.547				2	2	3	4	2	3	2	5	1										
New Hampshire.....	3	13	.641				2																		
New Jersey.....	13	77	.806					1																	
New York.....	27	386	.722			7	12	7	5	15	32	22	43	52	55	64	50	8	12	2	3				
Ohio.....	67	382	.657				2	9	19	25	61	74	68	49	31	20	12	5	1	5	1				
Oregon.....	2	3	.891												1										
Pennsylvania.....	37	236	.665				1	4	11	18	28	39	31	39	3	22	3	3	2	2					
Rhode Island.....	8	50	.609			1	1				2	8	9	12	5	6	3	3							
Texas.....	1	21	.538					5	2	6	3	1	1	1											
Washington.....	6	26	.766											3	2	8	10	2							
Wisconsin.....	13	119	.664						1	10	16	27	29	13	11	6	6								
Total.....	331	2,246	.685			1	12	25	59	82	163	250	301	312	399	253	210	135	79	30	33	2			
Pattern makers, male:																									
Alabama.....	4	28	.783							1					1	6	15	4	1						
California.....	15	42	1.044												1	1	2	3	1	3	32				
Colorado.....	2	3	.907																	1	1				
Connecticut.....	12	67	.808									7	5	4	12	19	7	7	1	7	5				
Georgia.....	5	14	.715							1	2			2	2	3	2								
Illinois.....	16	107	.827								3	3	13	12	16	19	14	6	1	20					
Indiana.....	5	12	.691							4	2	2			1					3					
Iowa.....	3	4	.875												1	1	1				1				
Kansas.....	6	8	.596					1		1	3				2										
Kentucky.....	2	2	.724												1	1									
Louisiana.....	4	6	.960													1				3	1				
Maine.....	2	9	.665												2	4									
Maryland.....	3	10	.810												1	2	4	4		20	5	8			
Massachusetts.....	30	176	.787							4	3	12	10	23	29	41	21	20	5	5	8				
Michigan.....	16	47	.718							2	3	6	12	7	4	3	1	5	3	1					
Minnesota.....	3	9	.747							1					3	1	3								

Missouri.....	5	7	937									1	2	1	1	1	1	3			
New Hampshire.....	14	6	716									2	2	4	5	8	1	4	13	2	
New Jersey.....	5	54	861									5	6	5	4	5	1	4	13		
New York.....	25	175	833								1	2	10	22	11	13	12	43	30	7	
Ohio.....	51	218	824				1	1	2	2	2	6	8	24	26	38	35	35	17	24	
Oregon.....	2	3	971																	2	
Pennsylvania.....	24	154	822				1	3	5	4	4	10	13	34	38	12	10	1	22	1	
Rhode Island.....	9	42	729				2			4	4	8	11	8	1	5	3				
Tennessee.....	4	6	897						(*)										1	3	
Texas.....	1	(*)	(*)																		
Washington.....	2	2	945								1									1	
Wisconsin.....	12	220	792								7	21	56	49	31	28	17	8	2	1	
Total.....	282	1,431	812				1	5	21	29	68	125	177	215	235	193	133	59	166	4	
Planer operators, male:																					
Alabama.....	5	12	743								1		4	4	3						
California.....	16	36	810								1	1	2	10	13	5	2	1	1		
Colorado.....	2	2	700										2								
Connecticut.....	14	83	743						4	4	8	17	18	10	7	8	2	2	3		
Georgia.....	1	(*)	(*)							(*)											
Illinois.....	20	85	784				1	2	4	7	13	13	15	7	5	8	1	8	1		
Indiana.....	9	21	643					3	3	5	6	3	1								
Iowa.....	3	5	667							1	1	3									
Kansas.....	5	7	524				1	1	1										2		
Kentucky.....	4	6	739						2				1	2	2	1					
Louisiana.....	1	3	800												3						
Maine.....	2	12	610					1		3	4	3	1								
Maryland.....	3	9	699					1	2				1	4	1						
Massachusetts.....	33	138	747						5	8	14	17	23	23	14	14	8	2	5		
Michigan.....	13	32	659				1	1	3	7	4	5	1	2	2	2	2		1		
Minnesota.....	6	10	654							2	2	3	2		1						
Missouri.....	5	14	704					1	2	1	2	3		1	1	2			1		
New Hampshire.....	2	4	619								4										
New Jersey.....	16	32	819					1		2	1	2	5	4	2	2	5	5	2	1	
New York.....	22	123	689				1		4	2	19	10	8	17	12	19	16	8	6		
Ohio.....	64	289	733					1	5	10	18	29	62	61	31	23	12	23	5	8	
Oregon.....	4	7	908											2	2	1		1	1		
Pennsylvania.....	34	118	792				2		5	3	7	11	21	17	13	9	13	6	9		
Rhode Island.....	8	16	645					1	2	2	3	3	1	1	3						
Tennessee.....	2	2	760												2						
Texas.....	2	2	737										1								
Washington.....	6	12	786										3	3	4	1	1				
Wisconsin.....	13	89	725						4	2	20	13	16	16	7	6	3	1	1		
Total.....	315	1,168	738				3	2	8	14	63	69	122	179	194	172	124	75	73	24	
Screw machine operators, hand, male:																					
California.....	3	8	510					2	3	2					1						
Connecticut.....	5	10	665					1	1					1	2	2	3				

* For less than 3 wage earners in 1 establishment, data included in total.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued**MACHINE SHOPS—Continued**

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																						
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00		
Screw machine operators, hand, male—Continued.																										
Illinois	11	51	.636				2	3	3	4	6	9	6	9	4	1		3	1							
Indiana	7	16	.549							2	5	4	4	1												
Kansas	1	(¹)	(¹)			(¹)		(¹)																		
Kentucky	1	22	.511				1	6		5	2	3	3	2												
Maryland	1	8	.744											5	3											
Massachusetts	16	80	.692						3	3	5	11	17	16	11	7	4	1	2							
Michigan	9	80	.731					1	4	8	10	9	4	6	15	7	5	3	4	3	1					
Minnesota	1	(¹)	(¹)									(¹)														
Missouri	2	5	.447	1				1		2	1	1														
New Hampshire	2	5	.637					1	1		1	1	1													
New Jersey	3	5	.574					2		1				1												
New York	12	91	.731			1		1		1	3	7	13	23	27	8	7									
Ohio	39	162	.608			1	2	8	15	19	20	36	33	16	3	8		1								
Pennsylvania	5	41	.679						2	2	7	4	4	5	3	7	1	3	2							
Rhode Island	4	25	.581					1	3	4	2	12	2	1												
Wisconsin	6	28	.629						1	1	5	10	5	4	2											
Total	128	640	.654	1		4	5	28	43	54	67	108	91	88	72	38	17	11	9	3	1					
Screw machine operators, semiautomatic, male:																										
Connecticut	2	6	.752										2		2											
Illinois	4	15	.744					1					2	5	1	6										
Massachusetts	8	38	.676						1	3	7	7	5	4	8				1	1						
Michigan	1	(¹)	(¹)									(¹)														
Minnesota	1	(¹)	(¹)									(¹)			(¹)											
Missouri	1	(¹)	(¹)					(¹)																		
New Jersey	6	13	.819										2	3	1	3	1	1	1	1	1					
New York	3	6	.719							1			2	1	1											
Ohio	4	10	.592						1	1	3	2	3													

Pennsylvania.....	5	14	.752							1	2	3	2	3	1			1	1		
Rhode Island.....	2	2	.538							1	1										
Total.....	37	108	.705				2	2	6	13	12	19	16	16	14	1	1	3	3		
Screw machine operators, auto-																					
matic, male:																					
Alabama.....	2	2	.556						1					1							
California.....	1	11	.617						4	4				2	1						
Colorado.....	1	4	.621							1	1			1							
Connecticut.....	8	13	.721					1				2		4		2	3		1		
Illinois.....	11	38	.686		3	2	3	1	2	1	4	1	5	6	5	3	1			1	
Indiana.....	4	5	.632						1	1	2	2		2							
Iowa.....	2	10	.608						2	2	3	2		1							
Kentucky.....	1	9	.574				1	1	1	2	1	3									
Maine.....	1	4	.518				1	1	1		1										
Maryland.....	1	(⁹)	(⁹)											(⁹)							
Massachusetts.....	7	33	.710					1	1	1	7	3	7	6	4	1	2				
Michigan.....	10	43	.790					2	3	3	2	4	3	8	3	5	3	2		5	
Minnesota.....	3	7	.749								2	2	2	2	3						
Missouri.....	4	7	.589				2		1		1	2	1								
New Hampshire.....	3	4	.535						2	1	1										
New Jersey.....	4	11	.777						1	2				1	2	2	3				
New York.....	14	39	.761		1		2	1		1	3	4	4	11	6	1	3		1		
Ohio.....	22	155	.676					2	12	16	32	40	26	13	7	5	2	3			
Pennsylvania.....	11	51	.689			2		2	4	4	7	6	7	6	6	2	3		1		
Rhode Island.....	4	10	.623				1		1	1	5			1	1						
Texas.....	1	6	.622						1	1	2			2							
Washington.....	1	(⁹)	(⁹)													(⁹)					
Wisconsin.....	6	22	.742						2	2	2	4	4	5	1	2					
Total.....	122	486	.694		1	3	4	9	14	39	42	74	74	63	56	50	26	18	5	8	
Toolmakers, male:																					
Alabama.....	3	17	.700								5	2	4	3	1	2					
California.....	17	52	.909									2		8	8	14	7	4	7	2	
Colorado.....	1	11	.536								1	2		1	1						
Connecticut.....	17	135	.788		1	4	1				1	11	13	36	28	24	8	11	2	1	
Georgia.....	4	5	.658								1			2							
Illinois.....	25	308	.797				1	7	5	22	38	27	51	48	22	26	40	21			
Indiana.....	12	77	.673						4	22	23	15	9	2	1						
Iowa.....	4	30	.672						1	4	14	9	2								
Kansas.....	3	5	.614			1					2	1	1								
Kentucky.....	5	15	.699						1	3	2	2	2	7							
Maine.....	4	11	.666						1	3	2	2	2	1	1						
Maryland.....	3	29	.784						1	1		2	7	17	1	1					
Massachusetts.....	32	266	.640					1	7	26	38	66	75	32	11	8	2				
Michigan.....	22	103	.821					4	6	7	8	6	9	11	17	21	2	9	2	1	
Minnesota.....	8	27	.738						1	1	3	7	9	4	1	1					
Missouri.....	11	23	.684						1	7	6	2	1	3	3	3					
New Hampshire.....	2	12	.775									3	2	5	2						

* For less than 3 wage earners in 1 establishment, data included in total.

TABLE B.—Average and classified earnings per hour in 8 specified occupations in foundries and 17 in machine shops, 1981, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average earnings per hour	Number of employees whose earnings per hour were—																								
				Under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 35 cts.	35 and under 40 cts.	40 and under 45 cts.	45 and under 50 cts.	50 and under 55 cts.	55 and under 60 cts.	60 and under 65 cts.	65 and under 70 cts.	70 and under 75 cts.	75 and under 80 cts.	80 and under 85 cts.	85 and under 90 cts.	90 and under 95 cts.	95 cts. and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$1.75 and under \$2.00				
				Toolmakers, male—Continued.																								
New Jersey.....	15	79	\$0.785							2					4	16	16	18	15	5	2	1						
New York.....	28	390	.802							3		7		40	17	45	33	81	70	59	16	19						
Ohio.....	65	432	.759						1		10	15	21	80	66	88	68	36	26	8	11	2						
Oregon.....	2	3	.789											1	1													
Pennsylvania.....	38	156	.750							1		2	20	22	28	35	23	16	6	1	2	2						
Rhode Island.....	7	74	.768									1	11	9	12	16	8	12	2									
Tennessee.....	4	4	.810												2	1	1	1										
Texas.....	5	11	.729										1		3	1	3	1	2									
Washington.....	4	8	.831												2		2	2	1	1	1							
Wisconsin.....	14	103	.761									1	4	17	27	27	11	6	5	1	2	1	2					
Total.....	355	2,386	.758				1	6	2	29	58	210	307	380	436	370	242	181	80	75	8	1						

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1981, by sex and State

FOUNDRIES

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—																										
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60											
				Chippers and rough grinders, male:																										
Alabama.....	3	21	53.8												5												16			
California.....	19	62	45.5			41							14	4	3															
Colorado.....	3	25	48.0																											
Connecticut.....	17	83	48.8			10		6	9	5	5	8	26				7						1		6					
Georgia.....	8	35	50.9										14	17										4						
Illinois.....	30	393	49.7			45			1			126	8	111	16		88					8								

Indiana.....	17	135	50.9					11		15		63		39		2	5		
Iowa.....	9	63	53.3							4		8	19	17		10			
Kansas.....	8	38	56.2											19			12		6
Kentucky.....	5	9	52.3	1						2		2				1			3
Louisiana.....	4	36	51.4							25							8		3
Maine.....	3	42	49.6			3						39							
Maryland.....	7	29	51.5					6	3			4		13					3
Massachusetts.....	20	150	47.4			16		6	7	117		3		1					
Michigan.....	31	169	52.4			1		10		3	23	55	2	33		15			27
Minnesota.....	6	42	51.4							16		11		14					1
Missouri.....	14	41	51.7					2		12		2	2	20			3		
New Hampshire.....	4	18	51.0							6		6		7					
New Jersey.....	14	167	47.8			45			7	55		49	11						
New York.....	22	264	49.7					49		68	3	46	65	31		2			
Ohio.....	42	363	51.4	5		4		23	1	56	19	117		84		10			44
Oregon.....	5	18	47.6					2		16									
Pennsylvania.....	38	386	52.5	3		6		19		35	5	115	41	31		125			6
Rhode Island.....	7	78	50.4						11			48	19						
Tennessee.....	6	41	48.5					7	1	8	3	21		1					
Texas.....	6	17	50.2					1		5	3	5							3
Washington.....	6	29	47.9							2		27							
Wisconsin.....	13	294	51.7							34		56	178				26		
Total.....	367	3,048	50.6	9	10	171	6	137	41	655	84	809	370	405		215	34	101	1
Chippers and rough grinders, female:																			
Indiana.....	1	12	50.0									12							
Core makers, male:																			
Alabama.....	3	16	54.7									1							
California.....	18	72	45.3			52				13	3	4					15		
Colorado.....	3	18	48.0							18		6	14						
Connecticut.....	17	100	49.4		7		5	8	14			25		13				8	
Georgia.....	9	20	51.0							6		4		4					
Illinois.....	29	245	49.3				49			38	4	96	21	37					
Indiana.....	17	99	51.3							19		21		38		5	5		
Iowa.....	9	58	52.5				1	10		6		11	15	20		8			3
Kansas.....	10	25	56.0											14			5		6
Kentucky.....	5	8	48.6	2						3		1				1			1
Louisiana.....	4	9	54.3							4							3		2
Maine.....	4	11	47.3					5				6							
Maryland.....	7	34	48.6						9	4		7		6					
Massachusetts.....	21	84	47.1			12		9	8	49		5		1					
Michigan.....	32	152	51.4		10			2	1	4	21	12	37	27		15			22
Minnesota.....	6	52	51.1									25		10					
Missouri.....	14	31	51.5						1			9		4		1		1	
New Hampshire.....	4	7	50.9							3				3					
New Jersey.....	14	106	50.0				8			24		40	34						
New York.....	26	223	49.1						56	62	3	39	27	31		5			
Ohio.....	42	262	50.0	5		1		15	3	85	7	72		56		16			2
Oregon.....	6	9	47.6			1				8									
Pennsylvania.....	38	330	50.1	5		3		27	20	89	1	72	30	10		58			5

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—															
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
Core makers, male—Continued.																			
Rhode Island.....	7	39	50.5					2				29	8						
Tennessee.....	5	18	49.0			1		1		10		5							
Texas.....	6	13	47.0			3			5	4		1							
Washington.....	6	20	47.9						3	17							20		
Wisconsin.....	13	192	51.1							54		30	88						
Total.....	374	2,253	50.0	22	7	133	6	137	63	541	79	530	228	288		151	22	41	
Core makers, female:																			
Connecticut.....	1	(1)	(1)								(1)								
Illinois.....	4	15	50.3							4		8		3					
Indiana.....	2	16	49.1						3			13							
Kentucky.....	1	(1)	(1)					(1)											
Michigan.....	5	12	52.0									6		6					
New Jersey.....	5	26	47.8			10						14	2						
New York.....	6	51	47.0					28			23								
Ohio.....	1	8	44.5				8												
Pennsylvania.....	2	24	50.3							16							8		
Rhode Island.....	3	4	50.9						1			1	2						
Tennessee.....	1	3	50.0									3							
Wisconsin.....	3	16	48.7			4						11	1						
Total.....	34	179	48.6			14	8	33	1	20	25	56	5	9		8			
Laborers:																			
Alabama.....	4	66	53.6							1		17				48			
California.....	18	143	46.3			64				63	11	5							
Colorado.....	3	34	48.0							34									
Connecticut.....	16	265	51.7		19		9	25	12	4	11	86		46			23	7	23
Georgia.....	9	116	51.2									56	43			17			
Illinois.....	30	723	49.9			91			6	163	2	250	31	148		14		5	3
Indiana.....	17	458	51.7						42	55		157		146		8	26	22	2
Iowa.....	9	148	56.3							16		12	10	72		4		9	25

Kansas.....	8	47	57.2										23			8	12	4
Kentucky.....	5	25	53.8	2						3		6					10	
Louisiana.....	5	58	52.3							34			5		4		12	
Maine.....	2	33	49.8				1					32				7		
Maryland.....	7	114	51.4					31	3			18						
Massachusetts.....	20	242	47.9			26		12	12	174		18					11	
Michigan.....	32	481	52.9	7	14			27		18	43	122	109	11	28		68	27
Minnesota.....	5	93	51.7							44		18					9	
Missouri.....	13	92	53.8					1		12		3				16	4	
New Hampshire.....	3	16	50.4							1		13						
New Jersey.....	15	418	49.3			64			5	73		180	89					
New York.....	25	829	49.3					305		119	3	156	97				19	19
Ohio.....	43	923	51.8	12		10	2	85	11	127	69	211	203			54	130	9
Oregon.....	3	26	48.1			2				24								
Pennsylvania.....	38	809	50.3	9		5		43		156	12	202	81	32		218	13	8
Rhode Island.....	7	172	50.2						38			107	19				8	
Tennessee.....	6	67	49.1			6		3		9	11	35		3				
Texas.....	5	39	49.3							25	6	3					5	
Washington.....	5	44	48.0							1	43							
Wisconsin.....	13	426	51.4							94		103	190			31	3	5
Total.....	366	6,907	50.8	30	33	276	11	580	107	1,229	206	1,818	560	1,014	11	450	93	125
Laborers, female:																		
Indiana.....	1	3	50.0									3						
Michigan.....	2	2	52.0									1		1				
New York.....	1	3	45.0					3										
Ohio.....	1	(1)	(1)				(1)											
Total.....	5	10	47.8				2	3				4		1				
Molders, hand, bench, male:																		
Alabama.....	2	4	52.5									2				2		
California.....	12	28	46.1				15			9	1	3						
Colorado.....	2	4	48.0							4								
Connecticut.....	17	94	51.3			2		3	5	2		9	5	29		29	9	
Georgia.....	5	22	49.8							3			11		8			
Illinois.....	21	142	50.3			17				26	3	45	13	38		3		
Indiana.....	17	98	51.4					10		10		37		30		3	8	
Iowa.....	8	39	53.4							7		4	3	17		1		7
Kansas.....	6	16	55.5											12				4
Kentucky.....	4	10	53.2							4		1				2		3
Louisiana.....	2	4	57.0							1								3
Maine.....	4	17	45.9				3					14						
Maryland.....	6	33	51.4					4	5	2		1		21				
Massachusetts.....	19	149	47.2			25		6	8	105		3		2				
Michigan.....	26	108	50.0			2		3	11	28	11	30		12		3		8
Minnesota.....	5	21	50.2								15	3		3				
Missouri.....	11	32	52.3						1			8		3			5	
New Hampshire.....	5	21	49.6							10				3				
New Jersey.....	11	88	48.6						1	61		26	1					

1 For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—															
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
Molders, hand, bench, male—Continued.																			
New York.....	24	195	50.3					11		46	7	78	9	33		11			
Ohio.....	31	148	49.8	5				5	2	70	8	14		36		5		3	
Oregon.....	5	12	47.0			3				9									
Pennsylvania.....	29	143	51.6	4				13		13	3	32	38	5		19		16	
Rhode Island.....	7	45	50.4						2			36	7						
Tennessee.....	3	23	49.7							3	2	18							
Texas.....	3	10	47.9						7			1							
Washington.....	4	18	48.0							18						8			
Wisconsin.....	11	69	51.3							4		35	22						
Total.....	300	1,593	50.2	9	2	65	3	58	41	449	55	433	101	256		55	22	44	
Molders, hand, floor, male:																			
Alabama.....	4	28	53.5							1		7				20			
California.....	19	129	44.9			103				21	2	3							
Colorado.....	3	29	48.0							29									
Connecticut.....	17	180	49.8		3		10	31	2	17	9	63		33			12		
Georgia.....	9	50	50.1					5	4			19	17			5			
Illinois.....	29	304	49.1			64		4		87	14	53	21	61			9		
Indiana.....	17	175	51.0					19		39		42		62		4			
Iowa.....	9	76	50.7							40		11	3	10		6		6	
Kansas.....	9	57	55.1											47				10	
Kentucky.....	5	31	50.7	9						2		7				3		10	
Louisiana.....	5	23	53.6							11				2		4		6	
Maine.....	4	52	46.3			32						20							
Maryland.....	7	71	47.7					22	11	27		3		8					
Massachusetts.....	20	212	47.3			22		16	19	145		9		1					
Michigan.....	31	287	51.8	2		11	3	4	4	58	26	58		45		32		44	
Minnesota.....	6	58	51.3							23		18		22					
Missouri.....	13	91	52.2					3		27		7	2	33			19		
New Hampshire.....	5	20	51.1							7		4		9					
New Jersey.....	15	194	49.4			23			2	50		84	35						
New York.....	25	299	50.2					29		72	4	101	14	68		11			

Ohio.....	42	512	50.5	9		9	4	25	12	144	47	51		179		26		6
Oregon.....	5	24	48.8			7				17								
Pennsylvania.....	39	454	50.3	15		14		50		64	11	114	49	36		98		3
Rhode Island.....	7	74	50.6						1			58	15					
Tennessee.....	6	38	48.8			6		3		3	4	19		3				
Texas.....	6	25	47.9						10	11		3						
Washington.....	6	38	47.8			1				9		29						
Wisconsin.....	13	221	50.8							85		10	114			12		
Total.....	376	3,752	50.0	35	3	292	17	211	74	986	140	759	270	619		217	44	85
Molders, machine, male:																		
Alabama.....	1	(¹)	(¹)													(¹)		
California.....	6	13	45.0			10				2	1							
Colorado.....	1	6	48.0							6								
Connecticut.....	7	103	52.2		14				4		9	17		37			22	
Georgia.....	2	10	50.4									3						
Illinois.....	18	377	50.2			30				85	1	151	22	88				
Indiana.....	14	224	49.8					19		41		139		17			8	
Iowa.....	5	43	51.8							4		3	29	2				5
Kansas.....	4	10	58.2											3				7
Kentucky.....	3	5	51.2							2						2		
Louisiana.....	2	8	52.5							5								3
Maine.....	1	24	50.0									24						
Maryland.....	5	34	49.7					2	5	4		17		6				
Massachusetts.....	17	109	43.8			6			9	87		6		1				
Michigan.....	21	179	50.8	30					2	12	16	34	44	19			22	
Minnesota.....	5	25	51.4								11	4		10				
Missouri.....	3	20	52.8							4				16				
New Hampshire.....	2	12	52.0									6		6				
New Jersey.....	9	121	48.8			12				43		60	6					
New York.....	18	292	47.9					143		32	3	58	34	16		6		
Ohio.....	26	360	50.0			2			1	113	23	121	78	6				
Pennsylvania.....	24	311	51.7	15				8		59	9	68	33	1		86		32
Rhode Island.....	7	104	50.3						23			51	30					
Tennessee.....	1	(¹)	(¹)									(¹)						
Texas.....	2	4	48.5			1						3						
Washington.....	1	(¹)	(¹)							(¹)								
Wisconsin.....	10	140	51.9							3		67	33			37		
Total.....	215	2,538	50.0	45	14	61		188	44	503	73	834	194	325		158	30	69
Molders' helpers, floor, male:																		
Alabama.....	1	(¹)	(¹)							(¹)								
California.....	16	87	44.7			73				9	2	3						
Colorado.....	1	5	48.0							5								
Connecticut.....	14	70	49.9		1		3	1	1	10	3	41		9			1	
Georgia.....	1	4	50.0									4						
Illinois.....	10	51	50.6			5				13	1	12		12		8		
Indiana.....	7	19	52.4									9		7		2	1	
Iowa.....	4	17	51.4							6		1	8	2				

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

FOUNDRIES—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—																
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60	
Molders' helpers, floor, male—Continued.																				
Kansas.....	7	24	56.0															2	2	
Kentucky.....	4	9	45.3	5						1			2						1	
Louisiana.....	1	4	48.0							4										
Maine.....	3	16	47.4			7							9							
Maryland.....	5	15	47.7				6	2	3				2	2						
Massachusetts.....	18	74	47.6			8		3	2	56			3							
Michigan.....	14	52	52.0					1		1	7		21				9		3	
Minnesota.....	6	31	51.4								16		4						1	
Missouri.....	9	50	50.4					2		27										
New Hampshire.....	2	4	51.0										3							
New Jersey.....	13	128	49.7			14			4	36			34	40						
New York.....	19	123	49.3					16		51			35		15					
Ohio.....	21	122	51.3	2		1	1	6		28	5		15		54			6	4	
Oregon.....	6	19	46.7			6				13										
Pennsylvania.....	29	162	52.1			4		6		13			42	21	15			61		
Rhode Island.....	6	24	50.4						1				19	4						
Tennessee.....	2	4	47.0			1				3										
Texas.....	1	6	60.0																6	
Washington.....	4	17	47.7						5	12										
Wisconsin.....	8	96	50.9							35				60				1		
Total.....	231	1,234	50.0	7	1	119	4	41	15	327	34	259	133	180			93	2	17	2
Pattern makers, male:																				
Alabama.....	2	10	55.0																10	
California.....	7	14	44.3			13														
Colorado.....	2	16	48.0							16										
Connecticut.....	8	15	52.1						3	1	1		2		6				2	
Georgia.....	2	3	51.7										1	2						
Illinois.....	23	323	48.8			46				161	5		57	6	35			13		
Indiana.....	11	59	48.6			1		13		15			25		4			1		
Iowa.....	7	20	52.2							5			1	5	6			2	1	
Kansas.....	3	4	54.0												4					
Louisiana.....	1	(1)	(1)																(1)	

Maine	3	9	45.3			7					2						
Maryland	5	11	47.5					5			2					1	
Massachusetts	14	60	47.9					3	2	54						1	
Michigan	11	53	49.1			3		5				13			7	2	3
Minnesota	5	26	49.6									19			7		
Missouri	10	27	50.2					11							1	1	13
New Hampshire	1	4	50.0												4		
New Jersey	1	82	48.4			14			2	23	1	31	9	6			
New York	8	62	48.1					27	2	23		7	8	15			
Ohio	16	75	50.5	1				4	2	2						29	1
Oregon	4	15	47.5			2			2	13							
Pennsylvania	23	162	51.2	3		3		2	9	17	2	56	12	3		53	2
Rhode Island	2	12	49.0						5								
Tennessee	5	9	49.1			3				1	2					1	
Texas	5	13	47.6						10	2							
Washington	4	20	47.8						5	15							
Wisconsin	6	21	51.1									16	1				4
Total	194	1,107	49.3	4		92		70	38	366	50	239	48	105		86	3 6

MACHINE SHOPS

Assemblers, male:																		
Alabama	1	(1)	(1)															(1)
California	21	169	46.0			134			2	17		2	14					
Colorado	3	14	48.0							14								
Connecticut	18	193	49.1				11	51		32	4	57		4			31	3
Georgia	3	12	50.1									9	3					
Illinois	32	739	48.8	2		199	5			84	29	260	95	16			49	
Indiana	11	268	51.4									131	132				4	1
Iowa	7	61	52.0							4		17	13	27				
Kansas	5	14	52.0			1				4				8				1
Kentucky	2	26	50.0											26				
Louisiana	2	7	55.4			2												5
Maine	3	26	48.4			7												
Maryland	5	33	48.6					17						19				
Massachusetts	31	607	49.0			50				217	2	248		14			4	
Michigan	29	413	51.0							20	54	191	55	10			26	31
Minnesota	6	68	49.2			5		18		31	22							2
Missouri	13	65	51.7			7			5	1	3							
New Hampshire	4	31	48.8							21				9				
New Jersey	17	205	49.2						8	78				116	3			
New York	24	582	49.7					11	29	240	23	155	33	41			13	17
Ohio	50	600	50.0			66		5	9	99	74	184	41	36	36		50	
Oregon	5	29	45.8			16				13								
Pennsylvania	37	745	51.4			18		20		81	65	192	131	19			117	100
Rhode Island	5	112	50.2									101	11					

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishment	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—															
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
Assemblers, male—Continued.																			
Tennessee.....	3	17	48.3						14	3									
Texas.....	4	11	49.9						1	1					1				
Washington.....	6	48	47.5						25	23								40	
Wisconsin.....	13	379	51.1							94			86	153					
Total.....	360	5,446	49.9	2		505	16	110	92	1,059	287	1,861	757	217	36	338	152	14	
Boring-mill operators, male:																			
Alabama.....	5	22	55.9									5		7		7			3
California.....	21	57	45.0			43			2	9	1	2							
Colorado.....	2	9	48.0							9									
Connecticut.....	16	83	44.8				3	5		5	1	59				6		4	
Georgia.....	2	5	51.3										5						
Illinois.....	24	190	50.1			23	3			23	23	55	23	31		9			
Indiana.....	10	35	51.8									22	9				1	3	
Iowa.....	5	13	45.2							1		2	1	9					
Kansas.....	3	5	51.6							3				1				1	
Kentucky.....	2	4	45.5			3						1							
Louisiana.....	3	6	48.0			3				2								1	
Maine.....	3	12	45.0			10						2							
Maryland.....	5	13	47.9			1			8		1	3							
Massachusetts.....	29	154	49.2			5				65		70	8	3		3			
Michigan.....	14	83	52.9					4		6	12	10	10	2		24	14		1
Minnesota.....	6	20	49.6								15	5							
Missouri.....	5	21	51.5			4		1				1			15				
New Hampshire.....	2	3	50.0							2				1					
New Jersey.....	17	71	49.5							1	21		45	4					
New York.....	24	133	50.4					4	1	60	2	27	7	14		8	10		
Ohio.....	68	333	50.4			5		14	52	52	24	67	48	25		33	6	5	2
Oregon.....	3	9	46.2			4				5									
Pennsylvania.....	39	247	51.3					16		24	17	76	43	18		36	12	4	1
Rhode Island.....	6	18	50.0									18							
Tennessee.....	3	3	51.3								1		2						

Texas.....	2	2	47.5					1	1													
Washington.....	6	23	47.4					14	0													
Wisconsin.....	12	148	50.9						44				27	65					12			
Total.....	337	1,722	50.0			101	6	44	79	341	97	497	225	126				138	43	18	7	
Drill-press operators, male:																						
Alabama.....	4	15	51.8																			
California.....	21	102	44.9			82			3	8												
Colorado.....	3	18	48.0							18												
Connecticut.....	18	90	49.0					6	19	3												
Georgia.....	4	8	51.7																			
Illinois.....	28	372	49.5			76	3			39	16	133	51	25					29			
Indiana.....	17	123	50.8									88	30						4	1		
Iowa.....	5	88	52.8							1		9	10	63							5	
Kansas.....	5	10	53.4							1				9								
Kentucky.....	5	19	49.1			2				3												
Louisiana.....	3	4	53.0			1				1											2	
Maine.....	3	24	48.0			8																
Maryland.....	4	18	47.8						15													
Massachusetts.....	36	342	48.4			58				127		137	14	3					2	1		
Michigan.....	25	145	51.3					6		5	15	76	5	4					28	4		
Minnesota.....	8	50	49.5			1						41	8								2	
Missouri.....	12	43	50.9			6			4	4												
New Hampshire.....	4	13	48.6							1												
New Jersey.....	19	130	49.5				1			9												
New York.....	30	338	49.3			5		6	48	132	12	74	24	26					6	5		
Ohio.....	72	490	50.0			18		15	41	117	39	134	31	17					42	35	1	
Oregon.....	6	10	46.8			3				7												
Pennsylvania.....	46	400	51.1			11		17		52	35	109	54	16					73	31		
Rhode Island.....	11	45	50.2									41	4								2	
Tennessee.....	2	6	52.0										5									
Texas.....	4	25	47.3						21	2												
Washington.....	6	25	47.6						11	14												
Wisconsin.....	14	186	51.3							36												
Total.....	415	3,139	49.8			271	10	67	147	607	169	1,047	337	195					210	77	8	4
Fitters and bench hands, male:																						
Alabama.....	3	44	55.4																			
California.....	12	71	44.9			58				7	3	3									2	
Colorado.....	1	8	48.0							8												
Connecticut.....	20	223	49.7					5	16	20	1	162										
Georgia.....	2	13	52.2																			
Illinois.....	22	307	49.9			56																
Indiana.....	13	118	51.0							11	13	26	79	13	34				7			
Iowa.....	4	42	52.5							8			96	8					8	5	1	
Kansas.....	3	15	50.0			6																
Kentucky.....	4	47	47.0			12				34			1									
Louisiana.....	2	2	52.0			1																
Maine.....	2	20	49.1			3															1	
Maryland.....	4	16	47.8										17									
Massachusetts.....	27	382	48.2			106				13		1	2									
										234		216	9	14					3			

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—															
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
Fitters and bench hands, male—Continued.																			
Michigan.....	20	164	51.1					4		24	8	77	3	2			45	1	
Minnesota.....	7	27	49.6			1				12	14								
Missouri.....	7	43	52.6			5								36					
New Hampshire.....	1	35	48.0							35									
New Jersey.....	14	297	49.1				18			89		189	1						
New York.....	28	951	48.8			12		11	272	397	36	106	11	88		9	9		
Ohio.....	73	1,417	49.0			104		59	165	480	121	248	78	45		91	26		
Oregon.....	2	4	46.0			2													
Pennsylvania.....	38	472	51.4			46		3		65	34	85	75	6		55	103	1	
Rhode Island.....	9	175	50.3									148	27						
Tennessee.....	1	7	52.0										7						
Texas.....	4	37	47.8						27	7				3					
Washington.....	4	23	47.7						7	16									
Wisconsin.....	14	287	51.3							77		59	96			55			
Total.....	341	5,447	49.5			412	23	93	495	1,518	242	1,506	409	276		325	144	3	2
Grinding-machine operators, male:																			
California.....	12	49	45.7			32				4	8	5							
Colorado.....	3	14	48.0							14									
Connecticut.....	16	117	49.5					26		2	1	69		1		15		1	
Illinois.....	25	299	49.7			51	1		4	21	7	113	88	2		12			
Indiana.....	8	35	50.6									26	9						
Iowa.....	4	49	53.7									4	2	40				2	
Kansas.....	4	3	51.8							1			1	1					
Kentucky.....	1	9	50.0										9						
Louisiana.....	1	3	60.0															3	
Maine.....	3	24	48.3			7													
Maryland.....	3	17	49.9									17							
Massachusetts.....	31	144	49.2					11				1				5			
Michigan.....	19	286	53.4			20			1	44		50	22	3		5			
Minnesota.....	5	26	49.6							5	78	40	2	83	8	6		1	62
Missouri.....	6	12	52.7			1				1		20	6		10				

New Hampshire	2	11	48.4						9		2								
New Jersey	14	77	47.3			27	2		2	17	28								
New York	19	153	48.9			1		5	9	89	13	14	9	7		6			
Ohio	56	321	49.8			1		17	23	103	59	43	24	8		19	24		
Oregon	1	(1)	(1)							(1)									
Pennsylvania	30	212	50.0			30		8		37	5	50	34	5		32	11		
Rhode Island	8	90	50.4									71	19						
Tennessee	2	4	51.4							1			3						
Texas	1	13	47.0						13										
Washington	3	13	47.4						8										
Wisconsin	14	106	51.7							5								24	
Total	290	2,088	50.2			170	5	57	70	375	191	571	253	160	8	124	36	68	
Laborers, male:																			
Alabama	6	41	53.3									12		8		21			
California	18	123	44.9			98			4	5	14	2							
Colorado	2	12	48.0							12									
Connecticut	18	111	49.5				8	17		13	2	50		1		20			
Georgia	8	72	51.4									52	34			6			
Illinois	31	607	50.0	1		78				65	45	238	96	44		40			
Indiana	16	198	51.0									131	56			9	2		
Iowa	7	84	51.9							2		13	17	49				3	
Kansas	5	6	52.3			1				1				3				1	
Kentucky	5	25	46.2			7				2									
Louisiana	4	23	56.5			1				2		16							
Maine	3	29	46.5			17				5							4	13	
Maryland	6	23	49.5					4	7			12							
Massachusetts	29	399	49.4			25				77		271	23	3		3		1	
Michigan	28	224	53.8							16	17	93	16	19		30	8	3	21
Minnesota	7	111	49.2			11					74	25							1
Missouri	8	49	53.4							5				44					
New Hampshire	3	13	48.6							9		4							
New Jersey	20	210	51.0			3			3	43		156	4					1	
New York	31	705	49.4			2		24	52	316	88	154	21	73		15	10		
Ohio	76	843	49.9			29	1	29	78	216	140	133	58	41		67	48	1	2
Oregon	4	9	45.8			5				4									
Pennsylvania	46	632	51.4			17		34		100	17	146	78	51		119	67	2	1
Rhode Island	11	106	51.0									67	35			2		1	1
Tennessee	8	42	48.9			4		2		18	7		11						
Texas	9	63	48.8							6								2	
Washington	3	16	47.7			1				32		17		5					
Wisconsin	14	397	51.3							5									
Total	426	5,173	50.3	1		299	9	111	181	1,016	354	1,667	613	341		388	139	28	26
Lathe operators, engine, male:																			
Alabama	5	43	55.7									9		11		17			6
California	19	120	44.7			100			3	10	4	3							
Colorado	3	11	48.0							11									
Connecticut	17	147	50.2					5	4	13		109				12		4	

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—														
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60
Lathe operators, engine, male—Continued.																		
Georgia.....	3	15	50.8															
Illinois.....	26	392	50.0	1	44	3		1	13	31	195	71	21		11		1	
Indiana.....	12	98	51.7								69	5		16	8			
Iowa.....	7	26	51.4						6		9	3	6				2	
Kansas.....	6	33	50.5		12				2				16				3	
Kentucky.....	5	15	47.3		5				5		5							
Louisiana.....	3	12	50.0		6				2								4	
Maine.....	3	48	46.9		25													
Maryland.....	5	15	48.9					6		2								
Massachusetts.....	34	307	49.2		18				104		156	23	1		5			
Michigan.....	24	181	51.6				2		19	33	58	11	4	2	39	11	2	
Minnesota.....	8	44	49.5		1					33	10							
Missouri.....	13	64	51.1		12		3	1	4		2		42					
New Hampshire.....	4	16	48.4						13		3							
New Jersey.....	20	156	49.4			6		3	41		96	10						
New York.....	29	348	49.3		4		3	32	177	15	61	9	29		12	5		
Ohio.....	78	602	50.2		10		13	56	174	60	92	58	52		74	10	3	
Oregon.....	6	26	46.3		11				15									
Pennsylvania.....	42	451	50.7		6		31		59	20	157	59	53		57	8	1	
Rhode Island.....	10	52	50.1								48	4						
Tennessee.....	1	3	49.5							3								
Texas.....	3	60	47.1						52	8								
Washington.....	7	30	47.7					8	22									
Wisconsin.....	14	236	51.4						45		45	120			26			
Total.....	407	3,551	50.0	1	254	14	56	162	743	201	1,160	385	235	2	269	42	19	7
Lathe operators, turret, male:																		
Alabama.....	2	14	51.4								10				4			
California.....	17	74	45.2		53			3	9	6	3							
Colorado.....	2	20	48.0						20									
Connecticut.....	16	98	49.8			6	11		19		41				21			
Georgia.....	3	4	51.4								1	3						

Illinois.....	25	302	48.8						54	13	97	48	2			13			
Indiana.....	12	70	50.7								55	12				2			1
Iowa.....	5	62	53.6						2		6	7	42						5
Kansas.....	3	4	57.0										2						2
Kentucky.....	3	38	49.8						1		36								
Louisiana.....	1	(1)	(1)																(1)
Maine.....	2	23	48.7			5						18							
Maryland.....	3	15	47.8					13				2							
Massachusetts.....	30	259	48.8			15			131			90	17	2		4			
Michigan.....	20	140	52.0					3	4	6	72	2			43	10			
Minnesota.....	8	38	49.5			1				26	11								
Missouri.....	10	33	51.5			4			4	2			23						
New Hampshire.....	4	25	50.0						14		4		7						
New Jersey.....	15	96	49.3				1		32		61	1							
New York.....	22	245	50.1			1			20	53	13	119	6	13		15		5	
Ohio.....	57	304	49.9			10		5	22	60	58	86	17	10		12		24	
Oregon.....	3	5	48.0						5										
Pennsylvania.....	38	322	50.5			2		17	83	4	94	54	6		54		8		
Rhode Island.....	8	28	50.4								23	5							
Tennessee.....	3	5	49.2						3	1		1							
Texas.....	2	52	47.2						49			3							
Washington.....	5	29	47.4						17	12									
Wisconsin.....	14	161	51.2						35		40	69				17			
Total.....	333	2,467	49.8			167	7	36	129	539	127	872	242	107		185	47	9	
Machinists, male:																			
Alabama.....	6	30	52.6						3		10		13		3				1
California.....	15	35	44.9			28			1	4	2								
Colorado.....	3	26	48.0						26										
Connecticut.....	16	45	47.6	1			8	11	8	1	12		2						
Georgia.....	9	64	51.0								41	13			10				
Illinois.....	31	428	48.0	3		157			41	15	143	45	22		2				
Indiana.....	10	37	51.0								25	11	7			1			
Iowa.....	3	9	53.2								1	1							
Kansas.....	11	60	53.3			2			11			6	33			2		6	
Kentucky.....	4	38	51.0								32								
Louisiana.....	5	29	48.2			18			2		31		4						
Maine.....	4	34	49.5			3													
Maryland.....	6	52	46.1			5													
Massachusetts.....	35	377	47.1			150		27	17		1				2				
Michigan.....	29	142	50.1				1	10		101		10	1		2				
Minnesota.....	7	40	48.7							10	37	47	17	12	1	1	3	3	
Missouri.....	14	52	47.7			19		2	4	12	5							1	
New Hampshire.....	5	41	49.5							16	22								
New Jersey.....	16	81	49.0			4	11			7	53	6							
New York.....	20	180	48.6					13		95	43	18	3	6				2	
Ohio.....	42	254	49.7				4	7	62	23	88	19	18	14		10	2	7	
Oregon.....	2	2	48.0							2									
Pennsylvania.....	42	267	51.1			8		21	42	7	63	30	12		71	13			

† For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—															
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
Machinists, male—Continued.																			
Rhode Island.....	8	48	50.5								37	11							
Tennessee.....	9	87	48.9			13		12			1	26	8						
Texas.....	10	58	49.3			8			15	27		3	19						
Washington.....	3	4	48.0							4							14		
Wisconsin.....	9	55	51.7							16		3	22						
Total.....	374	2,575	49.0	4		422	24	103	99	463	215	690	219	165	1	117	34	17	1
Machinists, and toolmakers' helpers, male:																			
California.....	15	55	45.0			43				3	7	2							
Colorado.....	2	9	48.0																
Connecticut.....	13	28	50.6	1			1	3		3		9	1	15		10			
Illinois.....	10	66	49.8			13				3		31	4						
Indiana.....	3	3	50.8									2	1						
Iowa.....	2	4	53.3											3					6
Kansas.....	8	16	54.9			1				2				1					
Louisiana.....	3	10	46.2			6				3				1					
Maine.....	3	7	47.4			3						4							
Maryland.....	3	10	46.4			1		6				3	3						
Massachusetts.....	29	213	48.9			22			1	59		123	8						
Michigan.....	8	10	49.3							2	4	4							
Minnesota.....	5	12	49.2			1					8	3							
Missouri.....	5	9	52.0							3				6					
New Hampshire.....	3	9	48.7							6		3							
New Jersey.....	17	96	48.8			2	10			10		41	3						
New York.....	14	85	47.9			6		2	4	62	2	6	3						
Ohio.....	15	28	51.5						3	1	6	4	6	3		4			1
Oregon.....	1	(1)	(1)			(1)													
Pennsylvania.....	27	105	52.0			2		6		13	3	18	6	23		26	7		1
Rhode Island.....	3	12	51.0									6	6						
Tennessee.....	3	7	46.4					5		1			1						
Texas.....	8	18	48.6			1			9	3		2		3					

Washington.....	1	(1)	(1)						(1)									
Wisconsin.....	9	12	52.1									3	8				1	
Total.....	210	797	49.3	1	102	11	22	17	185	30	264	47	62	41	7	8		
Milling-machine operators, male:																		
Alabama.....	2	4	54.5										2				2	
California.....	15	51	44.3		47			2		1	1							
Colorado.....	2	8	48.0						8									
Connecticut.....	16	85	49.6				17		5	1	49						13	
Illinois.....	27	231	49.4	1	47	1			15	16	85	55	5				6	
Indiana.....	12	31	51.0								25	3					1	2
Iowa.....	2	29	53.7								4							1
Kansas.....	1	(1)	(1)										(1)					
Kentucky.....	4	11	48.5		1				5		5							
Louisiana.....	2	3	56.0						1									2
Maine.....	1	12	50.0								12							
Maryland.....	2	25	47.7					23			2							
Massachusetts.....	32	294	47.9		82				90		88	30	2				2	
Michigan.....	24	99	50.6				3		12	19	39	7	1	2	14	2		
Minnesota.....	5	23	49.6							19	4							
Missouri.....	7	26	52.9		1				3					22				
New Hampshire.....	3	13	48.6						9		4							
New Jersey.....	13	77	49.0			2		3	28		44							
New York.....	27	386	48.5		2			90	212	17	38	9	12				6	
Ohio.....	67	382	49.6		12		6	26	130	71	60	26	11				22	16
Oregon.....	2	3	48.0						3									
Pennsylvania.....	37	236	50.0		21		12		55	14	55	29	7				17	25
Rhode Island.....	8	50	50.1								47	3						
Texas.....	1	21	47.0						21									
Washington.....	6	26	47.3						17									
Wisconsin.....	13	119	51.5						22		32	42					23	
Total.....	331	2,246	47.9	1	213	3	38	182	607	158	594	204	87	2	106	45	5	1
Pattern makers, male:																		
Alabama.....	4	28	51.2						1		18			9				
California.....	15	42	44.7		34			1										
Colorado.....	2	3	48.0						3									
Connecticut.....	12	67	49.1				10		9		41						5	
Georgia.....	5	14	50.6								6						1	
Illinois.....	16	107	49.8		13				2	9	62	15					6	
Indiana.....	5	12	50.8		3						6							3
Iowa.....	3	4	54.0								3							
Kansas.....	6	8	54.0						2									2
Kentucky.....	2	2	46.0		1				1					4				
Louisiana.....	4	5	48.6						2									1
Maine.....	2	9	50.0		2						9							
Maryland.....	3	10	47.6															
Massachusetts.....	30	176	49.1		22				9		1						7	
Michigan.....	16	47	53.8			1			40		97	8	2				21	6

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—															
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60	60	Over 60
				Pattern makers, male—Continued.															
Minnesota	3	9	48.9			1						8							
Missouri	5	7	50.1					1		3				3					
New Hampshire	5	6	49.7							3				1					
New Jersey	14	54	49.6				3		13			30	8						
New York	25	175	49.6					8	13	56	10	60	3	15		8	2		
Ohio	51	218	49.8			5	1	1	35	50	21	46	32	5		22			
Oregon	2	3	45.3							1									
Pennsylvania	24	154	51.5			1		16		12		42	23	12		36	12		
Rhode Island	9	42	50.2									37	5						
Tennessee	4	6	48.2					1		4			1						
Texas	1	(1)												(1)					
Washington	2	2	45.0							2									
Wisconsin	12	220	51.3							61		17	118			24			
Total	282	1,431	50.1			84	7	37	58	273	49	484	228	55		130	24	2	
Planer operators, male:																			
Alabama	5	12	56.3									3				3		3	
California	16	36	45.0			28			2	2	1	3							
Colorado	2	2	48.0																
Connecticut	14	83	49.9				3	12		4		53				10		1	
Georgia	1	(1)	(1)										(1)						
Illinois	20	85	49.7			12	4			7	6	29	18	7		2			
Indiana	9	21	51.7									13	5			1	1	1	
Iowa	3	5	48.8							3		2							
Kansas	5	7	52.0															1	
Kentucky	4	6	47.7			2				4		1							
Louisiana	1	3	44.0																
Maine	2	12	47.0			6						6							
Maryland	3	9	48.6									1	3						
Massachusetts	33	138	48.7			13				52		68	1	1		3			
Michigan	13	32	51.8							11	1	6	1			9	4		
Minnesota	6	10	49.6									8	2						

Missouri.....	5	14	50.7						1													
New Hampshire.....	2	4	52.0																			
New Jersey.....	16	32	49.2					1	14													
New York.....	22	123	49.6					11	10	42												
Ohio.....	64	289	50.0					17	40	69	26											
Oregon.....	4	7	45.7							3												
Pennsylvania.....	34	116	53.3							8												
Rhode Island.....	8	16	50.2					7		8												
Tennessee.....	2	2	50.0							1												
Texas.....	2	2	47.0						2													
Washington.....	6	12	47.8						3	9												
Wisconsin.....	13	89	51.7							15												
Total.....	315	1,168	50.1					77	7	47	63	247	43	358	114	89		87	22	7	7	
Screw machine operators, hand, male:																						
California.....	3	8	47.5					2				1	5									
Connecticut.....	5	10	50.0											10								
Illinois.....	11	51	49.0									5	1	18								
Indiana.....	7	16	51.7					14						10	3					5		
Kansas.....	1	(1)	(1)																	2	1	
Kentucky.....	1	22	50.0											22								
Maryland.....	1	8	47.5							8												
Massachusetts.....	16	80	49.3									13		35	17					3		
Michigan.....	9	80	51.0					12				4		27	26	6				1	5	
Minnesota.....	1	(1)	(1)											(1)								
Missouri.....	2	5	54.0																			
New Hampshire.....	2	5	48.8									3		2								
New Jersey.....	3	5	50.0																			
New York.....	12	91	48.8											5	8							
Ohio.....	39	162	50.2							29	23	22	8	6	2					1		
Pennsylvania.....	5	41	49.1					4	2	24	34	32	8	17	17					16	3	16
Rhode Island.....	4	25	50.5								21	8		9						3		
Wisconsin.....	6	28	51.1								5			19	7	6						
Total.....	128	640	49.9					32	2	61	109	96	188	79	20					31	22	
Screw machine operators, semiautomatic, male:																						
Connecticut.....	2	6	45.5							5		1										
Illinois.....	4	15	45.9											3	2							
Massachusetts.....	8	38	48.8									17		19								
Michigan.....	1	(1)	(1)											(1)								
Minnesota.....	1	(1)	(1)											(1)								
Missouri.....	1	(1)	(1)											(1)								
New Jersey.....	6	13	48.9									7		6								
New York.....	3	6	48.3									5		1								
Ohio.....	4	10	48.8								3		7									
Pennsylvania.....	5	14	50.3									5		6	1							2
Rhode Island.....	2	2	50.0											2								
Total.....	37	108	48.5					12	5	3	35	13	36	1	1					2		

¹ For less than 3 wage earners in 1 establishment, data included in total.

TABLE C.—Average and classified full-time hours per week in 8 specified occupations in foundries and 17 in machine shops, 1931, by sex and State—Continued

MACHINE SHOPS—Continued

Occupation, sex, and State	Number of establishments	Number of employees	Average full-time hours per week	Number of employees whose full-time hours per week were—													
				40	Over 40 and under 44	44	Over 44 and under 45	45	Over 45 and under 48	48	Over 48 and under 50	50	Over 50 and under 54	54	Over 54 and under 55	55	Over 55 and under 60
Screw machine operators, automatic, male:																	
Alabama.....	2	2	54.5											1		1	
California.....	1	11	48.8							11							
Colorado.....	1	4	48.0						4								
Connecticut.....	8	13	49.1			2	3			1						3	
Illinois.....	11	38	48.9			11			1		16	8	2				
Indiana.....	4	5	50.5								4	1					
Iowa.....	2	10	44.2								1		8				1
Kentucky.....	1	9	50.0								9						
Maine.....	1	4	50.0								4						
Maryland.....	1	(¹)	(¹)					(¹)									
Massachusetts.....	7	33	47.6			17			3		3	8			2		
Michigan.....	10	43	53.4							6	15	11		1		10	
Minnesota.....	3	7	49.6							5	2						
Missouri.....	4	7	49.3				2	2					3				
New Hampshire.....	3	4	49.0						2		2						
New Jersey.....	4	11	49.8						1		10						
New York.....	14	39	48.7			2		7	20	2	4	2				2	
Ohio.....	22	155	49.4				3	3	21	106	15	7					
Pennsylvania.....	11	51	49.6			6			10	9	13	5	1		7		
Rhode Island.....	4	10	50.2								9	1					
Texas.....	1	6	47.0					6									
Washington.....	1	(¹)	(¹)					(¹)									
Wisconsin.....	6	22	51.2						8		2	7			5		
Total.....	122	496	49.5			36	2	8	20	70	140	113	39	26	19	2	11
Toolmakers, male:																	
Alabama.....	3	17	51.4								12		1		4		
California.....	17	52	45.4			36			6	10							
Colorado.....	1	11	48.0						11								
Connecticut.....	17	135	49.7				3	44		4	44				40		
Georgia.....	4	5	50.2								3	2					
Illinois.....	25	308	49.8			65			5	12	119	76	14		17		

Indiana.....	12	77	50.9								55	19			2	1				
Iowa.....	4	30	52.7						1		8		21							
Kansas.....	3	5	50.4						4								1			
Kentucky.....	5	15	49.3						2											
Maine.....	4	11	49.5																	
Maryland.....	3	29	47.7																	
Massachusetts.....	32	266	47.8						83		1	1								
Michigan.....	22	103	52.2						6	11	87	10	1		6					
Minnesota.....	8	27	49.2							21	4				6	5	1			
Missouri.....	11	23	50.7						3											
New Hampshire.....	2	12	48.2																	
New Jersey.....	15	79	49.4																	
New York.....	28	390	48.6						2	4	16	2								
Ohio.....	65	432	49.6						2	4	219	12	39	4	19	6	2			
Oregon.....	2	3	48.7						8	4	146	90	76	35	8	19	12			
Pennsylvania.....	38	156	50.6						1											
Rhode Island.....	7	74	50.5						13		6									
Tennessee.....	4	4	47.6																	
Texas.....	5	11	47.7								1									
Washington.....	4	8	47.5																	
Wisconsin.....	14	103	51.0								7	4								
Total.....	355	2,386	49.4						213	3	62	160	568	176	699	251	90	126	36	2

¹ For less than 3 employees in 1 establishment, data included in total.

Appendixes

Appendix A.—Foundry Terms with Definitions, and Classification by Bureau of Labor Statistics

Foundry term	Definition	Classified by bureau under—
Acetylene burner.....	Uses acetylene torch to cut sprues or gates when castings are made together, or to cut off remaining part of sprue after castings have been broken apart.	Other employees.
Acetylene welder.....	Uses acetylene torch to weld castings or to mend broken parts.	Do.
Air-compressor operator.	Operates air-compressing machine which supplies air to sand-blasting machines and to furnaces.	Do.
All-around worker.....	Is a workman who has no specific job but does various kinds of work other than common labor about plant wherever needed.	Do.
Annealer.....	Operates ovens in which steel or semisteel castings are annealed to reduce hardness or to increase toughness.	Do.
Annealer's fireman.....	Tends fires under annealing furnaces by feeding coal, removing cinders, etc.	Laborers.
Annealer's helper (unskilled).	Packs bone meal or cyanide, etc., in pans or pots around articles which are to be heat-treated. Also places these articles in or removes them from furnaces under direction of heat treader.	Do.
Apprentice.....	Is a workman who is learning duties of a particular occupation or trade, under contract to serve a specified number of years.	Other employees.
Assembler, cores (skilled).	Fits parts of intricate cores together and fastens them with paste or glue.	Do.
Assembler, cores (unskilled).	Fits various parts of plain cores together properly and fastens them with paste or glue.	Laborers.
Assistant electrician.....	(See Electrician's helper)	Other employees.
Assistant foreman (working).	A workman in a supervisory position who also regularly performs considerable actual productive work.	Do.
Assorter, casting.....	Separates into groups of specific kinds or sizes castings that have been mixed in tumblers or otherwise.	Laborers.
Band man.....	(See Mold clamber)	Do.
Bench molder, hand.....	(See Molder, hand, bench)	Molders, hand, bench.
Bench molder, machine.	Operates machines used for making small molds at a bench. (See also Molder, machine.)	Molders, machine.
Bench molder's helper.	Assists bench molder in placing flasks, wheeling sand, etc.	Laborers.
Blacksmith.....	Heats pieces of steel in forge and shapes them on anvil by hand with hammer.	Other employees.
Blacksmith's helper.....	Assists blacksmith by building and keeping up fire and using heavy hammers (sledges) under direction.	Do.
Boom-crane operator.....	(See Crane operator)	Crane operators.
Boss chipper (working).	Supervisor of chipping rooms. Also performs considerable actual productive work in connection therewith. (See also Foreman, working.)	Other employees.
Boss core maker (working).	Directs and supervises work of core makers and also does considerable actual work. (See also Foreman, working.)	Do.
Brake-shoe molder, machine.	Operates machines used for making molds in which brake-shoe castings are made. (For other details see Molders, machine.)	Molders, machine.
Breaker, castings.....	(See Breaker, sprues)	Laborers.
Breaker, scrap.....	(See Scrap breaker)	Do.
Breaker, sprues.....	Uses hammer or other method to break apart those castings that have been cast together in same mold.	Do.
Bricklayer.....	Uses bricks and mortar or cement to build or repair walls, flues, furnaces, cupolas, floors, etc.	Other employees.
Bricklayer's helper.....	Assists bricklayer by mixing and carrying mortar, handling brick and other material.	Do.
Brick mason.....	(See Bricklayer)	Do.
Buffer.....	Uses power-driven brush wheel to clean castings.	Do.
Bull-ladle man.....	Tends and pours molten metal from large ladle (that has been filled at the cupola) into smaller ladles.	Laborers.
Bumper molder, machine.	Operates machines used for making molds with bump, jounce, or jolt machine. (See also Molder, machine.)	Molders, machine.

Foundry term	Definition	Classified by bureau under—
Burner, acetylene.....	(See Acetylene burner).....	Other employees.
Burner, scrap.....	Uses acetylene torch to cut up large pieces of scrap into suitable sizes for melting.	Do.
Burner's helper.....	Assists torch man in cutting sprues or in cutting scrap with a torch.	Laborers.
Carpenter.....	Repairs and makes changes in woodwork structure of plant.	Other employees.
Carpenter's helper.....	Assists carpenter in making repairs and changes in woodwork structure of plant.	Do.
Cart driver.....	Drives animal-drawn cart or wagon for moving material from place to place about foundry yard.	Do.
Casting assorter.....	(See Assorter, casting).....	Laborers.
Casting breaker.....	(See Breaker, sprues).....	Do.
Casting brusher.....	(See Casting cleaner).....	Do.
Casting carrier.....	Conveys castings from foundry department to cleaning room, yard, or other places about plant.	Do.
Casting churner.....	(See Rattler operator).....	Do.
Casting cleaner.....	Uses hand scrapers or brushes or power brushes to remove any sand that has adhered to castings in molding.	Do.
Casting cutter.....	Uses cold saws or chisels to cut apart castings that have been cast together in same mold.	Do.
Casting inspector.....	Examines castings for cracks, checks, or other defects or for accuracy.	Other employees.
Casting marker (lot number).	Uses small brush to paint lot numbers on castings so as to identify them with others for same job.	Do.
Casting marker (work plan).	(See Layer out).....	Do.
Casting painter.....	(See Painter, casting).....	Do.
Casting polisher.....	(See Polisher, casting).....	Do.
Casting scraper.....	(See Casting cleaner).....	Laborers.
Casting wheeler.....	Uses barrow or hand truck to convey castings from foundry department to cleaning room, yard, loading dock, or other place about plant.	Do.
Chain carrier.....	(See Crane follower).....	Other employees.
Chain hooker.....	do.....	Do.
Charger, cupola.....	Uses barrow or other method to convey coal or coke, pig iron, scrap iron, limestone, etc., to charging door and places proper amounts of these in cupola for melting. Works under direction of cupola tender.	Laborers.
Charger, furnace.....	Uses barrows or other method to convey steel or brass ingots, limestone, etc., to charging door and places proper amounts of these in furnace for melting. Works under direction of furnace tender.	Do.
Chaser, patterns.....	(See Pattern chaser).....	Other employees.
Chaser, stock.....	(See Stock chaser).....	Do.
Checker, cores.....	(See Core checker).....	Do.
Checker, mold.....	(See Mold checker).....	Do.
Chill boy.....	(See Chill tender).....	Do.
Chill tender.....	Immerses hot castings in cold bath for purpose of hardening.	Do.
Chipper and rough grinder.	Uses hand hammers and cold chisels or pneumatic chisels to cut or chip projecting points, fins, or lugs from castings, and smooths these surfaces by means of rough grinding machines.	Chippers and rough grinders.
Chisel grinder.....	Uses grinding wheel to sharpen chisels which are used by chipper.	Other employees.
Chisel hardener.....	Heats in forge chisels used by chipper, and quenches in water or oil to bring them to desired hardness. May also sharpen these chisels.	Do.
Churner, castings.....	(See Rattler operator).....	Laborers.
Cleaner, casting.....	(See Casting cleaner).....	Do.
Cleaner, cores.....	(See Core cleaner).....	Do.
Cleaner, flasks.....	(See Flask cleaner).....	Do.
Cleaner, patterns.....	(See Pattern cleaner).....	Do.
Coke man.....	Unloads coke from freight cars to bins, and wheels same from bins to furnaces or cupolas.	Do.
Converter operator, steel.	(See Steel converter operator).....	Other employees.
Core assembler (skilled)	(See Assembler, core (skilled)).....	Do.
Core assembler (unskilled).	(See Assembler, core (unskilled)).....	Laborers.
Core brusher.....	(See Core cleaner).....	Do.
Core "buster".....	Places casting of large size on revolving table. Operates specially devised hydraulic water pressure equipment which forces water under high pressure into revolving castings to break up cores. Another device is an air gun to which is attached a long chisel used for reaching into castings to cut out cores.	Other employees.
Core carrier.....	Conveys cores from core benches to oven or from oven to foundry department for use by molder.	Laborers.
Core checker.....	Examines cores for accuracy, counts number made and keeps records as to when they will be ready for molder.	Other employees.

Foundry term	Definition	Classified by bureau under—
Core cleaner (brushes)	Uses brushes or scrapers to remove any surplus material from cores.	Laborers.
Core cleaner, hydraulic	Uses stream of water under pressure to remove any surplus material from surface of cores.	Other employees.
Core digger	(See Heavy core digger)	Laborers.
Core fitter (unskilled)	(See Assembler, core (unskilled))	Do.
Core handler	(See Core carrier)	Do.
Core joiner	(See Assembler, core (skilled))	Other employees.
Core maker	Uses sand and liquid binder, and sometimes other substances to make forms known as cores. A mold or core box is used in which to shape the cores. Before cores are used they are generally put in ovens and baked. They are then ready to be placed in molds where they form the hollow places in castings when molten metal is poured around them.	Core makers.
Core maker's helper	Assists core maker by assembling or passing materials. Sometimes does fitting and pasting under direction of core maker.	Laborers.
Core moulder	(See Core setter)	Other employees.
Core-oven fireman	Attends to fires under core ovens to see that they are kept burning properly.	Laborers.
Core-oven man	Places newly made cores into ovens and removes them when properly dried.	Do.
Core paster (unskilled)	Uses brush to paste or glue together parts of simple cores, or fastens them together with strips of adhesive.	Do.
Core pillar	Conveys completed cores from maker's bench to a pile near ovens or places them on racks for drying.	Do.
Core scraper	(See Core cleaner)	Do.
Core seamer	Uses lead and oil cement to fill joints of cores which are made in parts, after they have been fitted together and also fills any cracks or uneven places so as to make them smooth.	Do.
Core setter	Sets and adjusts cores in molds when such work is extraordinarily difficult, and not done by molder.	Other employees.
Core setter's helper	Assists core setter in properly placing cores in flasks when this work is not done by molder.	Laborers.
Core wire cutter	Uses hand snippers or other contrivance to cut wire into proper lengths to be used by core setter or molder to hold cores in position in mold.	Do.
Crane follower	Attaches hooks or slings of cranes and signals crane operator as to movement of load, release slings, etc.	Other employees.
Crane hitcher	(See Crane follower)	Do.
Crane hooker	do	Do.
Crane operator	Operates power cranes for moving heavy stock, machinery, castings, ladles, molds, etc., about foundry, includes hoistman, overhead traveling, boom, and locomotive cranes.	Crane operators.
Crane operator (hand)	Operates crane (chain hoist) by hand in moving castings, flasks, ladles, etc.	Other employees.
Crane operator's helper	(See Crane follower)	Do.
Crater, castings	(See Packer, castings)	Do.
Cupola assistant (unskilled)	(See Charger, cupola)	Laborers.
Cupola charger	do	Do.
Cupola dauber	Uses fire clay to fill in and repair cracks in cupola	Do.
Cupola dauber's helper	Mixes fire clay and carries it to cupola daubers for repair of cracks in cupola walls.	Do.
Cupola feeder	(See Charger, cupola)	Do.
Cupola helper	do	Do.
Cupola laborer	do	Do.
Cupola liner	Uses fire brick and clay to line cupolas or to repair their linings.	Other employees.
Cupola tapper	Uses pointed steel bar to break clay plug in tapping hole of cupola, thus permitting molten metal to flow into ladles.	Do.
Cupola tender	Usually responsible for charging and tending cupola in which pig iron, scrap, or steel is melted. Supervises tapping or opening of cupola, and running of molten metal into ladles.	Cupola tenders.
Cut-off man (torch)	(See Acetylene burner)	Other employees.
Dauber, cupola	(See Cupola dauber)	Laborers.
Draw shaper operator	Uses foundry shaper to remove any portion of risers not removed by acetylene torch.	Other employees.
Drier, sand	(See Sand drier)	Laborers.
Driver, carts	(See Cart driver)	Other employees.
Driver, jitneys	(See Truck driver; see also Electric truckers)	Do.
Driver, trucks	(See Truck driver)	Do.
Drop hammerman	Operates drop hammer to finish shaping malleable castings.	Do.
Dumper (castings)	(See Shaker)	Laborers.
Dumper (heat treating)	Removes castings from pans or other receptacles, or pans from annealing oven or furnace.	Do.
Electric furnace helpers	(See Charger, furnace)	Do.

Foundry term	Definition	Classified by bureau under—
Electric furnace operators.	Attends control switches which supply electric current to furnaces in which steel, brass, etc., are melted, also those used for annealing. Proper temperature is regulated by sight, pyrometer, or other test.	Other employees.
Electric trucker.....	Operates electric power-driven truck to transfer castings or material from place to place about plant.	Do.
Electric welder.....	Uses electric welding machine, either arc or butt, in welding steel or semisteel castings.	Do.
Electrician.....	Installs, repairs, and maintains wiring for lights and power throughout the plant. May also repair or install motors.	Do.
Electrician's assistant..	(See Electrician's helper).....	Do.
Electrician's helper.....	Works under supervision of electrician in making repairs and alterations of light or power wiring of plant.	Do.
Elevator operator.....	Operates elevator for hoisting or lowering supplies or workmen from one floor to another.	Do.
Emery wheel worker..	Holds castings against rapidly revolving emery (grinding) wheels to smooth off roughness, seams, sprues, etc.	Chippers and rough grinders.
Enameler.....	Covers surface of castings with enamel by dipping in vat and then transferring them to oven where they are baked.	Other employees.
Engineer (derrick).....	Operates engine of a derrick to lift heavy weights.	Do.
Errand boy.....	Carries messages, supplies, etc., between stockroom and other departments of establishment.	Do.
Facing mixer.....	Prepares fire clay used for facing or lining ladles, cupolas, or furnaces.	Laborers.
Finish grinder.....	Operates grinding machine to finish parts of castings more or less accurately.	Other employees.
Fireman, furnace.....	(See Furnace fireman).....	Do.
Fitter, corer (unskilled).	(See Assembler, cores (unskilled)).....	Laborers.
Flagger.....	Signals crane man or chain hoist ladle man, how and when to move ladles or castings.	Other employees.
Flask brusher.....	(See Flask cleaner).....	Laborers.
Flask carpenter (wood).	(See Flask maker (wood)).....	Rough carpenters.
Flask carrier.....	Uses barrow or hand truck to convey flasks from storage to the molding floor or from molding floor to storage.	Laborers.
Flask cleaner.....	Uses scraper or brush by hand to remove any sand that adhered during molding. These flasks are then ready for new molds.	Do.
Flask maker (metal)...	Uses wrench to tighten bolts, taps, rods, etc., which hold together metal parts which form boxes (flasks) used by molder. May also cut and shape stock.	Other employees.
Flask maker (wood)...	Uses hammer, nails, and sometime bolts to fasten together the planks which form the boxes (flasks) used by molder.	Rough carpenters.
Flask man.....	(See Flask carrier; see also Flask cleaner).....	Laborers.
Flask repairer (metal)..	Uses wrench, hammer, chisels, etc., to make repairs on metal flasks used by molder.	Other employees.
Flask repairman (wood)	Makes new parts for flasks which have been broken or burned in molding castings.	Rough carpenters.
Flask scraper.....	(See Flask cleaner).....	Laborers.
Floor molder, hand.....	(See Molder, hand, floor).....	Molders, hand, floor.
Follower, crane.....	(See Crane follower).....	Other employees.
Foreman, assistant.....	(See Assistant foreman, working).....	Do.
Foreman, working.....	(See Assistant foreman, working).....	Do.
Furnace charger.....	(See Charger, furnace).....	Laborers.
Furnace fireman.....	Starts and maintains coal or coke fires under melting furnaces.	Other employees.
Furnace helper.....	(See Charger, furnace).....	Laborers.
Furnace tender (coal or coke).	Attends heating of furnaces in which steel, brass, etc., are melted, also those used for annealing. Proper temperature is regulated by sight, pyrometer, or other test.	Other employees.
Furnace tender (electric).	(See Electric furnace operator).....	Do.
Furnace tender (gas or oil).	Attends control gauges which regulate flow of gas or oil into furnaces used for melting steel, brass, etc., also those used for annealing. Proper temperature is regulated by sight, pyrometer, or other test.	Do.
Gagger.....	Uses L-shaped pieces of iron, known as "gaggers," as additional support for sand on large molding work. The force of sand pressing against the long leg of the "gagger" holds it in place and the short leg supports the sand above it.	Molders' helpers, floor.
Galvanizer.....	Covers surfaces of castings by immersing them in zinc bath.	Other employees.
Gas-machine operator..	Operates machine which manufactures gas used in furnace.	Do.
Gate cutter (torch).....	(See Acetylene burner).....	Do.
Grinders, chisels.....	(See Chisel grinder).....	Do.
Grinder, finish.....	(See Finish grinder).....	Do.

Foundry term	Definition	Classified by bureau under—
Hammerman, drop	(See Drop hammerman)	Other employees.
Handy man	An employee of some degree of skill who has no regular specified duties, but does work in various positions as required.	Do.
Handy man's helper	Assists semiskilled or skilled handy man in skilled or semiskilled capacity, and not in that of common laborer work.	Do.
Hardener, chisels	(See Chisel hardener)	Do.
Head casting cleaner	A leader or working supervisor in cleaning room who also does considerable productive work.	Do.
Heat treater	(See Annealer)	Do.
Heavy core digger	Uses either hand chisel bars or such chisels in pneumatic holders to dig cores out of castings when they can not be readily shaken out.	Laborers.
Hitcher, crane	(See Crane follower)	Other employees.
Hoist man (power)	(See Crane operator)	Crane operators.
Hooker-on	(See Crane follower)	Other employees.
Hook tender	do	Do.
Hydraulic cleaner, core	(See Core cleaner, hydraulic)	Do.
Inspector, castings	An employee of considerable training and skill who examines castings for flaws and other defects.	Do.
Iron carrier	Uses barrow or hand truck to convey pigs, billets, scrap, etc., about yard or to cupolas or furnaces.	Laborers.
Iron pourer	Handles ladles from which hot metal is poured either into other ladles or into molds.	Do.
Janitor	(See Sweeper)	Do.
Japanner	Covers surface of castings with japan either with a brush or by immersion.	Other employees.
Jitney driver	(See Truck driver; see also Electric trucker)	Do.
Knocker-off	Uses hammer to break off sprues or other projections from castings.	Laborers.
Laborer	Performs common unskilled work about foundry, such as carrying cores, filling and emptying ovens, cleaning up, etc. Workers at these various jobs were too few in number to warrant separate tabulation; each is defined and arranged alphabetically in this glossary.	Do.
Ladle cleaner	Uses hammer and chisel to chip and scrape slag, etc., from lip and sides of ladles.	Do.
Ladle dauber	Uses fire clay to fill in and repair cracks in ladle linings.	Do.
Ladle liner	Uses fire brick and clay to line or repair ladles.	Other employees.
Ladle pusher	Uses truck on which to convey ladles of molten metal along aisles of molding room, and return ladles to cupola or bull ladle for more metal.	Laborers.
Ladle repair man	(See Ladle liner)	Other employees.
Layer out	Makes special designating marks on castings that are to be faced or drilled.	Do.
Leader	A minor supervisory employee who regularly works with others and sets pace for group in which employed.	Do.
Loader	Places finished castings on freight car or trucks for shipment.	Laborers.
Locomotive crane operator	Operates locomotive cranes in yard of plant for moving heavy stock, castings, loading and unloading coal, etc.	Crane operators.
Locomotive crane operator's helper	(See Crane follower)	Other employees.
Loftsmen, pattern	(See Pattern storage man)	Do.
Machine molder	(See Molder, machine)	Molders, machine.
Machine molder's helper	Assists machine molder with heavier machine work	Other employees.
Machine repair man	(See Machinist)	Do.
Machinery oiler	(See Oiler)	Do.
Machinist	A skilled employee who repairs machinery or working equipment of establishment. Also sets up and adjusts machines to be used by others.	Do.
Maintenance man	(See Machinist, pipe fitter, plumber, carpenter, etc.)	Do.
Malleable furnace helpers	(See Electric furnace helper)	Laborers.
Mason	Uses mortar and bricks or stone to repair or construct walls, foundations, flues, furnaces, cupolas, etc.	Other employees.
Mason's helper	Assists mason by mixing and supplying mortar or cement and carrying brick, stone, etc.	Do.
Match maker	Uses hand rammers and slicks to create parting of cope and drag on grated and loose patterns.	Do.
Material mixer	Places sand, gravel, clay, loam, etc., with water in the mud mills until mud is proper consistency to spread on core bars.	Laborers.
Melter	Has charge of charging (loading) of furnaces in which steel or brass is melted and also regulates heating of same.	Other employees.
Melter's helper	Breaks scrap brass or steel and places it in boxes to be moved to melting furnaces and assists in loading furnaces from boxes.	Laborers.

Foundry term	Definition	Classified by bureau under—
Melter's helper.....	Assists melter in charging (loading) furnaces with billets, scrap, etc., and may also assist in heat regulation.	Other employees.
Messenger boy.....	(See Errand boy).....	Do.
Metal carrier.....	Uses barrow or hand truck to convey pigs, billets, scrap, etc., to cupolas or furnaces. Also carries by hand small ladles of hot metal from bull ladle to molds.	Laborers.
Metal man.....	(See Melter).....	Other employees.
Metal pourer.....	(See Iron pourer).....	Laborers.
Mill hand (cleaning castings).....	(see Rattler operator).....	Do.
Mill hand (sand).....	(See Sand mill operator).....	Other employees.
Mill operator (cleaning castings).....	(See Rattler operator).....	Laborers.
Mill operator (sand).....	(See Sand mill operator).....	Other employees.
Mill tender (cleaning castings).....	(See Rattler operator).....	Laborers.
Mill tender (sand).....	(See Sand mill operator).....	Other employees.
Millman (cleaning castings).....	(See Rattler operator).....	Laborers.
Millman (sand).....	(See Sand mill operator).....	Other employees.
Millwright.....	Installs machinery, puts up and maintains shafting, pulleys, belting, etc.	Do.
Millwright's helper.....	Works under supervision of millwright in making changes or installing machinery, shafting, belting, etc.	Do.
Mold checker.....	Examines completed molds to see if they are correctly formed. Also counts them to determine if proper number has been made.	Do.
Mold clasper.....	Places clamps on flasks after same have been put together by molder, and tightens these clamps to insure against slipping of two halves.	Laborers.
Mold closer.....	(See Mold stacker).....	Do.
Mold counter.....	Makes count of molds to see that enough have been made for orders or for purpose of paying for piece-work, bonuses, etc.	Do.
Mold stacker.....	Piles molds that have previously been dried in ovens, one on another, to a height of 3 or 4 deep, and so arranged that all may be poured at once, using 1 gate.	Do.
Molder, hand, bench.....	Works at bench with rammers, trowels, slicks, lifters, and other implements, making small-sized molds by hand. Uses sand, loam, or other materials which is packed and rammed around small patterns, placed in flasks of suitable size. These molds are usually made in two sections, top and bottom, each independently and placed together, thus leaving impression of pattern in the damp sand. Molten metal is then poured into these molds to form castings shaped like the patterns.	Molders, hand, bench.
Molder, hand, floor.....	Makes by hand on floor of foundry molds that are too large to be made at bench and are not readily adaptable to machine molding. The implements, materials, and methods used are similar to those for a molder, hand, bench.	Molders, hand, floor.
Molder, machine.....	Operates machines using sand or other materials for making molds into which molten metal is poured to form castings.	Molders, machine.
Molder's helper, floor.....	Assists floor molder (hand) in making molds by holding or setting cores, ramming sand, etc.	Molders' helpers, floor
Molder's helper, machine.....	(See Machine molder's helper).....	Other employees.
Molder's laborer.....	Assists molder in placing flasks, wheeling sand, etc., but does not assist in making molds.	Laborers.
Molder's learner.....	(See Apprentice).....	Other employees.
Monorail operator.....	Operates monorail cranes for transferring heavy castings or bulk materials from place to place about plant.	Crane operators.
Mounter, cores.....	(See Core assembler (skilled)).....	Other employees.
Oiler.....	Keeps oil and grease cups on machinery shafting, pulleys, etc., supplied with lubricants.	Do.
Order man.....	Receives orders for work, routes them through plant, follows their progress to completion, and sees that they are shipped to destination.	Do.
Ore crusher.....	Operates machine which crushes ore when establishment does some smelting.	Laborers.
Other employees.....	This group includes all occupations in the industry other than the selected occupations. Each had too few workers in number to warrant separate tabulation, and is defined and arranged alphabetically in this glossary.	Other employees.
Oven man.....	Attends ovens in which cores are baked. Some molds are also baked in ovens.	Do.

Foundry term	Definition	Classified by bureau under—
Oven tender, cores	(See Oven man)	Other employees.
Oven tender's helper	Assists oven tender in loading and unloading the core, or annealing ovens.	Laborers.
Packer (castings)	Puts up castings in bundles, boxes, or crates for shipment. Also constructs boxes and crates for them.	Other employees.
Packer (heat treating)	Packs bone meal or cyanide, etc., in pans or pots around articles which are to be heat treated. Also places these articles in or removes them from furnaces under direction of heat treator.	Laborers.
Painter, castings	Uses brush to paint the castings roughly or dips them in paint.	Other employees.
Pairer	Makes selections of castings from stock of those which are to be used together, as in steam radiators, etc.	Do.
Paster, cores (unskilled)	(See Core paster)	Laborers.
Pattern brusher	(See Pattern scraper)	Do.
Pattern carrier	Picks up used patterns in molding room and carries them to storage and takes patterns from storage to molder.	Do.
Pattern changer	(See Pattern carrier)	Do.
Pattern chaser	Looks for patterns which are being used and wanted by other workmen. Makes notes as to where they are and when they will be available.	Other employees.
Pattern cleaner	Uses scraper or brush to remove sand and other refuse from patterns before they are again used.	Laborers.
Pattern keeper	(See Pattern storage man)	Other employees.
Pattern loft man	do.	Do.
Pattern maker (metal)	(See Pattern maker (wood) and pattern maker (plaster).	Pattern makers.
Pattern maker (plaster)	Uses plaster of Paris to form models which are used by molders to form sand molds from which castings are made. Metal patterns are also made in a similar manner.	Do.
Pattern maker (wood)	Uses hand tools and wood cutting machines to form wood models of designated patterns. These models are usually made from drawings but sometimes from exact specimens. These patterns are used by molders to form sand molds from which castings are made. Metal patterns are also cast from wood models.	Do.
Pattern maker's helper	Assists patternmaker in the construction of wooden patterns which are used by molders in forming castings.	Rough carpenters.
Pattern repair man	Makes repairs on wooden or metal patterns which are used in foundry as models for making castings.	Pattern makers.
Pattern scraper	(See Pattern cleaner)	Laborers.
Pattern shellacker	Uses brush to cover the surface of patterns with shellac, or dips them in the liquid, for the purpose of preservation.	Other employees.
Pattern storage man	Arranges patterns in loft, vault, or other storage place so that they may be readily located when needed, and keeps records of when and where patterns are sent and when returned.	Do.
Pattern tender	(See Pattern storage man)	Do.
Pattern varnisher	(See Pattern shellacker)	Do.
Pattern vault man	(See Pattern storage man)	Do.
Pickler, castings	Immerses castings in tanks or vats of acid to remove sand or other foreign matter from their surface.	Laborers.
Pipe cutter	Cuts pipe to length for any purpose about the plant, and may thread ends of them.	Other employees.
Pipe fitter	Repairs and makes necessary changes in water or steam pipes about plant.	Do.
Pitman	Assembles and bolts together sectional chills, spouts, etc., which form the molds into which hot metal is poured.	Do.
Plate man	Puts plates on molds and removes same, at a later period.	Do.
Plate off man	Uses boiler-plate trays to carry cores from core bench to ovens or to racks.	Laborers.
Plater	Covers surface of castings with tin, zinc, copper, etc., by immersion in a bath of the particular metal, by molten or electro process.	Other employees.
Plumber	Repairs and maintains in good order water pipes, cocks, faucets, and other plumbing about plant.	Do.
Polisher, castings	Operates wire brushing or buffing machine to make fairly smooth the surfaces on special castings.	Do.
Porter	(See Sweeper)	Laborers.
Pot packer (heat treating)	(See Packer (heat treating))	Do.
Pourer	Operates controls of bull ladles from which hot metal is poured into other ladles, or handles smaller ladles and pours this metal directly into molds.	Do.
Press operator	(See Straightening-press operator)	Other employees.
Puddler	Makes iron by heating ore and scrap in a furnace and stirring same with a long iron bar.	Do.

Foundry term	Definition	Classified by bureau under—
Pulverizer.....	(See Sand-mill operator).....	Other employees.
Pyrometer man.....	Uses instrument known as a pyrometer to test temperature of furnace.	Do.
Rack tender, cores.....	Places newly made cores on racks, carries them to the ovens, and returns empty racks to core room.	Laborers.
Rattler operator.....	Places castings in a barrel or churnlike box and rotates same (usually by power) until the molding sand is removed from them.	Do.
Rattler runner.....	(See Rattler operator).....	Do.
Repair man.....	(See Machinist, pipe fitter, plumber, carpenter, etc.)..	Other employees.
Roll turner.....	Operates roll-turning lathes to resurface rolls which are to be used in making sheet or plate metal.	Do.
Roller.....	Uses barrow or hand truck to wheel sand, flasks, castings, etc., about foundry.	Laborers.
Rough carpenter.....	Uses nails and bolts to fasten together joints of wooden flasks used for molds, and does general rough wooden repair work about foundry, or assists pattern maker in construction of wooden patterns.	Rough carpenters.
Rough grinder.....	(See Chipper and rough grinder).....	Chippers and rough grinders.
Runner boxman.....	Sets runner boxes on molds.....	Other employees.
Runner cup maker.....	Forms cups of fire clay through which molten metal is poured into molds.	Do.
Sacker (castings).....	Uses sacks in which to place small castings for shipment.	Laborers.
Salvager.....	Examines discarded castings to determine if they can be repaired, and may do such repairing.	Other employees.
Sand blast helper.....	Assists sand blaster in handling heavy castings.....	Laborers.
Sand blaster.....	Uses sand-blast apparatus which forces a spray of sharp sand by means of compressed air against the surface of castings to clean the molding sand and scale from them. The operator wears a helmet, supplied with fresh air, to protect his eyes and lungs from the clouds of fine dust.	Sand blasters.
Sand cleaner.....	(See Casting cleaner).....	Laborers.
Sand cutter, hand.....	Uses shovel to mix new sand with old, or to mix different grades of sand, and also to mix sand so that it will be of an even dampness.	Do.
Sand cutter, machine.....	(See Sand mill operator).....	Other employees.
Sand cutter's, machine, helpers.....	Assists sand-machine runner by shoveling sand into or away from machine.	Laborers.
Sand drier.....	Uses specially constructed stoves or furnaces in which to dry sand for molding.	Do.
Sandman.....	(See Sand cutter, hand; see also Sand drier).....	Do.
Sand-mill operator.....	Operates machines which grind and mix sand used for making molds.	Other employees.
Sand mixer, hand.....	(See Sand cutter, hand).....	Laborers.
Sand screener.....	Operates heavy power screen (sieve) to sift gravel or foreign matter from sand which is to be used by molder.	Other employees.
Sand shoveler.....	Uses shovel by hand to unload sand from freight cars into bins, or from bins into small cars or barrows, to be taken to the sand mill, mixer, or molding floor.	Laborers.
Sand-slinger helper.....	Performs heavy work around sand slinger, such as wheeling sand, placing flasks, etc.	Do.
Sand-slinger operator.....	Operates machine which sifts, dampens and mixes sand as it is supplied from a large hopper, and at the same time conveys it to the flask under high pressure through a flexible jointed metal arm of the machine. This arm is guided by the operator while it distributes and packs the sand evenly around the pattern until flask is filled.	Other employees.
Sand temperer, machine.....	(See Sand cutter, machine).....	Do.
Sand tester.....	Tests sand received from pits, as to quality and also that mixed and ground as to fineness, quality, and dampness.	Do.
Sand wheeler.....	Shovels sand from bins to barrows and wheels same to sand mill mixer or to molding floor.	Laborers.
Scale clerk.....	(See Weighman).....	Other employees.
Scrap breaker.....	Uses large sledge or "skull cracker" for breaking large pieces of scrapped castings into suitable sizes for melting.	Laborers.
Scraper, flasks.....	(See Flask cleaner).....	Do.
Shaker.....	Removes castings from molds and shakes or knocks off sand that adheres to them. Also shovels used sand into piles.	Do.
Shaker out.....	(See Shaker).....	Do.
Shellacker, patterns.....	(See Pattern shellacker).....	Other employees.
Shifter, weights.....	Lifts weights and places them on specific molds, as directed by molder or pourer.	Laborers.
Shipper.....	Supervises disposal of finished products, and maintains records of dates of shipments, amounts, destinations, etc.	Other employees.

Foundry term	Definition	Classified by bureau under—
Shipper's helper.....	Assists shipper in handling finished product for shipment to customers.	Other employees.
Shoveler, sand.....	(See Sand shoveler).....	Laborers.
Side molder.....	Works at bench making small size molds by hand. (See also Molder, hand, bench).	Molders, hand, bench.
Skimmer, ladle.....	Uses metal scoop by hand to pull or dip scum from top of molten metal in ladles.	Laborers.
Slag breaker.....	Uses sledge or "skull cracker" to break into pieces suitable for disposal the masses of slag which was run off from cupola or skimmed from ladles.	Do.
Smooth-on man.....	Uses compound known as "Smooth-on" (or a similar preparation) to stop holes or cracks in castings. After standing a few days the preparation hardens and the casting can be used.	Other employees.
Sorter.....	Makes separation of the various castings by sizes and kinds.	Laborers.
Special casting clerk.....	(See Special-order man).....	Other employees.
Special-order man.....	Maintains records of work done on special orders, stages of progress through plant, when product is expected to be finished, etc.	Do.
Spout maker.....	Rams sand into spout forming funnel through which hot metal is poured into molds.	Do.
Sprue breaker.....	(See Breaker, sprues).....	Laborers.
Sprue cutter (torch).....	(See Acetylene burner).....	Other employees.
Squeezer laborer.....	Does various unskilled jobs about molding machines, such as wheeling or cutting sand, moving castings, etc.	Laborers.
Stacker, molds.....	(See Mold stacker).....	Do.
Steel-converter operator.....	Operates devices which convert iron into steel.....	Other employees.
Stock chaser.....	Maintains check on orders as to number of pieces being made, stages of progress of work, and when product is expected to be finished. Also looks up delayed parts for orders.	Do.
Stock keeper.....	Maintains records of stock of various castings in bins or store rooms. Also keeps records of quantity of materials on hand, such as sand, pig iron, steel billets, scrap, coal, coke, oil, etc.	Do.
Stocker.....	Uses barrow or hand truck to convey pigs, billets, scrap, etc., to convenient places for chargers, and may assist with charging.	Laborers.
Stopper setter.....	Uses fire clay as plugs in tapping holes of cupolas or furnaces to stop the flow of molten metal.	Other employees.
Storage man, patterns.....	(See Pattern storage man).....	Do.
Straightening-press operator.....	Operates pressing machine to straighten steel or malleable iron castings that have become warped or bent.	Do.
Straw boss.....	An employee whose duties are largely supervisory, but in addition does much actual productive work.	Do.
Sweeper.....	Uses broom or brush to clean floors of aisles and runways of various departments of foundry.	Laborers.
Tapper, cupola.....	(See Cupola tapper).....	Other employees.
Tapper out.....	(See Cupola tapper).....	Do.
Teamsters.....	(See Cart driver).....	Do.
Test bar man.....	Uses lathe to turn down malleable or steel bars to proper size and subjects them to the Rehile test.	Do.
Tester, water.....	(See Water tester).....	Do.
Tip-cart man.....	Uses tip cart (dump cart) to transfer materials or small castings from place to place about foundry or yard.	Laborers.
Tool boy.....	Assists tool crib attendant in handling tools and often carries them to and from workmen.	Other employees.
Tool-crib attendant.....	Gives out tools to workmen and receives them when jobs are completed. Also maintains records of same.	Do.
Tool keeper.....	(See Tool-crib attendant).....	Do.
Tool repair man.....	(See Machinist).....	Do.
Top-plate shifter.....	(See Shifter, weight).....	Laborers.
Torch man.....	Uses acetylene torch to cut gates, sprues, etc., of castings, and also to weld castings, or mend broken parts.	Other employees.
Tractor driver.....	Operates tractor engines for hauling loads about foundry and yard.	Do.
Traveling-crane operator (overhead).....	Operates electric overhead cranes for moving heavy castings, stock, machinery, ladles, molds, etc., about foundry.	Crane operators.
Truck driver.....	Operates gasoline power-driven truck for moving castings or material about plant or yard.	Other employees.
Tr. cker.....	Uses hand truck to convey cores, flasks, castings, and other commodities about foundry or yard.	Laborers.
Trucker (electric).....	(See Electric trucker).....	Other employees.
Trucker, motor.....	(See Truck driver).....	Do.
Tube cutter.....	(See Pipe cutter).....	Do.
Tumbler.....	(See Rattler operator).....	Laborers.
Unloader.....	Removes such articles as pigs, billets, scrap iron, sand, etc., from freight cars or trucks.	Do.

Foundry term	Definition	Classified by bureau under—
Varnisher, patterns.....	(See Pattern shellacker).....	Other employees.
Vault man, patterns.....	(See Pattern storage man).....	Do.
Washer, castings.....	(See Pickler, castings).....	Laborers.
Water tester.....	Tests hollow castings for leaks, by stopping openings with gaskets and turning on water under pressure.	Other employees.
Weighman.....	Weighs finished castings for shipment, piecework or bonus purposes, also pigs, billets, scrap and other material for melting.	Do.
Weight shifter.....	(See Shifter, weights).....	Laborers.
Welder.....	(See Acetylene welder; see also Electric welder).....	Other employees.
Welder's helper.....	Assist welder in handling castings or parts which are to be welded.	Do.
Wheeler, castings.....	(See Casting wheeler).....	Laborers.
Wheeler, sand.....	(See Sand wheeler).....	Do.
Wire cutter.....	(See Core wire cutter).....	Do.
Wire straightener.....	Uses hand pliers or other device to straighten pieces of wire to be used by core setter or molder to hold cores in proper position in completed mold.	Do.
Working foreman.....	(See Assistant foreman (working)).....	Other employees.
Yardman.....	Works in foundry yard unloading, piling, and transferring materials; also loads castings on cars or trucks for shipment.	Laborers.

**APPENDIX B.—Machine-Shop Terms with Definitions, and Classification
by Bureau of Labor Statistics**

Machine-shop term	Definition	Classified by bureau under—
Acetylene burner.....	Uses acetylene torch to burn surplus from stock, also to cut up scrap into pieces to be used or sold.	Other skilled employees.
Acetylene cutter.....	(See Acetylene burner).....	Do.
Acetylene welder.....	Uses acetylene torch to weld sections or parts, and to mend broken parts.	Do.
Acid dipper.....	Dips articles in acid before plating, or to remove grease, dirt, etc.	Laborers.
Air-compressor man.....	Operates air-compressing machine which supplies air to cleaning rooms, spray guns, furnaces, hammers, etc.	Other skilled employees.
Air hammerman.....	Uses pneumatic hammer for riveting parts together and for various other purposes.	Do.
Air-reamer operator.....	Operates pneumatic tools to ream holes to larger size.	Do.
American-lathe operator, turret.	Operates metal cutting turret lathe known as "American." (For method of operation see Lathe operator, turret).	Lathe operators, turret.
Annealer.....	Operates ovens in which stock, parts, etc., are annealed to reduce hardness or make material tougher.	Other skilled employees.
Annealer's helper (skilled).	Assists annealer in maintaining heat of furnaces and has some knowledge of degrees of heat required, either by pyrometer or color.	Helpers not otherwise specified.
Annealer's helper (unskilled).	(See Heat-treater's helper).....	Laborers.
Apprentice.....	A workman who is learning the duties of a particular occupation or trade, under a contract to serve a specified number of years.	Other employees.
Armature connector....	Connects up armature wires in product having individual electric motor.	Other skilled employees
Armature winder.....	Uses insulated wire to wind armatures for motors or magnetos.	Do.
Assembler.....	Brings together various small parts, pieces, or units of which a machine or engine consists and fastens them together with bolts and nuts, screws, rivets, etc., thereby forming larger units or a complete final unit. Includes "erectors" (who assemble but do no filing or fitting), riveters, stay-bolt men, wheel builders, etc. The distinction between assemblers and fitters is that the assemblers do little or no filing, scraping, or other fitting.	Assemblers.
Assembler's helper.....	Assists assembler in putting parts together to form sections or complete units of the products.	Helpers not otherwise specified.
Assistant foreman (working).	(See Foreman, assistant).....	Other employees.
Auto mechanic.....	Repairs and adjusts broken parts of auto trucks used in plant.	Other skilled employees.
Automatic drill-press operator.	Runs drill press which automatically releases the feed and returns to its original position when the operation is finished.	Drill-press operators.
Automatic milling-machine operator.	(See Milling machine operator).....	Milling-machine operators.
Automatic nut-machine operator.	(See Tapping machine operator).....	Other precision-machine operators.
Automatic shaving-machine operator, turret.	(See Slotting machine).....	Do.
Automatic turret-lathe helper.	Assists automatic turret-lathe operator in placing, adjusting, and centering stock on machine.	Helpers not otherwise specified.
Babbitter.....	Melts and pours babbitt into and around forms to make bearings.	Other skilled employees.
Babbitter's helper.....	Assists babbitter in melting and pouring babbitt for bearings.	Helpers not otherwise specified.
Bakelite molder.....	Makes articles of bakelite by molding.....	Other skilled employees.
Bakelite weigher.....	Measures by weight exact quantity of bakelite for various jobs on which used.	Other employees.
Baker-machine operator.	Places stock in position, adjusts, and operates machine which drills, taps, seas ns, etc., various parts of the product.	Other precision-machine operators.

Machine-shop term	Definition	Classified by bureau under—
Balancer.....	Operates balancing machine for purpose of obtaining static and dynamic balance in crank shafts and fly-wheels and other rotating parts; or operates balance lathe or grinder, which takes off excess stock where necessary; or drills hole in light portion and fills it with heavier metal, in addition to determining correct balance.	Other skilled employees.
Banding-machine operator.	Runs machine which wraps layers of wire around armature core, after coils and insulations have been inserted. This is done to overcome centrifugal force while armature is in motion. Wires in each layer are soldered together to hold them in place.	Assemblers.
Band-saw operator.....	Runs band saws in the woodworking department.....	Other employees.
Bar cut-off man.....	(See Cold saw operator).....	Do.
Bellows cleaner.....	Removes accumulated dust from bellows used on forges, etc.	Laborers.
Belt man.....	Changes, laces, or rivets the belts about the shop and does other belt repair work.	Other employees.
Belt man's helper.....	(See Pulley and belt man's helper).....	Helpers not otherwise specified.
Bench hand.....	Works at bench filing, scraping, reaming, and fitting various machine parts to give them proper shape and relation to each other.	Fitters and bench hands.
Bench machinist.....	(See Fitter and bench hand).....	Do.
Bender, sheet-metal.....	(See Stamper, sheet-metal; see also Flue roller, boiler-maker)	Sheet and plate metal machine operators.
Bender, tubes.....	(See Tube bender).....	Other skilled employees.
Blacksmith.....	A skilled worker who makes light and medium sized forgings, dresses tools, and does general anvil work, using forge, anvil, and hammer. Often required to harden hand and machine tool bits by heating in forge and quenching in oil, water, or other liquid.	Blacksmiths.
Blacksmith's helper.....	A person of some degree of skill who assists blacksmith or tool dresser with anvil, forge, and hammer, and other work about shop.	Blacksmiths' helpers.
Blank-press operator...	Operates press used for cutting out blanks of metal for any purpose.	Sheet and plate metal machine operators.
Blueprinter.....	Operates electric-light machine which makes blue prints from draftsmen's drawings.	Other employees.
Board maker.....	Uses pattern and power saw to cut "boards" (nose forms) from sheets of aluminum; also uses hand file to round and smooth rough edges.	Other skilled employees.
Boilermaker.....	Constructs boilers or tanks of heavy sheet or of plate by cutting out, shaping, punching holes, and riveting parts together.	Do.
Boilermaker's helper...	Assists boilermaker in constructing boilers or large tanks by heating rivets, bucking, or backing up, etc.	Helpers not otherwise specified.
Bolt cutter.....	Operates machine which cuts threads on one or both ends of bolts. Also cuts and heads bolts.	Other precision-machine operators.
Bolt facer.....	Operates machine which faces bolts.....	Other employees.
Bolt header.....	Operates bolt-heading machine.....	Do.
Bolt threader.....	Operates machine which cuts threads on bolts.....	Other precision-machine operators.
Boom-crane operator.....	(See Crane operator).....	Crane operators.
Boring-mill helper.....	Assists boring-mill operator in placing and fastening stock on machine, also in removing finished product.	Helpers not otherwise specified.
Boring-mill operator.....	Operates machine used for enlarging holes in metal; places stock in position; fastens it with bolts or otherwise adjusts mechanism. Includes operators of horizontal and vertical boring machines, nonautomatic Bullards, hole-hog machines, etc.	Boring-mill operators.
Boring-tool maker.....	(See Toolmaker).....	Toolmakers.
Bowl balancer.....	Uses easily-fused metal to add additional weight to light parts of centrifugal bowls so that when they are operated at high speed they will revolve steadily.	Other skilled employees.
Box carpenter.....	Uses hammer and nails to join together various parts to form boxes or crates into which the product is to be packed for shipment.	Other employees.
Box maker.....	Uses hammer and nails to join together the parts which form the boxes used in shipping the product.	Do.
Box maker's helper.....	Assists box maker by passing designated parts or moving completed boxes and crates.	Helpers not otherwise specified.
Brakeman.....	Sets brakes, throws switches, etc., on trains operating in yards of plants.	Other employees.
Brazer.....	Uses gas flame and blow-pipe to heat the edges of metal pieces which are to be joined, using spelter on these joints.	Other skilled employees.
Breaker, sheet-metal.....	(See Sheet and plate metal machine operator).....	Sheet and plate metal machine operators.
Bricklayer.....	Uses bricks and mortar to repair or construct walls, foundations, furnace and oven inclosures, brick floors, runways, etc.	Other skilled employees.

Machine-shop term	Definition	Classified by bureau under—
Bricklayer's helper.....	Assists bricklayer by handling materials, mixing mortar, etc.	Helpers not otherwise specified.
Briquette-machine operator.....	Operates machine which forms briquettes of steel or iron turnings to be sent to foundry for melting.	Other employees.
Broaching-machine operator.....	Fastens stock in position, sets cutting tools, and operates machine which drives a cutting tool through a bushing or other piece to make the inside smooth and of accurate size; also to cut oilways, etc.	Other precision-machine operators.
Broom maker.....	Uses fiber, reed, or other materials to make brushes for road machinery.	Other skilled employees.
Brusher, castings (power).....	(See Motor brusher).....	Other employees.
Brush maker.....	Constructs brush wheels of wire or other material.....	Other skilled employees.
Brushman.....	(See Painter (except castings)).....	Do.
Bucker, rivets.....	(See Rivet bucker).....	Helpers not otherwise specified.
Buffer.....	(See Polishers and buffers).....	Polishers and buffers.
Buffer's helper.....	Assists buffer or polisher in holding large articles against buffing wheel.	Helpers not otherwise specified.
Buffing-wheel maker.....	Constructs buffing wheels usually of many thicknesses of heavy fabric and covers edges with alternate layers of glue and emery dust.	Other skilled employees.
Bullard-machine operator (nonautomatic).....	Operates metal-boring machine known as Bullard. For method of operation (See Boring-mill operator).	Boring-mill operators.
Bulldozer operator (bar).....	Runs machine used for bending bar metal either hot or cold. Also a specified bolt-making device.	Other employees.
Bulldozer operator (sheet).....	Runs machine known as a bulldozer, used for bending sheet or plate metal parts.	Sheet and plate metal workers.
Bulldozer's helper.....	Assists bulldozer operator in placing stock on machine and removing finished product.	Helpers not otherwise specified.
Bull operator.....	Runs automatic hydraulic presses for forcing in rivets.	Other skilled employees.
Bundler.....	Uses twine or wire to tie up parts of products in bundles or bales.	Laborers.
Burner, acetylene.....	(See Acetylene burner).....	Other skilled employees.
Burnisher.....	Uses fine abrasive on a revolving buff, or wheel, to put high polish on parts of product.	Polishers and buffers.
Burr cleaner.....	(See Chipper).....	Other employees.
Burrer, hand.....	Uses file or scraper to remove burrs or sharp edges from parts.	Fitters and bench hands.
Burring-machine operator.....	Operates machine which removes burrs left by other operations from edges of any parts.	Other precision-machine operators.
Cabinetmaker.....	Assembles and puts together parts to form cases, cabinets, etc., used in product.	Other skilled employees.
Calker.....	Makes parts of product air, water, or steam tight by filling seams with packing material.	Do.
Cam-lathe operator, engine.....	(See Lathe operator, engine).....	Lathe operators, engine.
Cam milling-machine operator.....	(See Milling-machine operator).....	Milling-machine operators.
Carbonizer.....	Supervises furnaces in which steel parts are made to take in more carbon that they may be hardened. Parts are heated in cyanide, bone meal, etc., until very hot and then quenched in water or oil.	Other skilled employees.
Card cutter (Jacquard).....	Operates machine in a similar manner to that of typing, which perforates control cards used in weaving fancy fabrics on Jacquard looms.	Do.
Card wirer (Jacquard).....	Uses wire on which to lace the control cards for production of fancy woven fabric on Jacquard looms.	Do.
Carpenter.....	Repairs and maintains wood part of plant or makes skids, frames, or other wood parts of product.	Do.
Carpenter's helper.....	Assists carpenter in repairs and upkeep of buildings, or in making wooden parts of product.	Helpers not otherwise specified.
Carrier.....	Carries material either rough stock or finished product from place to place about plant.	Laborers.
Casehardener.....	(See Carbonizer).....	Other skilled employees.
Casting brusher (power).....	(See Motor brusher).....	Other employees.
Casting cleaner.....	Uses scrapers or brush wheels to remove sand and dirt from castings.	Laborers.
Casting dipper.....	(See Pickler).....	Do.
Casting-machine operator.....	Uses machine which makes castings of molten metal.	Other employees.
Casting painter.....	Uses brush to cover the surface of castings roughly, or dips them in paint.	Do.
Casting storage man.....	Makes records of castings received and has them put in bins or piles, and makes up orders as required by machine department.	Do.
Cementer.....	Cements or glues leather, cloth, felt, or other material to machine parts.	Do.
Cement finisher.....	Lays cement floors, walks, runways, chutes, etc., about plant.	Other skilled employees.
Cement finisher's helper.....	Assists cement finisher by mixing and carrying cement mortar, bringing tools, etc.	Helpers not otherwise specified.
Centering-machine operator.....	Places stock in position, adjusts levers, and operates machine which punches or drills exact centers in ends of product which is to be turned on engine lathes or to be ground.	Other precision-machine operators.

Machine-shop term	Definition	Classified by bureau under—
Centerless grinder.....	Operates grinding machine in which no centers or mandrels are used.	Grinding-machine operators.
Chain maker (fitter)...	Constructs chains by fitting together links which have already been formed or partly formed.	Other skilled employees.
Chain maker (welder)...	A blacksmith who uses forge, anvil, and hammer to shape, join, and weld together various pieces of metal to form links in a chain.	Blacksmiths.
Chain maker's helper...	Assists chain maker (fitter) in forming chains from partly completed links.	Helpers not otherwise specified.
Chainman.....	(See Rigger).....	Other skilled employees.
Chain-test operator.....	Operates machine which tests strength of completed chains.	Other employees.
Chaplet operator.....	Runs machines which bend wires to specified forms...	Other skilled employees.
Chaser (delayed parts).....	Looks up delayed parts for orders.....	Other employees.
Chaser (engraving).....	Carves or forms ornamental designs on name plates or parts of product for decorative purposes.	Other skilled employees.
Checker (orders).....	Checks on orders the number of parts being made, their position in the shops, and when expected finished.	Other employees.
Checker (tools).....	(See Tool checker).....	Other skilled employees.
Chip-disposal man.....	(See Chipper (chip puller)).....	Laborers.
Chipper.....	Uses hand or power chisel to remove fins, lugs, sprues, etc., from castings or forgings.	Other employees.
Chipper (chip puller)...	Gathers up and removes metal chips and shavings from about machines.	Laborers.
Chucking lathe operator, turret.	(See Lathe operator (turret)).....	Lathe operators, turret.
Cleaner, sinker head (textile).	Uses stiff bristle brush by hand with coal oil or other chemical to clean sinker head slots after milling and filing.	Other employees.
Coater, metal.....	(See Plater).....	Other skilled employees.
Cog maker.....	(See Gear cutter).....	Other precision machine operators.
Coil builders.....	(See Pipe fitter).....	Other skilled employees.
Coil builder's helper.....	(See Pipe fitter's helper).....	Helpers not otherwise specified.
Coil dipper.....	Dips electrical coils in shellac to insulate them.....	Other employees.
Coil winder.....	Forms electrical coils for parts of the product.....	Other skilled employees.
Cold header.....	Operates machine which forms heads on bolts.....	Do.
Cold-saw operators.....	Operates power saw to cut metal stock to approximate lengths.	Other employees.
Cold trimmer.....	Operates machine which trims fins from drop forgings.	Other skilled employees.
Color mixer.....	Mixes paint, varnish, lacquer, etc., for painter or sprayer.	Do.
Compressor man.....	(See Air-compressor man).....	Do.
Conveyor operator.....	Operates chain or belt devices to transfer materials, products, etc., from one place to another about shop.	Other employees.
Coppersmith.....	Shapes parts of copper by hammering, annealing, and rehammering, either by hand or power.	Other skilled employees.
Coppersmith's helper...	Assists coppersmith in forming articles from copper...	Helpers not otherwise specified.
Counter.....	Counts articles for stock keepers or for piecework or bonus purposes.	Laborers.
Crane follower.....	Fastens hooks or slings to load, signals operator as to movement, and loosens fastenings after load has been placed.	Other employees.
Crane hitcher.....	(See Crane follower).....	Do.
Crane hooker.....	do.....	Do.
Crane operator.....	Operates power crane for moving heavy stock, machinery, or products from one place to another about plant (including hoist, overhead traveling, boom, and locomotive crane operators).	Crane operators.
Crane operator (hand)...	Operates small cranes or chain hoists by hand.....	Other employees.
Crane operator's helper...	(See Crane follower).....	Do.
Crate maker.....	Uses hammer and nails to fasten together the various parts to form the boxes and crates around product for shipment.	Craters and packers.
Crate nailer.....	(See Nailer, crates).....	Do.
Crater and packer.....	Uses paper, burlap, excelsior, etc., to wrap and pack around product and/or places it in cases, cartons, crates, barrels, boxes, etc., for shipment. Also assembles and nails together parts which form the box or crate about large articles or objects to be shipped. Includes crate makers and nailers, packers, wrappers, etc.	Do.
Crater's helper.....	Assists crater in putting product in crates or building crates around large product.	Helpers not otherwise specified.
Crimper, sheet metal...	(See Stamper, sheet metal).....	Sheet and plate metal machine operators.
Crusher operator.....	Tends machine that crushes steel and iron turnings which are to be made into briquettes and sent to foundry for melting.	Other employees.
Cut-off saw operator.....	(See Cold-saw operator).....	Do.
Cut-off tool operator.....	do.....	Do.
Cutters, bars.....	do.....	Do.

Machine-shop term	Definition	Classified by bureau under—
Cutter, cards (Jacquards).	(See Card cutter (Jacquard)).	Other skilled employees.
Cutter grinder	Grinds cutting tools to exact size, giving them proper clearance.	Grinding-machine operators.
Cutter, leather packing.	Uses dies or other devices for cutting gaskets, strips, or other packings from leather.	Other employees.
Cutter, pipe	(See Pipe cutter).	Other precision-machine operators.
Designer, tools	(See Tool designer).	Other skilled employees.
Die grinder	Operates machine used for grinding parts of dies to accurate size, usually in tool or die making departments.	Grinding-machine operators.
Die maker	Forms dies out of steel blanks of the same approximate size as the desired die, machines them to accurate shape and size, and tempers the cutting and forming edges in oil or water. Also repairs dies.	Toolmakers.
Die maker's helper	(See Machinist's and toolmaker's helper).	Machinists' and toolmakers' helpers.
Die setter	Sets dies in punch draw, or forming presses, so they will work accurately one part with another.	Other skilled employees.
Dinkey locomotive engineer	Operates small locomotive used for transferring materials, stock, etc., about yard or plant.	Do.
Dipper (paint, etc.)	Immerses various parts in vats of paint, enamel, japan, or other covering substance.	Do.
Dipper (insulation)	Dips electrical wires or other parts into a nonconducting preparation for insulation purposes.	Other employees.
Disc grinder	Operates grinding machine in which abrasive is in form of disc rather than wheel, rotating either horizontally or vertically.	Grinding-machine operators.
Dispatcher	Directs movement of loads between units of plant or to and from freight or ware houses.	Other employees.
Dolly pusher	(See Trucker, hand).	Laborers.
Draftsman	Makes drawings of parts or of complete machines.	Other skilled employees.
Draw-press operator	Operates draw presses used for shaping sheet or plate metal parts.	Sheet and plate metal machine operators.
Dresser (polisher)	Uses emery or buffing wheels to smooth machined parts.	Polishers and buffers.
Dresser, tool	(See Tool dresser).	Blacksmiths.
Drifter operator	Smooths and enlarges to proper size holes in links which are used in forming chains.	Other employees.
Drill-press operator	Operates machine used for drilling holes in metal. Sets up work, with or without jigs, adjusts drills, etc. Includes operators of automatic, gang, multiple, radial, reamer, and single spindle drill presses.	Drill-press operators.
Drill-press operator's helper	Assists heavy duty drill-press operator in placing work on drill table, holding it in place or securing it with bolts, etc.	Helpers not otherwise specified.
Drop forger	Bolts and adjusts die to forge table in position directly under hammer. Uses hand tongs to place heated bar of metal on die, or directs helpers to do so. A trip lever causes the drop hammer to descend and stamp the hot metal into the shape of the die.	Hammersmiths.
Drop forger's helper	Assists drop forgers in forming articles with dies and power hammer, and sometimes does the heating.	Helpers not otherwise specified.
Electric trucker	Operates electric power truck for moving stock or materials of any kind about plant.	Other employees.
Electrician	Repairs and maintains electric wiring about plant; also wires product for electrical devices such as motors, thermostats, etc.	Other skilled employees.
Electrician's helper	Assists electrician in upkeep of wiring of the building, or in wiring the product, installing motors, etc.	Helpers not otherwise specified.
Electro-bath tender	(See Plater's helper).	Do.
Elevator operator	Operates elevator for hoisting or lowering supplies or workmen from one floor to another.	Other employees.
Enameler	Uses brush by hand to cover surface of product parts with enamel, or dips them.	Other skilled employees.
Enameler's helper	Assists enameler in mixing enamel, dipping articles, loading and unloading baking ovens.	Helpers not otherwise specified.
Engine lathe helper	Assists operator of engine lathe in placing, adjusting, and centering stock on machine.	Do.
Erector (assembling only).	(See Assembler).	Assemblers.
Erector (fitting and assembling).	(See Fitter and bench hand).	Fitters and bench hands.
Erector's helper	Assists erector (assembler of heavy product) in setting up the product into complete units.	Helpers not otherwise specified.
Errand boy	Carries messages or articles from place to place.	Other employees.
Etcher	Covers surface of metal with wax preparation, cuts away wax to form letters or designs, applies acid to eat design into metal, and washes acid away when design is complete.	Other skilled employees.
Expeditor	Looks after rush orders to see that they are completed on time.	Other employees.

Machine-shop term	Definition	Classified by bureau under—
External grinder.....	(See Grinding-machine operator).....	Grinding-machine operators.
Facing-lathe operator.....	(See Single purpose lathe operator).....	Other precision-machine operators.
Facing-tool maker.....	(See Toolmaker).....	Toolmakers.
Filer and fitter of metal patterns.....	Files and grinds parts of metal patterns and fits them together into whole patterns.	Other skilled employees.
Filer, hand.....	Uses file to smooth or slightly shape various parts.	Fitters and bench hands.
Filer's helper.....	Assists filer at vice or bench in handling work while being done.	Helpers not otherwise specified.
Filer, saws.....	(See Saw filer).....	Other skilled employees.
Filer, sinker head (textile).....	Uses small narrow file by hand to remove burrs or rough places from edges of slots in sinker head which were left by milling machine when cutting these parts.	Fitters and bench hands.
Filler, needle bar (textile).....	(See Needle bar filler (textile)).....	Assemblers.
Fire drill man.....	Looks after fire safety equipment and drills employees for emergencies.	Other employees.
First-aid man.....	Treats injured employees for burns, cuts, cinders, silvers, bruises, etc., until employee can be sent to hospital or physician.	Do.
Fitter and bench hand.....	Does necessary chipping, filing, scraping, reaming, and fitting of machine parts to give them proper relation to each other and allow for correct mechanical adjustment in connection with fitting such parts together. Includes bench machinist, hand burrer, hand profiler, hand reamer, hand scraper, etc.; also "erector," and any other workman who does both fitting and assembling.	Fitters and bench hands.
Fitter's helper.....	Assists fitter or bench hand in fitting parts of product.	Helpers not otherwise specified.
Fixture maker.....	(See Jig maker).....	Toolmakers.
Flanger, sheet metal.....	Operates machine which stamps flanges on edge of sheet metal.	Sheet and plate metal machine operators.
Flanger's helper.....	Assists operator of flanging machine in adjusting and handling stock on machine.	Helpers not otherwise specified.
Flue roller (boiler maker).....	Operates sheet-metal rolling machine used in process of rolling boiler flues.	Sheet and plate metal machine operators.
Follower.....	(See Crane follower).....	Other employees.
Forcing machine operator.....	Uses machine which forces gears or pulleys on shaft.	Do.
Foreman, assistant.....	An employee who has supervisory duties, but also regularly does considerable productive work.	Do.
Foreman, working.....	(See Foreman, assistant).....	Do.
Forging press operator.....	Operates power machines which form parts from hot metal by rolling or pressing.	Other skilled employees.
Forming press operator.....	Operates presses used for shaping sheet or plate metal parts.	Sheet and plate metal machine operators.
Furnace tender.....	Attends annealing, heat treating, or hardening furnaces, adjusting heat to various degrees as required for purpose in view.	Other skilled employees.
Furnace tender's helper.....	Assists furnace men in heat-treating rooms by packing for case hardening, moving pans, materials, etc.	Laborers.
Galvanizer.....	Covers surfaces of metal parts with coating of zinc or tin and zinc by immersing in a bath of the metal.	Other skilled employees.
Galvanizer's helper.....	Assists galvanizer in preparing bath and immersing and carrying articles to be galvanized.	Laborers.
Gang drill-press operator.....	Runs gang drill-press used for drilling several holes at one time in metal. (For method of operation see Drill-press operator.)	Drill-press operators.
Gang leader.....	(See Leadman).....	Other employees.
Gas cutter.....	(See Acetylene burner).....	Other skilled employees.
Gas locomotive operator.....	Operates gasoline locomotives used for transferring materials, stock, etc., about yards of plant.	Do.
Gasket cutter.....	(See Cutter, leather packing).....	Other employees.
Gasket maker.....	Cuts or stamps out gaskets of leather, rubber, or metal.	Other skilled employees.
Gauge checker.....	(See Tool checker).....	Do.
Gauge maker.....	Operates various metal-cutting machines in production of numerous devices which are used for such purposes as measuring thickness, circumference, contents of parts, depths, distance, and position of one part with another.	Toolmakers.
Gauger.....	Checks or measures specified parts of the product with gauges.	Other skilled employees.
Gear cleaner.....	Uses brushes with water or soda compound to remove dirt, grit, etc., from gears of product.	Laborers.
Gear cutter.....	Fastens stock on machine; makes necessary fine measurements and adjustments of cutting tools, for accurate work of cutting teeth on gears; uses control levers to start and stop this machine.	Other precision-machine operators.
Gear-cutter operator's helper.....	Assists gear cutter operator in handling and adjusting large pieces on the machine.	Helpers not otherwise specified.
Gear-forcing machine operator.....	(See Forcing-machine operator).....	Other employees.

138 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

Machine-shop term	Definition	Classified by bureau under—
Gear generator	(See Gear cutter)	Other precision-machine operators.
Gear hobber	do	Do.
Gear matcher	Selects pairs, trains, or sets of gears which are to work together.	Other skilled employees.
Generator man	Looks after repairs or adjusts generators for proper operation.	Do.
Gisholt lathe operator, turret.	Operates metal cutting turret lathe known as "Gisholt." (For method of operation see Lathe operator, turret.)	Lathe operators, turret.
Glazer	Uses brush by hand to cover parts of product with a hard, smooth, shiny, thin coating of any substance similar to varnish or enamel.	Other skilled employees.
Glazier	Cuts and sets glass panes either in windows of building or in parts of product.	Do.
Glue-bench man	Works at bench glueing parts together.	Other employees.
Grainer	Uses graining tools on varnished or stained wood to give appearance of grain of wood.	Other skilled employees.
Greaser	Fills grease cups on production machines or product.	Other employees.
Grinder, rivets	(See Rivet grinder).	Do.
Grinder's helper	Assists grinding machine operator in placing, adjusting, and removing large pieces.	Helpers not otherwise specified.
Grinding-machine operator.	Operates any of the many designs of grinding machines used for accurate smoothing of surfaces, sharpening tools, etc. Generally known by the particular sort of grinding performed, such as centerless, cutter, die, disk, external, honing-machine, internal, knife, lapping-machine, plain, punch, roller-bearing, rough, surface, table, tool, universal, and wet grinders.	Grinding-machine operators.
Grooving-machine operator.	(See Splicer operator)	Milling-machine operators.
Guard maker	(See Safety guard maker)	Other skilled employees.
Hammersmith	Sets up dies and operates steam or Bradley hammers to make forgings. Capable of shaping the forgings without the aid of dies. Includes drop forger and trip hammerman.	Hammersmiths.
Hammersmith's helper.	Assists hammersmith in handling stock on the anvil, or in heating same.	Helpers not otherwise specified.
Handy man	An employee of some degree of skill who has no regular specified duties, but does work in various positions as required.	Other employees.
Hardener (materials other than tools).	Directs work of hardening parts of product by heating in various substances and quenching in water or oil.	Other skilled employees.
Heat treater	(See Annealers; see also Carbonizer)	Do.
Heat treater's helper	Packs bone meal or cyanide, etc., around articles which are to be heat treated. Also places these articles in or removes them from furnaces under direction of heat treater.	Laborers.
Heater	Heats in furnaces bars or billets which are to be drop forged or shaped by power hammer or hot presses.	Other skilled employees.
Helper, electric truck	Assists in loading and unloading trucks, filling and emptying boxes, crates, etc., for truckers.	Laborers.
Helper not otherwise specified.	This group includes any bona fide helper who exercises some degree of skill in assisting any workman in a more highly skilled occupation. Each had too few workers in number to warrant separate tabulation, and is defined and arranged alphabetically in this glossary.	Helpers not otherwise specified.
Hitcher	(See Crane follower)	Other employees.
Foist man (power)	(See Crane operator)	Crane operators.
Hole-hog machine operators.	Operates boring machine to take the finish cut in bored cylinders. (For method of operation see Boring-mill operator.)	Boring-mill operators.
Honing-machine operator.	Operates machine which puts extra smooth or accurate surface on ground parts.	Grinding-machine operators.
Hooker-on	(See Crane follower)	Other employees.
Horizontal boring-mill operator.	Operates machine used for enlarging horizontal holes in metal parts. (For method of operation see Boring-mill operator.)	Boring-mill operators.
Horizontal milling-machine operator.	(See Milling-machine operator)	Milling-machine operators.
Hydraulic press operator.	Operates hydraulic power press for any purpose	Other employees.
Inspector	Checks parts of product for hardness or strength, etc., for size with rules, calipers, gauges, etc., and for proper finish by sight or touch, or checks on finished product for performance, appearance, etc.	Other skilled employees.
Inspector's helper	Assists inspector in examining large, heavy, or intricate parts, or completed units of the product.	Helpers not otherwise specified.
Instructor	Supervises work being done by beginners or apprentices.	Other skilled employees.

Machine-shop term	Definition	Classified by bureau under—
Insulation dipper.....	(See Dipper, insulation).....	Other employees.
Insulator cutter.....	Cuts insulating material in sections for use in product.	Do.
Internal grinder.....	(See Grinding-machine operator).....	Grinding-machine operators.
Ironworker.....	Constructs booms, frames, rails, or other parts of product of structural iron.	Other skilled employees.
Ironworker's helper....	Assists ironworker in constructing rails, booms, uprights, frames, etc.	Helpers not otherwise specified.
Japanner.....	Uses brush by hand to cover surface of product parts with japan, or dips them.	Other skilled employees.
Jig attendant.....	(See Tool-crib tender).....	Other employees.
Jig maker.....	Constructs devices into which work is bolted or clamped so that each piece must be machined uniform with each other piece without the necessity of laying out (marking) pattern on each piece separately.	Toolmakers.
Job distributor.....	Makes fair assignments of jobs among employees according to their capacity and the interests of production.	Other employees.
Job setter (efficiency)...	Apportions work of one kind or another to certain employees, and generally keeps record of efficiency of such employees for future records, or studies work to be done to determine best routing and best machines to be used.	Other skilled employees.
Job setter (machine)...	Sets up and adjusts machines for others to operate...	Machinists.
Jones & Lamson lathe operator, turret.	Operates metal cutting turret lathe known as "Jones & Lamson." (For method of operation see Lathe operator, turret.)	Lathe operators, turret.
Keys eater operator....	Fastens stock in position, adjusts cutting tools, and operates machine which makes a smooth and accurate finish to seat for key in a shaft, wheel, or other part.	Milling-machine operators.
Key way-machine operator.	(See Keys eater operator).....	Do.
Knife grinder.....	Operates machine for grinding knives used in other machines or woodworking tools.	Grinding-machine operators.
Laborer.....	Performs common unskilled work about plant or yard, such as trucking or carrying materials, loading and unloading cars, sweeping, giving unskilled assistance to other workers, cleaning up, etc. Workers at these various jobs were too few in number to warrant separate tabulation; each is defined and arranged alphabetically in this glossary.	Laborers.
Lacquerer.....	Uses brush by hand to cover surface of product parts with lacquer, or dips them.	Other skilled employees.
Lapping-machine operator.	Sets up crankshafts, cylinder blocks, gear or other working parts on a machine which causes the parts to simulate normal working movement. A fine abrasive in oil or other liquid is applied continually to working surfaces which are under slight pressure and thus the surfaces are ground or worn until a high polish is obtained.	Grinding-machine operators.
Lathe operator, engine.	Places stock in machine, centers and fastens it in position. Also makes adjustments of machinery during operation. Some attendants also set up and adjust their machines for various jobs. This group includes operators of lead screw, low swing, cam, tool, and roll-turning (engine) lathes.	Lathe operators, engine.
Lathe operator, turret..	Places stock in machine, centers and fastens it in position. Also makes adjustments of machinery during operation. Some attendants also set up and adjust their machines for various jobs. This group includes operators of chucking, monitors, Gisholt's, Jones & Lamson (J. & L.), American, Libby's, and other turret lathes. The trade name, however, is not always a guarantee of the kind of machine.	Lathe operators, turret.
Lathe operator's helper.	Assists lathe operators in placing and adjusting heavy or large stock on machines, and removing finished product.	Helpers not otherwise specified.
Laundry laborer.....	Does unskilled work about laundry departments.....	Laborers.
Lay out.....	(See Layout man).....	Other skilled employees.
Layout man.....	Marks certain kinds of work for other employees to do indicating location of drilling, tapping, facing, turning, etc., when jigs or fixtures are not supplied for the work.	Do.
Layout man's helper....	Assists layout man in marking large or intricate pieces of work for machine operators.	Helpers not otherwise specified.
Lead man.....	Sets pace for crew of workmen in specified occupations.	Other employees.
Lead screw lathe operator, engine.	(See Lathe operator, engine).....	Lathe operators, engine.
Learner.....	An inexperienced worker who needs instruction as to duties.	Other employees.
Leather packer (valves)	(See Valve packer).....	Other skilled employees.

Machine-shop term	Definition	Classified by bureau under—
Leather packer's helper.	Assists workman in fitting leather packings, gaskets, etc., to product.	Helpers not otherwise specified.
Letterer.....	Uses stencil and brush or otherwise letters the product with name of machine, of manufacturer, of purchaser, or other legend.	Other skilled employees.
Libby lathe operator, turret.	Operates metal cutting turret lathe known as "Libby's." (For method of operation see Lathe operator, turret.)	Lathe operators, turret.
Linker operator.....	Uses completed links to form chains.....	Other employees.
Linotype operator.....	(See Tester, product).....	Other skilled employees.
Loader (for shipment).....	Loads finished product on freight cars or trucks for shipment.	Laborers.
Loader (furnace).....	(See Heat treater's helper).....	Do.
Locomotive crane helper (not hooker or follower).	Does unskilled manual work on loads around the cranes.	Do.
Locomotive-crane operator.	Operates locomotive crane in yard of plant for moving heavy stock, castings, loading and unloading coal, etc.	Crane operators.
Locomotive-crane operator's helper.	(See Crane follower).....	Other employees.
Loom starter.....	Starts up and tests looms before they are shipped to purchaser.	Other skilled employees.
Loom tester.....	(See Loom starter).....	Do.
Low-swing lathe operator, engine.	"Low swing" means work of small diameter. (For method of operation see Lathe operator, engine.)	Lathe operators, engine.
Machine adjuster (tester).	Tests and adjusts machines made by company to perform properly before shipment to purchaser.	Other skilled employees.
Machine operator (tester).	Operates for testing purposes machines which are being manufactured under supervision of testers before shipment to purchasers.	Do.
Machine operator's helper.	Assists machine operator in handling and adjusting heavy or large pieces on machines.	Helpers not otherwise specified.
Machine rubber.....	Cleans machine tools by wiping and rubbing various parts with waste or rags to remove oil, grease, dirt, etc.	Laborers.
Machine setter.....	(See Job setter (machine)).....	Machinists.
Machine-tool operator's helper.	Assists any machine tool operator in handling large or heavy work.	Helpers not otherwise specified.
Machinist.....	Highly skilled workman who (a) repairs or adjusts one or more kinds of machines used in a machine shop; (b) sets up one or more kinds of automatic or semiautomatic machines without operating them; (c) sets up and operates most of the kinds of machines usually found in machine shops. Includes machine tool repair man, machine setter, and any who actually work as an all-around machinist. Workmen who both set up and operate one machine only, or who operate one or even several machines but do not also set them up are classified as operators of the specific kinds of machine operated, such as boring, milling, drill press, etc.	Machinists.
Machinist's and tool-maker's helper.	A person with some degree of skill who assists the machinist or toolmaker in repairing and setting up various machines.	Machinists' and tool-makers' helpers.
Magnet winder.....	Uses insulated wires to wind parts of electromagnets.....	Other skilled employees.
Maintenance laborer.....	Does unskilled work about plant in connection with upkeep.	Laborers.
Marker.....	(See Layout man).....	Other skilled employees.
Mason.....	Uses stone and mortar to form walls, foundations, walks, etc.	Do.
Mason's helper.....	Assists brick and stone mason by mixing mortar, handling brick, stone, etc.	Helpers not otherwise specified.
Master mechanic (working).	Has charge of repair and upkeep gangs, and does considerable actual work.	Machinists.
Matcher, gears.....	(See Gear matcher).....	Other skilled employees.
Material handler.....	Loads and unloads trucks, and piles materials.....	Laborers.
Matrix drawer.....	Hardens and tempers steel dies after punch cutting.....	Other skilled employees.
Matrix machine adjuster.	Sets up and adjusts machines which produce matrices.....	Machinists.
Matrix maker.....	Operates special machinery in production of matrices for printing machinery.	Other skilled employees.
Matrix positioner.....	Uses microscope to inspect and properly align matrices.	Do.
Mechanic, auto.....	(See Auto mechanic).....	Do.
Messenger boy (shop).....	(See Errand boy).....	Other employees.
Metal coater.....	(See Plater).....	Other skilled employees.
Metal stay.....	Nails or otherwise fastens metal stays on boxes for shipment.	Craters and packers.
Mica taper.....	Places particles of mica on strip of cloth as it passes on belt into machine where it is varnished, pressed, and cut into tape for insulation.	Other employees.
Milling-cutter maker.....	(See Toolmaker).....	Toolmakers.
Milling-machine helper.....	Assists milling-machine operator in placing and adjusting large stock on machines and in removing finished product.	Helpers not otherwise specified.

Machine-shop term	Definition	Classified by bureau under—
Milling-machine operator.	Places and adjusts stock in position on machine, sets controls, operates any of various types of milling machines, and removes finished product. May operate plain, universal, horizontal, vertical, cam, hand, automatic, keyway, and thread mills, profilers, and other milling machines not specified. These machines are equipped with cutting tools which are used for shaping and dressing metal surfaces of product.	Milling-machine operators.
Millwright.....	Installs or moves machines in shops, puts up and maintains shafting, pulleys, etc.	Other skilled employees.
Millwright's helper....	Assists millwright in installing or changing the location of machinery, shafting, pulleys, etc.	Helpers not otherwise specified.
Mixer, colors.....	(See Color mixer).....	Other skilled employees.
Mixer, paints.....	do.....	Do.
Monitor lathe operator, turret.....	(See Lathe operator, turret).....	Lathe operators, turret.
Motor brusher.....	Uses small power brush to clean sand, dirt, etc. from castings.	Other employees.
Motorman.....	Looks after, repairs, or adjusts motors for proper operation.	Other skilled employees.
Multiple drill press operator.	(See Gang drill, press operator).....	Drill-press operators.
Nailer, crates.....	Uses hammer and nails to fasten covers on crates, boxes, etc., after they are filled.	Craters and packers.
Needle-bar filler (textile).	Fits, adjusts, and aligns needles in metal slots of needle bar, and uses metal strip with bolts to fasten them in place.	Assemblers.
Nickel plater.....	(See Plater).....	Other skilled employees.
Nipple-machine operator.	Operates machine which cuts nipples from pipe and threads same.	Do.
Notching-machine operator.	(See Other precision-machine operator).....	Other precision-machine operators.
Nut assorter.....	Sorts nuts (metal taps) into separate sizes.....	Other employees.
Nut-machine operator, automatic.	(See Tapping-machine operator).....	Other precision-machine operators.
Oil extractor.....	Operates centrifugal machines which separate oil from chips and shavings.	Laborers.
Oiler.....	Keeps oil and grease cups on machinery shafting, pulleys, etc., supplied with lubricants.	Other employees.
Order picker.....	Selects goods from stock to fill orders for shipment.....	Do.
Other employees.....	This group includes all occupations in the industry except the selected and those in the groups of "Other precision-machine operators," and "Other skilled employees." Each had too few workers in number to warrant separate tabulation, and is defined and arranged alphabetically in this glossary.	Do.
Other precision-machine operators.	This group includes highly skilled workmen who operate machines which trim or cut the parts to accurate proportions. Each of the occupations in group had too few workers in number to warrant separate tabulation, and is defined and arranged alphabetically in this glossary.	Other precision-machine operators.
Other skilled employees.	This group includes workmen who are skilled in the performance of a trade or special kind of work. Each of these occupations had too few in number to warrant separate tabulation and is defined and arranged alphabetically in this glossary.	Other skilled employees.
Packer (shipments)....	Uses paper, burlap, excelsior, etc., to pack around product and/or places it in cartons, boxes, or other containers for shipment.	Craters and packers.
Packer (case hardening).	(See Heat-treater's helper).....	Laborers.
Packer (valves).....	(See Valve packer).....	Other skilled employees.
Painter, castings.....	(See Casting painter).....	Other employees.
Painter (except casting).	Uses brush or spray machine to paint product, fixtures, or parts of factory buildings.	Other skilled employees.
Painter's helper.....	Assists painter in moving, holding, and placing heavy parts or complete units of product. Also may mix paint under direction of painter.	Laborers.
Paint mixer.....	(See Color mixer).....	Other skilled employees.
Pantograph punch cutter.	Operates special machinery in making of punches which are used in production of printing machinery.	Do.
Pantograph worker....	Operates machine which reproduces several objects of exact proportions as pattern used.	Other employees.
Parkerizing operator...	Dips metal parts into patent process solution or sprays them with same to prevent rust.	Do.
Pattern carrier.....	Carries patterns from storage to place where directed, or returns them to storage.	Laborers.
Pattern keeper.....	(See Pattern-storage man).....	Other employees.
Pattern loft man.....	do.....	Do.
Pattern maker.....	Constructs of wood or metal, patterns, which are sent to foundry where they are used as models to shape castings.	Pattern makers.

142 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

Machine-shop term	Definition	Classified by bureau under—
Pattern maker's helper	Assists pattern maker by doing the rougher and less accurate parts of work.	Helpers not otherwise specified.
Pattern shellacker	Uses brush to cover surface of patterns with shellac or dips them in liquid for purpose of preservation.	Other employees.
Pattern-storage man	Arranges patterns in loft, vault, or other storage place, so that they may be readily located when needed, and maintains record as to when and where patterns are sent and when returned.	Do.
Pattern tender	(See Pattern-storage man.)	Do.
Pattern-tender's helper	Assists pattern tender or keeper in caring for patterns.	Laborers.
Pattern-vault man	(See Pattern-storage man.)	Other employees.
Pattern waxer	Uses brush by hand to cover surface of patterns with wax or dips them.	Do.
Perforating-machine operator (not punch-press operator)	Operates machines which make holes in any material.	Other skilled employees.
Picking-machine operator	Operates special machine which cuts slots or grooves of accurate dimensions in designated parts of product.	Other precision-machine operators.
Pickler	Immerges articles in tanks or vats of acid to remove grease, oil, and dirt or in preparation for plating.	Laborers.
Pipe cutter	Operates machine which cuts and threads lengths of pipe.	Other precision-machine operators.
Pipe fitter	Cuts and fits pipe around factory or for product.	Other skilled employees.
Pipe fitter's helper	Assists pipe fitter in cutting and fitting pipe either for plant upkeep or on product.	Helpers not otherwise specified.
Pipe threader	Operates machine which forms threads on lengths of pipe.	Other precision-machine operators.
Pitcher	(See Balancer)	Other skilled employees.
Plain grinder	(See Grinding-machine operator)	Grinding-machine operators.
Plain milling-machine operators	(See Milling-machine operator)	Milling-machine operators.
Planer operator (metal)	Operates metal-cutting machine known as planer, places and adjusts stock in position on machine, and sets controls and removes finished product. Includes operators of all types of planers, except milling planers (milling-machine operators) and shapers (other precision-machine operators).	Planer operators.
Planer operator (wood)	Operates woodworking machines known as planers which are used for smoothing surface of boards or timbers which are fed one at a time into machine.	Other skilled employees.
Planer operator's helper	Assists planer operator in placing and securing heavy parts to or removing them from planer bed.	Helpers not otherwise specified.
Plasterer	Does plaster repair work on walls of factory building.	Other skilled employees.
Plate metal machine operator	(See Sheet and plate metal machine operator)	Sheet and plate metal machine operators.
Plate metal worker's helper	(See Sheet metal worker's helper)	Helpers not otherwise specified.
Plater	Covers surface of articles with coating of tin, nickel, copper, etc., by immersing them in solution of desired metal.	Other skilled employees.
Plater's helper	Assists plater (tin, copper, nickel, etc.) in preparing baths and other duties requiring some degree of skill.	Helpers not otherwise specified.
Plumber	Repairs and maintains plumbing of plant.	Other skilled employees.
Plumber's helper	Assists plumber in upkeep of plumbing about plant.	Helpers not otherwise specified.
Pointing-machine operator	Operates machine which has V-shaped cutting tool which cuts pointed ends accurately on product.	Other precision-machine operators.
Polisher and buffer	Uses grinding wheels or speed lathe and emery cloth or paper to polish metals that are to be plated and buffing wheels to buff plated parts.	Polishers and buffers.
Porter	Sweeps and scrubs factory floors and does general cleaning of plant building.	Laborers.
Power saw man	(See Cold-saw operator)	Other employees.
Presser pad maker	Assembles and joins together various parts to form pads for laundry-pressing machinery.	Other skilled employees.
Pressman (air)	Uses pneumatic press for any purpose.	Other employees.
Pressman (hydraulic)	(See Hydraulic-press operator)	Do.
Primer	Uses brush or spray machine to put priming coat of oil, or of oil and ochre on wood parts.	Other skilled employees.
Production checkers	Maintains, for cost purposes, records of work done and time consumed.	Other employees.
Profilor, hand	Uses files to finish shape of pieces to a hardened pattern.	Fitters and bench hands.
Profilor operator	Fastens stock and pattern in position and operates type of milling machine which follows a pattern to shape several other pieces at once.	Milling-machine operators.
Pulley and belt man	(See Belt man)	Other employees.
Pulley and belt man's helper	Assists belt man or millwright in hanging pulleys and fitting and caring for belts.	Helpers not otherwise specified.
Pulley forcing machine operator	(See Forcing machine operator)	Other employees.
Pulley lathe operator	(See Single-purpose lathe operator)	Other precision-machine operators.

Machine-shop term	Definition	Classified by bureau under—
Pulley splitter.....	Uses wedge and hammer to break apart the halves of pulleys.	Laborers.
Pumpman.....	Operates pumps which supply plant with water from private well.	Other skilled employees.
Punch grinder.....	Operates machine used for grinding worn punches so they may be further used.	Grinding-machine operators.
Punch-press operator.....	Operates punch press for cutting out or punching holes in sheet or plate metal parts.	Sheet and plate metal machine operators.
Punch-press operator's helper.	Assists punch-press operator in placing and adjusting large or heavy stock on machine.	Helpers not otherwise specified.
Pyrometer tender.....	Uses pyrometer to determine degree of heat in furnaces or ovens.	Other skilled employees.
Radial drill-press operator.	Operates drill press having an arm which swings over radius for drilling holes in different positions in work with 1 setting.	Drill-press operators.
Reamer, hand.....	Works at bench or vise and uses hand reamers to smooth or size holes.	Fitters and bench hands.
Reamer, machine.....	Uses cutting tool in drill press to smooth and size a hole.	Drill-press operators.
Reamer maker.....	(See Toolmaker).....	Toolmakers.
Reamer operator, pneumatic.	(See Air-reamer operator).....	Other skilled employees.
Receiving clerk.....	Has charge of incoming materials and keep records of same.	Other employees.
Receiving-room helper.	Assists receiving clerks in making records and disposing of stock received but not on common-labor duties.	Helpers not otherwise specified.
Renovator.....	Takes down and stores second-hand machines.....	Other skilled employees.
Repairman.....	Does general repair work on buildings of plant, machinery, and other equipment when not done by carpenter or other mechanic.	Do.
Repairman's helper....	Assists repairman in repairing buildings, machinery, or other equipment.	Helpers not otherwise specified.
Riddler.....	Uses coarse sieve to shake chips from machined parts or to clean parts by washing in gasoline or other liquid cleaner.	Laborers.
Rigger.....	Attaches ropes or chains to heavy weights to be moved by cranes or derricks when regular slings or hooks are not provided.	Other skilled employees.
Rigger's helper.....	Assists rigger in fastening slings for lifting and moving heavy weights.	Helpers not otherwise specified.
Rim roller.....	Rolls bar steel (cold) for shaping rim on cast spider or frame of pulley wheel, etc.	Other skilled employees.
Ripsaw helper.....	Assists ripsaw operator with large and heavy wood stock on saw beds. (See Woodworking-machine helper.)	Helpers not otherwise specified.
Ripsaw operator.....	(See Woodworker).....	Other skilled employees.
Rivet bender.....	Operates machine which bends certain kinds of rivets.	Other employees.
Rivet bucket.....	Holds iron block or bar against rivet heads while other end is being worked by riveter.	Helpers not otherwise specified.
Riveter.....	Uses rivets, with or without burrs, to fasten various parts of products together, to form units or complete machines.	Assemblers.
Riveter's helper.....	Assists riveter by heating and handling rivets, burrs, etc., or by bucking rivets while being headed.	Helpers not otherwise specified.
Rivet grinder.....	Operates machine which smooths down rough rivets after they have been set.	Other employees.
Rivet heater.....	Uses furnace in which to heat rivets to required temperature for riveter.	Do.
Rivet maker.....	Operates machine which makes rivets.....	Do.
Rivet passer.....	Fesses or throws rivets from furnace to riveter.....	Do.
Riveting-machine operator.	Operates specially devised machines to rivet together designated parts of product.	Assemblers.
Roll chipper.....	(See Chipper).....	Other employees.
Roll coverer.....	Glues cloth onto iron arbors, cements laps of leather coats, and draws coats onto arbors.	Do.
Roll turning lathe operator, engine.	This is a specially devised lathe used for turning rolls for steel or other sheet or bar mills. Operator places stock (roll) to center and fastens it in position on machine. Also makes adjustments of machinery during operation.	Lathe operators, engine.
Roll turner's helper....	Assists roll turner in placing rolls in lathe and removing same.	Helpers not otherwise specified.
Roller-bearing grinder..	Operates grinding machine usually centerless, in which roller bearings are ground.	Grinding machine operators.
Roller, sheet metal.....	(See Flue roller (boilermaker)).....	Sheet and plate metal machine operators.
Rope splicer.....	Unites pieces of rope to form longer sections by weaving strands of two ends together; or weaving one end back into itself to form a loop.	Other skilled employees.

144 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

Machine-shop term	Definition	Classified by bureau under—
Rough grinder (accu- rate).	Operates grinding machine which grinds to approximate accuracy, only enough stock being left on work so that finishing operation on finer or more accurate wheel can be performed. Often rough grinder also does finishing work on a second machine close by, or resets same machine for last operation.	Grinding-machine operators.
Rough grinder (cast- ings, etc.).	Operates coarse grinding wheels for removing snags, sprues, fins, etc., from castings or forgings.	Other employees.
Rough painter.....	Does rough painting that does not need to be well finished; uses a brush by hand.	Do.
Round shearman, sheet metal.	(See Shearman, sheet metal).....	Sheet and plate metal machine operators.
Roustabout.....	An unskilled employee who does all kinds of rough work, usually in yards or sheds.	Laborers.
Routing-machine oper- ator.	Runs machine which scoops out metal surface of specified articles.	Other employees.
Rubber.....	Rubs down coats of paint, varnish, lacquer, etc., to give better finish.	Other skilled employees.
Rust proofer.....	(See Parkerizing operator).....	Other employees.
Safety-first man.....	Inspects sprinkler (fire) system, electric wiring, belt- ing, etc. for defects.	Do.
Safety-guard maker.....	Builds guards for machine tools or for product.....	Other skilled employees.
Salvage helper.....	Assists salvage men in reclaiming materials.....	Laborers.
Salvager.....	Examines discarded material to determine if it can be put to some use.	Other skilled employees.
Sand blaster.....	Uses compressed air sand blast to clean castings be- fore machining, or other articles or parts before painting.	Laborers.
Sander (wood).....	Operates sanding machine used to smooth wood sur- faces.	Other skilled employees.
Sander (paint).....	Rubs down coats of paint to prepare them for fine finish.	Do.
Saw filer.....	Uses file by hand to sharpen saws used on wood parts of product.	Do.
Sawyer (lumber).....	Operates mechanical saw for cutting, trimming, or ripping lumber used in product.	Do.
Sawyer (metal stock).....	(See Cold-saw operator).....	Other employees.
Scaleman (weighman).....	Uses scales to weigh stock or product for any purpose.	Do.
Scrap wheeler.....	Uses barrow, hand truck, or dolly to remove scrap from shop to scrap yard or in yard to loading dock.	Laborers.
Scraper, hand.....	Uses chisels or scrapers to remove roughness, sharp edges, etc., from machined parts.	Fitters and bench hands.
Screen maker.....	Uses meshed wire to make special screens for product.	Other skilled employees.
Screw-machine helper.....	Assists screw-machine operator in placing and adjust- ing stock on machines.	Helpers not otherwise specified.
Screw-machine opera- tor, automatic.	Operates full-automatic screw machine, which or- dinarily uses bar-iron stock and machines a large number of small pieces without attention, and au- tomatic lathes which ordinarily perform multiple operations on individual pieces of metal stock. These machines, like semiautomatic screw ma- chines, are adjusted by machine setters.	Screw-machine opera- tors, automatic.
Screw-machine opera- tor, hand.	Operates hand screw machine and is required to chuck the work and attend each operation, stopping machine when operation is completed; may or may not set tools.	Screw-machine opera- tors, hand.
Screw-machine opera- tor, semiautomatic.	Usually chucks each individual piece of stock and starts machine. Cutting tools and other mechan- ism are generally adjusted by a machine setter. Several of these machines may be run simultane- ously by the same operator. Once started the ma- chine completes an operation and stops automati- cally.	Screw-machine opera- tors, semiautomatic.
Second hand.....	(If working foreman, see Foreman, assistant).....	Other employees.
Separator.....	(See Oil extractor).....	Laborers.
Service repairer, bench.	Works at bench on repair parts or small machines that have been in service and returned for adjustment or repair.	Fitters and bench hands.
Setter, jobs (efficiency).	(See Job setter, efficiency).....	Other skilled employees.
Sewer, screens.....	Stitches together silk or cloth materials to form sifters and screens for flour-mill machinery.	Other employees.
Shaft turner, lathe, engine.	(See Lathe operator, engine).....	Lathe operators, engine.
Shaper operator.....	Fastens and adjusts stock on bed of machine, fixes gauges, sets cutting tools and operates control levers of machine which shapes various parts of product by forcing the tool across the work in one direction, but not cutting on the return stroke—similar to a small planer.	Other precision-machine operators.
Shaper operator's helper.	Assists shaper operator in placing and adjusting stock on machine.	Helpers not otherwise specified.
Shaving machine opera- tor, automatic.	(See Slotting-machine operator).....	Other precision-machine operators.

Machine-shop term	Definition	Classified by bureau under—
Shearman (bars)-----	Uses power or hand shears to cut bar metal to desired length.	Other employees.
Shearman (sheet metal).....	Operates machine used for cutting sheet or plate metal to specified lengths, shapes or sizes, trimming ragged ends, etc. Also sets gauges and guides for control of stock on machine.	Sheet and plate metal machine operators.
Shearman's helper-----	Assists shear operator in handling large or heavy stock on the machine.	Helpers not otherwise specified.
Sheet and plate metal machine operator.	Operates machine used for cutting, punching, and bending cold plate or sheet metal into various sizes and shapes. Sets gauges and guides for control of stock while on or passing through machine. May operate bending, breaking, crimping, flanging, and rolling machines, square and round shears, drawing, forming, and punching presses, bulldozers, etc.	Sheet and plate metal machine operators.
Sheet metal hand worker.	Makes or forms articles or parts from sheet metal using hand tools.	Other skilled employees.
Sheet metal worker's helper.	Assists sheet and plate metal workers in adjusting and handling stock on machine.	Helpers not otherwise specified.
Shipper-----	Supervises disposal of finished product and maintains records of dates of shipments, amounts, destinations, etc.	Other employees.
Shipper's helper-----	Assists shipper in making records of shipments and marking, labeling, etc., but not in common labor work.	Helpers not otherwise specified.
Shipping laborer-----	Loads freight cars or trucks with orders to be shipped from plant.	Laborers.
Side shaving-machine operator.	(See Slotting machine operator)-----	Other precision-machine operators.
Single-purpose lathe operator.	Places stock on machine, adjusts and fastens to center, and sets tools for accurate cutting. May operate lathes usually built to perform only one particular kind of work, or work on a single part, such as facing, pulley, speed, spinning, and wristing lathes.	Do.
Single-spindle drill-press operator.	(See Drill-press operator)-----	Drill-press operators.
Sinker head cleaner (textile).	(See Cleaner, sinker head)-----	Other employees.
Sinker-head filer (textile).	(See Filer, sinker head (textile))-----	Fitters and bench hands.
Sketch-maker (tool department).	(See Draftsman)-----	Other skilled employees.
Slab-miller operator-----	Fastens stock in position, adjusts cutting tools, and operates machine with a capacity for cutting wide flat milling work.	Milling-machine operators.
Slotter's helper-----	Assists slotting machine operators with work on machines.	Helpers not otherwise specified.
Slotting-machine operator.	Fastens stock on machine, adjusts cutting tools for accurate work, and uses control lever for starting and stopping machine, which cuts slots of accurate dimensions of various widths in product.	Other precision-machine operators.
Snagger-----	(See Rough grinder)	Other employees.
Snagger's helper-----	Assists snagger in handling large or heavy castings on rough grinding or snagging wheel.	Helpers not otherwise specified.
Solderer-----	Uses soldering iron or torch to close with solder, gaps, seams, etc., or to fasten certain parts together.	Other skilled employees.
Sorter-----	Separates various articles by kinds, sizes, etc.	Laborers.
Special-purpose lathe operator.	(See Single purpose lathe operator)-----	Other precision-machine operators.
Speed-lathe operator-----	do	Do.
Spindle-fitter's helper-----	Assists bench hand (fitter) in fitting spindles-----	Helpers not otherwise specified.
Spinning-lathe operator.	(See Single purpose lathe operator)-----	Other precision-machine operators.
Spliner operator-----	Operates machine which cuts splines or longitudinal grooves in parts, such as shafts or axles.	Milling-machine operators.
Spliner's helper-----	Assists spliner operator with large or heavy work on machines.	Helpers not otherwise specified.
Sprayer-----	Uses spraying machine (spray gun) to cover surfaces with paint, lacquer, etc.	Other skilled employees.
Spring maker-----	Uses forge, hammer, and anvil to shape pieces of hot metal into various kinds of steel springs, and afterwards tempers them in water or oil.	Blacksmiths.
Spring maker (not blacksmith).	Forms coils from spring wire, or flat springs of stock that can be worked cold.	Other skilled employees.
Spring setter-----	Adjusts and fits springs in proper position in product.	Do.
Sprinkler man-----	Inspects and repairs fire sprinkler equipment.	Do.
Square shear helper-----	(See Shearman's helper)	Helpers not otherwise specified.
Squareshearman (sheet metal).	(See Shearman, sheet metal)-----	Sheet and plate metal machine operators.

Machine-shop term	Definition	Classified by bureau under—
Stamper (numbers)	Uses lettered or numbered dies to stamp names or numbers on plates or on machine parts.	Fitters and bench hands.
Stamper (sheet metal)	Operates device for crimping or making other impressions on sheet or plate metal.	Sheet and plate metal machine operators.
Staple cutter	Operates machine which cuts staples for use in product.	Other employees.
Stay bolt man	Puts stay bolts in various parts of product	Assemblers.
Steamfitter	Fits parts, valves, cocks, injectors, etc., on steam engines or pipes that carry steam.	Other skilled employees.
Steamfitter's helper	Assists steam fitter in maintaining steam system about plant or in fitting valves, cocks, injectors, etc., to product.	Helpers not otherwise specified.
Steel-bar cutter	(See Cold-saw operator)	Other employees.
Steel-saw operator	do	Do.
Steel-stock man	Has charge of stock room for steel stock; gets out specified amount of proper sizes and kinds for machine shops.	Do.
Stenciler	Uses brush or dauber to print letters, designs, marks, etc., through cut-out forms.	Other skilled employees
Stock chaser	(See Chaser, delayed parts)	Other employees.
Stock keeper	Has charge of stock rooms, reports low stocks, gets out orders of material for shops or for shipping clerk.	Do.
Stock keeper's helper	Works under direction of stock keeper, unloads stock from freight cars or trucks and places in bins or racks, etc.; also removes from storage stock which is to go to factory departments.	Laborers.
Stock man (not keeper)	(See Stock keeper's helper)	Do.
Stock piler	do	Do.
Stock tracer	Looks up orders that are being made to determine stage of manufacture, when parts will be available for other operations, and looks up delayed parts for orders.	Other employees.
Stores keeper	(See Stock keeper)	Do.
Stores keeper's helper	(See Stock keeper's helper)	Laborers.
Straightener	Straightens warped, bent, or sprung parts either with a press, hammer, or otherwise.	Other skilled employees.
Straw boss	(See Foreman, assistant)	Other employees.
Striper	Uses brush by hand to paint stripes on product for decorative purpose.	Other skilled employees.
Surface grinder	(See Grinding-machine operator)	Grinding-machine operators.
Swaging-machine operator	Uses machine which forces metal into form by ramming or pounding, or which thickens up a section by squeezing together.	Other skilled employees.
Sweeper	Sweeps floors under and around machines and removes refuse.	Laborers.
Table grinder	(See Grinding-machine operator)	Grinding-machine operators.
Taper	Winds friction tape around armature and field coils.	Other employees.
Taper-roll operator	Places and adjusts heated bar stock in rolls of machine; operates machine which tapers bars at each end so that springs made from bar will stand level on ends after they are coiled.	Other skilled employees.
Tapping-machine operator	Operates machine which cuts screw threads on inside of parts of product (female threads).	Other precision-machine operators.
Temperer	Treats steel parts or tools with heat to induce desired toughness while still retaining sufficient hardness.	Other skilled employees.
Template checker	Inspects template for accuracy	Do.
Template maker (wood or metal)	Constructs cut-out patterns of wood or metal which are used to mark position of drill holes or for other work.	Do.
Template maker's helper	Assists template maker in laying out and marking or cutting templates.	Helpers not otherwise specified.
Tender, furnace	(See Furnace tender)	Other skilled employees.
Tester, chains	(See Chain test operator)	Other employees.
Tester (product)	Tries out engines or other machines which are being manufactured by operating them under varying conditions before they are shipped to purchaser.	Other skilled employees.
Tester's helper	Assists tester in determining fitness of material to be used, either rough stock or finished product.	Helpers not otherwise specified.
Test-plate helper	Assists tester in handling and testing work	Do.
Third hand	(If working foreman, see Foreman, assistant)	Other employees.
Thread miller	(See Milling-machine operator)	Milling-machine operators.
Threader, bolts	(See Bolt threader)	Other precision-machine operators.
Threader, pipe	(See Pipe threader)	Do.
Threading-machine helper	Assists threading-machine operator with large or heavy work on machines.	Helpers not otherwise specified.
Threading-machine operator	Operates machine which cuts screw threads on outside of a part of product (male threads).	Other precision-machine operators.

Machine-shop term	Definition	Classified by bureau under—
Time setter	Makes time record tests of work done and sets time that should be sufficient for employees to complete certain amounts of work.	Other skilled employees.
Time setter's helper	Assists time setter in keeping time records on work being done.	Helpers not otherwise specified.
Time study man	Studies work being done, timing each operation for cost, piecework, bonus purposes, etc.	Other skilled employees.
Tinner	(See Tinsmith; see also Plater)	Do.
Tinner's helper	Assists tinner in forming articles from sheets, or platers in preparing baths, dipping, etc.	Helpers not otherwise specified.
Tinsmith	Uses hand tools to cut, shape, rivet, or solder sections of tin orterne plate or other sheet metal to form parts or complete units.	Other skilled employees.
Tool chaser	Looks up tools, jigs, etc., to see who is using them and when they can be released to other workers.	Other employees.
Tool checker	Inspects tools, checking with blue prints for accuracy.	Other skilled employees.
Tool-crib helper	Assists crib tender in getting out or putting away tools, fixtures, jigs, etc.	Laborers.
Tool-crib tender	Has charge of tool storage, gives out tools, jigs, etc., keeps records of who is using them, and places them in proper racks when returned.	Other employees.
Tool designer	Devises tools, jigs, fixtures, dies, and gauges for use on particular kinds of work.	Other skilled employees
Tool dispatcher	Sends tools to various sections or departments of the plant as called for.	Other employees.
Tool dresser	Uses hammer, anvil, and other tools to refinish cutting tools.	Blacksmith.
Tool grinder	Operates grinding machine on which cutting tools are ground to exact size, giving them proper clearance.	Grinding-machine operators.
Tool lathe operator, engine.	(See Lathe operator, engine)	Lathe operators, engine.
Toolmaker	A highly skilled workman who operates various metal cutting machines in manufacture or repair of such tools as boring, milling cutters, facers, reamers, twist drills, dies, fixtures, gauges, jigs, and other things of like nature. This group includes those who operate several of the various machines in tool room, but those who specialize in the operation of only one specific machine, such as milling, lathe, drill press, etc., are classified as operators of these machines unless they are journeyman toolmakers.	Toolmakers.
Toolmaker's helper	(See Machinist's and toolmaker's helper)	Machinists' and tool-makers' helpers.
Tool-room helper	(See Tool-crib helper)	Laborers.
Tool-room keeper	(See Tool-crib tender)	Other employees.
Tool sharpener	Grinds by hand miscellaneous tools such as punches, cold chisels, etc.	Do.
Tool-storage man	(See Tool-crib tender)	Do.
Tooth chamferer	Places stock in position and adjusts and operates a machine which cuts chamfer on gear teeth of product.	Other precision-machine operators.
Tractor driver	Operates tractors to haul loads about shops or yards.	Other employees.
Transferer	Makes designs on product by pressing or rolling on a ready pattern, design, or picture and covering with varnish.	Other skilled employees.
Traveling-crane operator (overhead).	Operates electric overhead crane for moving heavy castings, stock, machinery, ladles, molds, etc., about the shops.	Crane operators.
Trimmer	Uses brush to paint or touch up mangled parts or attaches serial plates, tags, etc., to product.	Other skilled employees.
Trimming-machine operator.	Runs special purpose metal-cutting machine used to trim ends of studs, etc.	Other precision-machine operators.
Trip-hammer man	(See Hammersmith)	Hammersmiths.
Trucker (electric)	(See Electric trucker)	Other employees.
Trucker (gas power)	Operates gasoline power truck for moving material or stock about shop or yard.	Do.
Trucker, hand	Uses hand truck, dolly, barrow, etc., in moving stock or product.	Laborers.
Trucker's helper	(See Helper, electric trucks)	Do.
Tube bender	Bends tubes by hand or machine, for use on product.	Other skilled employees.
Tube bender's helper	Assists tube benders on large, long or intricate work on bending machines.	Helpers not otherwise specified.
Tube fitter	Fits or shapes tubes into certain position for product.	Other skilled employees.
Tumbler operator	Operates tumbling barrels (churns) to clean material, either rough stock, semifinished, or finished product.	Laborers.
Twist-drill maker	(See Toolmaker)	Toolmakers.
Universal grinder	(See Grinding-machine operator)	Grinding-machine operators.
Universal milling-machine operator.	(See Milling-machine operator)	Milling-machine operators.
Upsetter	Uses machine to form thicker parts or to form heads on bolts or rods.	Other skilled employees.

148 WAGES AND HOURS—FOUNDRIES AND MACHINE SHOPS

Machine-shop term	Definition	Classified by bureau under—
Utility man.....	An employee of considerable skill who does not specialize on any particular occupation but can perform a number of tasks, and spells other employees when needed.	Other skilled employees.
Valve packer.....	Inserts and adjusts gaskets, leather or other packing at connecting joints of pipe fittings, valves, etc., of product to make them air, steam, or water tight.	Do.
Varnisher.....	Uses brush or spray device to apply varnish to surface of product.	Do.
Vertical boring-mill operator.	Operates machine used for enlarging vertical holes in metal parts. For method of operation see boring-mill operator.	Boring-mill operators.
Vertical milling-machine operator.	(See Milling-machine operator).....	Milling-machine operators.
Vise hand.....	Works at bench vise, hand reaming, filing, scraping, or bending various parts.	Fitters and bench hands.
Vise hand's helper.....	(See Fitter's helper).....	Helpers not otherwise specified.
Warehouse laborer.....	Works under direction of warehouseman, stores finished products, or gets them out when orders are to be filled.	Laborers.
Washing-machine operator.	Fills, operates, and empties rotary tanks used to wash materials.	Do.
Water-test helper.....	Assists water testers in placing heavy work, and attaching gasket plates, etc.	Do.
Water tester.....	Uses gasket plates, attaches them to hollow parts, turns on stream of water under pressure to ascertain if there are leaks.	Other employees.
Weighman.....	(See Scale man).....	Do.
Welder.....	Uses acetylene gas torch or electric welding machine to weld parts together or to mend broken parts.	Other skilled employees.
Welder's helper.....	Assists acetylene or electric welder in handling large or heavy parts to be welded.	Helpers not otherwise specified.
Wet grinder.....	Operates grinding machine supplied with cutting or cooling liquid, usually soda compound, to facilitate or make work smoother or to prevent heating.	Grinding-machine operators.
Wheel builder.....	Uses rivet gun to unite parts of wheels together.....	Assemblers.
Wheel straightener.....	Uses press, hammer, or otherwise straightens bent or warped wheels of product.	Other skilled employees.
W heeler.....	(See Trucker, hand).....	Laborers.
Winder, armature.....	(See Armature winder).....	Other skilled employees.
Winder, coils.....	(See Coil winder).....	Do.
Winder, magnet.....	(See Magnet winder).....	Do.
Window washer.....	Cleans factory windows with brushes, hose, etc.....	Laborers.
Wire-bending machine operator.	Uses machine which bends wire to desired shape.....	Other employees.
Wire cutter.....	Uses trimming device to cut wire into proper length for designated parts of product.	Do.
Wire puncher and trimmer.	Operates special metal cutting machine which punches saw-shaped teeth into narrow strip of steel (flat-taned wire) and at same time trims edges smoothly. These saw-shaped strips are fitted into rolls of cotton carding machines.	Do.
Wire trimmer.....	(See Wire puncher and trimmer).....	Do.
Wirer, cards (Jacquards)	(See Card wirer (Jacquard)).....	Other skilled employees.
Wireman.....	Maintains light or power wires within plant; or installs electric wiring on product.	Do.
Woodworker.....	Operates various machines used for ripping, sawing, planing, sanding, etc., of wood parts which go into product.	Do.
Woodworking-machine helper.	Assists woodworking-machine operator with large or difficult parts on machines.	Helpers not otherwise specified.
Working foreman.....	(See Foreman, assistant).....	Other employees.
Wrapper.....	(See Packer).....	Craters and packers.
Wristing-lathe operator.	(See Single purpose lathe operator).....	Other precision-machine operators.
Yard laborer.....	(See Roustabout).....	Laborers.